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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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e1.03E	Electrical Lighting Level 3 - Zone E		FC	FC
e1.04A	Electrical Lighting Level 4 - Zone A		FC	FC
e1.04B	Electrical Lighting Level 4 - Zone B		FC	FC
e1.04C	Electrical Lighting Level 4 - Zone C		FC	FC
e1.04D	Electrical Lighting Level 4 - Zone D		FC	FC
e1.04E	Electrical Lighting Level 4 - Zone E		FC	FC
e1.05A	Electrical Lighting Penthouse - Zone A		FC	FC
e1.05B	Electrical Lighting Penthouse - Zone B		FC	FC
e1.05C	Electrical Lighting Penthouse - Zone C		FC	FC
e1.05D	Electrical Lighting Penthouse - Zone D		FC	FC
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e2.00	Electrical Basement Ductbank Entry Plan	FC		FC
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e2.00D	Electrical Power Basement-Zone D		FC	FC
e2.00E	Electrical Power Basement-Zone E		FC	FC
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e2.01D	Electrical Power Level 1 - Zone D		FC	FC
e2.01E	Electrical Power Level 1 - Zone E		FC	FC
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e2.02D	Electrical Power Level 2 - Zone D		FC	FC
e2.02E	Electrical Power Level 2 - Zone E		FC	FC
e2.03A	Electrical Power Level 3 - Zone A		FC	FC
e2.03B	Electrical Power Level 3 - Zone B		FC	FC
e2.03C	Electrical Power Level 3 - Zone C		FC	FC
e2.03D	Electrical Power Level 3 - Zone D		FC	FC
e2.03E	Electrical Power Level 3 - Zone E		FC	FC
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e2.04B	Electrical Power Level 4 - Zone B		FC	FC
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e2.04D	Electrical Power Level 4 - Zone D		FC	FC
e2.04E	Electrical Power Level 4 - Zone E		FC	FC
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e2.06C	Electrical Power Roof - Zone C		FC	FC
e2.06D	Electrical Power Roof - Zone D		FC	FC
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e3.00E	Electrical Systems Basement-Zone E		FC	FC
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e3.01E	Electrical Systems Level 1 - Zone E		FC	FC
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e3.02E	Electrical Systems Level 2 - Zone E		FC	FC
e3.03A	Electrical Systems Level 3 - Zone A		FC	FC
e3.03B	Electrical Systems Level 3 - Zone B		FC	FC
e3.03C	Electrical Systems Level 3 - Zone C		FC	FC
e3.03D	Electrical Systems Level 3 - Zone D		FC	FC
e3.03E	Electrical Systems Level 3 - Zone E		FC	FC
e3.04A	Electrical Systems Level 4 - Zone A		FC	FC
e3.04B	Electrical Systems Level 4 - Zone B		FC	FC
e3.04C	Electrical Systems Level 4 - Zone C		FC	FC
e3.04D	Electrical Systems Level 4 - Zone D		FC	FC
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e3.05D	Electrical Systems Penthouse - Zone D		FC	FC
e4.00C	Electrical Telecom Basement-Zone C		FC	FC
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e4.00E	Electrical Telecom Basement-Zone E		FC	FC
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e4.01D	Electrical Telecom Level 1 - Zone D		FC	FC
e4.01E	Electrical Telecom Level 1 - Zone E		FC	FC
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e4.02D	Electrical Telecom Level 2 - Zone D		FC	FC
e4.02E	Electrical Telecom Level 2 - Zone C		FC	FC
e4.03A	Electrical Telecom Level 3 - Zone A		FC	FC
e4.03B	Electrical Telecom Level 3 - Zone B		FC	FC
e4.03C	Electrical Telecom Level 3 - Zone C		FC	FC
e4.03D	Electrical Telecom Level 3 - Zone D		FC	FC
e4.03E	Electrical Telecom Level 3 - Zone E		FC	FC
e4.04A	Electrical Telecom Level 4 - Zone A		FC	FC
e4.04B	Electrical Telecom Level 4 - Zone B		FC	FC
e4.04C	Electrical Telecom Level 4 - Zone C		FC	FC
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CRLF2.10	CLEANROOM FLOOR PLAN		FC	FC
CRLF2.11	CLEANROOM FLOOR PLAN UTILITIES		FC	FC
CRLF2.12	CLEANROOM REFLECTED CEILING PLAN		FC	FC
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CRLF3.00	CLEANROOM ELEVATIONS		FC	FC
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cr-p8.01	Cleanroom Details		FC	FC
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cr-m2.01C	Cleanroom Mechanical Level 1 - Zone C		FC	FC
cr-m2.02A	Cleanroom Mechanical Level 2 - Zone A		FC	FC
cr-m2.02B	Cleanroom Mechanical Level 2 - Zone B		FC	FC
cr-m2.05A	Cleanroom Mechanical Penthouse- Zone A		FC	FC
cr-m2.05B	Cleanroom Mechanical Penthouse- Zone B		FC	FC
cr-m2.05C	Cleanroom Mechanical Penthouse- Zone C		FC	FC
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cr-m7.03	Cleanroom Solvent And Corrosive Exhaust Systems Control/Air Flow Diagram		FC	FC
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cr-e1.02A	Cleanroom Electrical Lighting Level 2 - Zone A		FC	FC
cr-e1.02B	Cleanroom Electrical Lighting Level 2 - Zone B		FC	FC
cr-e2.00A	Cleanroom Electrical Power Basement - Zone A		FC	FC
cr-e2.00B	Cleanroom Electrical Power Basement - Zone B		FC	FC
cr-e2.00C	Cleanroom Electrical Power Basement - Zone C		FC	FC
cr-e2.01A	Cleanroom Electrical Power Level 1 - Zone A		FC	FC
cr-e2.01B	Cleanroom Electrical Power Level 1 - Zone B		FC	FC
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cr-e5.01	Cleanroom Electrical One-Line Diagram		FC	FC
cr-e9.01	Cleanroom Electrical Panel Schedules		FC	FC
cr-e9.02	Cleanroom Electrical Panel Schedules		FC	FC
cr-e9.03	Cleanroom Electrical Motor Schedule		FC	FC

CLEANROOM COMMUNICATIONS

Sheet Number	Sheet Name	BP-1	BP-2	PD3
cr T201	Cleanroom Floor Plan		FC	FC

FC: SHEET ISSUED FOR CONSTRUCTION
FR: SHEET ISSUED FOR REFERENCE

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For Architectural Alliance

By [signature]

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
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Drawn

Checked

Date

Project

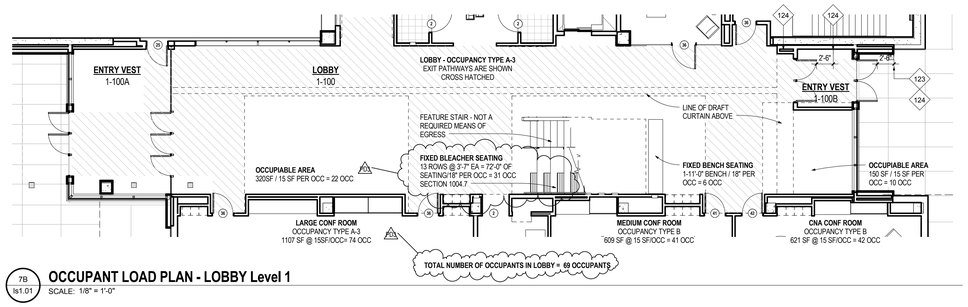
Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

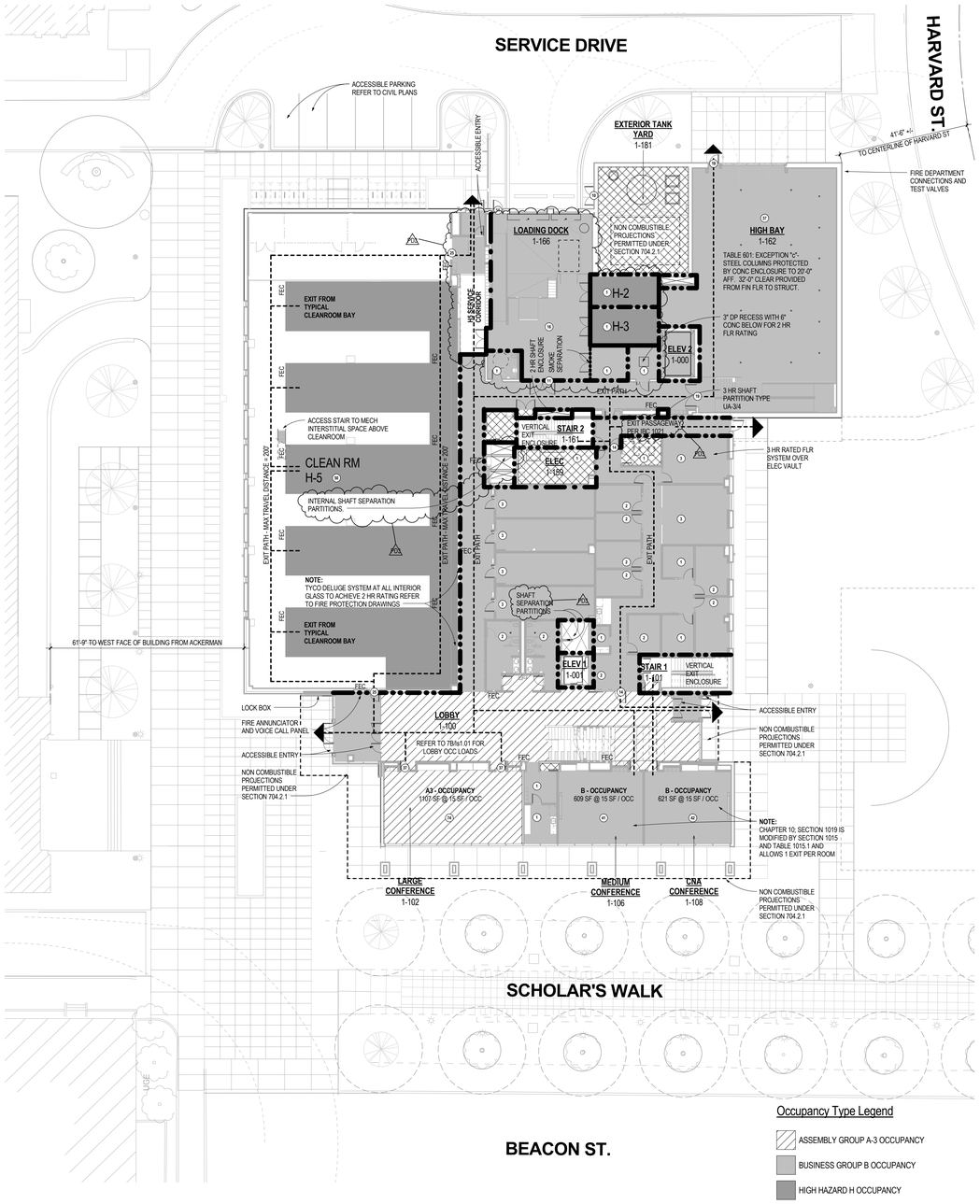
UNIVERSITY OF MINNESOTA
Driven to Discover℠

INDEX OF DRAWINGS

g1.01



7B Is1.01 **OCCUPANT LOAD PLAN - LOBBY Level 1**
SCALE: 1/8" = 1'-0"



7F Is1.01 **LIFE SAFETY - LEVEL 1**
SCALE: 1/16" = 1'-0"

LIFE SAFETY LEGEND

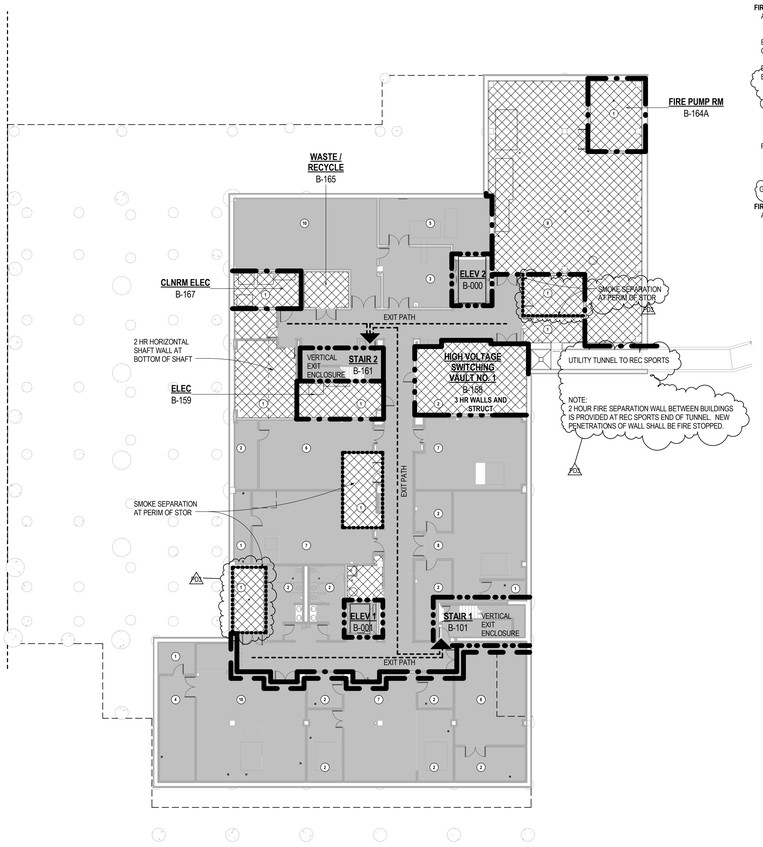
EXIT

OCCUPANT LOAD PER ROOM

SYMBOL	PARTITION	RATING	DOOR	SIDELITE	DAMPER
	FIRE BARRIER - IBC SECTION 706 - IBC SECTION 707 - IBC SECTION 302	3 HR	3 HR	-	FD/SD
	FIRE BARRIER - IBC SECTION 706 - IBC SECTION 707 - IBC SECTION 302	2 HR	90 MIN.	-	FD/SD
	FIRE BARRIER - IBC SECTION 706 - IBC SECTION 707 - IBC SECTION 302	1 HR	45 MIN.	45 MIN.	FD.
	CONTROL AREA SEPARATION				
	SMOKE SEPARATION				

LIFE SAFETY GENERAL NOTES

A. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF EMERGENCY LIGHTING, EXIT LIGHTING, ALARM PANELS, EMERGENCY SYSTEMS AND ASSOCIATED DEVICES.
B. REFER TO CIVIL DRAWINGS FOR LOCAITONS OF ACCESSIBLE PARKING STALLS, CURB CUTS AND RAMPS.
C. REFER TO FIRE PROTECTION DRAWINGS FOR LOCATIONS OF FIRE PROTECTION SYSTEMS, ZONES, HAZARD TYPES, AND DEVICES.
D. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF DUCTS TO BE WRAPPED WITH RATED DUCT WRAP MATERIALS.
E. REFER TO ARCHITECTURAL FLOOR PLANS FOR LOCATIONS OF FIRE EXTINGUISHER CABINETS.
F. REFER TO LAB PLANS FOR LOCATIONS OF ACCESSIBLE LAB STATIONS AND HAZARDOUS STORAGE CABINETS.
G. REFER TO STRUCTURAL FOR THICKNESS OF CONCRETE DECKS AT RATED FLOOR SYSTEMS.
H. REFER TO DRAWING VOLUME 4 AND SPECIFICATION VOLUME 3 FOR CLEANROOM SYSTEMS.
I. REFER TO SHEET a6.01, AND a8.02 FOR PARTITION TYPES AND DETAILS.
J. REFER TO SHEET a0.01 FOR STANDARD MOUNTING HEIGHT SCHEDULE



3E Is1.01 **LIFE SAFETY - BASEMENT**
SCALE: 1/16" = 1'-0"

BUILDING CODE DATA

APPLICABLE CODES
A. 2007 Minnesota State Building Code (MSBC) + 2006 International Building Code with Amendments.
B. 2007 Minnesota State Plumbing Code
C. 2011 National Electric Code
D. 2007 Minnesota Energy Code
E. 2006 International Fuel Gas Code
F. 2007 Minnesota State Fire Code + 2006 International Fire Code with Amendments
G. 2006 Life Safety Code - as referenced by the IBC and MSBC
H. 2007 Minnesota Accessibility Code - Chapter 1341
I. 2007 Minesota State Mechanical Code + 2006 International Mechanical Code with Amendments
J. ASME A17.1 Safety Code for Elevators and Escalators

USE AND OCCUPANCY CLASSIFICATION
A. Building Occupancy: Non-separated and Separated Mixed Use per IBC 508.3.2 and 508.3.3.
B. Non-separated Occupancies per IBC Section 508.3.2:
A-3 Assembly per IBC Section 303 (Lobby, Large Conference rooms).
B Research Laboratories, Offices, and Storage rooms as classified under Business Group 'B' per IBC Section 304

C. Separated Occupancies per IBC Section 508.3.3:
H-2 Gas Storage
H-3 Solvent Storage
H-5 High Hazard Occupancy

CONSTRUCTION TYPE AND GENERAL BUILDING HEIGHTS AND AREAS (IBC CHAPTER 5)
A. Construction Type: Type IB Protected Non-Combustible
B. Allowable Building Height: 11 Stories allowed for Use Group B, 4 stories proposed, plus basement and unoccupied mechanical / electrical story
C. Allowable Area: Unlimited for Group B
D. Building Area: 144,200
E. Fully Sprinklered

DEFINITIONS:
Gross Floor Area : The area within surrounding exterior walls, excluding vent shafts and exterior areas.
Net Floor Area: The actual occupied area, not including unoccupied accessory areas such as corridors, stairways, toilet rooms, mechanical rooms, and closets.

GROSS FLOOR AREA		
Level	Name	Area
BASEMENT	Area	20215 SF
LEVEL 1	Area	31772 SF
LEVEL 2	Area	19382 SF
LEVEL 3	Area	26954 SF
LEVEL 4	Area	26013 SF
LEVEL 5 (UNOCCUPIED)	Area	19614 SF
Grand Total		143951 SF

FIRE RESISTANCE RATINGS FOR BUILDING ELEMENTS (IBC CHAPTER 6)
A. The building is of Type 1-B non-combustible Fire Resistance Rating:
B. Rating of Building Elements:
1. Structural Frame: 2-hour (including columns, girders, trusses, framing, and bearing walls)
2. Roof Supports: 1-hour (where supporting roof only)
3. Bearing Walls: 2-hour
4. Non-bearing Exterior Walls: Non-rated (Greater than 30' fire separation)
5. Floor Construction: 2-hour
6. Roof Construction: 1-hour Except where every part of roof construction is greater than 20' above floor below where no rating is required. Fire protection of the steel skylight framing is not required because the steel framing is over 20'-0" above adjacent floor. (IBC table 601 exception c).
7. Shafts: 2-hour

FIRE RESISTANCE -RATED CONSTRUCTION (IBC CHAPTER 7 AND 10)
A. Exterior Wall Openings:
1. Unprotected per IBC Table 602
2. Unlimited per Table 704.8
B. A 2-hour fire resistance rating is required for exit enclosures connecting four or more stories (IBC 707.4)
C. Exterior Curtainwall / floor intersection Section 713.4: Design Number CEJ 161 P as a proposed equivalancy to ASTM 2307.
D. Corridors/ Corridor fire rating (IBC Table 1017.1): None
E. Elevators:
1. Elevator not required to serve unoccupied non-accessible story (level 5)
2. Lobby not required (IBC Sec. 707.14.1, exception 4) in fully sprinklered buildings less than 75' in height above lowest level of fire department access.
3. Ambulance Stretcher Requirements: (3002.4 MSBC) If four or more stories above grade plane, ambulance stretcher is required.
4. Area of Rescue must comply with IBC with area of refuge requirements found in 2012 IBC, per UMN approval of alternate design method dated October 10 2011.
F. Skylights:
1. Fire protection of the steel skylight framing is not required because the steel framing is over 20'-0" above adjacent floor.
(IBC table 601 exception c). The area above the penthouse floor projection shall be protected by an approved automatic sprinkler system.
G. All laboratories in building are research labs (there are no teaching labs)

FIRE PROTECTION SYSTEMS (CHAPTER 9)
A. Interior Glazed Openings:
1. H5 - Cleanroom and Interstitial space windows are protected by Tyco's Model WS window sprinkler system. This is a deluge style system. Refer to Fire Protection drawings and specifications for additional information.
2. Lobby - All glazing into lobby at level 3 and level 4 will be protected by Tyco's Model WS window sprinkler system. This is a deluge style system. Refer to Fire Protection drawings and specifications for additional information.
3. Automatic Sprinkler protection (IBC Section 404.3, exception 2) Where the ceiling of the atrium is more than 55'-0" above the floor, sprinkler protection at the ceiling of the atrium is not required

OCCUPANT LOADS - BASEMENT			
OCCUPANCY TYPE	AREA (SF)	SF / OCC.	OCC.
BUSINESS (LAB / OFFICE)	9,235	100	92
BUSINESS (CONFERENCE)	0	15	0
H-5 CLEAN ROOM	0	200	0
H2, H3 HIGH HAZARD	0	300	0
A-3 ASSEMBLY	0	15	0
MECH, ELEC, AND STORAGE	5,680	300	19
BASEMENT TOTALS	14,915		111

EXIT ACCESS	FACTOR	OCC.	REQ.	PROVIDED
DOORS	0.15	111	17"	68"
STAIRS	0.20	111	22"	112"

PLUMB. FIX'S	WC MEN	WC WOMEN	LAV'S	DRK. FOUNT
REQUIRED	1	1	2	0
PROVIDED	3	3	4	2

OCCUPANT LOADS - LEVEL 1			
OCCUPANCY TYPE	AREA (SF)	SF / OCC.	OCC.
BUSINESS (LAB / OFFICE)	9,747	100	97
BUSINESS (CONFERENCE)	968	15	65
H-5 CLEAN ROOM	10,006	200	50
H2, H3 HIGH HAZARD	461	300	2
A-3 ASSEMBLY	3,228	15	215
MECH, ELEC, AND STORAGE	484	300	2
LEVEL 1 TOTALS	24,894		431

EXIT ACCESS	FACTOR	OCC.	REQ.	PROVIDED
DOORS	0.15	431	62"	272"
STAIRS	0.20	-	-	-

PLUMB. FIX'S	WC MEN	WC WOMEN	LAV'S	DRK. FOUNT
REQUIRED	3	4	4	2
PROVIDED	3	4	5	2

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.
For Architectural Alliance
By
Name Tom DeAngelo
Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Date
Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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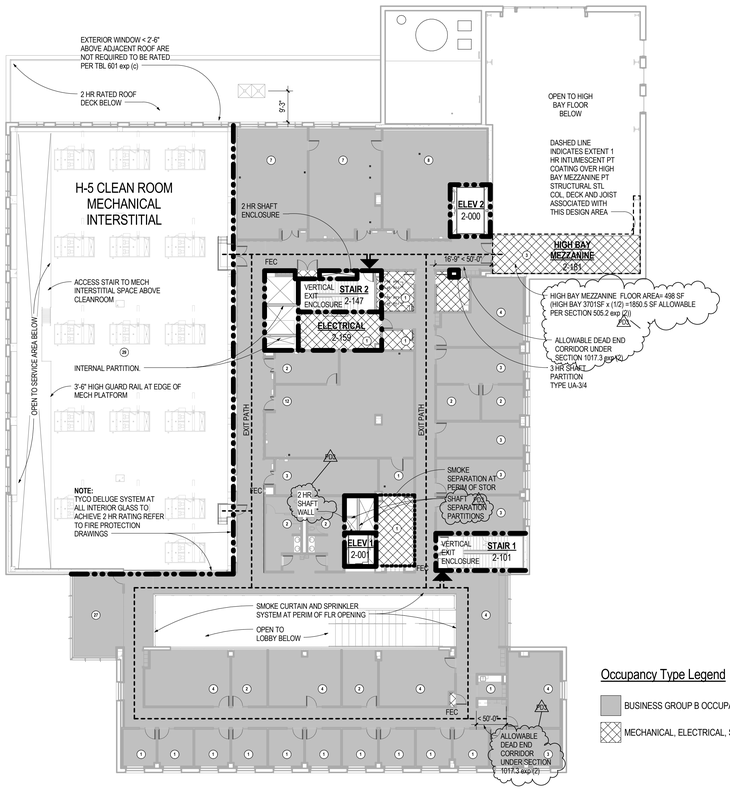
LIFE SAFETY PLANS

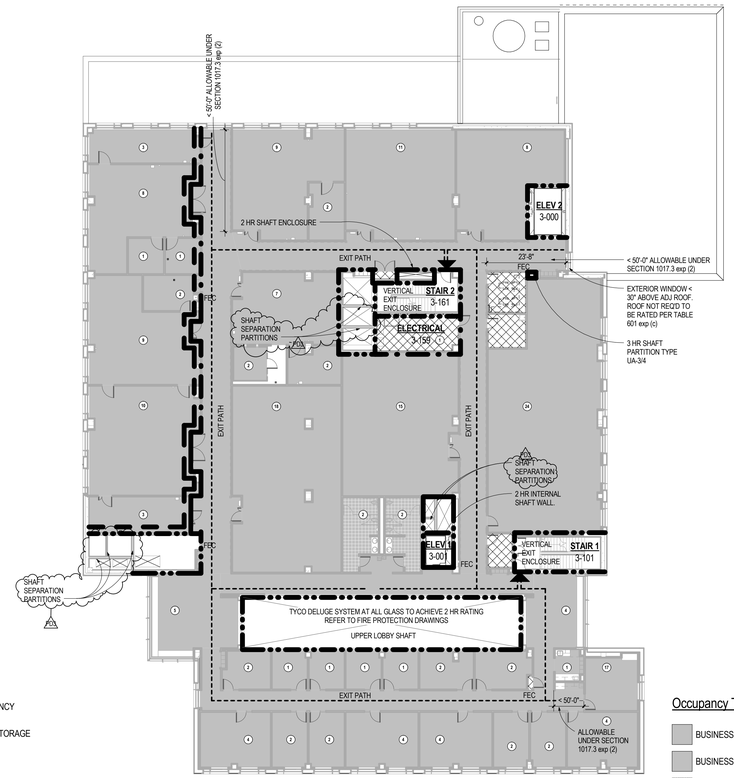
Is1.01



Occupancy Type Legend

- BUSINESS GROUP B OCCUPANCY
- MECHANICAL, ELECTRICAL, STORAGE

7C / ls1.02 **LIFE SAFETY - LEVEL 2**
SCALE: 1/16" = 1'-0"



Occupancy Type Legend

- BUSINESS GROUP B OCCUPANCY
- BUSINESS GROUP B OCCUPANCY - CONF RM
- MECHANICAL, ELECTRICAL, STORAGE

3C / ls1.02 **LIFE SAFETY - LEVEL 3**
SCALE: 1/16" = 1'-0"

LIFE SAFETY LEGEND

- EXIT
- OCCUPANT LOAD PER ROOM

SYMBOL	PARTITION	RATING	DOOR	SIDELITE	DAMPER
	FIRE BARRIER - IBC SECTION 706 - IBC SECTION 707 - IBC SECTION 302	3 HR	3 HR	-	FD/SD
	FIRE BARRIER - IBC SECTION 706 - IBC SECTION 707 - IBC SECTION 302	2 HR	90 MIN.	-	FD/SD
	FIRE BARRIER - IBC SECTION 706 - IBC SECTION 707 - IBC SECTION 302	1 HR	45 MIN.	45 MIN.	FD.
	CONTROL AREA SEPARATION				
	SMOKE SEPARATION				

LIFE SAFETY GENERAL NOTES

A. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF EMERGENCY LIGHTING, EXIT LIGHTING, ALARM PANELS, EMERGENCY SYSTEMS AND ASSOCIATED DEVICES.
B. REFER TO CIVIL DRAWINGS FOR LOCAITONS OF ACCESSIBLE PARKING STALLS, CURB CUTS AND RAMPS.
C. REFER TO FIRE PROTECTION DRAWINGS FOR LOCATIONS OF FIRE PROTECTION SYSTEMS, ZONES, HAZARD TYPES, AND DEVICES.
D. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF DUCTS TO BE WRAPPED WITH RATED DUCT WRAP MATERIALS.
E. REFER TO ARCHITECTURAL FLOOR PLANS FOR LOCATIONS OF FIRE EXTINGUISHER CABINETS.
F. REFER TO LAB PLANS FOR LOCATIONS OF ACCESSIBLE LAB STATIONS AND HAZARDOUS STORAGE CABINETS.
G. REFER TO STRUCTURAL FOR THICKNESS OF CONCRETE DECKS AT RATED FLOOR SYSTEMS.
H. REFER TO DRAWING VOLUME 4 AND SPECIFICATION VOLUME 3 FOR CLEANROOM SYSTEMS.
I. REFER TO SHEET a8.01, AND a8.02 FOR PARTITION TYPES AND DETAILS.
J. REFER TO SHEET a0.01 FOR STANDARD MOUNTING HEIGHT SCHEDULE.

BUILDING CODE DATA

APPLICABLE CODES
A. 2007 Minnesota State Building Code (MSBC) + 2006 International Building Code with Amendments.
B. 2007 Minnesota State Plumbing Code
C. 2011 National Electric Code
D. 2007 Minnesota Energy Code
E. 2006 International Fuel Gas Code
F. 2007 Minnesota State Fire Code + 2006 International Fire Code with Amendments
G. 2006 Life Safety Code - as referenced by the IBC and MSBC
H. 2007 Minnesota Accessibility Code - Chapter 1341
I. 2007 Minesota State Mechanical Code + 2006 International Mechanical Code with Amendments
J. ASME A17.1 Safety Code for Elevators and Escalators

USE AND OCCUPANCY CLASSIFICATION
A. Building Occupancy: Non-separated and Separated Mixed Use per IBC 508.3.2 and 508.3.3.
B. Non-separated Occupancies per IBC Section 508.3.2:
   A-3 Assembly per IBC Section 303 (Lobby, Large Conference rooms)
   B Research Laboratories, Offices, and Storage rooms as classified under Business Group 'B' per IBC Section 304
C. Separated Occupancies per IBC Section 508.3.3:
   H-2 Gas Storage
   H-3 Solvent Storage
   H-5 High Hazard Occupancy

CONSTRUCTION TYPE AND GENERAL BUILDING HEIGHTS AND AREAS (IBC CHAPTER 5)
A. Construction Type: Type IB Protected Non-Combustible
B. Allowable Building Height: 11 Stories allowed for Use Group B, 4 stories proposed, plus basement and unoccupied mechanical / electrical story
C. Allowable Area: Unlimited for Group Use B
D. Building Area: 144,200
E. Fully Sprinklered

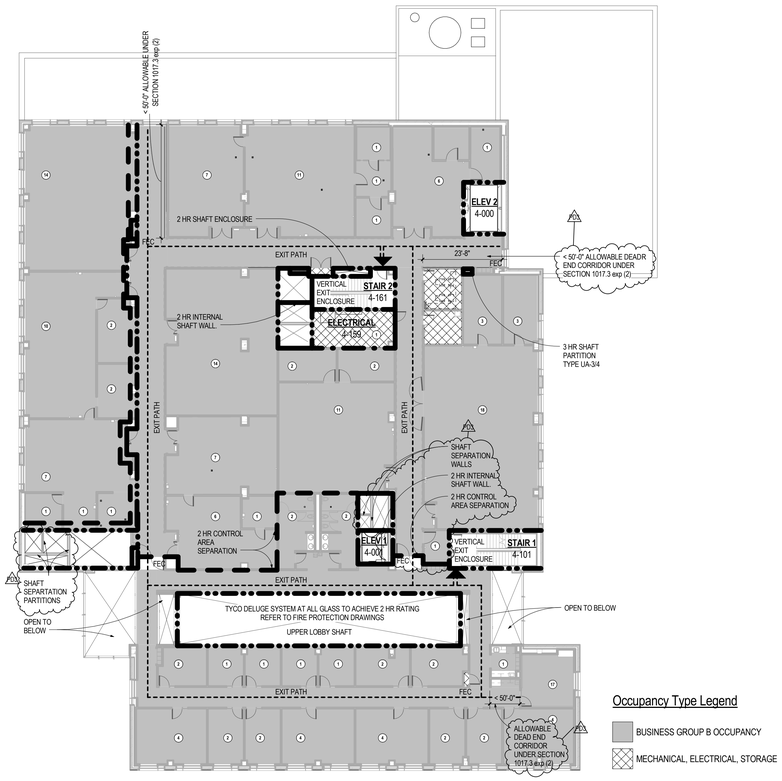
DEFINITIONS:
Gross Floor Area : The area within surrounding exterior walls, excluding vent shafts and exterior areas.
Net Floor Area: The actual occupied area, not including unoccupied accessory areas such as corridors, stairways, toilet rooms, mechanical rooms, and closets.

GROSS FLOOR AREA		
Level	Name	Area
BASEMENT	Area	20215 SF
LEVEL 1	Area	31772 SF
LEVEL 2	Area	19382 SF
LEVEL 3	Area	26954 SF
LEVEL 4	Area	26013 SF
LEVEL 5 (UNOCCUPIED)	Area	19614 SF
Grand Total		143951 SF

FIRE RESISTANCE RATINGS FOR BUILDING ELEMENTS (IBC CHAPTER 6)
A. The building is of Type 1-B non-combustible Fire Resistance Rating
B. Rating of Building Elements:
   1. Structural Frame: 2-hour (including columns, girders, trusses, framing, and bearing walls)
   2. Roof Supports: 1-hour (where supporting roof only)
   3. Bearing Walls: 2-hour
   4. Non-bearing Exterior Walls: Non-rated (Greater than 30' fire separation)
   5. Floor Construction: 2-hour
   6. Roof Construction: 1-hour Except where every part of roof construction is greater than 20' above floor below where no rating is required. Fire protection of the steel skylight framing is not required because the steel framing is over 20'-0" above adjacent floor. (IBC table 601 exception c).
   7. Shafts: 2-hour

FIRE RESISTANCE -RATED CONSTRUCTION (IBC CHAPTER 7 AND 10)
A. Exterior Wall Openings:
   1. Unprotected per IBC Table 602
   2. Unlimited per Table 704.8
B. A 2-hour fire resistance rating is required for exit enclosures connecting four or more stories (IBC 707.4)
C. Exterior Curtainwall / floor intersection Section 713.4: Design Number CEJ 161 P as a proposed equivalancy to ASTM 2307.
D. Refining Corridor fire rating (IBC Table 1017.1): None
E. Elevators:
   1. Elevator not required to serve unoccupied non-accessible story (level 5)
   2. Lobby not required (IBC Sec. 707.14.1, exception 4) in fully sprinklered buildings less than 75' in height above lowest level of fire department access.
   3. Ambulance Stretcher Requirements: (3002.4 MSBC) If four or more stories above grade plane, ambulance stretcher is required.
   4. Area of Rescue must comply with IBC with area of refuge requirements found in 2012 IBC, per UMN approval of alternate design method dated October 10 2013
F. Skylights:
   1. Fire protection of the steel skylight framing is not required because the steel framing is over 20'-0" above adjacent floor.
   (IBC table 601 exception c). The area above the penthouse floor projection shall be protected by an approved automatic sprinkler system.
G. All laboratories in building are research labs (there are no teaching labs)

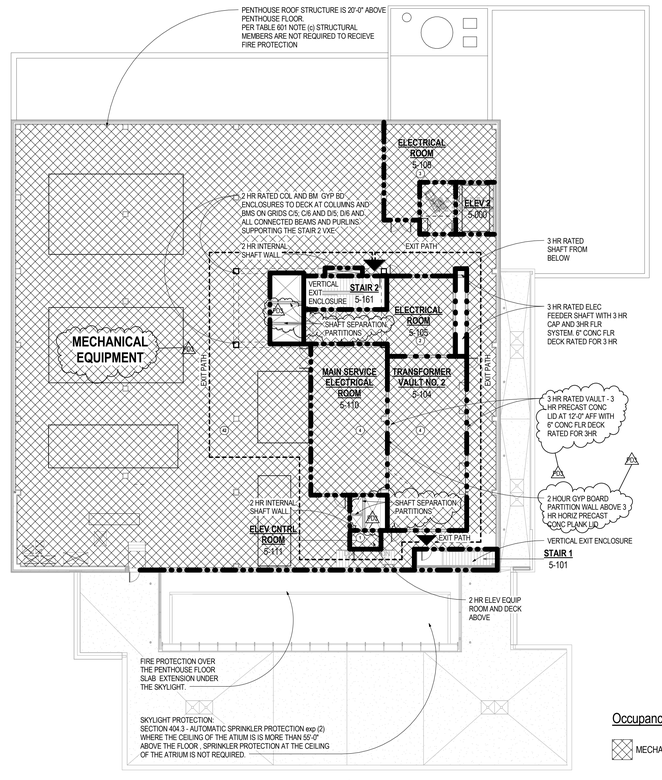
FIRE PROTECTION SYSTEMS (CHAPTER 9)
A. Interior Glazed Openings:
   1. H5 - Cleanroom and Interstitial space windows are protected by Tyco's Model WS window sprinkler system. This is a deluge style system. Refer to Fire Protection drawings and specifications for additional information.
   2. Lobby - All glazing into lobby at level 3 and level 4 will be protected by Tyco's Model WS window sprinkler system. This is a deluge style system. Refer to Fire Protection drawings and specifications for additional information.
   3. Automatic Sprinkler protection (IBC Section 404.3, exception 2) Where the ceiling of the atrium is more than 55'-0" above the floor, sprinkler protection at the ceiling of the atrium is not required



Occupancy Type Legend

- BUSINESS GROUP B OCCUPANCY
- MECHANICAL, ELECTRICAL, STORAGE

7F / ls1.02 **LIFE SAFETY - LEVEL 4**
SCALE: 1/16" = 1'-0"



Occupancy Type Legend

- MECHANICAL, ELECTRICAL, STORAGE

3F / ls1.02 **LIFE SAFETY - LEVEL 5 (UNOCCUPIED STORY)**
SCALE: 1/16" = 1'-0"

OCCUPANT LOADS - LEVEL 2

OCCUPANCY TYPE	AREA (SF)	SF / OCC.	OCC.
BUSINESS (LAB / OFFICE)	12,622	100	126
BUSINESS (CONFERENCE)	443	15	30
H-5 CLEAN ROOM - INTERSTITIAL	8,718	300	29
H2, H3 HIGH HAZARD	-	300	-
A-3 ASSEMBLY	-	15	-
MECH, ELEC, AND STORAGE	773	300	3
LEVEL 2 TOTALS	22,556		188

EXIT ACCESS	FACTOR	OCC.	REQ.	PROVIDED
DOORS	0.15	188	28"	68"
STAIRS	0.20	188	38"	112"

PLUMB. FIX'S	WC MEN	WC WOMEN	LAV'S	DRK. FOUNT
REQUIRED	2	2	3	2
PROVIDED	3	3	4	2

OCCUPANT LOADS - LEVEL 3

OCCUPANCY TYPE	AREA (SF)	SF / OCC.	OCC.
BUSINESS (LAB / OFFICE)	19,302	100	193
BUSINESS (CONFERENCE)	272	15	18
H-5 CLEAN ROOM	-	200	-
H2, H3 HIGH HAZARD	-	300	-
A-3 ASSEMBLY	-	15	-
MECH, ELEC, AND STORAGE	592	300	2
LEVEL 3 TOTALS	20,166		211

EXIT ACCESS	FACTOR	OCC.	REQ.	PROVIDED
DOORS	0.15	211	32"	68"
STAIRS	0.20	211	42"	112"

PLUMB. FIX'S	WC MEN	WC WOMEN	LAV'S	DRK. FOUNT
REQUIRED	2.5	2.5	3	2
PROVIDED	3	3	4	2

OCCUPANT LOADS - LEVEL 4

OCCUPANCY TYPE	AREA (SF)	SF / OCC.	OCC.
BUSINESS (LAB / OFFICE)	20,008	100	200
BUSINESS (CONFERENCE)	272	15	18
H-5 CLEAN ROOM	-	200	-
H2, H3 HIGH HAZARD	-	300	-
A-3 ASSEMBLY	-	15	-
MECH, ELEC, AND STORAGE	526	300	2
LEVEL 4 TOTALS	20,806		220

EXIT ACCESS	FACTOR	OCC.	REQ.	PROVIDED
DOORS	0.15	220	33"	68"
STAIRS	0.20	220	44"	112"

PLUMB. FIX'S	WC MEN	WC WOMEN	LAV'S	DRK. FOUNT
REQUIRED	2.5	2.5	3	2
PROVIDED	3	3	4	2

OCCUPANT LOADS - PENTHOUSE (UNOCCUPIED)

OCCUPANCY TYPE	AREA (SF)	SF / OCC.	OCC.
BUSINESS (LAB / OFFICE)		100	
BUSINESS (CONFERENCE)		15	
H-5 CLEAN ROOM		200	
H2, H3 HIGH HAZARD		300	
A-3 ASSEMBLY		15	
MECH, ELEC, AND STORAGE	18,244	300	61
PENTHOUSE TOTALS	18,244		61

EXIT ACCESS	FACTOR	OCC.	REQ.	PROVIDED
DOORS	0.15	61	9"	68"
STAIRS	0.20	61	12"	112"

PLUMB. FIX'S	WC MEN	WC WOMEN	LAV'S	DRK. FOUNT
REQUIRED	0	0	0	0
PROVIDED	0	0	0	0

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Physics and Nanotechnology Building

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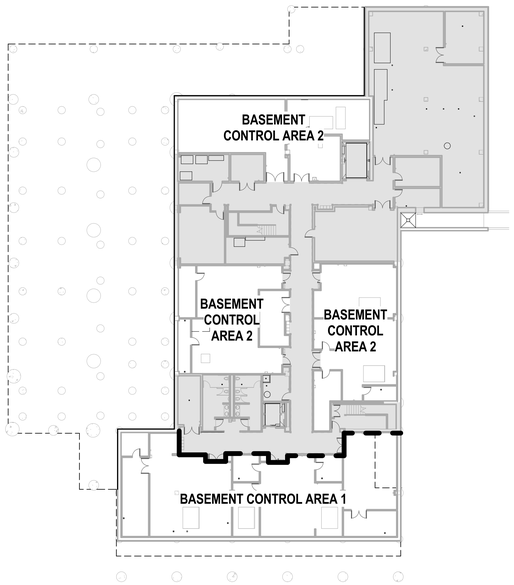
LIFE SAFETY PLANS

ls1.02



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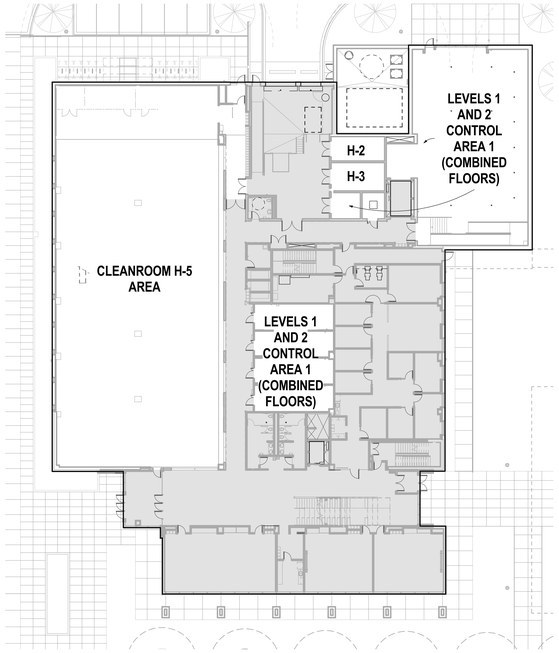
CONTROL AREAS - BASEMENT



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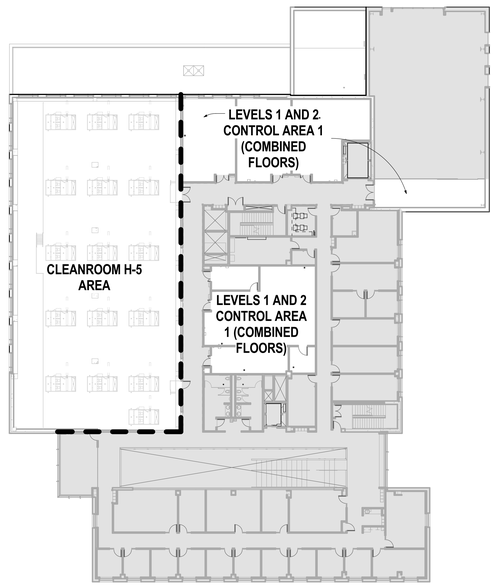
CONTROL AREAS - LEVEL 1



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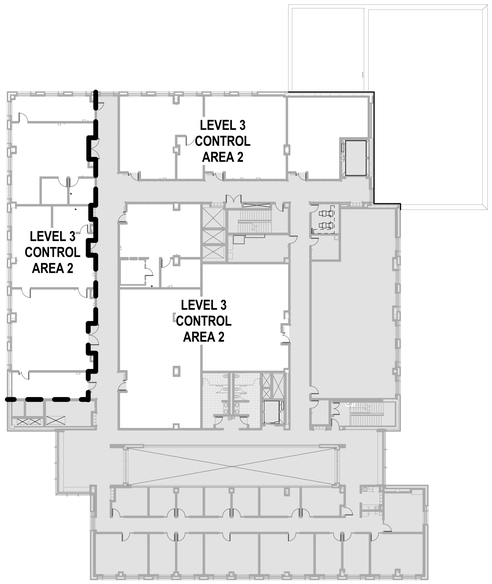
CONTROL AREAS - LEVEL 2



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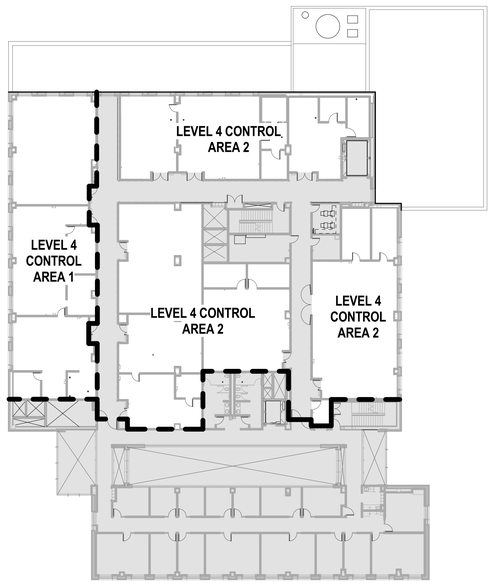
CONTROL AREAS - LEVEL 3



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CONTROL AREAS - LEVEL 4

CONTROL AREA CODE DATA

SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY (IBC CHAPTER 4)

A. Hazardous Materials: allowable control areas IBC 414.2 - table 414.2.2 and IFC table 2703.8.3.2; MSBC 1305.0414

Control areas at basement with 1hr rating between	(3 allowed)	2 provided
Control areas at level 1 & 2 (see note 'a', 'b' and 'c' below)	(3 allowed)	1 provided
Control areas at level 3 with 1 hr rating between	(2 allowed)	2 provided
Control areas at level 4 with 2 hr rating between	(5 allowed)	2 provided

(a) 2 hour separation by deluge system design exists between control areas on levels 1 & 2 and control area on levels 3 & 4.
(b) Control areas on level 1 and level 2 comprise one control area spanning between 2 floors. Quantity of materials shall be within the maximum allowable quantities designated on IBC table 414.2.2 and IFC table 2703.8.3.2.
(c) H5 Cleanroom is separated by 1 and 2 hr wall construction and protected openings from adjacent construction nad occupancies.

LEGEND

= CONTROL AREA SEPARATION

= NON-LAB OCCUPANCY

H-2 SUMMARY

H-2 GAS STORAGE ROOM (LEVEL ONE):
The quantities of hazardous gases stored in the Group H-2 room are not limited, with the following exception. The aggregate quantity of pyrophoric gases in the building (ie. in the clean room plus the Group H-2 room) should not exceed the amounts set forth in IBC Table 415.3.2 (IBC Table 415.8.2.1.1 footnote e). This quantity limit is 2,000 cubic feet of pyrophoric gas in the building.

H-3 SUMMARY

H-3 LIQUIDS STORAGE ROOM (LEVEL ONE):
The quantities of flammable and combustible liquids in the Group H-3 room are limited by IFC Table 3404.3.6.3(2) for Liquid Storage Rooms:

TABLE 3404.3.6.3(2) STORAGE ARRANGEMENTS FOR PALLETIZED OR SOLID-PILE STORAGE IN LIQUID STORAGE ROOMS AND WAREHOUSES

CLASS	STORAGE LEVEL	MAXIMUM STORAGE HEIGHT			MAXIMUM QUANTITY PER PILE (gallons)		MAXIMUM QUANTITY PER ROOM[a] (gallons)	
		Drums	Containers[b] (feet)	Portable tanks (feet)	Containers	Portable tanks	Containers	Portable tanks
IA	Ground floor	1	5	Not Allowed	3,000	Not Allowed	12,000	Not Allowed
IB	Ground floor	1	6.5	7	5,000	20,000	15,000	40,000
IC	Ground floor	1	6.5[c]	7	5,000	20,000	15,000	40,000
II	Ground floor	3	10	14	10,000	40,000	25,000	80,000
III	Ground floor	5	20	14	15,000	60,000	50,000	100,000

a. See Section 3404.3.8.1 for unlimited quantities in liquid storage warehouses.
b. Storage heights are allowed to be increased for Class IB, IC, II and III liquids in metal containers having a capacity of 5 gallons or less where an automatic AFFF-water protection system is provided in accordance with Table 3404.3.7.5.1.
c. These height limitations are allowed to be increased to 10 feet for containers having a capacity of 5 gallons or less.

CONTROL AREA SUMMARIES

Basement Floor Control Zone Summary Totals Based on Proposed Amounts

Control Area	Chemical Classification	Proposed Amount		Total Allowable Amount	Meets / Exceeds Amounts
		Gas in Cubic Feet (CF)	Liquid in Gallons (Lbs)	(in storage and in use)	
1	Flammable Liquid IB and IC		20	45 Gal	Meets
1	Flammable Liquid: Combination Class IA, IB, and IC		20	45 Gal	Meets
2	Flammable Liquid IB and IC		24	45 Gal	Meets
2	Flammable Liquid: Combination Class IA, IB, and IC		24	45 Gal	Meets

General Gases are research grade unless otherwise specified (99.99%).
General Chemical names and quantities provided to RJA by University of Minnesota.
NL No Limit
** Storage in a fully sprinkler protected building in listed gas cabinets

Clean Room H-5 Summary Totals Based on Proposed Amounts

Control Area	Chemical Classification	Proposed Amount		Allowable Amount	Meets / Exceeds Amounts
		Gas in Cubic Feet (CF)	Liquid in Gallons (Liters)	(in storage and in use)	
H-5	Combustible Liquid II		10	100 Gal	Meets
H-5	Combustible Liquid IIIA		4	200 Gal	Meets
H-5	Combustible Liquid: Combination Class I, II and IIIA		14	400 Gal	Meets
H-5	Liquefied Flammable Gas	400		*	Meets
H-5	Flammable Liquid IB and IC	66		250 Gal	Meets
H-5	Flammable Liquid: Combination Class IA, IB, and IC	66		250 Gal	Meets
H-5	Flammable Liquid: Combination Class I, II and IIIA	66		400 Gal	Meets
H-5	Oxidizing Gas	200		12,500 CF	Meets
H-5	Oxidizer Class 2		6	300 Gal	Meets
H-5	Oxidizer: Combination		6	300 Gal	Meets
H-5	Unstable Reactive Class 1	200	3	NL	Meets
H-5	Unstable Reactive Class 3	200		200 CF **	Meets
H-5	Water Reactive Class 1	1000	12	NL	Meets
H-5	Water Reactive Class 2	200	10	250 Gal, NL Gas	Meets
H-5	Corrosives	1200	67	NL	Meets
H-5	Highly Toxic	600		NL Liquid *	Meets
H-5	Toxic	600	6	NL Liquid *	Meets
H-5	*Total Flammable, Pyrophoric, Toxic and Highly Toxic Gases	1600		9000 CF	Meets
H-5	*Total Pyrophoric Gas in building	400		2,000 CF	Meets

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General Chemical names and quantities provided to RJA by University of Minnesota.
NL No Limit
** Storage in a fully sprinkler protected building in listed gas cabinets

Combined 1st and 2nd Floor Control Zone Summary Totals Based on Proposed Amounts

Control Area	Chemical Classification	Proposed Amount		Total Allowable Amount	2nd Floor Allowable Amount	Meets / Exceeds Amounts
		Gas in Cubic Feet (CF)	Liquid in Gallons (Lbs)	(in storage and in use)	(in storage and in use)	
1st-2nd	Flammable Liquid IB and IC		20	480 Gal	360 Gal	Meets
1st-2nd	Flammable Liquid: Combination Class IA, IB, and IC		20	480 Gal	360 Gal	Meets
1st-2nd	Combustible Dust		(2.2)	NL	NL	Meets
1st-2nd	Oxidizer Class 1		(4.4)	8,000 Lbs	6,000 Lbs	Meets
1st-2nd	Unstable Reactive Class 1		(2.2)	NL	NL	Meets
1st-2nd	Corrosives		0.3 and (4.4x10^-4)	2,000 Gal and 20,000 Lbs	1,500 Gal and 15,000 Lbs	Meets
1st-2nd	Highly Toxic		(4.4x10^-4)	40 Lbs	30 Lbs	Meets
1st-2nd	Toxic		(4.4)	2,000 Lbs	1,500 Lbs	Meets

General Gases are research grade unless otherwise specified (99.99%).
General Chemical names and quantities provided to RJA by University of Minnesota.
NL No Limit
** Storage in a fully sprinkler protected building in listed gas cabinets

3rd Floor Control Zone Summary Totals Based on Proposed Amounts

Control Area	Chemical Classification	Proposed Amount		Total Allowable Amount	Meets / Exceeds Amounts
		Gas in Cubic Feet (CF)	Liquid in Gallons (Lbs)	(in storage and in use)	
1	Flammable Liquid IB and IC		4	240 Gal	Meets
1	Flammable Liquid: Combination Class IA, IB, and IC		4	240 Gal	Meets
2	Flammable Liquid IB and IC		36	240 Gal	Meets
2	Flammable Liquid: Combination Class IA, IB, and IC		36	240 Gal	Meets

General Gases are research grade unless otherwise specified (99.99%).
General Chemical names and quantities provided to RJA by University of Minnesota.

4th Floor Control Zone Summary Totals Based on Proposed Amounts

Control Area	Chemical Classification	Proposed Amount		Total Allowable Amount	Meets / Exceeds Amounts
		Gas in Cubic Feet (CF)	Liquid in Gallons (Lbs)	(in storage and in use)	
1	Flammable Liquid IB and IC		4	48 Gal	Meets
1	Flammable Liquid: Combination Class IA, IB, and IC		4	48 Gal	Meets
2	Flammable Liquid IB and IC		44	48 Gal	Meets
2	Flammable Liquid: Combination Class IA, IB, and IC		44	48 Gal	Meets

General Gases are research grade unless otherwise specified (99.99%).
General Chemical names and quantities provided to RJA by University of Minnesota.
NL No Limit
** Storage in a fully sprinkler protected building in listed gas cabinets

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
Project Directive No. 3	05-11-2012

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Comm. No. 2009037

Drawn

Checked

Date

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
Driven to Discover℠

LIFE SAFETY PLANS - CONTROL AREAS

ls1.03

LEGEND

- LIMITS OF CONSTRUCTION
- EXISTING WATER MAIN
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WATER MANHOLE
- EXISTING STORM SEWER LINE
- EXISTING STORM MANHOLE
- EXISTING CATCH BASIN
- EXISTING SANITARY SEWER LINE
- EXISTING SANITARY MANHOLE
- EXISTING GAS MAIN
- EXISTING UNDERGROUND ELECTRICAL LINE
- EXISTING ELECTRICAL MANHOLE
- EXISTING ELECTRICAL TRANSFORMER
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING LIGHT POLE
- EXISTING COMMUNICATION LINE
- EXISTING COMMUNICATION MANHOLE
- EXISTING CHILLED WATER LINE
- EXISTING GUARD POST
- EXISTING TREE
- EXISTING PARKING SIGN
- EXISTING TRAFFIC CONTROL SIGN
- EXISTING FENCE LINE
- EXISTING TREE TO BE REMOVED
- EXISTING CURB TO BE REMOVED
- BITUMINOUS TO BE REMOVED
- CONCRETE TO BE REMOVED
- GRAVEL TO BE REMOVED
- PROPOSED SAWCUT LINE
- SILT FENCE
- EROSION CONTROL AT CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- DENOTES SURFACE DRAINAGE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED DRAINTILE
- PROPOSED TRENCH DRAIN
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- PROPOSED ELECTRICAL DUCTBANK
- PROPOSED NTS DUCTBANK
- PROPOSED UNDERGROUND STORMWATER SYSTEM
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED RETAINING WALL
- PROPOSED BITUMINOUS PAVING
- PROPOSED TYPE 1 CONCRETE PAVING
- PROPOSED TYPE 1 CONCRETE SIDEWALK
- PROPOSED TYPE 2 CONCRETE PAVEMENT

CIVIL ABBREVIATIONS

NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
MPCA	MINNESOTA POLLUTION CONTROL AGENCY
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
BMP'S	BEST MANAGEMENT PRACTICES
NOT	NOTICE OF TERMINATION
ADA	AMERICAN DISABILITIES ACT
RCP	REINFORCED CONCRETE PIPE
DIP	DUCTILE IRON PIPE
LF	LINEAL FEET
MH	MANHOLE
CB	CATCHBASIN
INV	INVERT
CMP	CORRUGATED METAL PIPE
PERF	PERFORATED
SAN	SANITARY SEWER
NW	NORTHWEST
NE	NORTHEAST
HDPE	HIGH-DENSITY POLYETHYLENE
W/	WITH
T/PIPE	TOP OF PIPE
MNDOT	MINNESOTA DEPARTMENT OF TRANSPORTATION
T/ROCK	TOP OF ROCK
B/ROCK	BOTTOM OF ROCK
MIN	MINIMUM
MAX	MAXIMUM
O.C.	ON CENTER
CONT	CONTINUOUS

CONSTRUCTION SEQUENCING AND INSPECTION OF EROSION AND SEDIMENT CONTROL PRACTICES FOR STORMWATER MANAGEMENT SYSTEMS

A. APPLY AND ACQUIRE NPDES PERMIT. CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS WITHIN STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

B. INSTALL EROSION CONTROL AND TREE PROTECTION ALONG PERIMETER OF SITE. INSTALL EROSION CONTROL INSERTS AT ALL CATCHBASINS AND CONSTRUCT ROCK CONSTRUCTION ENTRANCE. SEE EROSION CONTROL NOTES FOR FURTHER INSTRUCTION.

C. PROCEED WITH SITE DEMOLITION, GRADING AND CONSTRUCTION.

D. MAINTAIN EROSION CONTROL BMP'S AND CONTROL RUNOFF REQUIREMENTS AS OUTLINED ON DRAWING AND WITHIN SWPPP.

E. ALL SITE WORK SHOULD BE COMPLETE PRIOR TO WORK ON THE INFILTRATION AREAS BEING STARTED TO THE EXTENT POSSIBLE. IF CONSTRUCTION OF THESE AREAS NEEDS TO OCCUR PRIOR TO FINAL SITE STABILIZATION, THEN THE CONSTRUCTED AREA MUST BE PROTECTED AND CONTRIBUTING FLOWS NEED TO BE FILTERED TO PREVENT CLOGGING OF THE SYSTEM OR COMPACTION OF THE INFILTRATION AREA.

F. SHOP DRAWINGS OF ALL SYSTEMS NEED TO BE APPROVED PRIOR TO CONSTRUCTION. ALL SOIL MATERIAL TESTING SHALL BE DONE PRIOR TO INSTALLATION TO ENSURE SOIL MIXTURE IS ADEQUATE FOR INFILTRATION. TESTS SHALL BE SUBMITTED TO ENGINEER AND APPROVED PRIOR TO INSTALLATION. SPECIFICATIONS INDICATE MATERIALS REQUIRED FOR EACH SYSTEM.

G. NOTIFY CIVIL ENGINEER AND UNIVERSITY OF MINNESOTA OF WORK BEING DONE ON STORMWATER SYSTEMS AND THE SCHEDULE OF CONSTRUCTION. ALLOW A MINIMUM OF FIVE WORKING DAYS FOR NOTIFICATION, SO ENGINEER CAN CONDUCT SITE MEETING TO DISCUSS THE INTENT OF THE SYSTEM AND SO CONSTRUCTION OBSERVATION CAN BE SCHEDULED ACCORDINGLY. SITE MEETING TO REVIEW THE INTENT OF THE DESIGN AND THE CONSTRUCTION OF THE INFILTRATION SYSTEM NEEDS TO OCCUR PRIOR TO STARTING CONSTRUCTION ON THE SYSTEM.

H. ALL SOIL MATERIAL TESTING SHALL BE DONE PRIOR TO INSTALLATION OF THE INFILTRATION SYSTEM TO ENSURE SUBGRADE SOILS MEET MINIMUM INFILTRATION RATE OF 0.50 INCHES PER HOUR.

I. REMOVE ANY CLAY MATERIALS BELOW BOTTOM OF INFILTRATION AREA. CONTRACTOR SHALL HAVE GEOTECHNICAL ENGINEER ON SITE TO VERIFY CLAY MATERIAL WITHIN PAVER AREA HAS BEEN REMOVED. BACKFILL WITH CLEAN SELECT GRANULAR BACKFILL PER MNDOT SPECIFICATION 3149.2 B2 MODIFIED SO LESS THAN 5% PASSES THE #200 SIEVE. CONTRACTOR TO SUBMIT MATERIAL TESTING REPORTS TO ENGINEER PRIOR TO PIPE AND ROCK INSTALLATION.

J. CONTRACTOR TO COORDINATE GEOTECHNICAL ENGINEER TO CONDUCT FLOOD TEST TO MEASURE SUBGRADE INFILTRATION RATE TO ENSURE SUBGRADE MEETS MINIMUM INFILTRATION RATE OF 0.5 INCHES PER HOUR. SEE NOTE #H.

K. SCARIFY 12" OF THE EXISTING SUBGRADE WITHIN INFILTRATION AREAS TO PROMOTE INFILTRATION OF STORMWATER INTO UNDERLYING SUBGRADE SOILS.

L. MAINTAIN EROSION AND SEDIMENT CONTROL ON CONTRIBUTING AREAS TO AVOID CLOGGING OF SYSTEM.

M. CONSTRUCT STORMWATER SYSTEMS PER DRAWINGS AND SPECIFICATIONS.

N. WITHIN UNDERGROUND INFILTRATION AREA: PERFORM FLOOD TEST OF AREA PRIOR TO PROJECT CLOSEOUT TO ENSURE INFILTRATION SYSTEM IS IN WORKING ORDER. CONTRACTOR TO CORRECT LOCATIONS WHERE INFILTRATION IS COMPROMISED. SYSTEM MUST BE CLEAN AND FULLY FUNCTIONAL AT THE END OF THE PROJECT. TEST RESULTS FROM GEOTECHNICAL ENGINEER SHALL BE SUBMITTED TO THE OWNER AND ENGINEER TO CONFIRM UNDERGROUND INFILTRATION SYSTEM IS IN WORKING ORDER.

O. COMPLETE CONSTRUCTION OF PARKING AND SIDEWALKS AFTER STORMWATER SYSTEM IS INSTALLED. AFTER PAVEMENT IS INSTALLED, VERIFY THAT INFILTRATION SYSTEMS ARE CLEAR AND FULLY FUNCTIONAL. VACUUM AND CLEAN SYSTEMS AS NEEDED SO THEY ARE FULLY FUNCTIONAL AT PROJECT CLOSEOUT.

P. INSTALL LANDSCAPING AND PLANTING MATERIALS PER LANDSCAPE DRAWINGS AND SPECIFICATIONS.

Q. REMOVE ALL TEMPORARY EROSION CONTROL BMP'S AFTER PAVING AND INFILTRATION AREAS ARE COMPLETE AND AFTER TURF HAS BEEN ESTABLISHED.

R. CONTRACTOR SHALL TAKE PHOTOGRAPHS AND MEASUREMENTS OF ALL STORMWATER MANAGEMENT SYSTEMS THROUGHOUT CONSTRUCTION. DOCUMENTATION OF CONSTRUCTION SHALL BE SUBMITTED TO THE CIVIL ENGINEER AT THE CLOSEOUT OF THE PROJECT. CLOSEOUT DOCUMENTATION SHALL INCLUDE PHOTOGRAPHS AND MEASUREMENTS OF SYSTEM DURING CONSTRUCTION, TESTING REPORTS AND OBSERVATIONS AND REDLINE DRAWINGS OF ANY FIELD MODIFICATIONS MADE DURING CONSTRUCTION.

S. A LETTER WRITTEN ON COMPANY LETTERHEAD THAT THE STORMWATER MANAGEMENT PRACTICES HAVE BEEN BUILT PER THE CIVIL PLANS, OR PER REDLINE FIELD DRAWINGS, SHALL BE SUBMITTED TO THE CIVIL ENGINEER AT THE CLOSEOUT OF THE PROJECT.

T. THE CONTRACTOR SHALL SUBMIT AN AS-BUILT SURVEY OF THE COMPLETED SITE PREPARED AND SIGNED BY A LICENSED SURVEYOR TO THE CIVIL ENGINEER AT THE END OF THE PROJECT. AS-BUILT SURVEY SHALL INCLUDE ENOUGH INFORMATION TO VERIFY THE CONSTRUCTED TOPOGRAPHY, UTILITY AND SITE ELEMENTS. COORDINATE WITH OWNER AND CIVIL ENGINEER FOR SCHEDULE FOR WHEN THIS SHALL BE COMPLETED.

U. REMOVE ALL TEMPORARY EROSION CONTROL BMP'S AFTER PAVING AND INFILTRATION AREAS ARE COMPLETE AND AFTER TURF HAS BEEN ESTABLISHED.

V. FILE NOTICE OF TERMINATION (NOT) WITH THE MPCA UPON COMPLETION OF PROJECT. SUBMIT COPY TO OWNER AND ENGINEER.

EROSION CONTROL NOTES

1. INSTALL PERIMETER EROSION CONTROL AT THE LOCATIONS SHOWN ON THE PLANS PRIOR TO BEGINNING CONSTRUCTION. (HAY BALES ARE NOT AN ACCEPTABLE PERIMETER CONTROL)
2. BEFORE BEGINNING CONSTRUCTION, INSTALL A TEMPORARY ROCK CONSTRUCTION ENTRANCE AT EACH POINT WHERE VEHICLES EXIT THE CONSTRUCTION SITE. USE 2 INCH OR GREATER DIAMETER ROCK IN A LAYER AT LEAST 12 INCHES THICK ACROSS THE ENTIRE WIDTH OF THE ENTRANCE. EXTEND THE ROCK ENTRANCE AT LEAST 50 FEET INTO THE CONSTRUCTION ZONE. USE A GEOTEXTILE FABRIC BENEATH THE AGGREGATE IN ORDER TO PREVENT MIGRATION OF SOIL INTO THE ROCK FROM BELOW. SEE DETAIL
3. REMOVE ALL SOILS AND SEDIMENTS TRACKED OR OTHERWISE DEPOSITED ONTO PUBLIC AND PRIVATE PAVEMENT AREAS. REMOVAL SHALL BE ON A DAILY BASIS WHEN TRACKING OCCURS. SWEEPING MAY BE ORDERED BY AT ANY TIME IF CONDITIONS WARRANT. SWEEPING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE CONSTRUCTION AND DONE IN A MANNER TO PREVENT DUST BEING BLOWN TO ADJACENT PROPERTIES.
4. INSTALL INLET PROTECTION AT ALL PUBLIC AND PRIVATE CATCH BASIN INLETS, WHICH RECEIVE RUNOFF FROM THE DISTURBED AREAS. CATCH BASIN INSERTS ARE REQUIRED IN UNDISTURBED AREAS THAT RECEIVE RUNOFF FROM DISTURBED AREAS. NOTE: HAY BALES OR FILTER FABRIC WRAPPING THE GRATES ARE NOT EFFECTIVE OR AN ACCEPTABLE FORM OF INLET PROTECTION.
5. LOCATE SOIL OR DIRT STOCKPILES NO LESS THAN 25 FEET FROM ANY PUBLIC OR PRIVATE ROADWAY OR DRAINAGE CHANNEL. IF REMAINING FOR MORE THAN SEVEN DAYS, STABILIZE THE STOCKPILES BY MULCHING, VEGETATIVE COVER, TARPS, OR OTHER MEANS. CONTROL EROSION FROM ALL STOCKPILES BY PLACING SILT BARRIERS AROUND THE PILES. TEMPORARY STOCKPILES LOCATED ON PAVED SURFACES MUST BE NO LESS THAN TWO FEET FROM THE DRAINAGE/GUTTER LINE AND SHALL BE COVERED IF LEFT MORE THAN 24 HOURS.
6. MAINTAIN ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES IN PLACE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED. INSPECT TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES ON A DAILY BASIS AND REPLACE DETERIORATED, DAMAGED, OR ROTTED EROSION CONTROL DEVICES IMMEDIATELY.
7. TEMPORARILY OR PERMANENTLY STABILIZE ALL CONSTRUCTION AREAS WHICH HAVE BEEN FINISH GRADED, AND ALL AREAS IN WHICH GRADING OR SITE BUILDING CONSTRUCTION OPERATIONS ARE NOT ACTIVELY UNDERWAY AGAINST EROSION DUE TO RAIN, WIND AND RUNNING WATER WITHIN 7-14 DAYS. USE SEEDING AND MULCHING, EROSION CONTROL MATTING, AND/OR SODDING AND STAKING IN GREEN SPACE AREAS. APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED RECOMMENDED TO MINIMIZE EROSION POTENTIAL.
8. REMOVE ALL TEMPORARY SYNTHETIC, STRUCTURAL, NON-BIODEGRADABLE EROSION AND SEDIMENT CONTROL DEVICES AFTER THE SITE HAS UNDERGONE FINAL STABILIZATION AND PERMANENT VEGETATION HAS BEEN ESTABLISHED. MINIMUM VEGETATION ESTABLISHMENT IS 70% COVER. MAINTAIN ALL TEMPORARY EROSION CONTROL DEVICES UNTIL 70% ESTABLISHED COVER IS ACHIEVED.
9. READY MIXED CONCRETE AND CONCRETE BATCH PLANTS PROHIBITED WITHIN THE PUBLIC RIGHT OF WAY. UNDER NO CIRCUMSTANCES MAY WASHOUT WATER DRAIN ONTO THE PUBLIC RIGHT-OF-WAY OR INTO THE STORM SEWER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DESIGNATED CONCRETE WASHOUT AREA THAT COMPLIES WITH MPCA REQUIREMENT.
10. ALL EROSION CONTROL ELEMENTS ARE TEMPORARY. CONTRACTOR TO INSTALL EROSION CONTROL ELEMENTS PRIOR TO START OF LAND DISTURBING ACTIVITIES, MAINTAIN IN GOOD CONDITION DURING CONSTRUCTION AND REMOVE FROM THE SITE UPON COMPLETION OF FINAL PAVING AND TURF ESTABLISHMENT.
11. EROSION CONTROL SHALL BE PLACED ALONG THE PERIMETER OF THE SITE EXCAVATION. EROSION CONTROL SHALL BE PLACED SO IT DOES NOT DISTURB THE EXISTING PAVEMENT OR DRIVE LANES THAT ARE TO REMAIN. MANY METHODS OF EROSION CONTROL WILL WORK AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL THE MEASURE MOST APPROPRIATE TO THE SITE CONDITIONS AND THAT WHICH MEETS THE UNIVERSITY OF MINNESOTA AND MPCA STANDARDS. GRAPHICALLY SHOWN ON THE PLANS FOR CLARITY BUT SHALL BE PLACED IN THE MOST APPROPRIATE LOCATIONS NOT TO DAMAGE EXISTING PAVEMENT AND/OR CURBS TO REMAIN. DAMAGED PAVEMENT AND/OR CURBS SHALL BE PAID FOR SOLELY BY THE CONTRACTOR. SEE DETAILS AND SPECIFICATIONS.
12. SEE SWPPP NARRATIVE FOR FURTHER INFORMATION AND DIRECTION OF EROSION AND SEDIMENT CONTROL MEASURES AND MONITORING.
13. CONTRACTOR TO PROVIDE TEMPORARY SEED AND MULCH ON ALL NON-PAVED AREAS WITHIN 7 DAYS AFTER ROUGH GRADING IS COMPLETED. TEMPORARY SEED WITH ANNUAL RYE SEED AT 60 LBS PER ACRE AND WOOD MULCH FIBER AT 45 LBS PER 1,000 SF.
14. CONTRACTOR TO PREVENT DIRT AND/OR DEBRIS FROM ENTERING STORM SEWER OR BEING TRANSPORTED OFF-SITE IN AN UNCONTROLLED MANNER. CONTRACTOR TO VERIFY AT PROJECT CLOSEOUT THAT STORM SEWER SYSTEM IS CLEAR OF SEDIMENT AND/OR DEBRIS AND IS FULLY FUNCTIONAL.
15. STRAWBALES ARE NOT ALLOWED ON SITE IN ANY CAPACITY.

GENERAL NOTES

1. ALL EXISTING INFORMATION TAKEN FROM SURVEY BY SUNDE LAND SURVEYING DATED MARCH 26, 2010, REVISED JANUARY 19, 2011.
2. SUBSURFACE GEOTECHNICAL INVESTIGATION BY BRAUN INTERTEC CORPORATION PROJECT BL-10-00600 DATED JUNE 30, 2010.
3. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING LOCATIONS OF EXISTING UTILITIES, AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION.
4. ALL AREAS DISTURBED BY CONSTRUCTION WHICH ARE OUTSIDE THE LIMITS OF PAVING ARE TO BE RESTORED AND REVEGETATED.
5. ALL UTILITY DEMOLITION AND/OR ABANDONMENT TO BE PERFORMED IN ACCORDANCE WITH CITY OF MINNEAPOLIS, UNIVERSITY OF MINNESOTA AND STATE OF MINNESOTA REGULATIONS AND STANDARDS.
6. EXISTING UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES WHICH MAY INCLUDE BUT IS NOT LIMITED TO: ELECTRIC, TELEPHONE, GAS, CABLE TV, COMPUTER CABLE, FIBER OPTIC CABLE, SANITARY SEWER, STORM SEWER, STEAM, CONDENSATE, ELECTRICAL DUCTBANK AND WATERMAIN. CONTRACTOR TO CONTACT GOPHER ONE-CALL BEFORE EXCAVATING.
7. ALL EXISTING UTILITIES AND OTHER IMPROVEMENTS ARE TO REMAIN UNLESS NOTED OTHERWISE.
8. CONTRACTOR TO PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS, LANDSCAPING, STRUCTURES AND UTILITIES THAT ARE TO REMAIN. CONTRACTOR TO REPAIR ANY DAMAGE AT OWN EXPENSE.
9. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION AND ELEVATION OF EXISTING STORM AND SANITARY SEWER PRIOR TO THE START OF CONSTRUCTION.
10. ALL WORK TO CONFORM WITH CITY OF MINNEAPOLIS, UNIVERSITY OF MINNESOTA AND STATE OF MINNESOTA STANDARDS AND REGULATIONS.
11. ALL EXCAVATIONS MUST COMPLY WITH THE REQUIREMENTS OF OSHA 29 CFR, PART 1926, SUBPART P "EXCAVATIONS AND TRENCHES". THIS DOCUMENT STATES THAT EXCAVATION SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
12. CATCHBASINS AND MANHOLES ARE SHOWN ON PLAN LARGER THAN ACTUAL SIZE. COORDINATE LOCATION OF MANHOLE COVER AND CASTING SO THAT IT IS PROPERLY LOCATED AT THE BACK OF CURBLINE FOR THE CURB INLETS OR CENTERED IN THE AREA AS SHOWN ON THE PLAN FOR THE AREA DRAINS AND MANHOLE COVERS.
13. PROVIDE BARRICADES AT STREETS AND SIDEWALKS PER CITY OF MINNEAPOLIS AND UNIVERSITY OF MINNESOTA REQUIREMENTS.
14. SITE UTILITY CONTRACTOR TO FURNISH AND INSTALL ALL WATERMAIN, SANITARY SEWER AND STORM SEWER FACILITIES AND APPURTENANCES TO WITHIN FIVE FEET OUTSIDE THE BUILDING. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION AND DEPTH OF CONNECTION WITHIN BUILDING.
15. CONTRACTOR SHALL COORDINATE WITH ARCHITECT'S DRAWINGS TO VERIFY LOCATION, SIZE AND QUANTITY OF ALL ROOF DRAINS AND UTILITY CONNECTIONS. LIMITS OF PROPOSED SITE PLUMBING FACILITIES SHALL BE FIVE FEET FROM EDGE OF BUILDING UNLESS OTHERWISE NOTED.
16. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO STARTING CONSTRUCTION.
17. ALL MATERIALS FOR PROPOSED CONSTRUCTION OR REPAIR OF EXISTING FACILITIES SHALL BE NEW PRODUCTS DIRECT FROM THE FACTORY AND FREE FROM DEFECTS.
18. WHEN WORKING AROUND EXISTING TELEPHONE OR ELECTRICAL POLES, THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.
19. WHEN WORKING AROUND EXISTING UTILITIES THAT BECOME EXPOSED, THE CONTRACTOR SHALL PROVIDE SUFFICIENT SUPPORT TO PREVENT EXCESSIVE STRESS ON THE PIPING. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.
20. WASTE MATERIALS INCLUDING PAVEMENT REMOVED DURING CONSTRUCTION, WASTE PIPING AND SUPPLIES, CONSTRUCTION DEBRIS AND EXCESS EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR.
21. MAXIMUM CROSS-SLOPES FOR SIDEWALKS AND ADA ACCESS ROUTES SHALL NOT EXCEED 2.00%. MAXIMUM SLOPES FOR HANDICAP PARKING STALLS AND ACCESS AISLES SHALL NOT EXCEED 2.00% IN ANY DIRECTION.
22. CONTRACTOR SHALL NOT BLOCK DRAINAGE FROM OR DIRECT EXCESS DRAINAGE ONTO ADJACENT PROPERTY.
23. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.
24. CONTRACTOR MUST FILE NPDES PERMIT A MINIMUM OF TEN DAYS PRIOR TO STARTING WORK ON SITE. SEE STORM WATER POLLUTION PREVENTION PLAN AND DRAWINGS FOR EROSION AND SEDIMENT CONTROL.
25. THE CONTRACTOR SHALL PROVIDE A CONTINUOUS, ACCESSIBLE AND SAFE PEDESTRIAN WALKWAY THAT MEETS ADA AND MINNESOTA MUTCD STANDARDS IF WORKING IN A SIDEWALK AREA, AND TRAFFIC CONTROL PER MINNESOTA MUTCD REQUIREMENTS FOR WORK IN THE PUBLIC RIGHT-OF- WAY.
26. MAINTAIN MINIMUM 8 FEET OF COVER OVER WATER MAIN.
27. ALL WATER MAIN AND SERVICES TO BE INSTALLED IN ACCORDANCE WITH CITY OF MINNEAPOLIS WATER STANDARDS.
28. CARE MUST BE TAKEN DURING CONSTRUCTION AND EXCAVATION TO PROTECT ANY SURVEY MONUMENTS AND/OR PROPERTY IRONS.
29. ALL STUMPS FROM TREES REMOVED WITHIN PROJECT LIMITS SHALL BE GROUND AND REMOVED IN THEIR ENTIRETY.
30. COORDINATE SCHEDULING OF CLOSURES AND RE-OPENINGS OF EGRESSES, LOADING DOCKS, DUMPSTERS, DRIVEWAYS, SIDEWALKS AND ROADS WITH OWNER. TRAFFIC CONTROL SIGNAGE, TEMPORARY WALKWAYS AND TEMPORARY DRIVEWAYS TO CONFORM WITH UNIVERSITY OF MINNESOTA STANDARDS.
31. ALL PAVEMENT MARKINGS WITHIN EXISTING CITY AND UNIVERSITY PAVEMENT AREAS TO BE RESTORED TO MATCH EXISTING UNLESS NOTED OTHERWISE.
32. DRAWINGS DO NOT INDICATE AREAS OF TEMPORARY SUPPORT SYSTEMS. THE CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS AND WILL HAVE TOTAL CONTROL OVER THE TYPES AND DESIGN OF ALL SHORING, SHEETING, BRACING, ANCHORAGES, EXCAVATION SUPPORT WALLS, DIRECTIONAL BORING, AUGER JACKING, SOIL STABILIZATION AND OTHER METHODS OF PROTECTING EXISTING IMPROVEMENTS. SEE SPECIFICATIONS FOR SUBMITTAL REQUIREMENTS.
33. STORAGE AND PROTECTION OF EXISTING SITE FEATURES WHICH NEED TO BE REMOVED AND REPLACED FOR CONSTRUCTION OF PROJECT ARE THE RESPONSIBILITY OF THE CONTRACTOR. STORAGE SHALL BE WITHIN THE LIMITS OF STAGING AREA. CONTRACTOR SHALL PREVENT DAMAGE OR THEFT OF THESE ITEMS AND TO REPLACE AT OWN EXPENSE.
34. CONTRACTOR TO RECORD EXISTING CONDITIONS AS NEEDED (PHOTOGRAPHS, VIDEO PHOTOGRAPHY, FIELD SURVEYING, ETC.) TO ENABLE RECONSTRUCTION TO MATCH EXISTING CONDITIONS AS REQUIRED. CONTRACTOR TO DOCUMENT EXISTING CONDITIONS SO THAT RECONSTRUCTED AREAS WILL HAVE POSITIVE DRAINAGE SIMILAR TO EXISTING.
35. WHERE DEMOLITION, EXCAVATION, UNDERPINNING, PILE DRIVING, COMPACTING OR SIMILAR WORK IS TO BE PERFORMED ADJACENT TO OR IN THE IMMEDIATE VICINITY OF EXISTING STRUCTURES, THE CONTRACTOR WILL PROVIDE BUILDING SURVEYS AND SEISMIC MONITORING. ALL LAB BUILDINGS IN THIS AREA ARE VIBRATION SENSITIVE AND CONTRACTOR IS RESPONSIBLE FOR MONITORING OF BUILDING AND KEEPING OWNER INFORMED OF OPERATIONS THAT MAY IMPACT SENSITIVE PROJECTS OR STRUCTURES.
36. ALL EXISTING BUILDING EXITS SHALL REMAIN UNOBSTRUCTED AND USABLE AT ALL TIMES. IF THERE ARE UNAVOIDABLE EXCEPTIONS, THEN CONTRACTOR SHALL PROVIDE TEMPORARY EXIT PLANS TO THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

For PIERCE PINI AND ASSOCIATES, INC.

By Rhonda S. Pierce

Name RHONDA S. PIERCE

Date 10/14/2011 Reg. No. 41333

Issued for	Date
Bid Package No. 1	10-14-2011
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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
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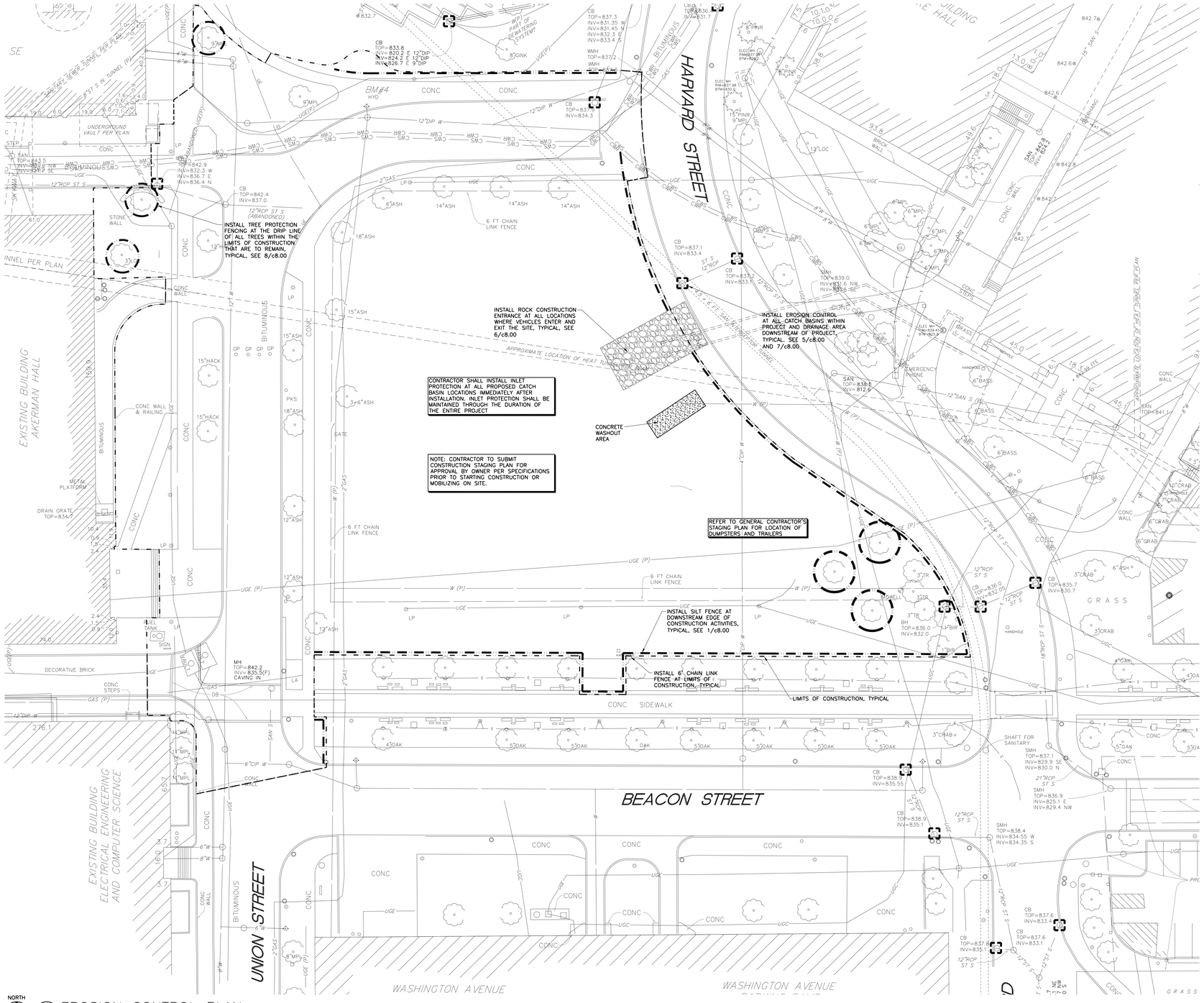
CIVIL NOTES

c1.00



1 / c2.00 EROSION CONTROL PLAN

0 20' 40' 60'

1"=20'

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For PIERCE PINI AND ASSOCIATES, INC.

By Rhonda S. Pierce

Name RHONDA S. PIERCE

Date 10/14/2011 Reg. No. 41333

Issued for	Date
Bid Package No. 1	10-14-2011
1 Proposal Request No. 1	12-14-2011
2 Proposal Request No. 2	01-13-2012

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Date 10/14/2011

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
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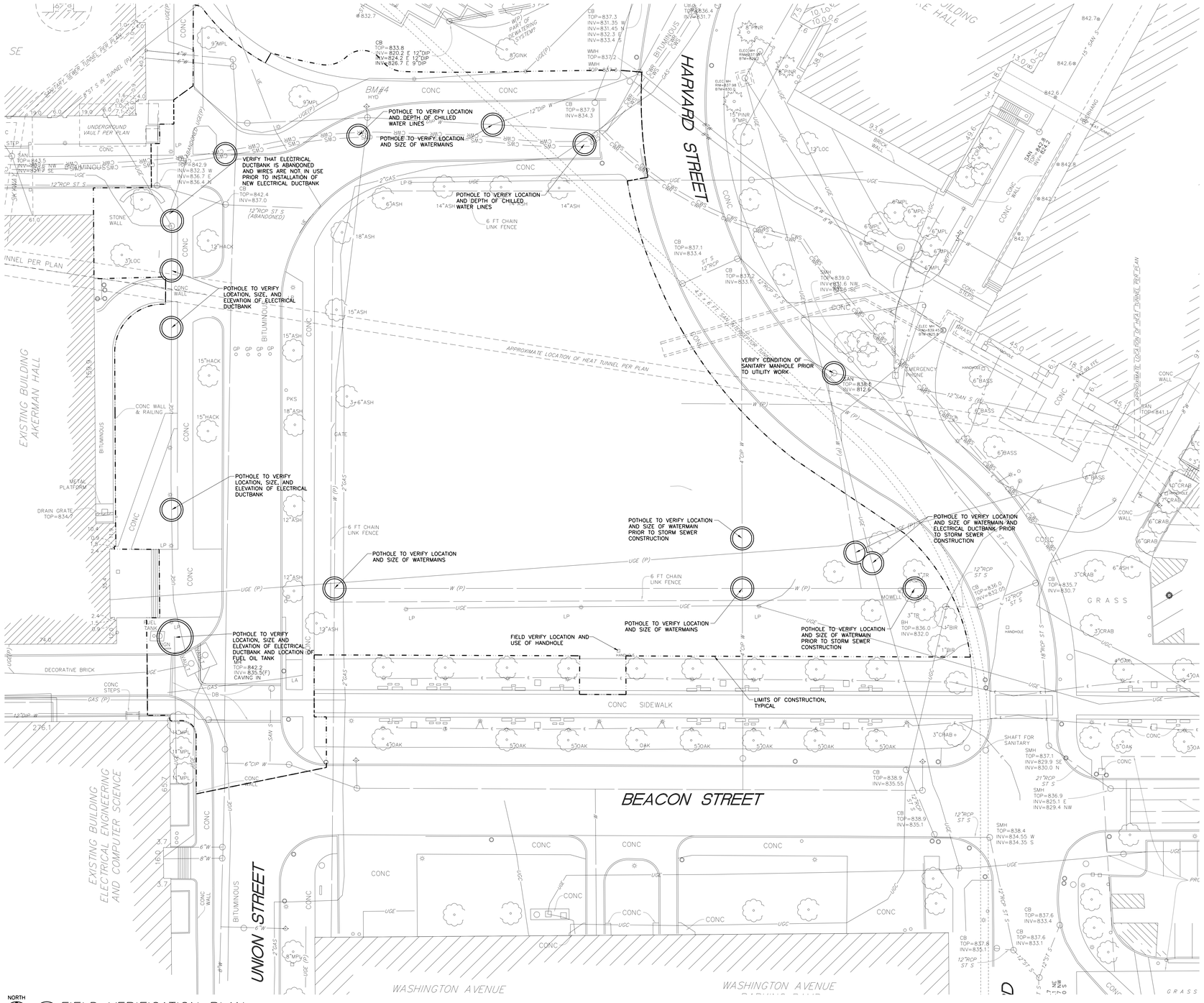
Drawing Title
EROSION CONTROL PLAN

c2.00



1 FIELD VERIFICATION PLAN
c2.01

1"=20'

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400 Clifton Avenue South
Minneapolis, MN 55403
(612) 871-5703

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Physics and Nanotechnology Building

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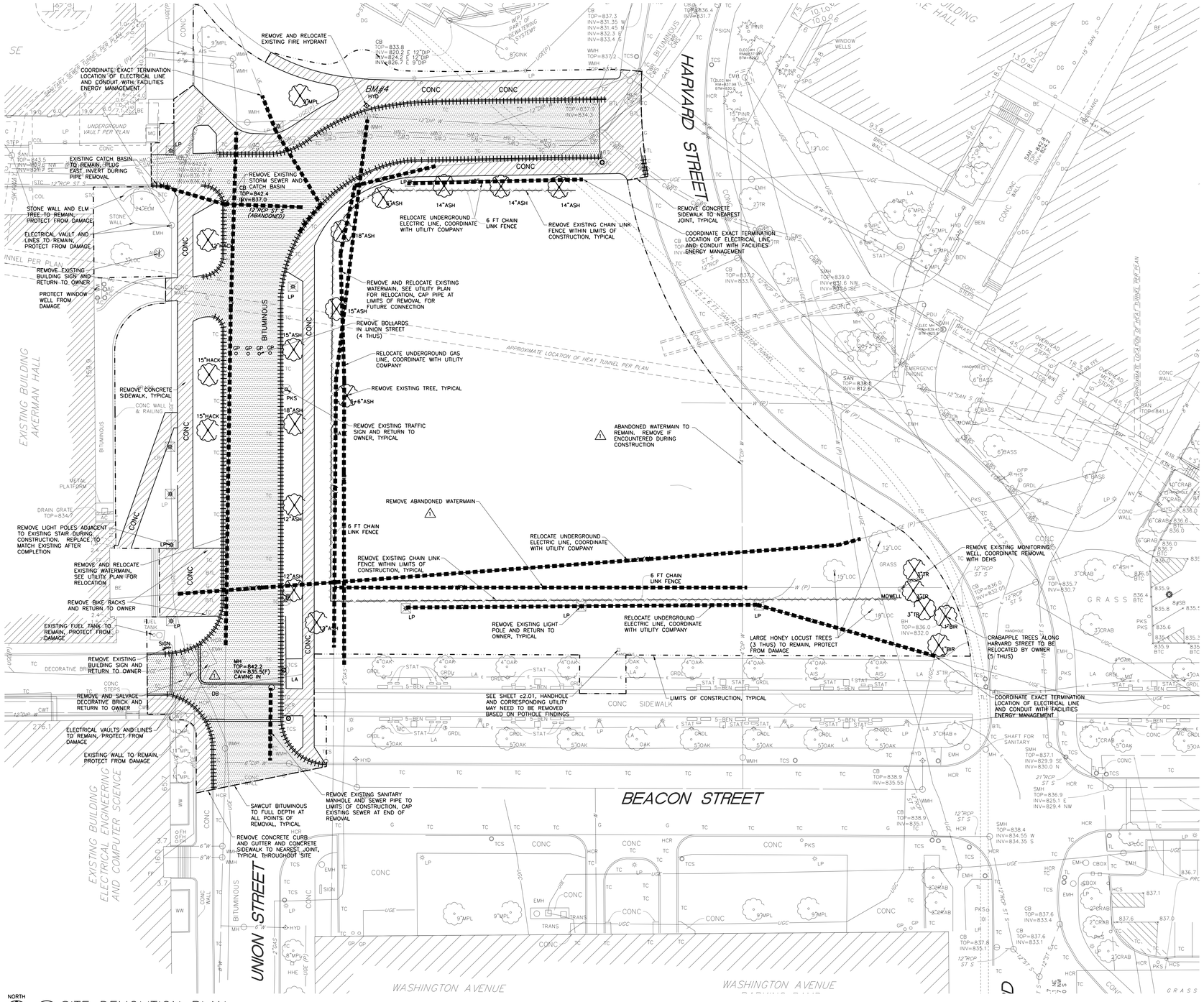
Drawing Title
FIELD VERIFICATION PLAN

c2.01



NORTH

1 / c3.00 SITE DEMOLITION PLAN

0 20' 40' 60'

1"=20'

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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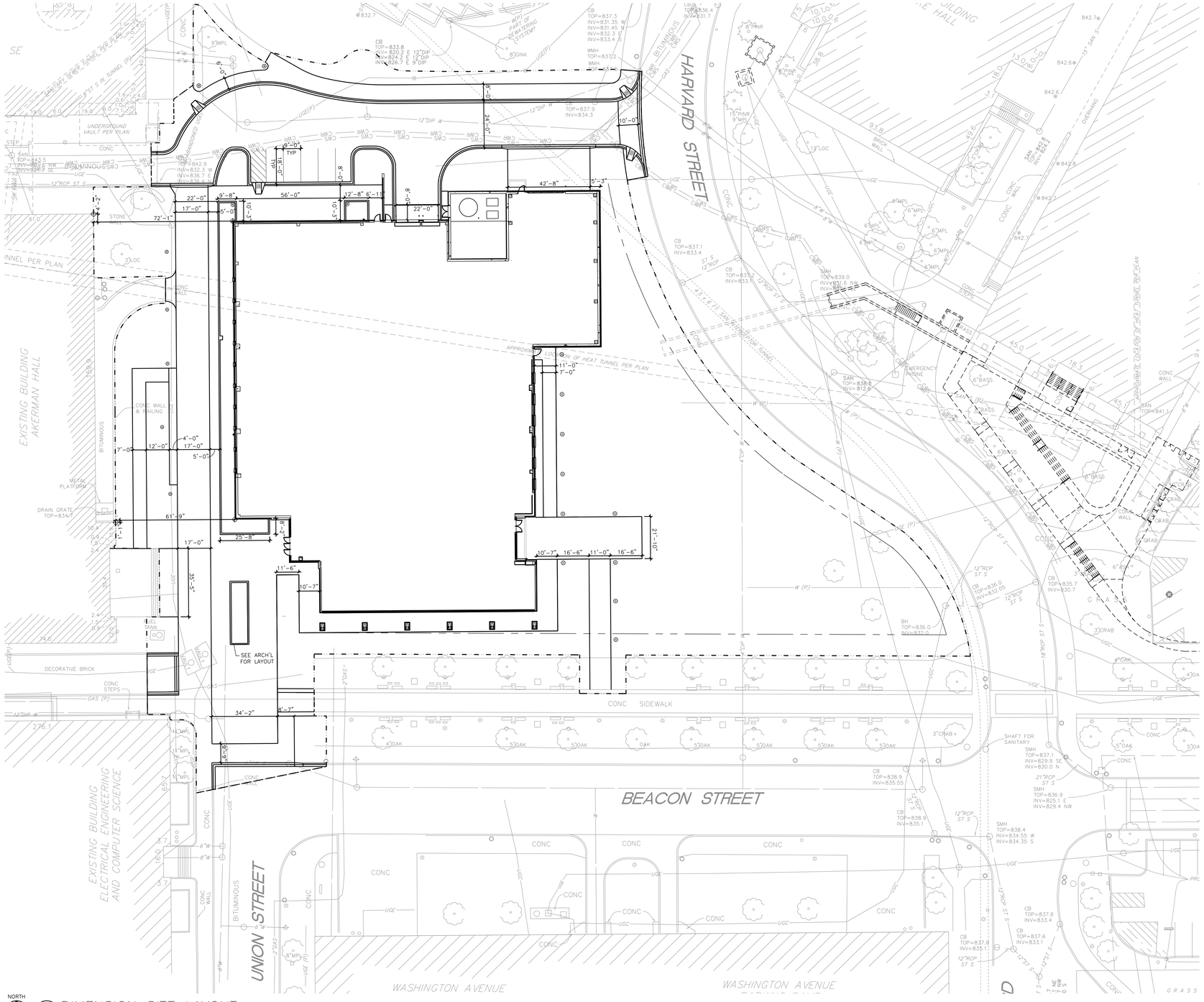
Drawing Title

SITE DEMOLITION PLAN

c3.00



1 c4.00 DIMENSION SITE LAYOUT

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For PIERCE PINI AND ASSOCIATES, INC.

By Rhonda S. Pierce

Name RHONDA S. PIERCE

Date 02-24-2012 Reg. No. 41333

Issued for	Date
100% CD Set	12-16-2011
Bid Package No. 2	02-24-2012

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Date 02-24-2012

Project

Physics and Nanotechnology Building

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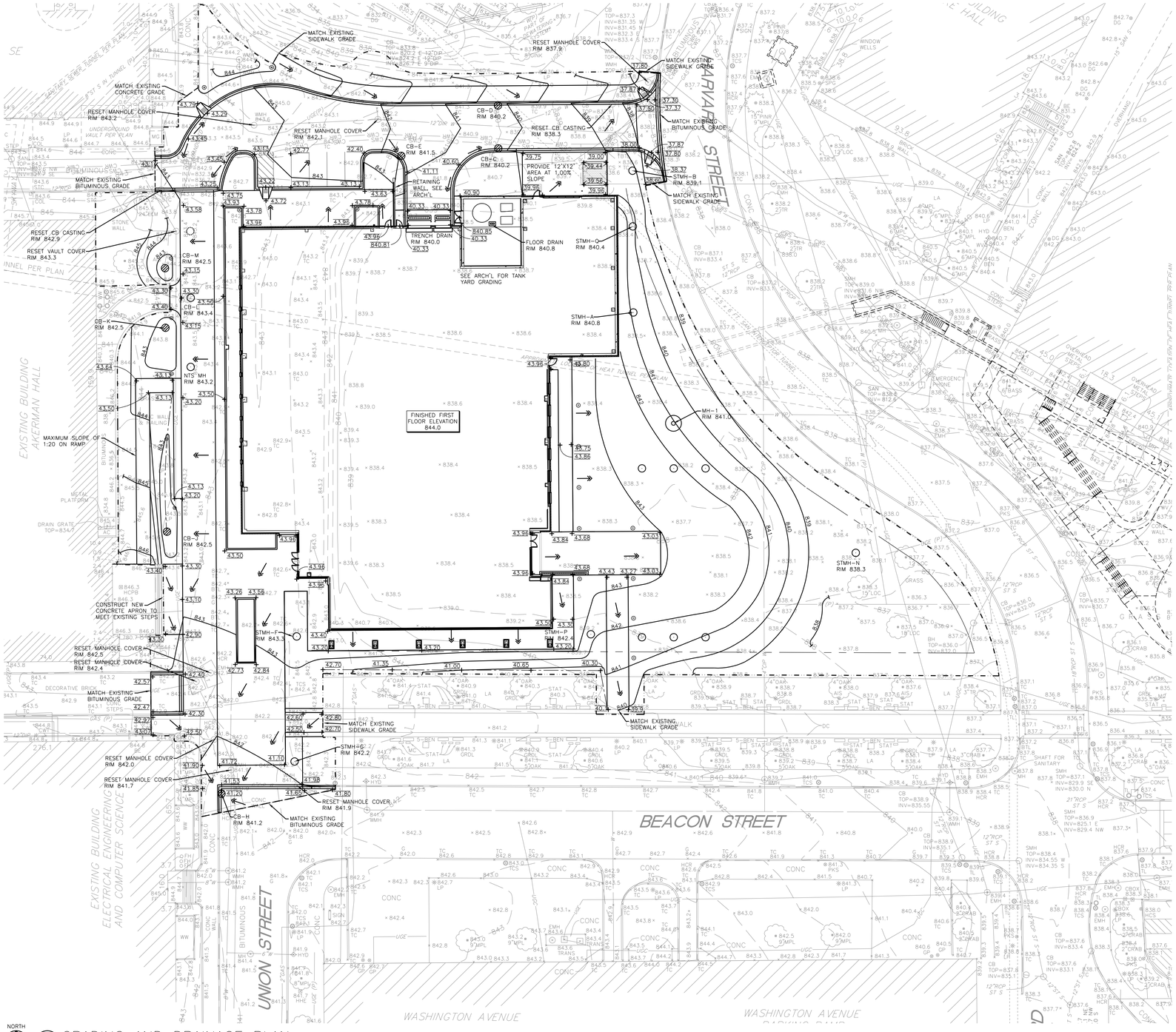
Drawing Title

DIMENSION SITE LAYOUT

c4.00



NORTH

1 c5.00 GRADING AND DRAINAGE PLAN

0 20' 40' 60'

1"=20'

ARCHITECTURAL ALLIANCE
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400 Clifton Avenue South
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For PIERCE PINI AND ASSOCIATES, INC.

By Rhonda S. Pierce

Name RHONDA S. PIERCE

Date 02-24-2012 Reg. No. 41333

Issued for	Date
100% CD Set	12-16-2011
Bid Package No. 2	02-24-2012

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Date 02-24-2012

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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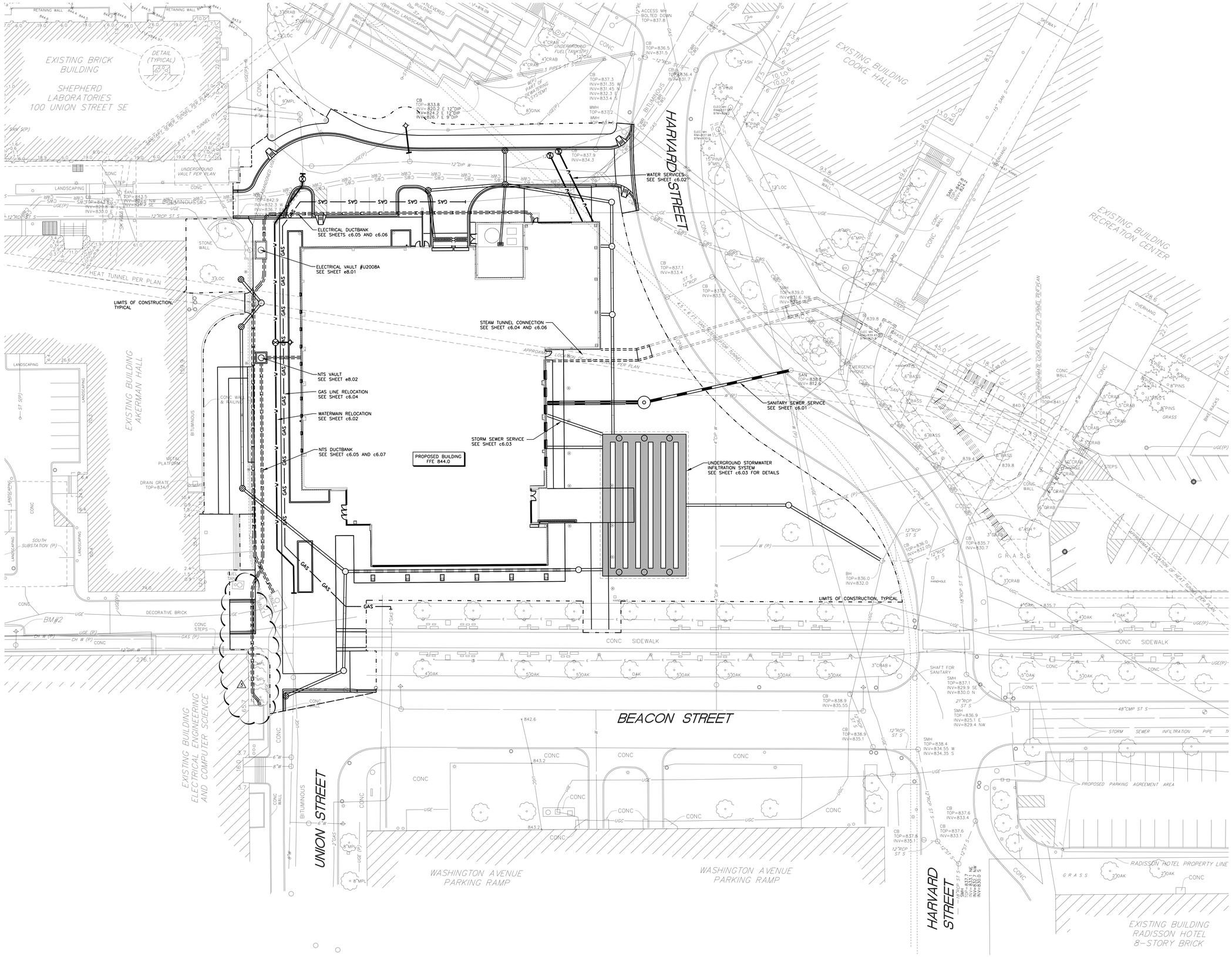
Drawing Title

GRADING AND DRAINAGE PLAN

c5.00



NORTH

1 c6.00 OVERALL SITE UTILITY PLAN

0 20' 40' 60'

1"=20'

ARCHITECTURAL ALLIANCE
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By Rhonda S. Pierce

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Date 10/14/2011 Reg. No. 41333

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2 Proposal Request No. 2	01-13-2012
3 Project Directive No. 3	05-11-2012

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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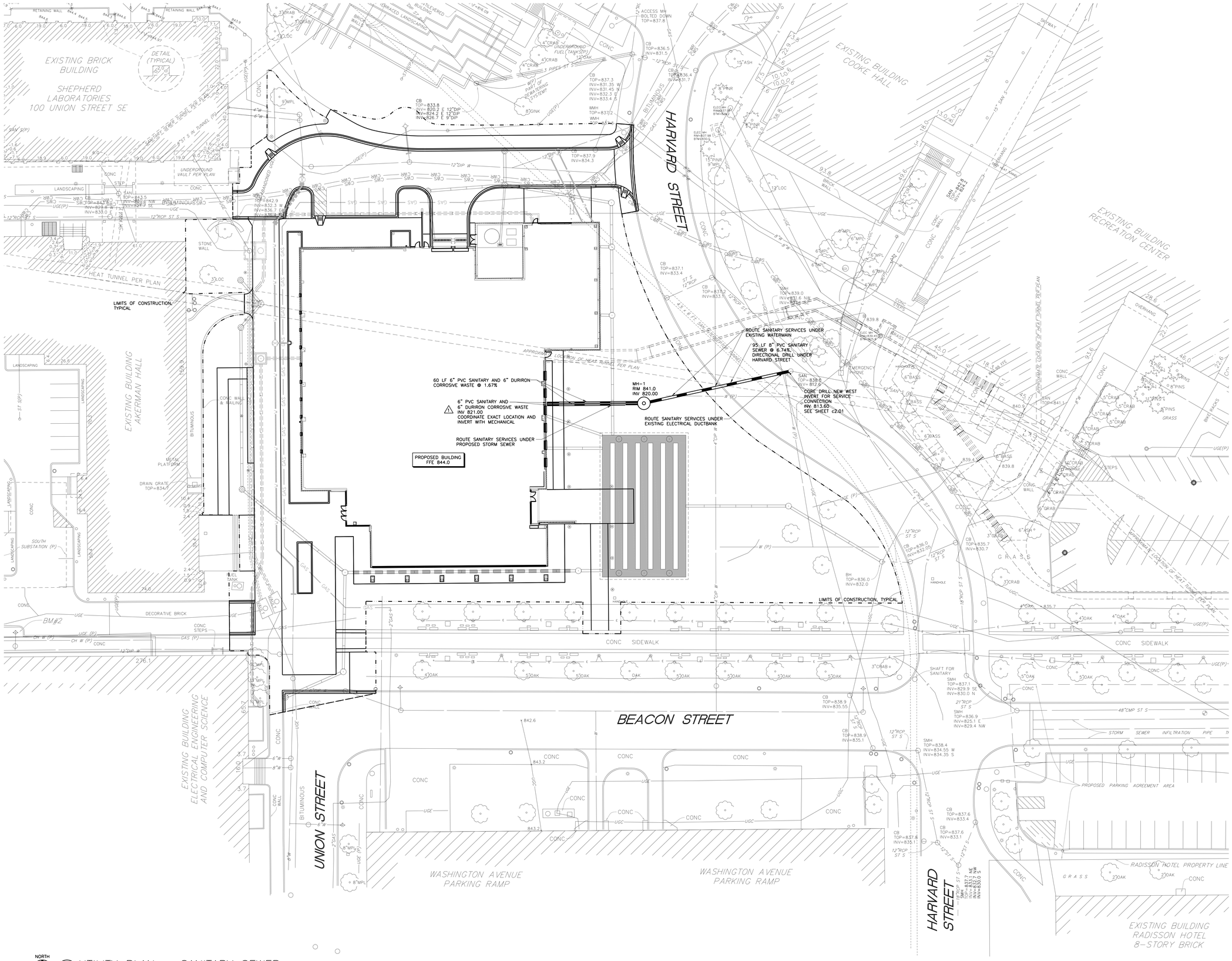
Drawing Title

OVERALL SITE UTILITY PLAN

c6.00



1 UTILITY PLAN – SANITARY SEWER
c6.01

0 20' 40' 60'

1"=20'

ARCHITECTURAL ALLIANCE
Architect of Record
400 Clifton Avenue South
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Date 10/14/2011

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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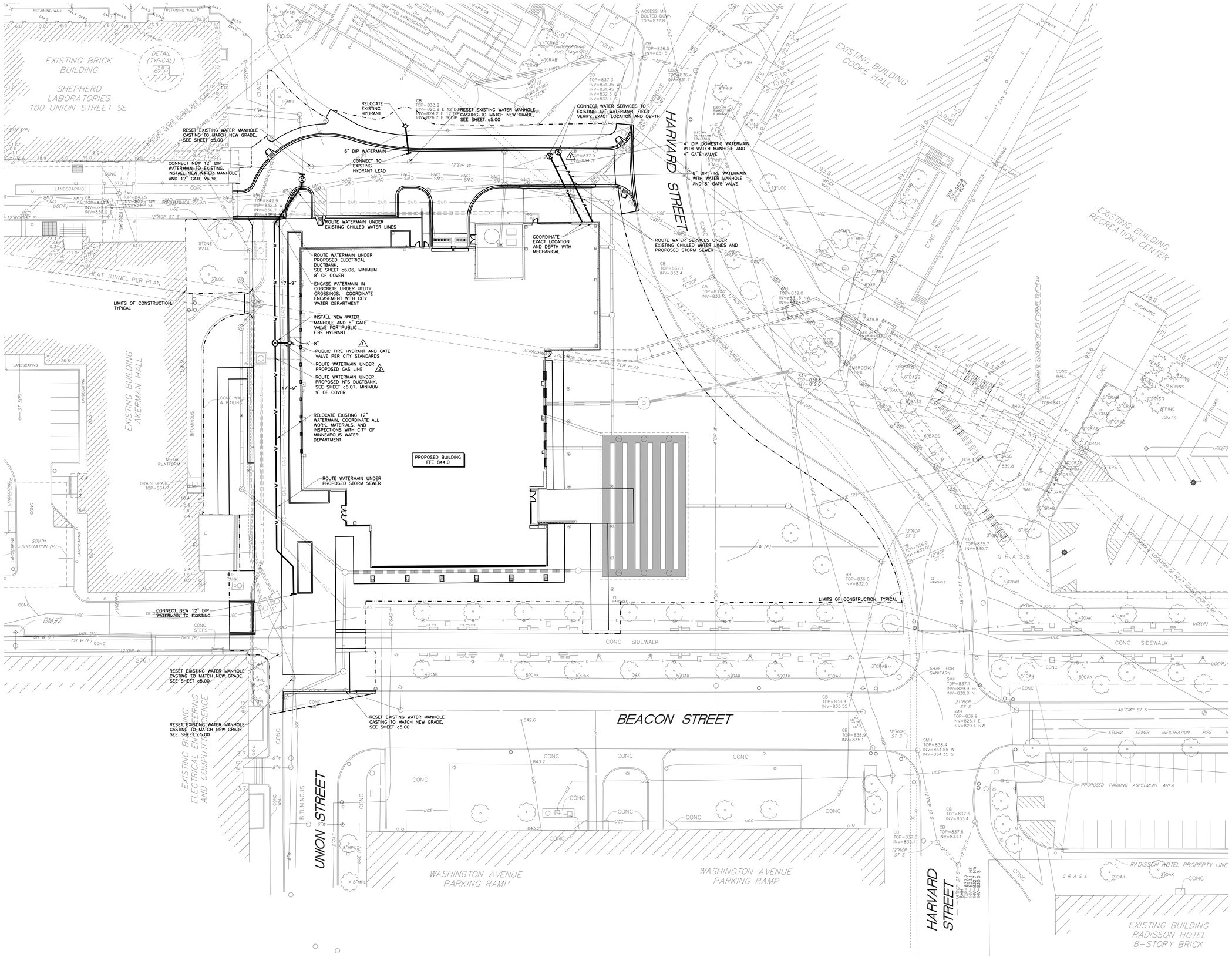
Drawing Title

UTILITY PLAN - SANITARY SEWER

c6.01



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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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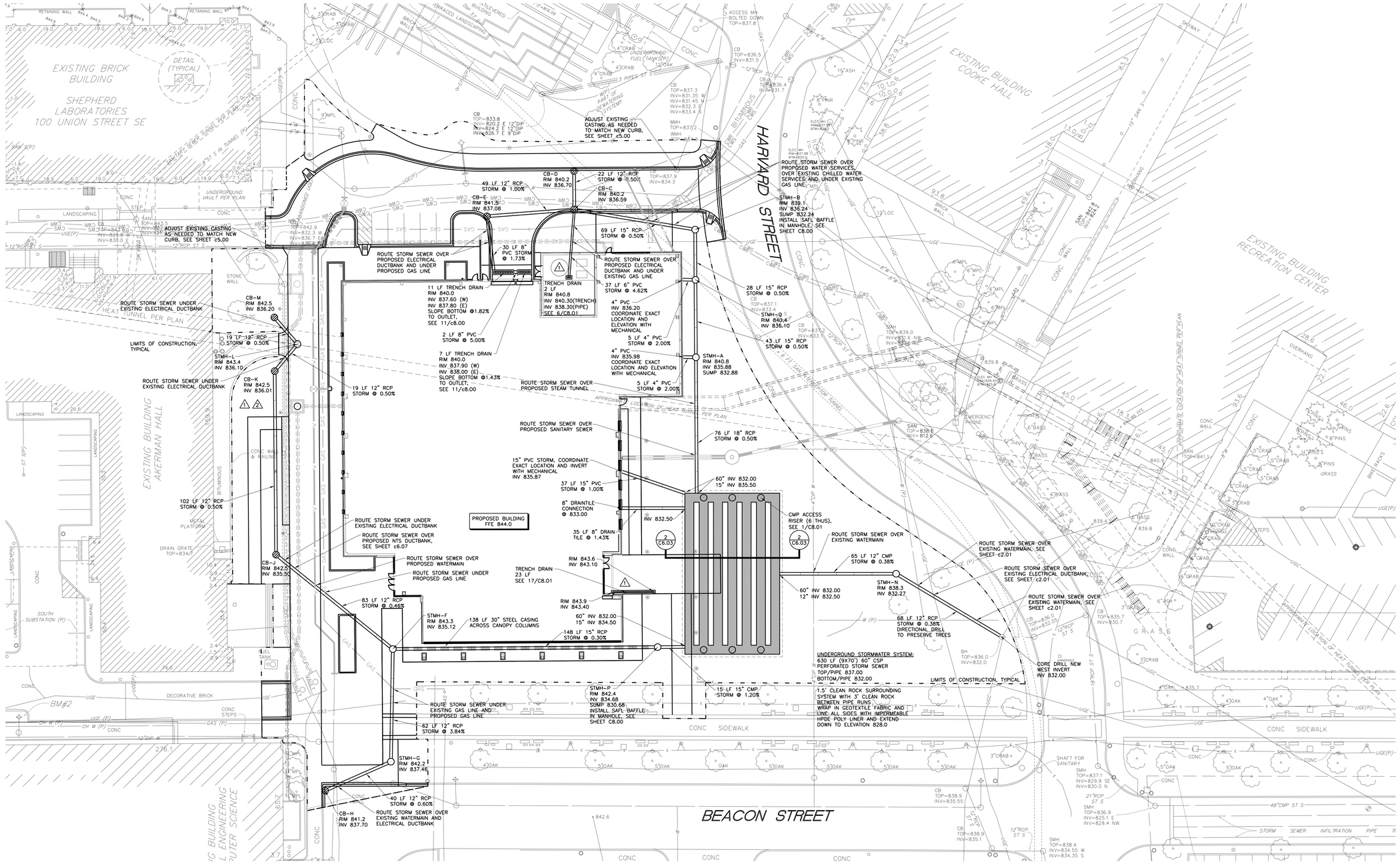
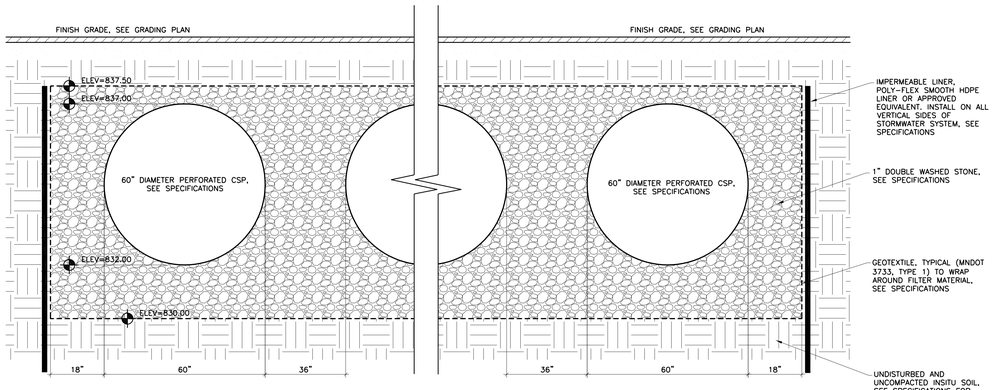
Drawing Title

UTILITY PLAN - WATERMAIN

c6.02

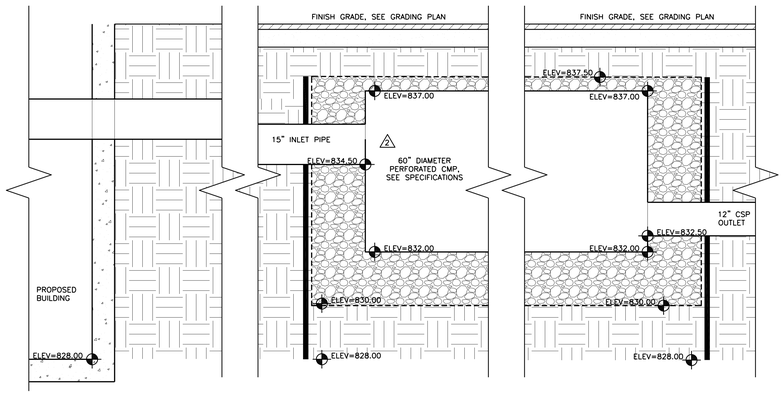


1 c6.03 UTILITY PLAN – STORM SEWER



2 c6.03 UNDERGROUND FILTRATION SYSTEM – CROSS SECTION

NO SCALE



3 c6.03 UNDERGROUND FILTRATION SYSTEM – PROFILE

NO SCALE

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By Rhonda S. Pierce

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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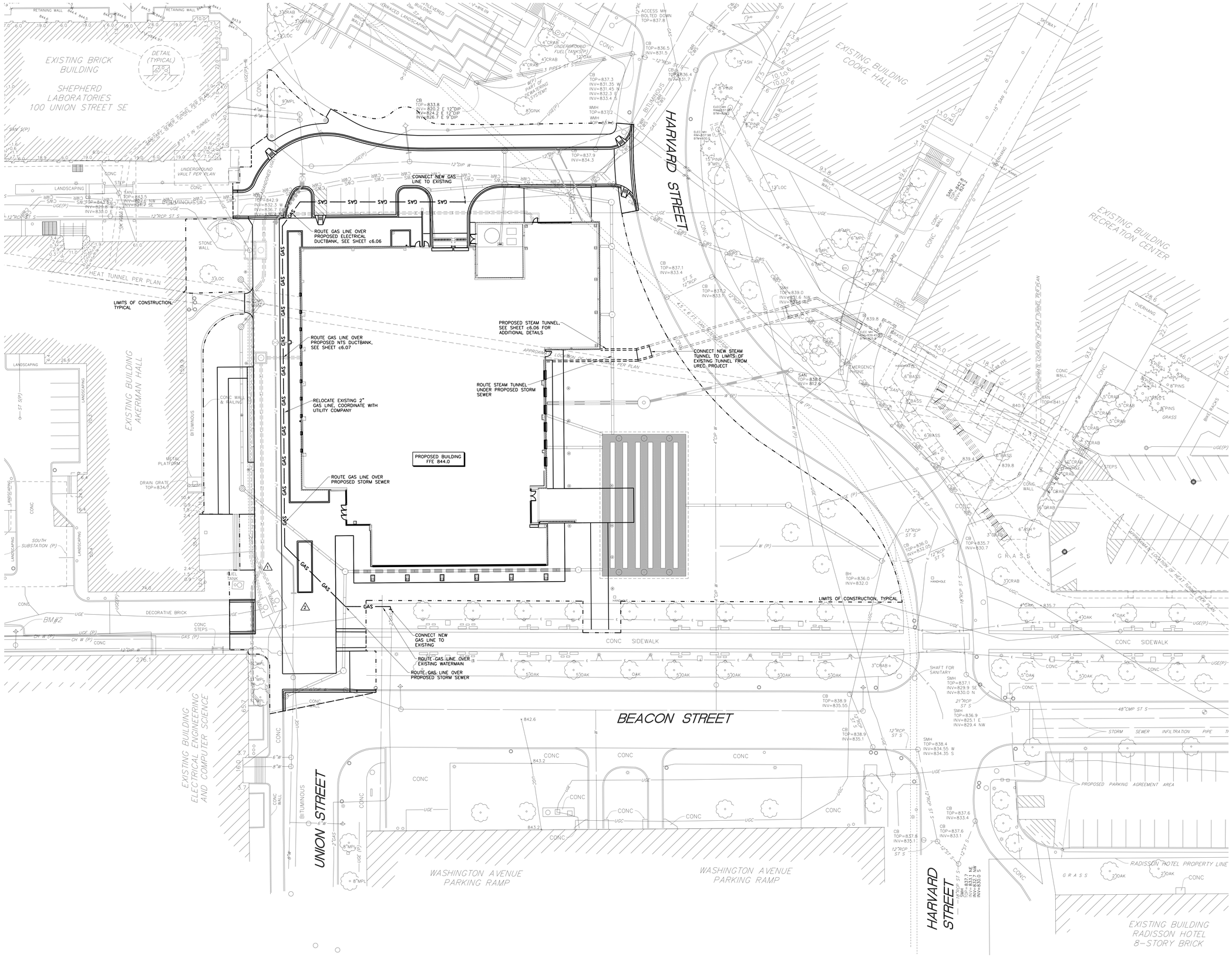
Drawing Title

UTILITY PLAN - STORM SEWER

c6.03



1 c6.04 UTILITY PLAN – STEAM TUNNEL AND GAS LINES

0 20' 40' 60'

1"=20'

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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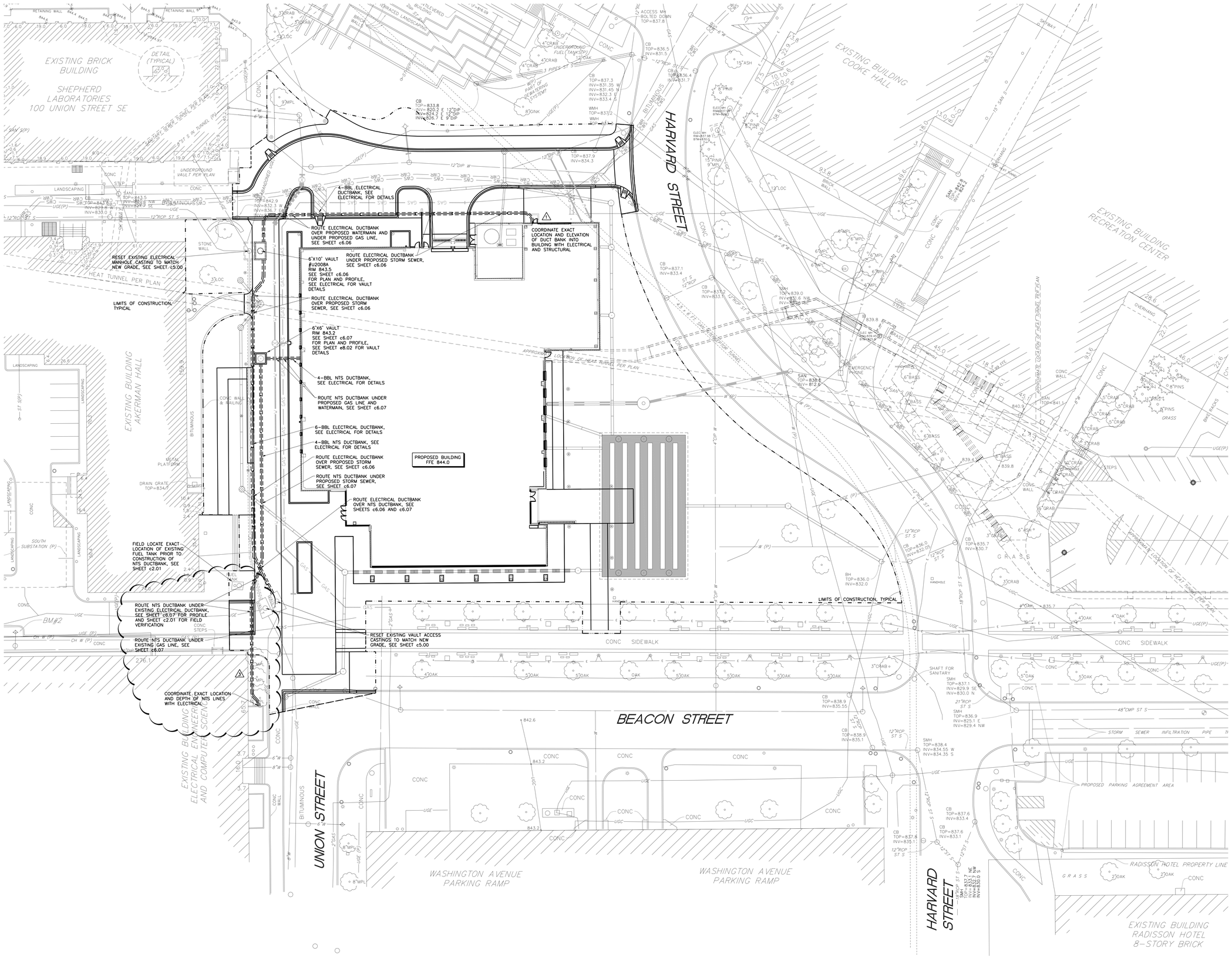
Drawing Title

UTILITY PLAN - STEAM TUNNEL AND GAS LINES

c6.04



1 UTILITY PLAN – ELECTRICAL DUCTBANK AND NTS DUCTBANK
c6.05

1"=20'

ARCHITECTURAL ALLIANCE
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400 Clifton Avenue South
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3 Project Directive No. 3	05-11-2012

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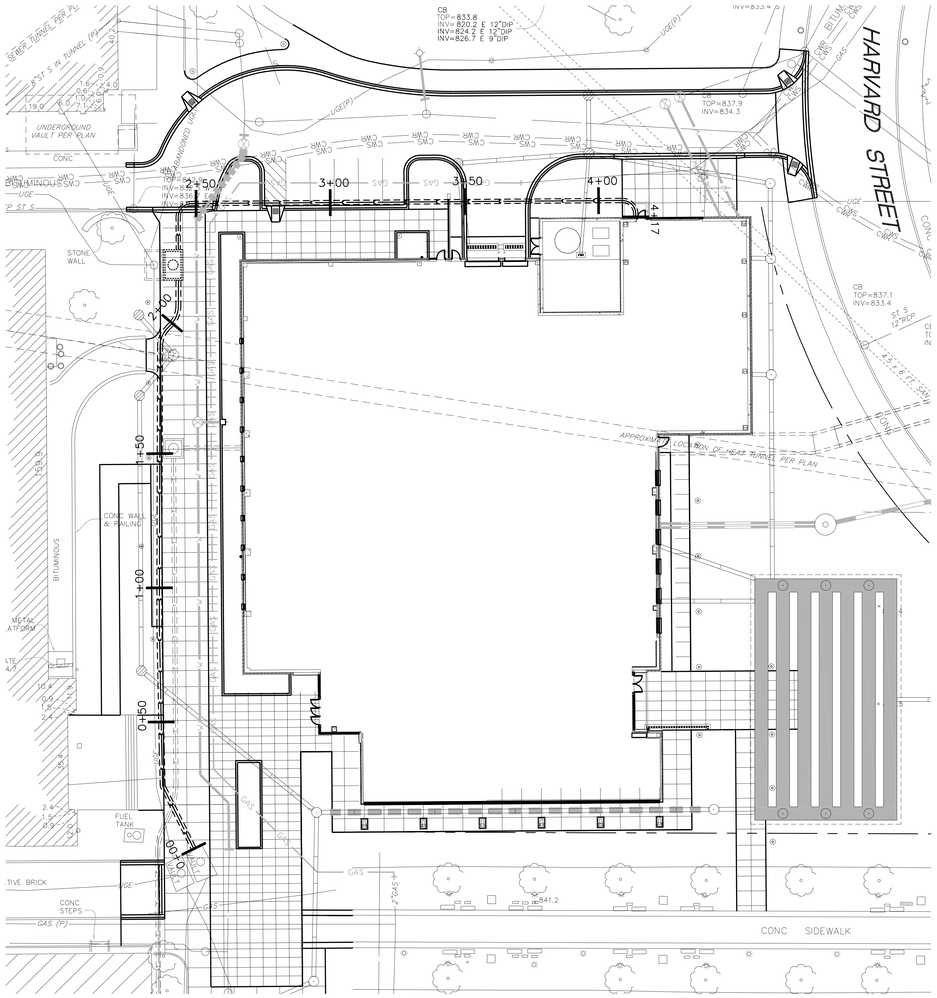
Drawing Title

UTILITY PLAN - ELECTRICAL DUCTBANK AND NTS DUCTBANK

c6.05

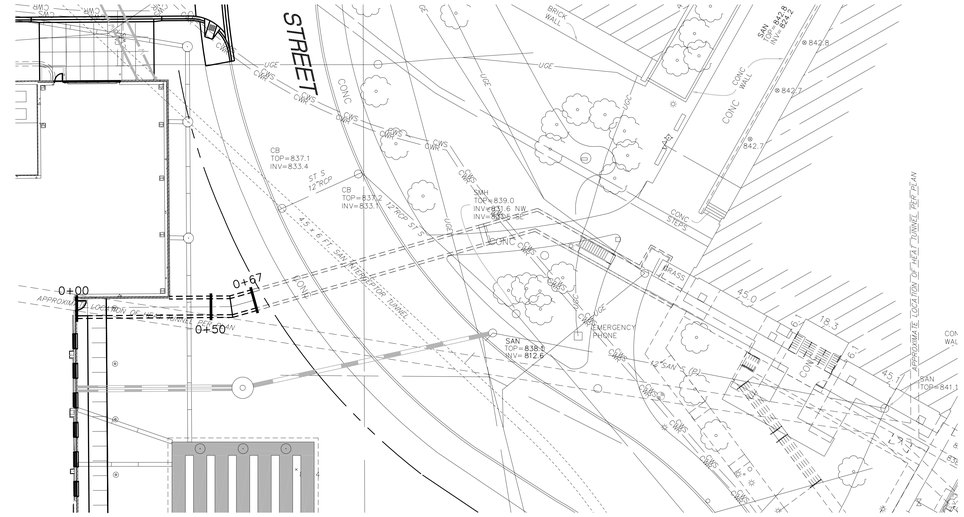


NORTH

2 ELECTRICAL DUCTBANK PLAN AND PROFILE c6.06

0 20' 40' 60'

1"=20'



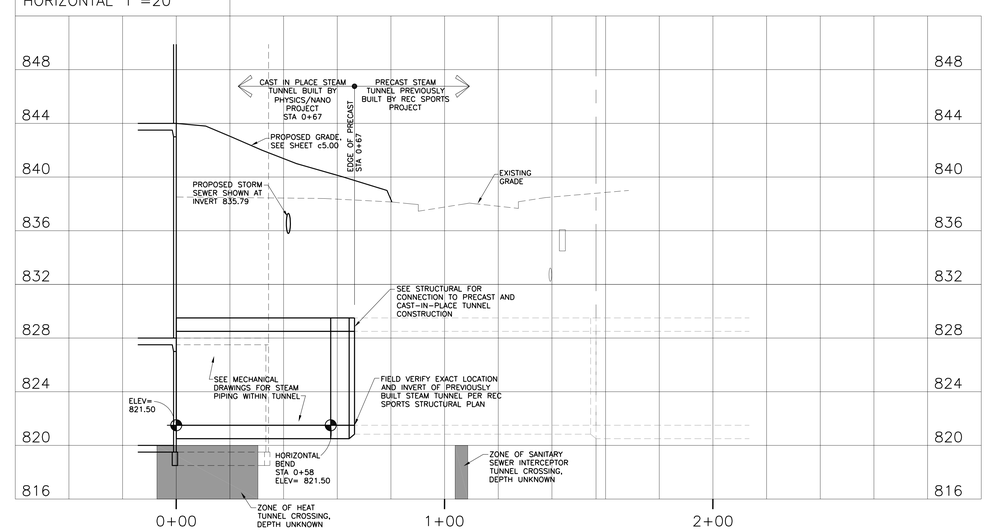
NORTH

2 STEAM TUNNEL PLAN AND PROFILE c6.06

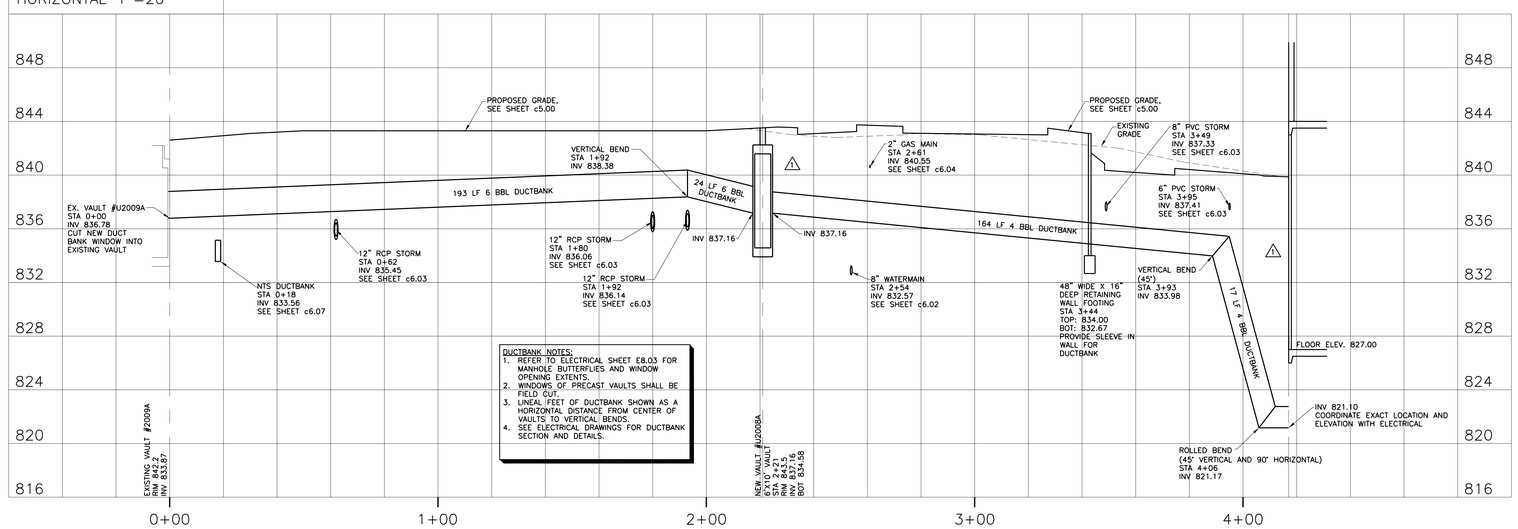
0 20' 40' 60'

1"=20'

SCALE
VERTICAL 1"=4'
HORIZONTAL 1"=20'



SCALE
VERTICAL 1"=4'
HORIZONTAL 1"=20'



DUCTBANK NOTES:
1. REFER TO ELECTRICAL SHEET E8.03 FOR MANHOLE BUTTERFLIES AND WINDOW OPENING EXTENTS.
2. WINDOWS OF PRECAST VAULTS SHALL BE FIELD CUT.
3. LINEAL FEET OF DUCTBANK SHOWN AS A HORIZONTAL DISTANCE FROM CENTER OF VAULTS TO VERTICAL BENDS.
4. SEE ELECTRICAL DRAWINGS FOR DUCTBANK SECTION AND DETAILS.

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For PIERCE PINI AND ASSOCIATES, INC.

By Rhonda S. Pierce

Name RHONDA S. PIERCE

Date 10/14/2011 Reg. No. 41333

Issued for	Date
Bid Package No. 1	10-14-2011
1 Proposal Request No. 1	12-14-2011
2 Proposal Request No. 2	01-13-2012

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Checked RSP

Date 10/14/2011

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
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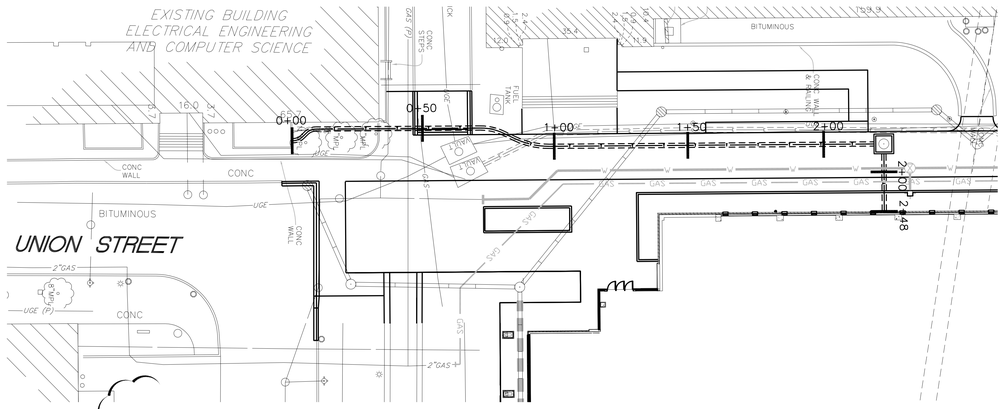
Drawing Title

STEAM TUNNEL AND ELECTRICAL DUCTBANK PLAN AND PROFILE

c6.06



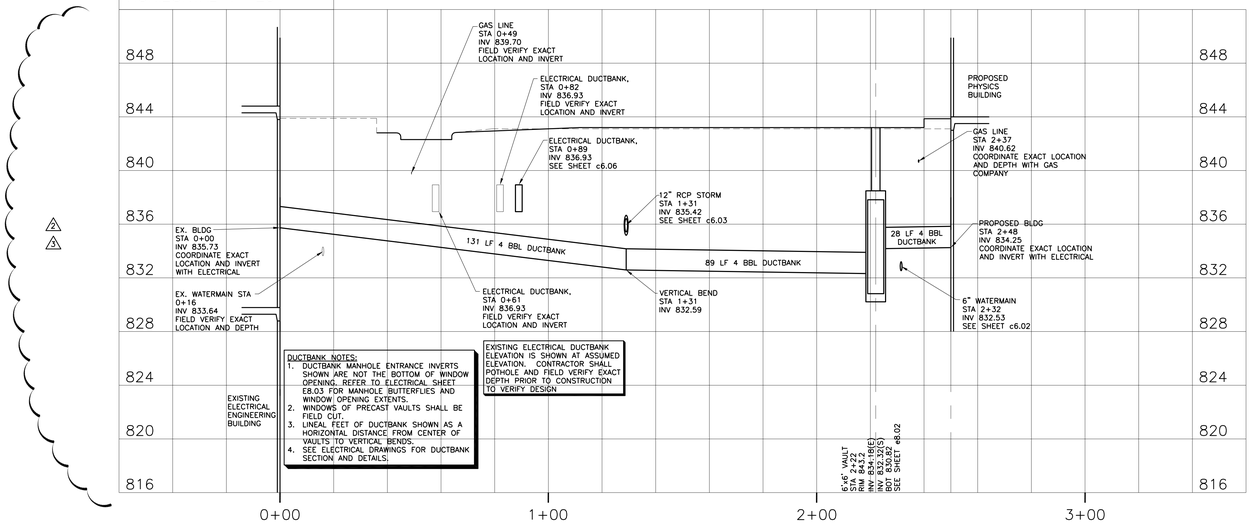
NORTH

1 c6.07 NTS DUCTBANK PLAN AND PROFILE

0 20' 40' 60'

1"=20'

SCALE
VERTICAL 1"=4'
HORIZONTAL 1"=20'



DUCTBANK NOTES:
1. DUCTBANK MANHOLE ENTRANCE INVERTS SHOWN ARE NOT THE BOTTOM OF WINDOW OPENING. REFER TO ELECTRICAL SHEET E8.03 FOR MANHOLE BUTTERFLIES AND WINDOW OPENING EXTENTS.
2. WINDOWS OF PRECAST VAULTS SHALL BE FIELD CUT.
3. LINEAL FEET OF DUCTBANK SHOWN AS A HORIZONTAL DISTANCE FROM CENTER OF VAULTS TO VERTICAL BENDS.
4. SEE ELECTRICAL DRAWINGS FOR DUCTBANK SECTION AND DETAILS.

EXISTING ELECTRICAL DUCTBANK ELEVATION IS SHOWN AT ASSUMED ELEVATION. CONTRACTOR SHALL POTHOLE AND FIELD VERIFY EXACT DEPTH PRIOR TO CONSTRUCTION TO VERIFY DESIGN

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By Rhonda S. Pierce

Name RHONDA S. PIERCE

Date 10/14/2011 Reg. No. 41333

Issued for	Date
Bid Package No. 1	10-14-2011
1 Proposal Request No. 1	12-14-2011
2 Proposal Request No. 2	01-13-2012
3 Project Directive No. 3	05-11-2012

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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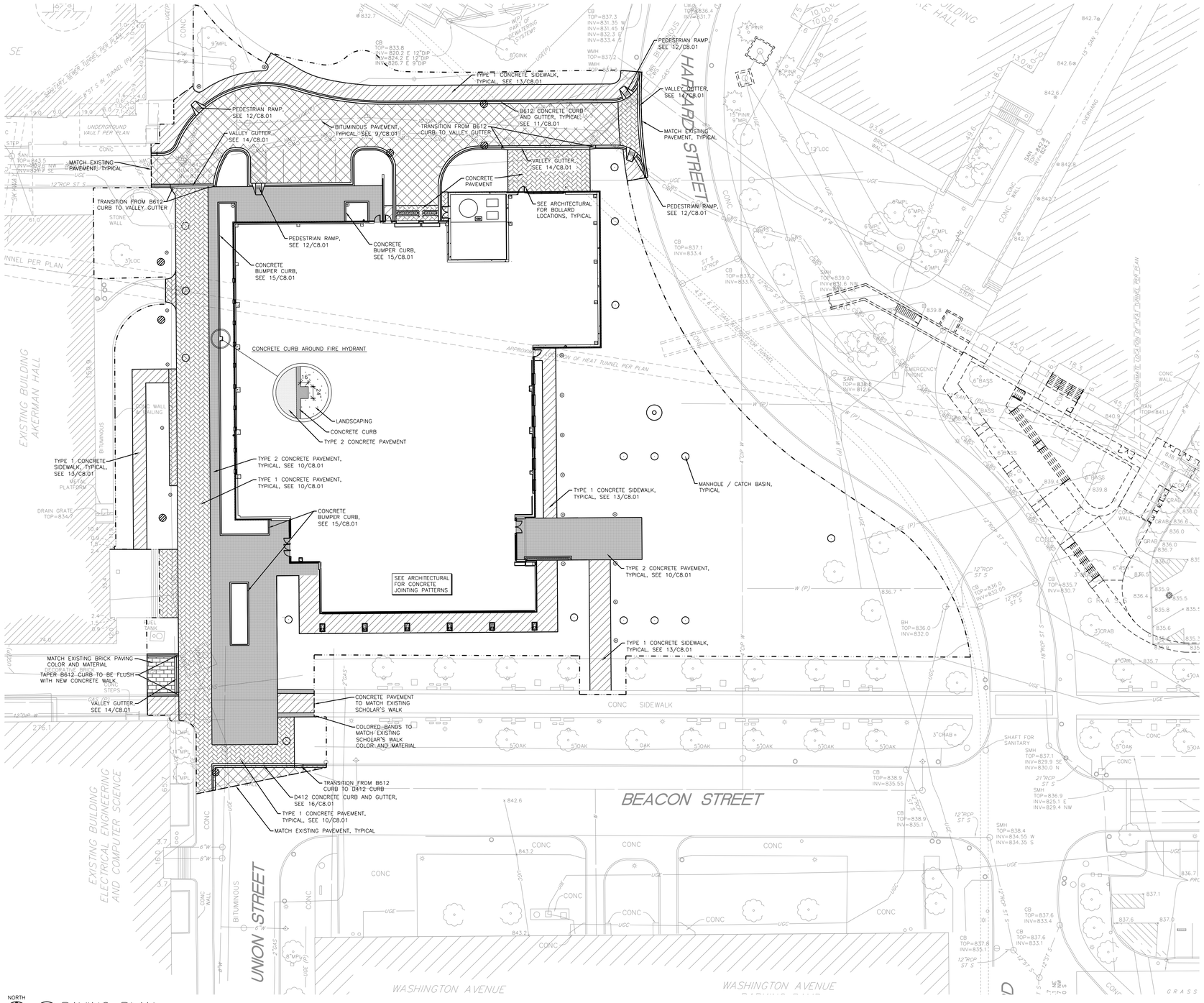
Drawing Title

NTS DUCTBANK PLAN AND PROFILE

c6.07



1 c7.00 PAVING PLAN

0 20' 40' 60'

1"=20'

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For PIERCE PINI AND ASSOCIATES, INC.

By Rhonda S. Pierce

Name RHONDA S. PIERCE

Date 02-24-2012 Reg. No. 41333

Issued for	Date
100% CD Set	12-16-2011
Bid Package No. 2	02-24-2012

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Checked RSP

Date 02-24-2012

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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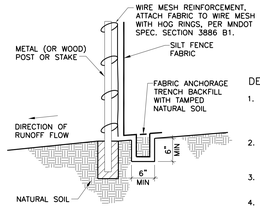
Drawing Title

PAVING PLAN

c7.00



NOTE: SILT FENCE SHALL FOLLOW MNDOT SPEC. SECTION 3886.

FIGURE 1 TYPICAL INSTALLATION FOR SILT FENCE

DESIGN RECOMMENDATIONS

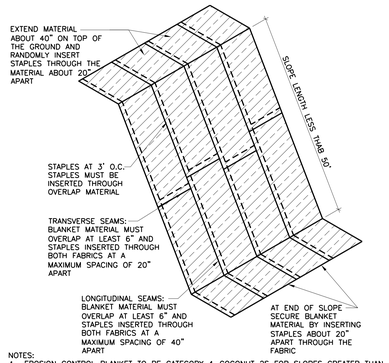
1. SILT FENCES SHOULD BE INSTALLED ON THE CONTOUR (AS OPPOSED TO UP AND DOWN A HILL) AND CONSTRUCTED SO THAT FLOW CANNOT BYPASS THE ENDS.
2. ENSURE THAT THE DRAINAGE AREA IS NO GREATER THAN 1/4 ACRE PER 100 FT OF FENCE.
3. MAKE THE FENCE STABLE FOR THE 10-YEAR PEAK STORM RUNOFF.
4. WHERE ALL RUNOFF IS TO BE STORED BEHIND THE SILT FENCE, ENSURE THAT THE MAXIMUM SLOPE LENGTH BEHIND THE FENCE DOES NOT EXCEED THE SPECIFICATIONS SHOWN IN TABLE 1.

TABLE 1 MAXIMUM SLOPE LENGTH AND SLOPE FOR WHICH SILT FENCE IS APPLICABLE

		BY CALCULATION	BY CALCULATION	BY ACCEPTED DESIGN PRACTICES
SLOPE H:V	PERCENT	SILT FENCE STORAGE EQUALES 2 FT FOR A 100-YEAR EVENT	SILT FENCE STORAGE EQUALS 2 FT FOR A 2-YEAR EVENT OR 3 FT FOR A 100-YEAR EVENT	MAXIMUM SLOPE LENGTH
100:1	1%	400 FT	900 FT	100 FT
50:1	2%	200 FT	450 FT	75 FT
25:1	4%	100 FT	225 FT	75 FT
20:1	5%	80 FT	180 FT	75-50 FT
17:1	6%	67 FT	150 FT	50 FT
12.5:1	8%	50 FT	112 FT	50 FT
10:1	10%	40 FT	90 FT	50-25 FT
5:1	20%	20 FT	45 FT	25-15 FT
4:1	25%	16 FT	36 FT	15 FT
3:1	33%	12 FT	27 FT	15 FT
2:1	50%	8 FT	18 FT	15 FT

1 c8.00 HEAVY DUTY SILT FENCE DETAIL

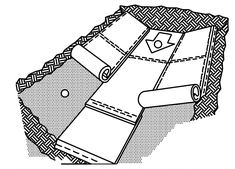
NO SCALE



NOTES:
1. EROSION CONTROL BLANKET TO BE CATEGORY 4-COCONUT 2S FOR SLOPES GREATER THAN 5:1 AND SIDES AND BOTTOM OF ALL DRAINAGE SWALES AND PONDING AREAS AND CATEGORY 2-STRAW 2S FOR ALL SLOPES LESS THAN 5:1 PER MNDOT SPEC. SECTION 3885.
2. INSTALL PER MNDOT SPEC. SECTION 2575

2 c8.00 EROSION CONTROL BLANKET

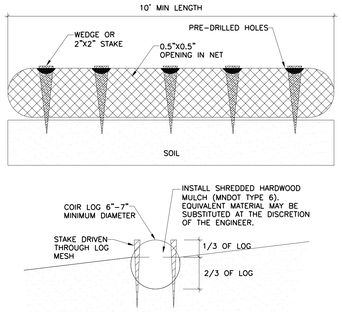
NO SCALE



1. BEFORE INSTALLATION APPLY TOPSOIL, FERTILIZER AND SEED TO SURFACE.
2. BEGIN AT THE TOP OF THE CHANNEL, INSTALL MATS BY ANCHORING IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF MAT EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR WITH A ROW OF STAPLES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF MAT BACK OVER SEED AND SOIL. SECURE MATS WITH A WITH A ROW OF STAPLES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE MATS.
3. ROLL CENTER MATS IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL.
4. PLACE CONSECUTIVE AND ADJACENT MATS END OVER END (SHINGLE STYLE) WITH A MINIMUM 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE OVERLAPPED MATS.
5. FULL LENGTH EDGE OF MATS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH.
6. THE TERMINAL END OF MATS MUST BE ANCHORED WITH A ROW OF STAPLES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH.
7. BACKFILL AND SEED AFTER STAPLING.
8. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR PROPER INSTALLATION.

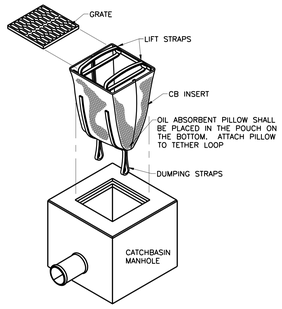
3 c8.00 EROSION STABILIZATION MATS

NO SCALE



4 c8.00 COIR LOG

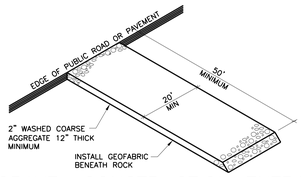
NO SCALE



1. OIL ABSORBENT PILLOW SHALL BE REMOVED AND REPLACED WHEN NEAR SATURATION.
2. USE DANDY BAG I® AS MANUFACTURED BY DANDY PRODUCTS, INC.
3. AN EQUIVALENT CATCHBASIN EROSION CONTROL INSERT METHOD OR PRODUCT MAY BE USED WITH PRIOR APPROVAL FROM ENGINEER.

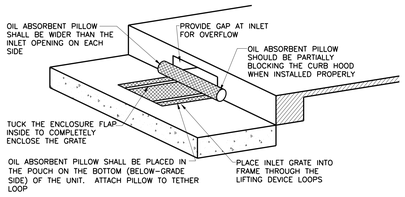
5 c8.00 CB INSERT EROSION CONTROL

NO SCALE



6 c8.00 GRAVEL CONSTRUCTION ENTRANCE

NO SCALE



1. OIL ABSORBENT PILLOW SHALL BE REMOVED AND REPLACED WHEN NEAR SATURATION.
2. PROVIDE BEAVER DAM® AS MANUFACTURED BY DANDY PRODUCTS, INC.
3. AN EQUIVALENT CURB INLET EROSION CONTROL METHOD OR PRODUCT MAY BE USED WITH APPROVAL FROM ENGINEER.

7 c8.00 OIL ABSORBENT PILLOW

NO SCALE

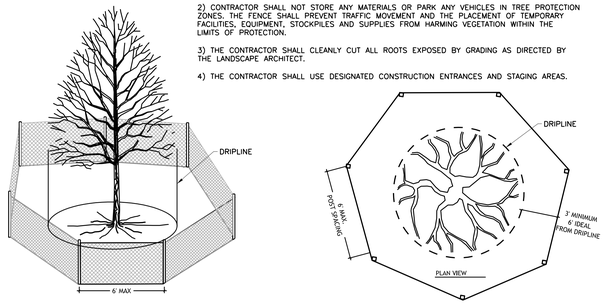
NOTES:

1) ALL TREE PROTECTION FENCING AND EROSION CONTROL FENCING SHALL BE INSTALLED ACCORDING TO THE PLANS PRIOR TO ANY DEMOLITION, AFTER DEMOLITION OR AS NECESSARY. TREE PROTECTION FENCING MAY BE RELOCATED WITH APPROVAL FROM THE LANDSCAPE ARCHITECT. ALL TREE PROTECTION FENCING AND EROSION CONTROL DEVICES SHALL BE MAINTAINED FOR THE DURATION OF THE CONSTRUCTION PERIOD.

2) CONTRACTOR SHALL NOT STORE ANY MATERIALS OR PARK ANY VEHICLES IN TREE PROTECTION ZONES. THE FENCE SHALL PREVENT TRAFFIC MOVEMENT AND THE PLACEMENT OF TEMPORARY FACILITIES, EQUIPMENT, STOCKPILES AND SUPPLIES FROM HARMING VEGETATION WITHIN THE LIMITS OF PROTECTION.

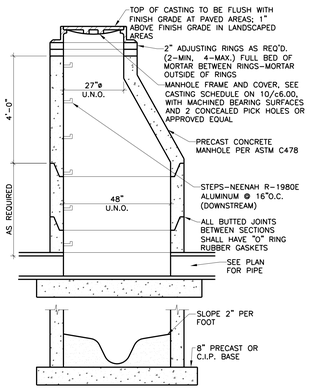
3) THE CONTRACTOR SHALL CLEANLY CUT ALL ROOTS EXPOSED BY GRADING AS DIRECTED BY THE LANDSCAPE ARCHITECT.

4) THE CONTRACTOR SHALL USE DESIGNATED CONSTRUCTION ENTRANCES AND STAGING AREAS.



8 c8.00 TREE PROTECTION FENCE

NO SCALE



NOTES:

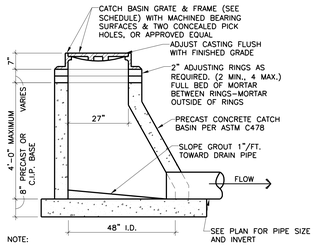
1. MANHOLES 8' OR DEEPER - THE PRECAST SECTION IMMEDIATELY BELOW THE CONCRETE SECTION SHALL BE 1'-0" HIGH.
2. PROVIDE STEPS IN MANHOLES OVER 4-0" IN DEPTH.
3. REINFORCING SHALL BE A MINIMUM OF A SINGLE LINE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
4. PROVIDE SNAP-IN BOOT AT ALL SANITARY SEWER CONNECTIONS TO MANHOLES.

9 c8.00 STANDARD SEWER MANHOLE

NO SCALE

CASTING SCHEDULE

CATCH BASIN/MANHOLE	GRATE TYPE (NEENAH)	REMARKS
C, D, E, H,	R-3250-A	CURB INLET
A, B, F, G, L, N, P, Q	R-1642-A	STAMPED "STORM"
J, K, M	R-2561-A	BEEHIVE
1	R-1642-A	STAMPED "SANITARY"
CMP RISERS	R-1654	STAMPED "STORM"

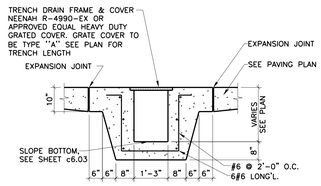


NOTE:

1. REINFORCING SHALL BE A MINIMUM OF A SINGLE LINE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
2. ALL STORM SEWER PIPING RUNS SHALL USE RESILIENT RUBBER JOINTS AT PIPE CONNECTIONS TO CATCH BASINS FOR WATERTIGHT CONNECTION PER PLUMBING CODE.

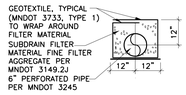
10 c8.00 SHALLOW CATCH BASIN

NO SCALE



11 c8.00 TRENCH DRAIN - LOADING DOCK

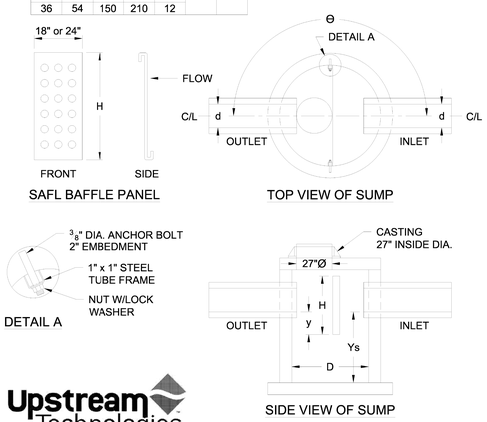
NO SCALE



12 c8.00 DRAIN TILE DETAIL

NO SCALE

d (IN.)	H (IN.)	Θ (DEG.) MIN.	Θ (DEG.) MAX.	y (IN.)	Ys	D
12	34	130	230	12	MIN. 4 FT.	VARIES
15	34	130	230	12		
18	34	130	230	12		
21	44	140	220	12		
24	44	140	220	12		
27	44	140	220	12		
30	54	150	210	12		
36	54	150	210	12		



Upstream Technologies

UPSTREAM TECHNOLOGIES INC. IS THE EXCLUSIVE LICENSEE OF THE SAFL BAFFLE

This generic detail does not encompass the sizing, fit, and applicability of the SAFL Baffle for this specific project. It is the ultimate responsibility of the design engineer to assure that the design is in compliance with all applicable laws and regulations. The SAFL Baffle is patent pending technology of the University of Minnesota and Upstream Technologies, Inc. Neither the University of Minnesota nor Upstream Technologies approves plans, sizing, or system designs.	SAFL BAFFLE STRUCTURE STANDARD SUMP MANHOLE W/BAFFLE © 2011 UPSTREAM TECHNOLOGIES INC.	SAFL BAFFLE

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For PIERCE PINI AND ASSOCIATES, INC.

By Rhonda S. Pierce

Name RHONDA S. PIERCE

Date 10/14/2011 Reg. No. 41333

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Checked RSP

Date 10/14/2011

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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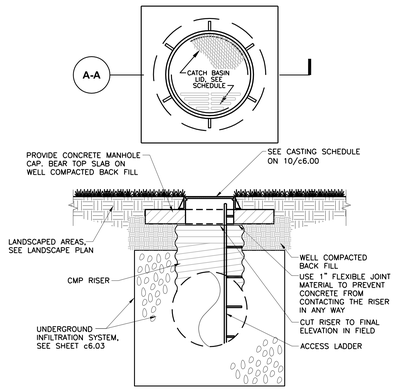
Drawing Title

CIVIL DETAILS

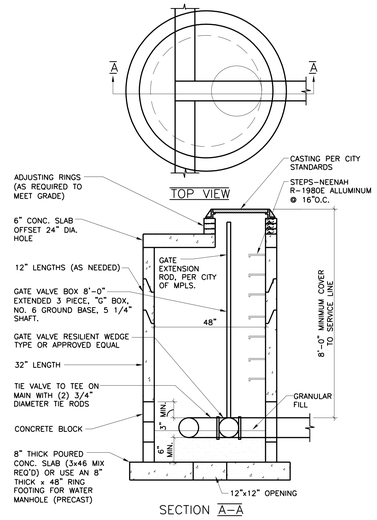
c8.00



SECTION A-A

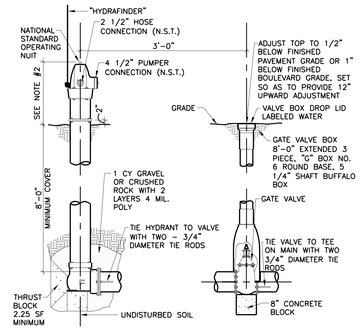
NOTES:
1. THE CONCRETE CAP SHALL BE PLACED SO THAT THE LOADS ARE TRANSMITTED TO THE SOIL, AND NOT THE RISER.
2. THE CONCRETE CAP SHALL BE SIZED TO PROVIDE AN ADEQUATE BOTTOM AREA BASED ON THE ALLOWABLE BEARING CAPACITY OF THE SOIL.
3. THE FLEXIBLE JOINT MATERIAL TO BE STIFF ENOUGH SO THAT THE CONCRETE CAN NEVER ENGAGE WITH THE RISER CORRUGATIONS.

1 c8.01 CMP RISER DETAIL — NO SCALE



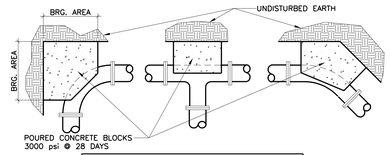
SECTION A-A

2 c8.01 TYPICAL WET TAP WATER MANHOLE INSTALLATION — NO SCALE
NOTE: SEE CITY OF MINNEAPOLIS STANDARDS



NOTES:
1. ALL FIRE HYDRANTS SHALL BE PAINTED PER CITY REQUIREMENTS.
2. TOP OF FIRE HYDRANT DESIGN ELEVATION SHALL BE 2.5" ABOVE FINISHED GRADE.
3. TOPS OF VALVE BOXES SHALL BE SET SO AS TO PROVIDE 12" UPWARD ADJUSTMENT.
4. COMPLY WITH CITY OF MINNEAPOLIS STANDARDS.
5. FIRE HYDRANTS CAPS TO BE CHAINED. PROVIDE PENTAGON NUT ON CAPS.

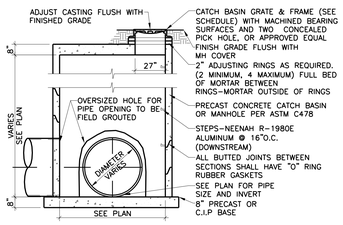
3 c8.01 FIRE HYDRANT AND GATE VALVE — NO SCALE



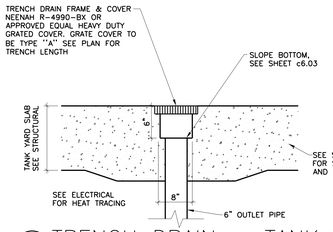
BEARING AREA OF BLOCK IN SQ. FT.			
FITTING SIZE	TEE & END	90° BEND	45° BEND
3"	0.6	0.9	0.5
4"	1.1	1.5	0.8
6"	2.4	3.4	1.9
8"	4.3	6.1	3.3
10"	6.7	9.5	5.2
12"	9.7	13.7	7.4

NOTE:
1. CONTRACTOR MAY PROVIDE "MEGALUG" JOINT RESTRAINT AS AN ALTERNATIVE TO CONCRETE THRUST BLOCKS. TIE MINIMUM 3 JOINTS EACH SIDE OF FITTING.

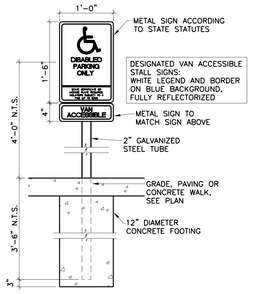
4 c8.01 TYPICAL THRUST BLOCK DETAIL — NO SCALE



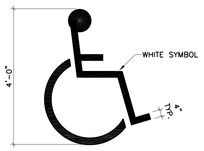
5 c8.01 LARGE DIAMETER MANHOLE — NO SCALE



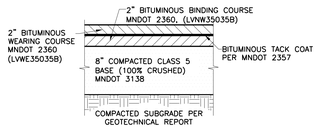
6 c8.01 TRENCH DRAIN – TANK YARD — NO SCALE



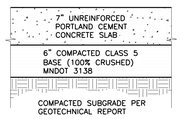
7 c8.01 ACCESSIBLE PARKING SIGN DETAIL — NO SCALE



8 c8.01 ADA PARKING SYMBOL — NO SCALE

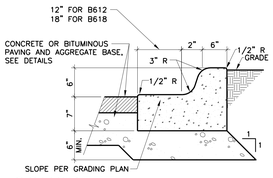


9 c8.01 BITUMINOUS PAVEMENT DETAIL — NO SCALE

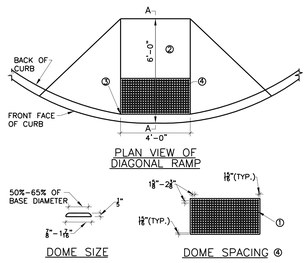


NOTES: PROVIDE CONTRACTION JOINTS AT 10' O.C. MAX. IN BOTH DIRECTIONS

10 c8.01 CONCRETE PAVEMENT — NO SCALE



11 c8.01 CONCRETE CURB & GUTTER (B612/B618) — NO SCALE

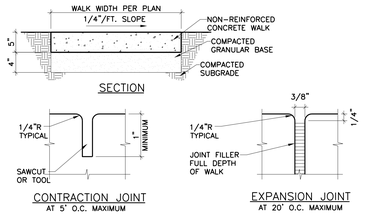


NOTE:

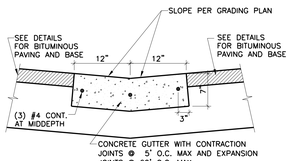
TO COMPLY WITH THE AMERICANS DISABILITIES ACT (ADA), ALL STATE AND LOCAL AGENCIES ARE REQUIRED TO COMPLY WITH THIS STANDARD PLATE.

1. ½ INCH PERFORMED JOINT FILLER MATERIAL, AASHTO M213.
2. WHEN POSSIBLE, PROVIDE A CLEAR PATH OF TRAVEL 4'-0" WIDE BEHIND THE PEDESTRIAN RAMP. A RELATIVELY FLAT 4' X 4' WILL ALLOW WHEELCHAIRS TO NAVIGATE AROUND THE PEDESTRIAN RAMP. NO SIGNALS, SIGNS, CABINETS, OR OTHER OBSTRUCTIONS ARE ALLOWED IN THE RAMP OF PATH OF TRAVEL
3. PLACE THE DETECTABLE WARNINGS (TRUNCATED DOMES) AT THE BACK OF CURB. WHEN THE DETECTABLE SHALL BE HAND FORMED TO FILL THE GAP.
4. ADA REQUIRED TRUNCATED DOME AREA SHALL BE 2'-0" MIN. IN DIRECTION OF TRAVEL AND SHALL CONTRAST VISUALLY WITH THE ADJACENT WALKING SURFACE. THE ENTIRE TRUNCATED DOME AREA SHALL BE A LIGHT (GRAY OR BUFF) COLOR WHEN THE ADJACENT SIDEWALK IS A DARK COLOR (RED OR DARK GRAY) WHEN THE ADJACENT SIDEWALK IS A LIGHT GRAY CEMENT COLOR.

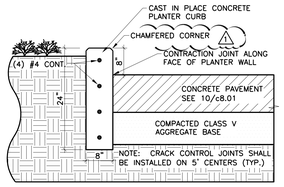
12 c8.01 PEDESTRIAN CURB RAMP — NO SCALE



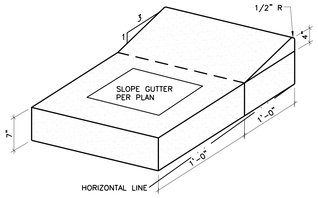
13 c8.01 CONCRETE WALK & JOINT DETAILS — NO SCALE



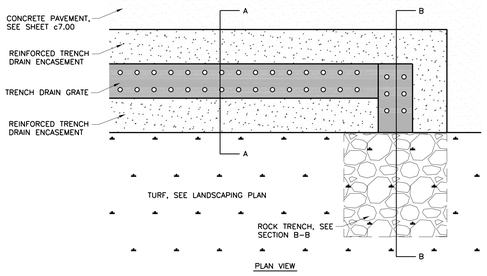
14 c8.01 VALLEY GUTTER — NO SCALE

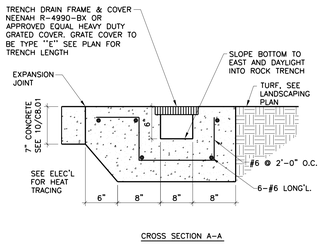


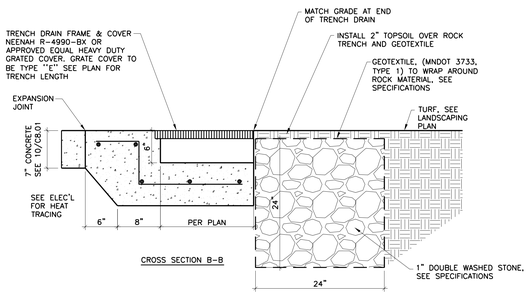
15 c8.01 CONCRETE BUMPER CURB — NO SCALE



16 c8.01 CONCRETE CURB & GUTTER (D412) — NO SCALE







17 c8.01 TRENCH DRAIN – EAST ENTRY — NO SCALE

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

For PIERCE PINI AND ASSOCIATES, INC.

By Rhonda S. Pierce

Name RHONDA S. PIERCE

Date 10/14/2011 Reg. No. 41333

Issued for	Date
Bid Package No. 1	10-14-2011
1 Proposal Request No. 1	12-14-2011
2 Proposal Request No. 2	01-13-2012

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Date 10/14/2011

Project

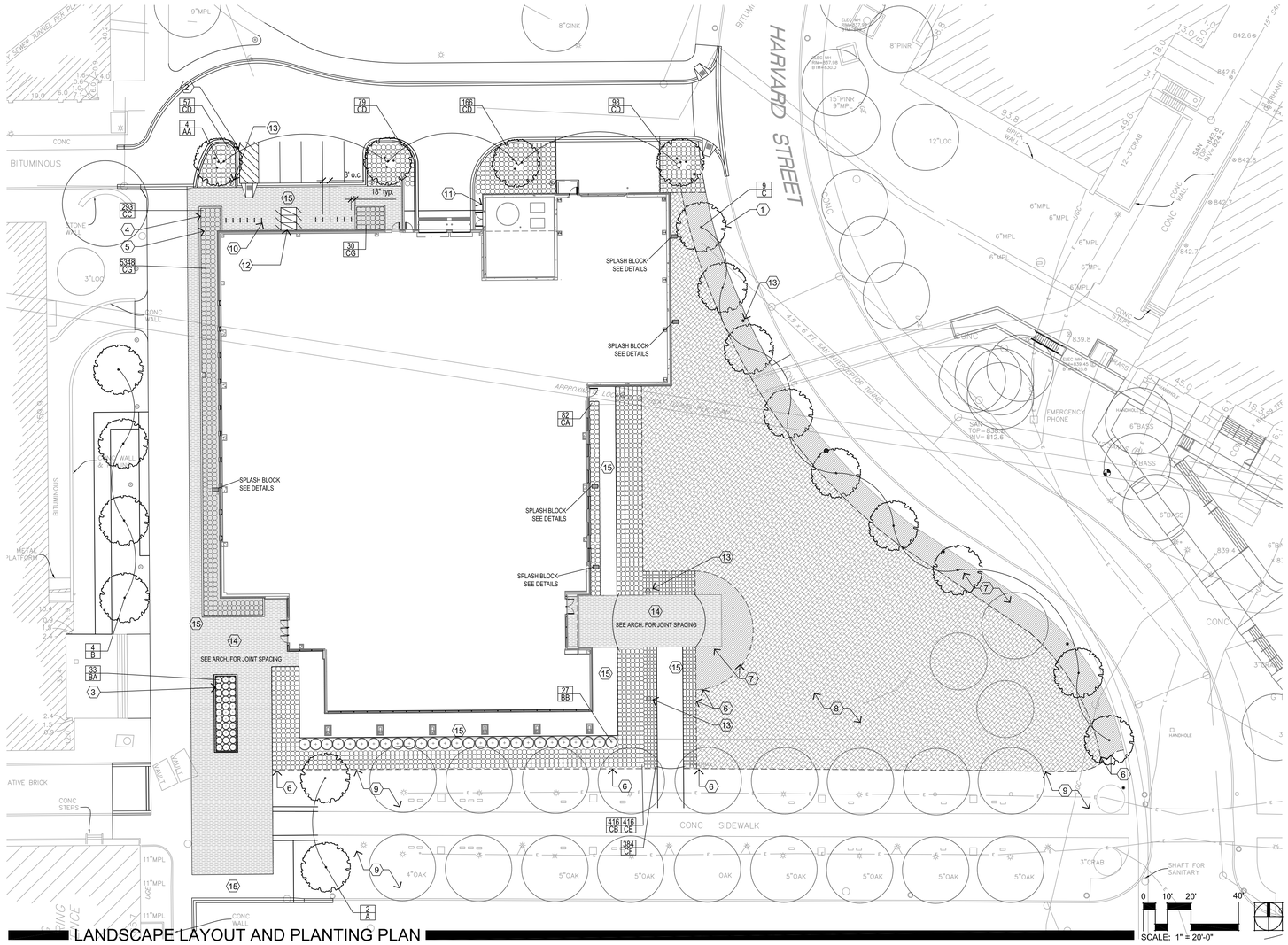
Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

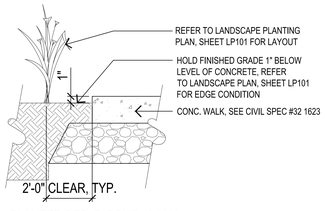
UNIVERSITY OF MINNESOTA
Driven to Discover℠

Drawing Title
CIVIL DETAILS

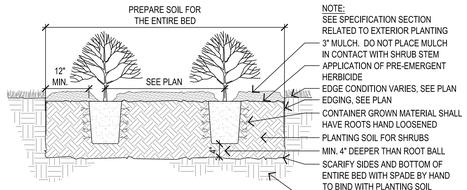
c8.01



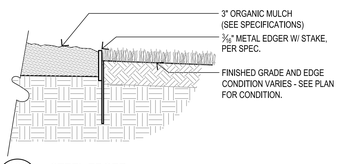
LANDSCAPE LAYOUT AND PLANTING PLAN



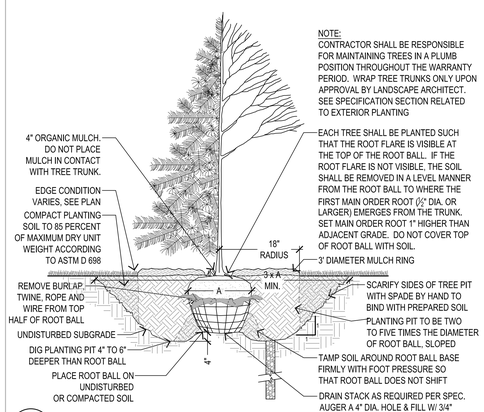
1 L100 PLANTER BED @ CONC. WALK
SCALE: 1 1/2" = 1'-0"



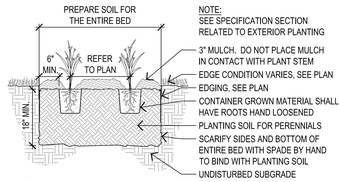
3 L100 SHRUB PLANTING DETAIL
SCALE: 3/4" = 1'-0"
PLANTING DETAIL - SHRUB.DWG



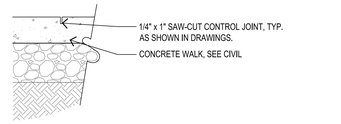
6 L100 STEEL EDGER
SCALE: 1-1/2" = 1'-0"
DETAIL - STEEL EDGER.DWG



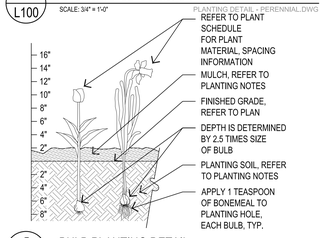
2 L100 TREE PLANTING DETAIL
SCALE: 1/2" = 1'-0"
PLANTING DETAIL - TREE.DWG



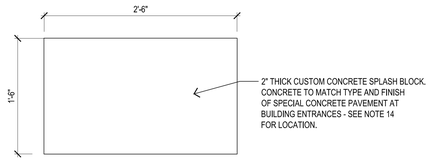
4 L100 PERENNIAL PLANTING DETAIL
SCALE: 3/4" = 1'-0"
PLANTING DETAIL - PERENNIAL.DWG



7 L100 CONCRETE PAVEMENT
SCALE: 1-1/2" = 1'-0"
CONCRETE PAVEMENT.DWG



5 L100 BULB PLANTING DETAIL
SCALE: 3/4" = 1'-0"
PLANTING DETAIL - BULB.DWG



8 L100 CUSTOM CONCRTE SPLASHBLOCK
SCALE: 1-1/2" = 1'-0"
SPLASHBLOCK

LANDSCAPE DETAILS

GENERAL NOTES

1. LANDSCAPE CONTRACTOR SHALL INSPECT THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS RELATING TO THE NATURE AND SCOPE OF WORK.
2. LANDSCAPE CONTRACTOR SHALL VERIFY PLAN LAYOUT AND BRING TO THE ATTENTION OF THE LANDSCAPE ARCHITECT DISCREPANCIES WHICH MAY COMPROMISE THE DESIGN OR INTENT OF THE LAYOUT.
3. LANDSCAPE CONTRACTOR SHALL ASSURE COMPLIANCE WITH APPLICABLE CODES AND REGULATIONS GOVERNING THE WORK AND MATERIALS SUPPLIED.
4. LANDSCAPE CONTRACTOR SHALL PROTECT EXISTING ROADS, CURBS/GUTTERS, TRAILS, TREES, LAWNS AND SITE ELEMENTS DURING CONSTRUCTION OPERATIONS. DAMAGE TO SAME SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
5. LANDSCAPE CONTRACTOR SHALL VERIFY ALIGNMENT AND LOCATION OF UNDERGROUND AND ABOVE GRADE UTILITIES AND PROVIDE THE NECESSARY PROTECTION FOR SAME BEFORE CONSTRUCTION BEGINS.
6. LANDSCAPE CONTRACTOR SHALL COORDINATE THE PHASES OF CONSTRUCTION AND PLANTING INSTALLATION WITH OTHER CONTRACTORS WORKING ON SITE.
7. UNDERGROUND UTILITIES SHALL BE INSTALLED SO THAT TRENCHES DO NOT CUT THROUGH ROOT SYSTEMS OF EXISTING TREES TO REMAIN.
8. EXISTING CONTOURS, TRAILS, VEGETATION, CURB/GUTTER AND OTHER ELEMENTS ARE BASED UPON INFORMATION SUPPLIED TO THE LANDSCAPE ARCHITECT BY OTHERS. LANDSCAPE CONTRACTOR SHALL VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION AND NOTIFY LANDSCAPE ARCHITECT OF SAME.
9. HORIZONTAL AND VERTICAL ALIGNMENT OF PROPOSED WALKS, TRAILS OR ROADWAYS ARE SUBJECT TO FIELD ADJUSTMENT REQUIRED TO CONFORM TO LOCALIZED TOPOGRAPHIC CONDITIONS AND TO MINIMIZE TREE REMOVAL AND GRADING. CHANGES IN ALIGNMENT AND GRADES MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO IMPLEMENTATION.
10. LANDSCAPE CONTRACTOR SHALL REVIEW THE SITE FOR DEFICIENCIES IN SITE CONDITIONS WHICH MIGHT NEGATIVELY AFFECT PLANT ESTABLISHMENT, SURVIVAL OR WARRANTY. UNDESIRABLE SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING OF WORK.
11. EXISTING TREES OR SIGNIFICANT SHRUB MASSINGS FOUND ON SITE SHALL BE PROTECTED AND SAVED UNLESS NOTED TO BE REMOVED OR ARE LOCATED IN AN AREA TO BE GRADED. QUESTIONS REGARDING EXISTING PLANT MATERIAL SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO REMOVAL.
12. EXISTING TREES TO REMAIN, UPON DIRECTION OF LANDSCAPE ARCHITECT, SHALL BE FERTILIZED AND PRUNED TO REMOVE DEAD WOOD, DAMAGED AND RUBBING BRANCHES.
13. LANDSCAPE CONTRACTOR SHALL PREPARE AND SUBMIT A WRITTEN REQUEST FOR THE SUBSTANTIAL COMPLETION INSPECTION OF LANDSCAPE AND SITE IMPROVEMENTS PRIOR TO SUBMITTING FINAL PAY REQUEST.
14. SYMBOLS ON PLAN DRAWING TAKE PRECEDENCE OVER SCHEDULES IF DISCREPANCIES IN QUANTITIES EXIST. SPECIFICATIONS AND DETAILS TAKE PRECEDENCE OVER NOTES.
15. REFER TO CIVIL PLANS FOR UTILITY PLANS AND SITE GRADING INFORMATION.
16. REFER TO ARCHITECTURAL PLANS FOR BUILDING AND CANOPIES PLANS/DETAILS.
17. REFER TO ELECTRICAL PLANS FOR CONDUIT LAYOUTS AND DETAILS.
18. REFER TO LANDSCAPE PLANS FOR SIDEWALK LAYOUTS, SITE FURNISHINGS AND PLANTING PLANS. REFER TO LANDSCAPE PLANS FOR CONCRETE JOINTING DETAILS.
19. CONTRACTOR TO UTILIZE GPS TO LAY OUT SITE IMPROVEMENTS.

SOIL DECOMPACTION NOTES

1. GENERAL CONTRACTOR SHALL MINIMIZE DISTURBANCE AND COMPACTION IN AREAS TO BE LANDSCAPED BY DEFINING CONSTRUCTION ACCESS, STORAGE AREAS AND PARKING. CONTRACTOR SHALL AVOID UNNECESSARY ACTIVITY IN PERIMETER AREAS.
2. TO REDUCE COMPACTION IN AREAS TO BE LANDSCAPED, THE CONTRACTOR MAY ELECT TO PLACE AND MAINTAIN (FOR THE DURATION OF CONSTRUCTION) A 12 INCH DEPTH OF COMPOSTED VEGETABLE MATTER (WOOD CHIPS, SHREDDED HARDWOOD, HAY)
3. IN ALL PROPOSED LANDSCAPE AREAS. FRACTURE ANY AND ALL COMPACTED SOILS TO THE DEPTH OF COMPACTION. THIS MAY REQUIRE THE USE OF JACK HAMMERS, EXCAVATION AND PULVERIZING, RIPPING IN SEVERAL DIRECTIONS WITH A CHISEL PLOW OR FROST RIPPER.
4. AFTER FRACTURING, APPLY ANY NECESSARY SOIL AMENDMENTS SUCH AS ORGANIC MATTER OR PH MODIFYING AGENTS. ROTOTILL THE FRACTURED SOIL TWICE, IN TWO PERPENDICULAR DIRECTIONS TO A DEPTH OF 24". AVOID AND PROTECT UNDERGROUND UTILITIES.
5. GRADE SOILS TO FINISH GRADES AND PROTECT FROM COMPACTION UNTIL LANDSCAPE AREAS ARE PLANTED. IN ALL AREAS WHERE PAVING ABUTS LANDSCAPE AREAS, THE FINISH GRADE OF THE LANDSCAPE AREA SHALL BE SET 1-2:" BELOW THE DOWNHILL EDGE OF THE PAVINGTO ALLOW RUNOFF TO SHEET ONTO ADJACENT LANDSCAPE AREAS.

PLANTING NOTES

20. NO PLANTS WILL BE INSTALLED UNTIL FINAL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
21. PROPOSED PLANT MATERIAL SHALL COMPLY WITH THE CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1. UNLESS NOTED OTHERWISE, DECIDUOUS SHRUBS SHALL HAVE AT LEAST 5 CANES AT THE SPECIFIED HEIGHT. ORNAMENTAL TREES SHALL HAVE NO 'V' CROTCHES AND SHALL BEGIN BRANCHING NO LOWER THAN 3' FEET ABOVE THE ROOT BALL. STREET AND BOULEVARD TREES SHALL BEGIN BRANCHING NO LOWER THAN 6' ABOVE PAVED SURFACE.
22. PROPOSED PLANT MATERIAL SHALL BE LOCATED AND STAKED AS SHOWN ON PLAN. LANDSCAPE ARCHITECT MUST APPROVE STAKING OF PLANT MATERIAL PRIOR TO DIGGING.
23. NO PLANT MATERIAL SUBSTITUTIONS WILL BE ACCEPTED UNLESS APPROVAL IS GRANTED BY THE LANDSCAPE ARCHITECT TO THE LANDSCAPE CONTRACTOR PRIOR TO THE SUBMISSION OF BID.
24. ADJUSTMENTS IN LOCATION OF PROPOSED PLANT MATERIALS MAY BE NEEDED IN FIELD. LANDSCAPE ARCHITECT MUST BE NOTIFIED PRIOR TO ADJUSTMENT OF PLANTS.
25. PLANT MATERIALS TO BE INSTALLED PER PLANTING DETAILS.
26. PLANT MATERIAL SHALL BE FERTILIZED UPON INSTALLATION WITH DRIED BONE MEAL, OTHER APPROVED FERTILIZER MIXED IN WITH THE PLANTING SOIL PER THE MANUFACTURER'S INSTRUCTIONS OR MAY BE TREATED FOR SUMMER AND FALL INSTALLATION WITH AN APPLICATION OF GRANULAR 10-0-5 OF 12 OZ. PER 2.5" CALIPER TREE AND 6 OZ. PER SHRUB WITH AN ADDITIONAL APPLICATION OF 10-0-10 THE FOLLOWING SPRING IN THE TREE SAUCER.
27. COMPLY WITH UNIVERSITY OF MINNESOTA LANDCARE STANDARDS FOR SOIL MATERIAL.
28. TREE WRAPPING MATERIAL SHALL BE TWO-WALLED PLASTIC SHEETING APPLIED FROM TRUNK FLARE TO FIRST BRANCH. WRAP SMOOTH-BARKED DECIDUOUS TREES PLANTED IN THE FALL PRIOR TO DECEMBER 1 AND REMOVE WRAPPING AFTER MAY 1.
29. 3/16" THICK STEEL EDGER TO BE USED TO CONTAIN SHRUBS AND PERENNIALS WHERE PLANTING BED MEETS SOD UNLESS OTHERWISE NOTED.
30. PERENNIAL PLANTING BEDS TO RECEIVE 3" DEEP SHREDDED HARDWOOD MULCH.
31. SHRUB BED MASSINGS TO RECEIVE 3" DEEP SHREDDED HARDWOOD MULCH .
32. CONIFEROUS & DECIDUOUS TREES ARE TO RECEIVE 4" DEEP SHREDDED HARDWOOD MULCH AND SHALL HAVE NO MULCH IN DIRECT CONTACT WITH THE TREE TRUNK.
33. MAINTENANCE STRIPS, WHERE ILLUSTRATED, TO HAVE EDGER AND MULCH AS INDICATED ON DRAWINGS OR IN SPECIFICATIONS.
34. LANDSCAPE CONTRACTOR SHALL WARRANTY NEW PLANT MATERIAL THROUGH ONE CALENDAR YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. NO PARTIAL ACCEPTANCE WILL BE CONSIDERED.
35. UNLESS NOTED OTHERWISE, THE APPROPRIATE DATES FOR SPRING PLANT MATERIAL INSTALLATION IS FROM THE TIME GROUND HAS THAWED TO JUNE 15.
36. CONIFEROUS PLANTING IS ACCEPTABLE FROM AUGUST 15 TO OCTOBER 1. FALL DECIDUOUS PLANTING IS ACCEPTABLE FROM THE FIRST FROST UNTIL NOVEMBER 15. ADJUSTMENTS TO PLANTING DATES MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.

IRRIGATION NOTES

1. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN IRRIGATION LAYOUT PLAN AND SPECIFICATION AS PART OF THE SCOPE OF WORK. SUBMIT LAYOUT PLAN AND SPECIFICATIONS FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO ORDER AND/OR CONSTRUCTION. IT SHALL BE THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT SODDED/SEEDED AND PLANTED AREAS ARE IRRIGATED PROPERLY, INCLUDING THOSE AREAS DIRECTLY AROUND AND ABUTTING BUILDING FOUNDATION.
2. LANDSCAPE CONTRACTOR SHALL VERIFY (EXISTING) IRRIGATION SYSTEM LAYOUT AND CONFIRM COMPLETE LIMITS OF IRRIGATION PRIOR TO SUPPLYING SHOP DRAWINGS.
3. LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER WITH AN IRRIGATION SCHEDULE APPROPRIATE TO THE PROJECT SITE CONDITIONS AND TO PLANTED MATERIAL GROWTH REQUIREMENTS.
4. LANDSCAPE CONTRACTOR SHALL INSURE THAT SOIL CONDITIONS AND COMPACTION ARE ADEQUATE TO ALLOW FOR PROPER DRAINAGE AROUND THE CONSTRUCTION SITE. UNDESIRABLE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING OF WORK. IT SHALL BE THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO INSURE PROPER SURFACE AND SUBSURFACE DRAINAGE IN PLANTING AREAS.
5. ALL AREAS OF THE SITE TO BE IRRIGATED. SEE SPEC # 32 01 80 DESIGN/BUILD IRRIGATION SYSTEM.
6. IRRIGATION SYSTEM SHALL BE DESIGN/BUILD, CONTROLLED BY PERFORMANCE SPECIFICATION. LANDSCAPE ARCHITECTS SHALL REVIEW PLANS PRIOR TO INSTALLATION. THE IRRIGATION CONTRACTOR SHALL ACCEPT ALL MODIFICATIONS SUGGESTED BY THE LANDSCAPE ARCHITECT.
7. TURF IRRIGATION SHALL BE ON SEPARATE ZONE(S) FROM ALL OTHER PLANTING AREAS.
8. NATIVE LANDSCAPE PLANTINGS SHALL BE SUPPLIED WITH IRRIGATION SUFFICIENT FOR ESTABLISHMENT.
9. IRRIGATION SPRAY SHALL BE DIRECTED AWAY FROM FOUNDATIONS, WALLS AND PAVING.

TURF NOTES

1. SOD AREAS DISTURBED DUE TO GRADING UNLESS NOTED OTHERWISE.
2. WHERE SOD ABUTS PAVED SURFACES, FINISHED GRADE OF SOD/SEED SHALL BE HELD 1" BELOW SURFACE ELEVATION OF TRAIL, SLAB, CURB, ETC.
3. SOD SHALL BE LAID PARALLEL TO THE CONTOURS AND SHALL HAVE STAGGERED JOINTS. ON SLOPES STEEPER THAN 3:1 OR IN DRAINAGE SWALES, SOD SHALL BE STAKED SECURELY.
4. UNLESS NOTED OTHERWISE, THE APPROPRIATE DATES FOR SPRING SEED & SOD PLACEMENT IS FROM THE TIME GROUND HAS THAWED TO JUNE 15.
5. FALL SODDING IS GENERALLY ACCEPTABLE FROM AUGUST 15 TO NOVEMBER 1. FALL SEEDING IS GENERALLY ACCEPTABLE FROM AUGUST 15 TO SEPTEMBER 15. ADJUSTMENTS TO SOD/SEED PLANTING DATES MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.

LANDSCAPE NOTES

SYM	QTY.	VERIFY	COMMON NAME	SCIENTIFIC NAME	SIZE	CONT.	COMMENTS
DECIDUOUS TREES							
A	2		BUR OAK	Quercus macrocarpa	2.5" CAL.	B&B	SINGLE STRAIGHT LEADER
B	4		COMMON HACKBERRY	Celtis occidentalis	2.5" CAL.	B&B	SINGLE STRAIGHT LEADER
C	9		KENTUCKY COFFEETREE	Gymnocladus dioicious	2.5" CAL.	B&B	SINGLE STRAIGHT LEADER
DECIDUOUS ORNAMENTAL TREES							
AA	4		IRONWOOD	Ostrya virginiana	2" CAL.	B&B	CLUMP FORM, MIN. 3 STEMS
CONIFEROUS SHRUBS							
BA	33		GRAY OWL JUNIPER	Juniperus virginiana 'Gray Owl'	18" HGT.	#5 CONT.	PLANT 36" O.C.
BB	27		ARCADIA JUNIPER	Juniperus sabina 'Arcadia'	18" HGT.	#5 CONT.	PLANT 36" O.C.
PERENNIALS							
CA	82		CAROUSEL LITTLE BLUESTEM	Schizachyrium scoparium	15" HT.	#1 CONT.	PLANT 24" O.C.
CB	416		TUFTED HAIR GRASS	Deschampsia caespitosa 'Schottland'	15" HT.	#1 CONT.	PLANT 24" O.C.
CC	293		PRAIRIE DROPSEED	Sporobolus heterolepis	12" HT.	#1 CONT.	PLANT 24" O.C.
CD	400		MISTY LACE ARUNCUS	Aruncus 'Misty Lace'	12" HT.	#1 CONT.	PLANT 18" O.C.
CE	416		FLORISTAN VIOLET LIATRIS	Liatris spicata 'Floristan violet'	12" HT.	#1 CONT.	PLANT 24" O.C.
CF	48		PRAIRIE SMOKE	Geum triflorum	12" HT.	#1 CONT.	PLANT 18" O.C. AND IN RANDOM GROUPINGS OF 5, 7, AND 10
	48		BLAZING STAR	Liatris spicata			
	48		FRAGRANT HYSSOP	Agastache foeniculum			
	48		SKY BLUE ASTER	Aster oolentangiensis			
	48		NEW ENGLAND ASTER	Aster novae-angliae			
	48		PURPLE CONEFLOWER	Echinacea purpurea			
	48		SHOWY GOLDENROD	Solidago speciosa			
	48		LITTLE BLUESTEM	Schizachyrium scoparium			
BULBS							
CG	5378		SIBERIAN SQUILL	Scilla siberica	BULB	BULB	PLANT 6" O.C.; EVENLY SPACED BETWEEN PERENNIALS

SEEDING		
	SOD	SEE SPECIFICATION # 32 9200
	NO MOW FESCUE MIX	SEE SPECIFICATION # 32 9200

PLANTING SCHEDULE

1. DECIDUOUS OVERSTORY TREE, TYP. SEE 2/L100 & SPEC # 32 9300
2. ORNAMENTAL TREE, TYP. SEE 2/L100 & SPEC # 32 9300
3. CONIFEROUS SHRUB, TYP. SEE 3/L100 & SPEC # 32 9300
4. PERENNIAL, TYP. SEE 4/L100 & SPEC # 32 9300
5. BULB, TYP. SEE 5/L100 & SPEC # 32 9300
6. STEEL EDGER, TYP. SEE 6/L100 & SPEC # 32 9300
7. SOD, TYP. SEE PLANTING SCHEDULE, SHEET L100 & SPEC # 32 9200
8. NO MOW TURF MIX SEE SPEC #32 9219
9. EXISTING PLANTING AREA TO REMAIN, PRESERVE AND PROTECT, TYP
10. DERO BIKE RACKS, 12 BIKE HOOPS TO ACCOMODATE 24 BICYCLES.
11. IRRIGATION P.O.C. SEE SPEC #32 0180
12. PRO PARK BIKE LOCKER, 3 LOCKERS TO ACCOMODATE 6 BICYLES
13. LIGHT TYP. SEE ELECTRICAL
14. SAWCUT JOINTS IN SPECIAL CONCRETE - SEE ARCH PLAN FOR JOINT SPACING
15. FOR CONCRETE WALK AND WALL ALIGNMENT AND JOINTING SEE CIVIL AND ARCHITECTURAL DRAWINGS.

LEGEND

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Landscape Architect under the laws of the state of Minnesota.

For Damon Farber Associates

By

Name Tom Whitlock

Date 03-24-2012 Reg. No. 26292

Issued for	Date

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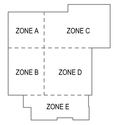
Checked

Date 02-24-2012

Project

Physics and Nanotechnology Building

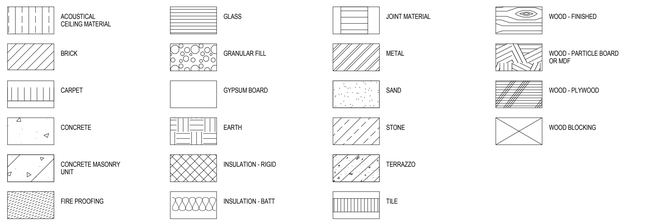
U of M Project # 01-155-08-1718



LANDSCAPE PLAN

L100

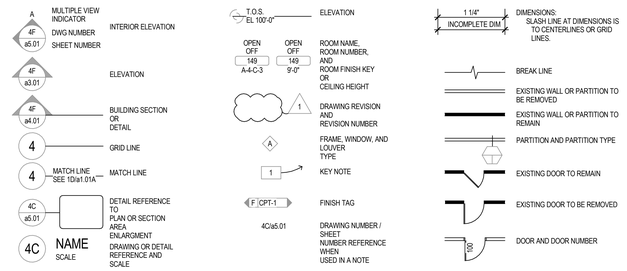
MATERIAL SYMBOLS



ABBREVIATIONS

&	AND
∠	ANGLE
@	AT
℄	CENTERLINE
°	DEGREES
ℙ	PROPERTY LINE OR PLATE
ACOUST	ACOUSTICAL
ADJ	ADJACENT
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
ALUM	ALUMINUM
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
BD	BOARD
BLDG	BUILDING
BO	BOTTOM OF
CC	CENTER TO CENTER
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CG	CORNER GUARD
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CO	COMPANY
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
CSK	COUNTERSINK
CTS	CARRIER TUBE SYSTEM
CUH	CABINET UNIT HEATER
DEPT	DEPARTMENT
DF	DRINK FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DS	DOWNSPOUT
DW	DISHWASHER
DWG	DRAWING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EQ	EQUAL
EQUIP	EQUIPMENT
EXP JT	EXPANSION JOINT
EXIST	EXISTING
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET RECESSED AS REQD.
FEC-S	FIRE EXTINGUISHER CABINET SURFACE MOUNTED
FF	FINISH FLOOR
FHC	FIRE HOSE CABINET
FLR	FLOOR
FMO	FINISHED MASONRY OPENING
FO	FACE OF
FRC	FIBER REINFORCED CEMENT (BOARD)
FT	FEET/FOOT
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GSF	GROSS SQUARE FOOT
GWB	GYPSUM WALL BOARD
GWP	GYPSUM
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HT	HEIGHT
ID	INSIDE DIAMETER
INSUL	INSULATION
JT	JOINT
LAV	LAVATORY
LB	POUND
LF	LINEAR FEET
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
N/A	NOT APPLICABLE
N/C	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OH	OVERHEAD
ORD	OVERFLOW ROOF DRAIN
OS	OVERFLOW SCUPPER
OPNG	OPENING
OPP	OPPOSITE
OTS	OPEN TO STRUCTURE
PIP	POURED IN PLACE
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD
PTD	PAINTED
R=	RADIUS
REF	REFRIGERATOR
REINF	REINFORCING
REQD	REQUIRED
RD	ROOF DRAIN
RM	ROOM
RO	ROUGH OPENING
RWL	RAIN WATER LEADER
SECT	SECTION
SHT	SHEET
SF	SQUARE FEET/FOOT
SIM	SIMILAR
SPEC	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
T&G	TONGUE AND GROOVE
TEL	TELEPHONE
TO	TOP OF
TS	TUBE STEEL
TYP	TYPICAL
UC	UNDER CABINET
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V/F	VERIFY IN FIELD
VERT	VERTICAL
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WIND	WINDOW
WT	WEIGHT

ARCHITECTURAL SYMBOLS

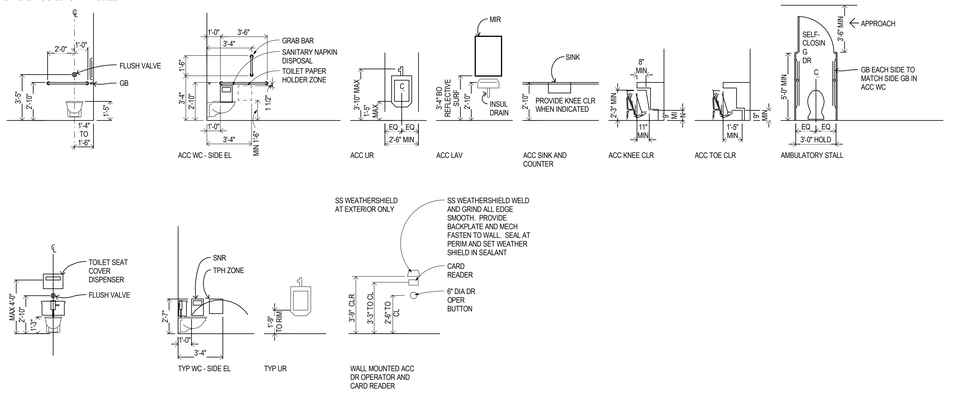


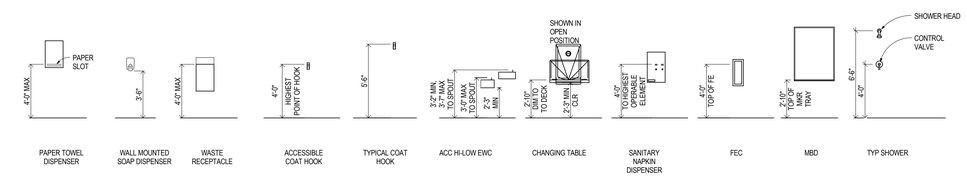
GENERAL ARCHITECTURAL NOTES

1. SCALING OF DRAWINGS IS NOT PERMITTED
2. WHEN THERE IS A DISCREPANCY WITH DRAWINGS OF A LARGER SCALE AND DRAWINGS OF A SMALLER SCALE, THE LARGER SCALE SHALL DICTATE. NOTIFY ARCHITECT OF SUCH DISCREPANCY.

STANDARD HEIGHT SCHEDULE

NOTE: REFER TO SPEC FOR FIX MODELS.





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For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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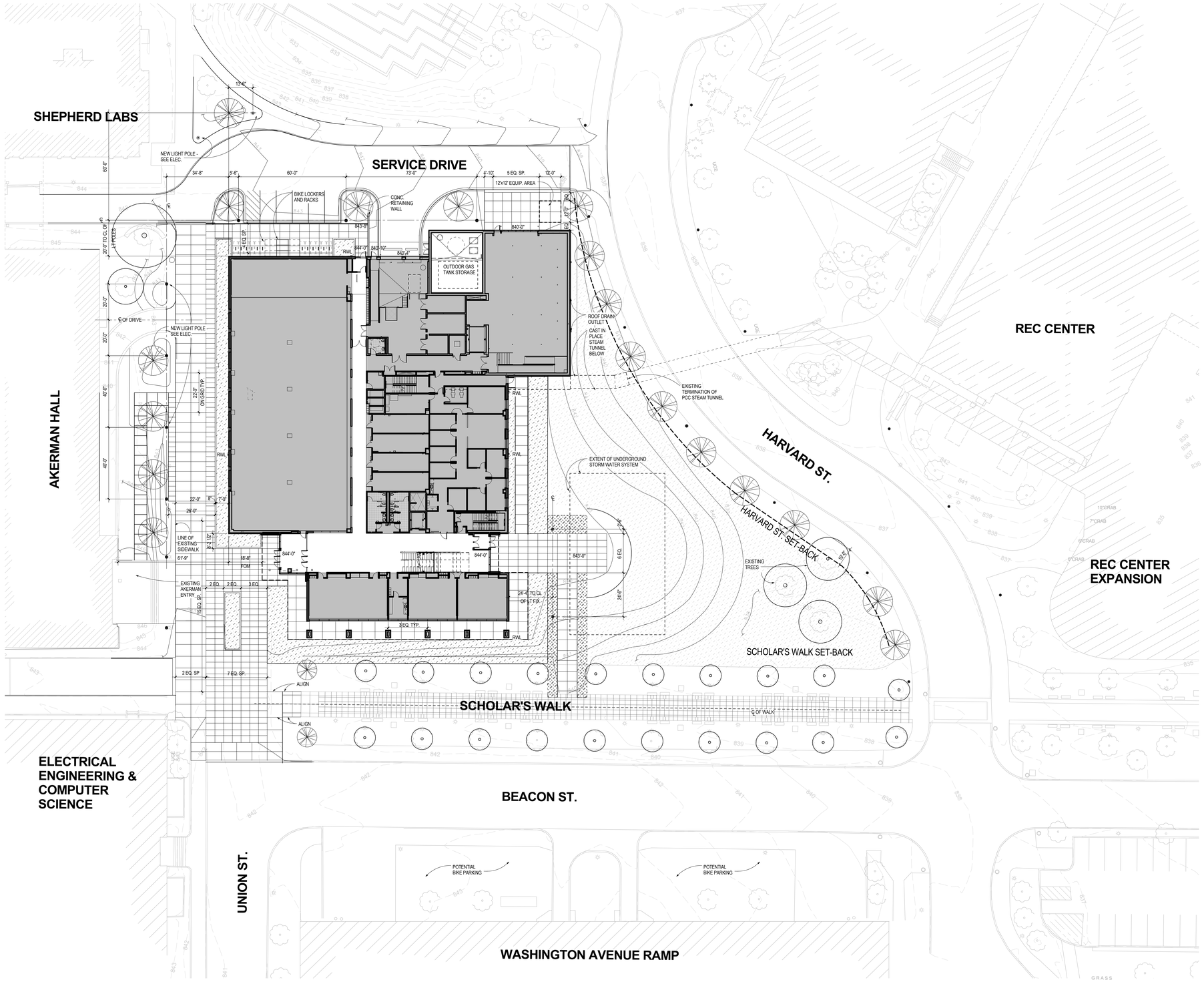
GENERAL INFORMATION

a0.01



7F a0.10 **SITE**
SCALE: 1" = 20'-0"

GENERAL SITE PLAN NOTES

A. REFER TO LANDSCAPE DRAWING FOR PLANTING PLANS AND DETAILS.
B. REFER TO CIVIL DRAWINGS FOR PAVING PLAN, SITE DIMENSION PLAN AND GRADING

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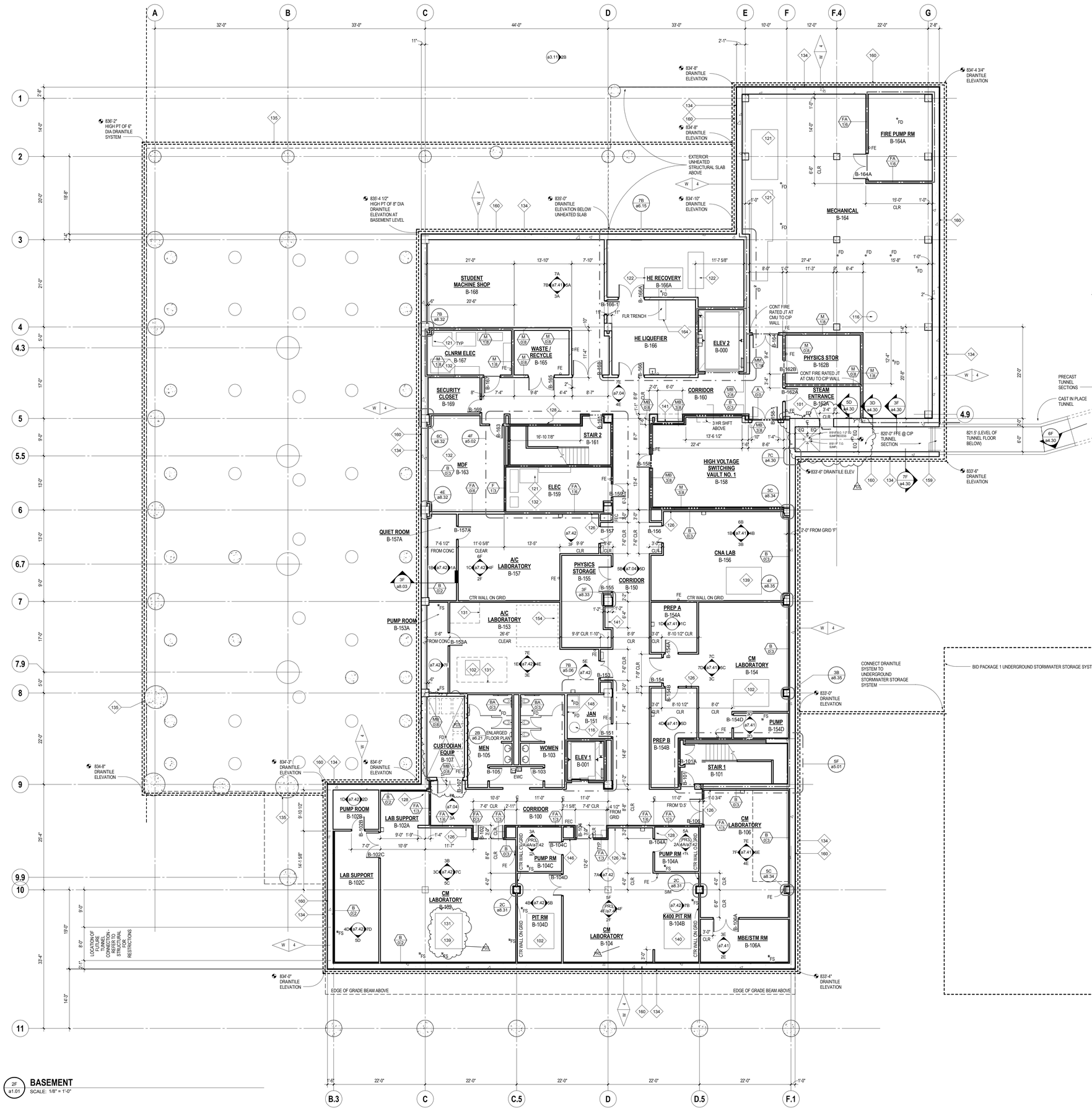
SITE PLAN

a0.10



2F a1.01 **BASEMENT**
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

A. REFER TO SPECIFICATIONS VOLUMES 2, AND 3 AND DRAWING VOLUMES 2, 3, AND 4 FOR ADDITIONAL INFORMATION.
B. REFER TO DRAWING VOLUMES 2, 3, AND 4 FOR LOCATIONS OF MECHANICAL, ELECTRICAL AND EQUIPMENT HOUSEKEEPING PAD LOCATIONS SIZES AND DETAILS. COORDINATE WITH RESPECTIVE PIECES OF EQUIPMENT
C. REFER TO a6.01 FOR PARTITION TYPES
D. PARTITIONS NOT DESIGNATED WITH A SPECIFIC PARTITION TYPE TAG SHALL RECIEVE PARTITION TYPE FA 0|3
E. REFER TO a4.01 FOR EXTERIOR ASSEMBLY TYPES
F. REFER TO STRUCTURAL FOR SLEEVING AND CORE DRILLING RESTRICTIONS.
G. PLAN DIMENSIONS ARE TO FACE OF PARTITION ASSEMBLY, CENTERLINE OF COLUMN, OR FACE OF CONCRETE MASONRY UNLESS OTHERWISE NOTED.
H. VERIFY HEIGHTS OF HOUSEKEEPING PADS WITH ASSOCIATED EQUIPMENT MANUFACTURER
I. REFER TO LIFE SAFETY DRAWINGS FOR ADDITIONAL BUILDING CODE INFORMATION
J. PROVIDE CONTINUOUS FIRE RESISTIVE JOINT SYSTEM AT PERIMETER OF FLOOR SLABS. SYSTEM RATING SHALL BE COMPLIANT WITH RATINGS DEFINED ON SHEETS la 0.01 and ls 0.02.
K. REFER TO EXTERIOR ELEVATIONS FOR EXTERIOR CONTROL AND EXPANSION JT LOCATIONS.
L. REFER TO CIVIL FOR FULL EXTENTS OF PAVING
M. EXTERIOR WALL TYPES SHALL BE W1 UNLESS OTHERWISE INDICATED
N. REFER TO ROOM FINISH PLANS FOR LOCATIONS OF CORNERGUARDS.
O. MAINTAIN DESIGNATED FIRE RATINGS ACROSS ALL JOINTS BETWEEN RATED WALL SYSTEMS TO ESTABLISH A CONTINUOUSLY RATED WALL ASSEMBLY. REFER TO LIFE SAFETY DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES.
P. MAINTAIN DESIGNATED ACOUSTIC RATINGS ACROSS ALL JOINTS, AND AROUND PERIMETER OF ALL OPENINGS. REFER TO STC CRITERIA NOTED ON RESPECTIVE PARTITION TYPES.
Q. HOUSE KEEPING AND EQUIPMENT PADS SHALL BE FINISHED TO MATCH ADJACENT FLOOR FINISHS PRIOR TO INSTALLATION OF EQUIPMENT

FLOOR PLAN KEYNOTES

101 WALL MOUNTED LADDER
102 LAB PIT WITH POLY BASIN GRATING AND NON-FERROUS STAINLESS STEEL FRAMED ANGLES AT EACH PIT. PROVIDE 3 STAINLESS STEEL HSS 3 1/2" x 2" x 1/4" flat WITH 1 1/2" x 2" x 1/4" LLV ANGLE FULLY WELDED AT EA END FOR BRG ON EDGE ANGLE. PROVIDE WATERPROOFING AT PERIMETER WALLS AND SLAB. REFER TO BID PACKAGE 1 FOR ADDITIONAL INFORMATION
116 ELEVATOR SHAFT SUMP PUMP
121 CONCRETE HOUSEKEEPING PAD REFER TO MECH AND ELECTRICAL FOR SIZES AND LOCATIONS
122 CONCRETE EQUIPMENT PAD REFER TO LAB EQUIPMENT FOR SIZES
126 EMERGENCY EYEWASH AND SHOWER REFER TO DETAILS 4C, 5C, 6C/a8.02
128 CONCEALED STRAPPING FOR WALL MOUNTED EQUIPMENT, RESTRAINTS, CASEWORK. REFER TO LAB EQUIP PLANS FOR ADDITIONAL LOCATIONS AND DETAIL 6A/a8.02 AND 6B/a8.02
131 DESIGNATED AREA SHALL REMAIN CLEAR OF ALL SYSTEMS FROM FLOOR TO UNDERSIDE OF DECK
132 PROVIDE WAINSCOT OF 3/4" CDX PLYWOOD TO ELEVATION OF 8'-4" ABOVE FINISHED FLOOR
134 6" DRAINTILE SYSTEM. PROVIDE TIE-IN TO WATERPRFG SYSTEM
135 8" DRAINTILE SYSTEM. PROVIDE TIE-IN TO WATERPRFG SYSTEM
139 COMPOSITE CONCRETE DECK OVER FLOOR PIT. PROVIDE RODSTOCK AND SEALANT BETWEEN PERIMETER OF COMPOSITE DECK COVER AND FLOOR SYSTEM. PROVIDE 1 1/2" STAINLESS STEEL EDGE ANGLE WITH EMBEDS. REFER TO STRUCTURAL FOR EDGE BEARING DETAIL
140 11'-6" DP PIT. PROVIDE 8'-0" HIGH VERTICAL NON-FERROUS STAINLESS STEEL UNISTRUT AND ALL CONNECTORS. LOCATE 1'-6" ABOVE PIT FLR. AND SPACE 3 1/2" OC MAX AT PERIM OF PIT WALL
141 5'-2" CLEAR OPENING FOR OFOI RECYLING EQUIPMENT UNLESS NOTED OTHERWISE
146 WALL MOUNT ACCESS PANEL WITH KEY LOCK. REFER TO LIFE SAFETY DRAWINGS FOR RATING REQUIREMENTS. PROVIDE 2'X 2' PANELS AT PENTHOUSE FLOOR TO SKYLIGHT
148 MOP STRIP AND SHELF AT 6'-0" AFF ADJACENT TO MOP SINK
154 SOFT WALL CLEANROOM (OFOI) REFER TO LAB PLANS FOR TYPE AND LOCATION
159 CAST IN PLACE STAIRS AND WALL MOUNTED HAND RAIL. PROVIDE 3 EQUAL RISERS NO GREATER THAN 7" HIGH AND 2 EQUAL TREADS NO LESS THAN 11" IN DEPTH. CIP STAIR SHALL EXTEND FULL WIDTH.
160 PROVIDE WATERPROOFING SYSTEM AT FULL EXTENT OF BASEMENT WALLS. PROVIDE COMPATIBLE FLEXIBLE FLASHING MEMBRANES AT TRANSITION BETWEEN BELOW GRADE WATERPROOFING TO CAVITY FLASHING. PROVIDE 8' OF RIGID INSULATION DOWN FROM VENEER SHEET ELEVATIONS Y
164 PROVIDE FIBERGLASS MOLDED GRATEING ACROSS FLOOR TRENCH. PROVIDE CONTINUOUS 2"x 4"LLV EDGE ANGLE EXP BOLTED TO TRENCH WALLS @ PERIM

FLOOR PLAN LEGEND

Fire - 1 HR
Fire - 2 HR
Fire - 3 HR
Concealed wall strapping refer to keynote "127" (typical)

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For Architectural Alliance
By
Name Tom DeAngelo
Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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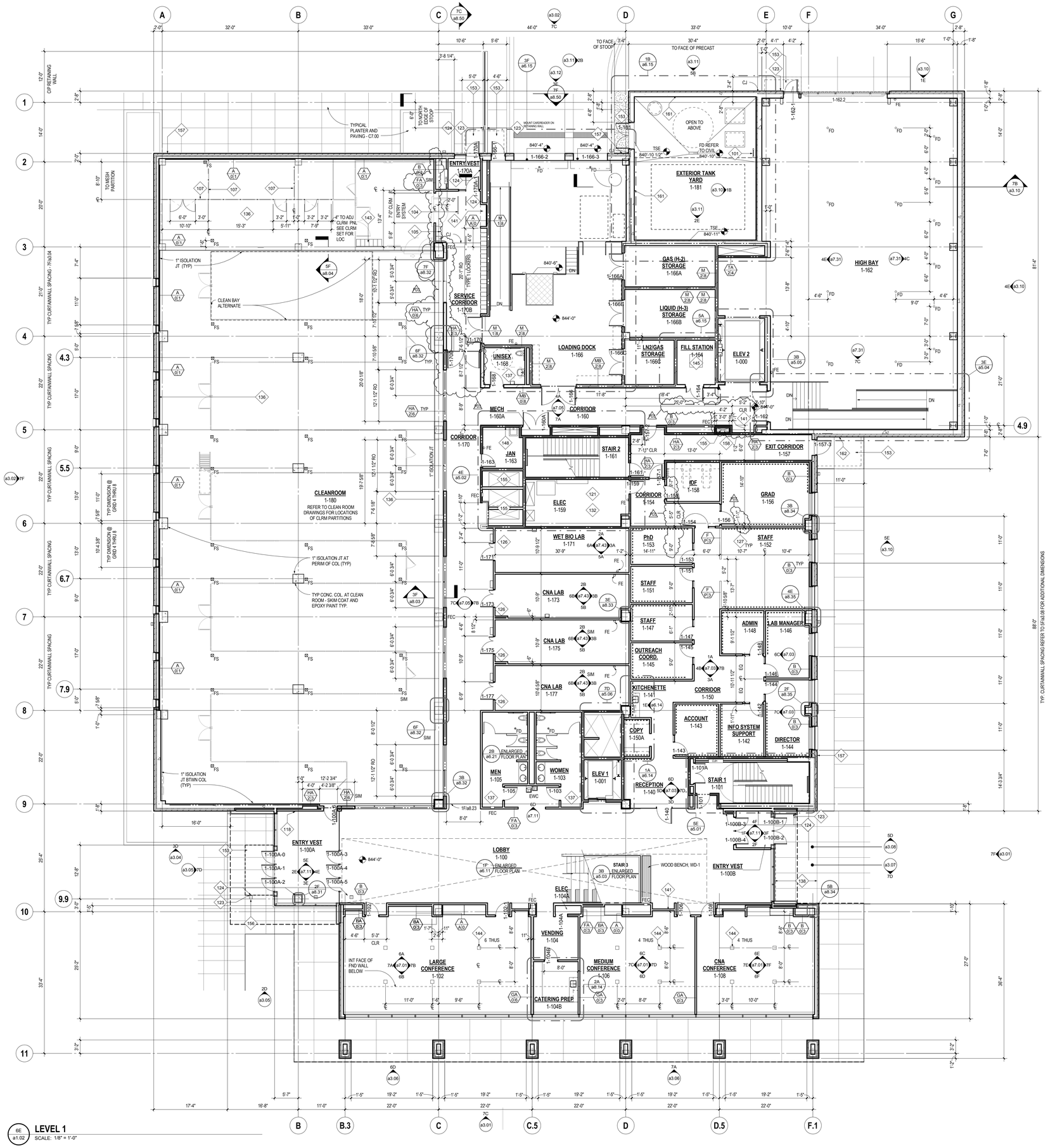
FLOOR PLAN - BASEMENT

a1.01



LEVEL 1
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

A. REFER TO SPECIFICATIONS VOLUMES 2, AND 3 AND DRAWING VOLUMES 2, 3, AND 4 FOR ADDITIONAL INFORMATION.
B. REFER TO DRAWING VOLUMES 2, 3, AND 4 FOR LOCATIONS OF MECHANICAL, ELECTRICAL AND EQUIPMENT HOUSEKEEPING PAD LOCATIONS SIZES AND DETAILS. COORDINATE WITH RESPECTIVE PIECES OF EQUIPMENT
C. REFER TO a8.01 FOR PARTITION TYPES
D. PARTITIONS NOT DESIGNATED WITH A SPECIFIC PARTITION TYPE TAG SHALL RECIEVE PARTITION TYPE FA (0/3)
E. REFER TO a4.01 FOR EXTERIOR ASSEMBLY TYPES
F. REFER TO STRUCTURAL FOR SLEEVING AND CORE DRILLING RESTRICTIONS.
G. PLAN DIMENSIONS ARE TO FACE OF PARTITION ASSEMBLY, CENTERLINE OF COLUMN, OR FACE OF CONCRETE MASONRY UNLESS OTHERWISE NOTED
H. VERIFY HEIGHTS OF HOUSEKEEPING PADS WITH ASSOCIATED EQUIPMENT MANUFACTURER
I. REFER TO LIFE SAFETY DRAWINGS FOR ADDITIONAL BUILDING CODE INFORMATION
J. PROVIDE CONTINUOUS FIRE RESISTIVE JOINT SYSTEM AT PERIMETER OF FLOOR SLABS. SYSTEM RATING SHALL BE COMPLIANT WITH RATINGS DEFINED ON SHEETS ls 0.01 and ls 0.02
K. REFER TO EXTERIOR ELEVATIONS FOR EXTERIOR CONTROL AND EXPANSION JT LOCATIONS
L. REFER TO CIVIL FOR FULL EXTENTS OF PAVING
M. EXTERIOR WALL TYPES SHALL BE W1 UNLESS OTHERWISE INDICATED
N. REFER TO ROOM FINISH PLANS FOR LOCATIONS OF CORNERGUARDS.
O. MAINTAIN DESIGNATED FIRE RATINGS ACROSS ALL JOINTS BETWEEN RATED WALL SYSTEMS TO ESTABLISH A CONTINUOUSLY RATED WALL ASSEMBLY. REFER TO LIFE SAFETY DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES.
P. MAINTAIN DESIGNATED ACOUSTIC RATINGS ACROSS ALL JOINTS, AND AROUND PERIMETER OF ALL OPENINGS. REFER TO STC CRITERIA NOTED ON RESPECTIVE PARTITION TYPES.
Q. HOUSE KEEPING AND EQUIPMENT PADS SHALL BE FINISHED TO MATCH ADJACENT FLOOR FINISHS PRIOR TO INSTALLATION OF EQUIPMENT

FLOOR PLAN LEGEND

- Fire - 1 HR
- Fire - 2 HR
- Fire - 3 HR
- Concealed wall strapping refer to keynote '127' (typical)

FLOOR PLAN KEYNOTES

101 WALL MOUNTED LADDER
104 REMOVABLE STAINLESS STEEL PIPE RAIL SET INTO STAINLESS FLOOR SLEEVES. SLEEVES SHALL EXTEND AFF AND PROVIDE FOR COUNTERSUNK MECHANICAL FASTENERS TO RAIL.
105 SSM-1 BENCH REFER TO DETAIL
107 10'-0" HIGH WIRE MESH PARTITION WITH SWING GATES AND LOCKS. EXPANSION BOLT POST TO FLR. PROVIDE OVERHEAD GALV PIPE BRACING BACK TO WALL.
118 FIRE ANNUNCIATOR AND AREA OF RESCUE ASSISTANCE PANEL
121 CONCRETE HOUSEKEEPING PAD REFER TO MECH AND ELECTRICAL FOR SIZES AND LOCATIONS
123 CARD READER - REFER TO STANDARD HEIGHT SCHEDULE ON SHEET a0.01 FOR WALL MOUNTED LOCATIONS, AND SHEET a8.50 FOR BOLLARD MOUNTED LOCATIONS
124 DOOR OPERATOR - REFER TO STANDARD HEIGHT SCHEDULE ON SHEET a0.01 FOR WALL MOUNTED LOCATIONS, AND SHEET a8.50 FOR BOLLARD MOUNTED LOCATIONS
126 EMERGENCY EYEWASH AND SHOWER REFER TO DETAILS 4C, 5C, 6C/a8.02
127 PROVIDE 2 BANDS 10'-0" LONG OF 20 GA CONCEALED METAL STRAPPING FOR FUTURE FURNITURE SYSTEMS REFER TO DETAILS 6A AND 6B/a8.02
132 PROVIDE WAINSCOT OF 3/4" CDX PLYWOOD TO ELEVATION OF 8'-4" ABOVE FINISHED FLOOR
136 PROVIDE MOISTURE MITIGATION SYSTEM AT FLOOR SLAB
137 PROVIDE 1/2" RECESS AT EXTENT OF FLOOR TILE
138 CONC PAVING OVER HORIZ WATERPROOFING SYSTEM
141 6'-2" CLEAR OPENING FOR OFOI RECEIVING EQUIPMENT UNLESS NOTED OTHERWISE
143 LOCKER TYPE 2
144 ELEC FLR BOXES
145 3'-0" x 3'-0" x 3" DEEP RECESS FOR FLOOR SCALE (OFOI)
148 MOP STRIP AND SHELF AT 6'-0" AFF ADJACENT TO MOP SINK
153 STOOP
155 PROVIDE 4" HIGH X 5" WIDE CONCRETE CURB AT PERIMETER OF SHAFT REFER TO DETAIL 3c/a8.02
156 BOLLARD FOR DOOR OPERATOR PUSHBUTTON
157 HOSE BIBB
158 3 HOUR SHAFT ENCLOSURE PARTITION TYPE UA/3-6
161 APPLIED WATER REPELLENT AT EXPOSED PRECAST CONC PANEL SURFACES
162 ISOLATION JT BETWEEN STOOP SLAB AND HIGH BAY BRICK EXTERIOR

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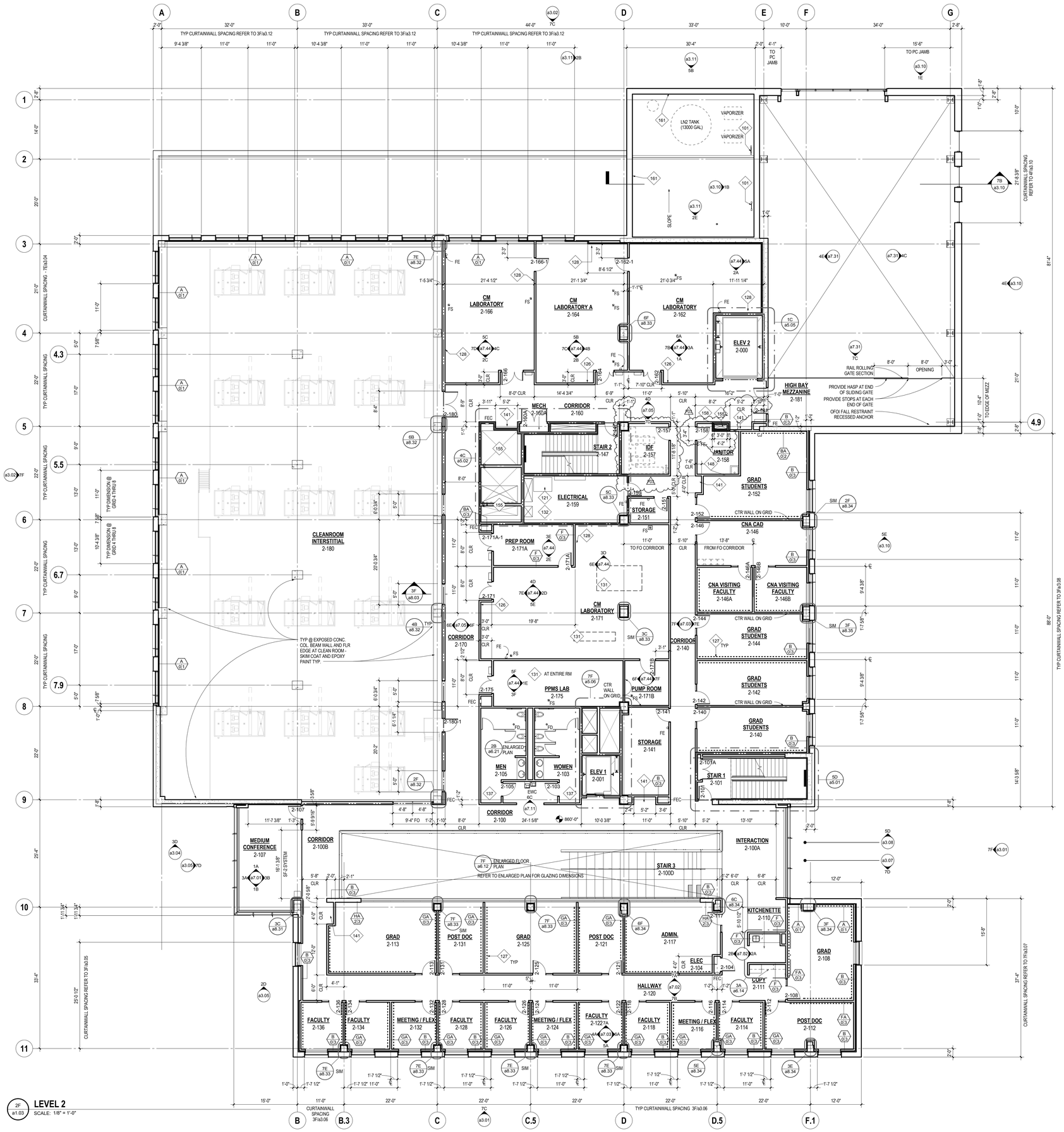
FLOOR PLAN - LEVEL 1

a1.02



2F a1.03 **LEVEL 2**
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

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D. PARTITIONS NOT DESIGNATED WITH A SPECIFIC PARTITION TYPE TAG SHALL RECIEVE PARTITION TYPE FA 0.3
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F. REFER TO STRUCTURAL FOR SLEEVING AND CORE DRILLING RESTRICTIONS.
G. PLAN DIMENSIONS ARE TO FACE OF PARTITION ASSEMBLY, CENTERLINE OF COLUMN, OR FACE OF CONCRETE MASONRY UNLESS OTHERWISE NOTED.
H. VERIFY HEIGHTS OF HOUSEKEEPING PADS WITH ASSOCIATED EQUIPMENT MANUFACTURER
I. REFER TO LIFE SAFETY DRAWINGS FOR ADDITIONAL BUILDING CODE INFORMATION
J. PROVIDE CONTINUOUS FIRE RESISTIVE JOINT SYSTEM AT PERIMETER OF FLOOR SLABS. SYSTEM RATING SHALL BE COMPLIANT WITH RATINGS DEFINED ON SHEETS la 0.01 and ls 0.02.
K. REFER TO EXTERIOR ELEVATIONS FOR EXTERIOR CONTROL AND EXPANSION JT LOCATIONS.
L. REFER TO CIVIL FOR FULL EXTENTS OF PAVING
M. EXTERIOR WALL TYPES SHALL BE W1 UNLESS OTHERWISE INDICATED
N. REFER TO ROOM FINISH PLANS FOR LOCATIONS OF CORNERGUARDS.
O. MAINTAIN DESIGNATED FIRE RATINGS ACROSS ALL JOINTS BETWEEN RATED WALL SYSTEMS TO ESTABLISH A CONTINUOUSLY RATED WALL ASSEMBLY. REFER TO LIFE SAFETY DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES.
P. MAINTAIN DESIGNATED ACOUSTIC RATINGS ACROSS ALL JOINTS, AND AROUND PERIMETER OF ALL OPENINGS. REFER TO STC CRITERIA NOTED ON RESPECTIVE PARTITION TYPES.
Q. HOUSE KEEPING AND EQUIPMENT PADS SHALL BE FINISHED TO MATCH ADJACENT FLOOR FINISHS PRIOR TO INSTALLATION OF EQUIPMENT

FLOOR PLAN LEGEND

- Fire - 1 HR
- Fire - 2 HR
- Fire - 3 HR
- Concealed wall strapping refer to keynote '127' (typical)

FLOOR PLAN KEYNOTES

101 WALL MOUNTED LADDER
121 CONCRETE HOUSEKEEPING PAD REFER TO MECH AND ELECTRICAL FOR SIZES AND LOCATIONS
126 EMERGENCY EYEWASH AND SHOWER REFER TO DETAILS 4C, 5C, 6C/a8.02
127 PROVIDE 2 BANDS 10'-0" LONG OF 20 GA CONCEALED METAL STRAPPING FOR FUTURE FURNITURE SYSTEMS REFER TO DETAILS 6A AND 6B/a8.02
128 CONCEALED STRAPPING FOR WALL MOUNTED EQUIPMENT, RESTRAINTS, CASEWORK. REFER TO LAB EQUIP PLANS FOR ADDITIONAL LOCATIONS AND DETAIL 6A/a8.02 AND 6B/a8.02
131 DESIGNATED AREA SHALL REMAIN CLEAR OF ALL SYSTEMS FROM FLOOR TO UNDERSIDE OF DECK
132 PROVIDE WAINSCOT OF 3/4" CDX PLYWOOD TO ELEVATION OF 8'-4" ABOVE FINISHED FLOOR
137 PROVIDE 1/2" RECESS AT EXTENT OF FLOOR TILE
141 5'-2" CLEAR OPENING FOR OFOI RECYLING EQUIPMENT UNLESS NOTED OTHERWISE
148 MOP STRIP AND SHELF AT 6'-0" AFF ADJACENT TO MOP SINK
155 PROVIDE 4" HIGH X 5" WIDE CONCRETE CURB AT PERIMETER OF SHAFT REFER TO DETAIL 3c/a8.02
158 3 HOUR SHAFT ENCLOSURE PARTITION TYPE UA3-6
161 APPLIED WATER REPELLENT AT EXPOSED PRECAST CONC PANEL SURFACES

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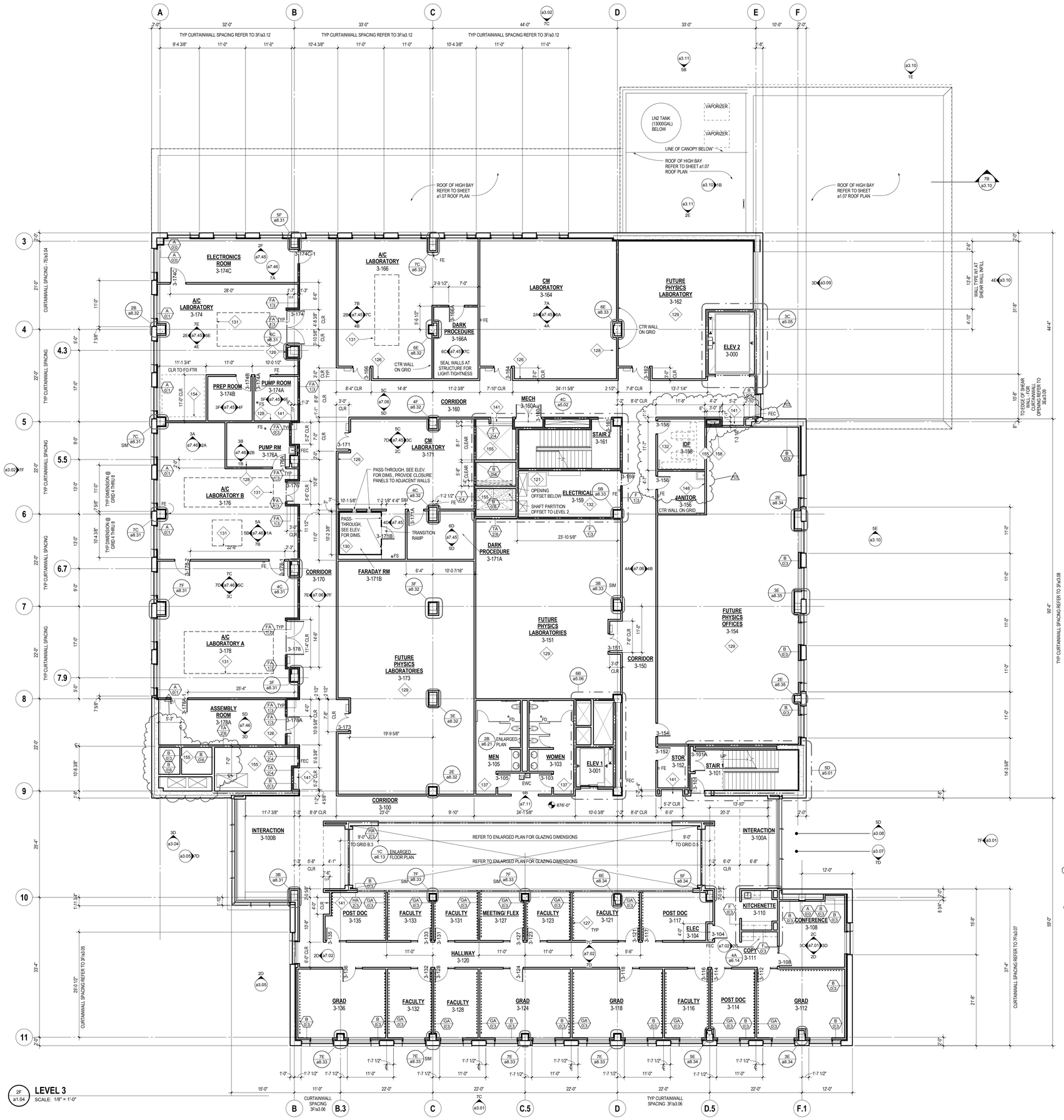
FLOOR PLAN - LEVEL 2

a1.03



2F a1.04 **LEVEL 3**
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

A. REFER TO SPECIFICATIONS VOLUMES 2, AND 3 AND DRAWING VOLUMES 2, 3, AND 4 FOR ADDITIONAL INFORMATION.
B. REFER TO DRAWING VOLUMES 2, 3, AND 4 FOR LOCATIONS OF MECHANICAL, ELECTRICAL, AND EQUIPMENT HOUSEKEEPING PAD LOCATIONS SIZES AND DETAILS. COORDINATE WITH RESPECTIVE PIECES OF EQUIPMENT.
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D. PARTITIONS NOT DESIGNATED WITH A SPECIFIC PARTITION TYPE TAG SHALL RECIEVE PARTITION TYPE (FA 0|3)
E. REFER TO a4.01 FOR EXTERIOR ASSEMBLY TYPES.
F. REFER TO STRUCTURAL FOR SLEEVING AND CORE DRILLING RESTRICTIONS.
G. PLAN DIMENSIONS ARE TO FACE OF PARTITION ASSEMBLY, CENTERLINE OF COLUMN, OR FACE OF CONCRETE MASONRY UNLESS OTHERWISE NOTED.
H. VERIFY HEIGHTS OF HOUSEKEEPING PADS WITH ASSOCIATED EQUIPMENT MANUFACTURER
I. REFER TO LIFE SAFETY DRAWINGS FOR ADDITIONAL BUILDING CODE INFORMATION
J. PROVIDE CONTINUOUS FIRE RESISTIVE JOINT SYSTEM AT PERIMETER OF FLOOR SLABS. SYSTEM RATING SHALL BE COMPLIANT WITH RATINGS DEFINED ON SHEETS Ia 0.01 and Ia 0.02.
K. REFER TO EXTERIOR ELEVATIONS FOR EXTERIOR CONTROL AND EXPANSION JT LOCATIONS.
L. REFER TO CIVIL FOR FULL EXTENTS OF PAVING
M. EXTERIOR WALL TYPES SHALL BE W1 UNLESS OTHERWISE INDICATED
N. REFER TO ROOM FINISH PLANS FOR LOCATIONS OF CORNERGUARDS.
O. MAINTAIN DESIGNATED FIRE RATINGS ACROSS ALL JOINTS BETWEEN RATED WALL SYSTEMS TO ESTABLISH A CONTINUOUSLY RATED WALL ASSEMBLY. REFER TO LIFE SAFETY DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES.
P. MAINTAIN DESIGNATED ACOUSTIC RATINGS ACROSS ALL JOINTS, AND AROUND PERIMETER OF ALL OPENINGS. REFER TO STC CRITERIA NOTED ON RESPECTIVE PARTITION TYPES.
Q. HOUSE KEEPPING AND EQUIPMENT PADS SHALL BE FINISHED TO MATCH ADJACENT FLOOR FINISHS PRIOR TO INSTALLATION OF EQUIPMENT

FLOOR PLAN LEGEND

- Fire - 1 HR
- Fire - 2 HR
- Fire - 3 HR
- Concealed wall strapping refer to keynote "127" (typical)

FLOOR PLAN KEYNOTES

121 CONCRETE HOUSEKEEPING PAD REFER TO MECH AND ELECTRICAL FOR SIZES AND LOCATIONS
126 EMERGENCY EYEWASH AND SHOWER REFER TO DETAILS 4C, 5C, 6Cia8.02
127 PROVIDE 2 BANDS 10'-0" LONG OF 20 GA CONCEALED METAL STRAPPING FOR FUTURE FURNITURE SYSTEMS REFER TO DETAILS 6A AND 6Bia8.02
128 CONCEALED STRAPPING FOR WALL MOUNTED EQUIPMENT, RESTRAINTS, CASEWORK. REFER TO LAB EQUIP PLANS FOR ADDITIONAL LOCATIONS AND DETAIL 6Aia8.02 AND 6Bia8.02.
129 PROVIDE EXPOSED METAL STUDS ON ROOM SIDE TO PERMIT BUILD-OUT AND INSTALLATION OF FUTURE LABORATORIES AND OFFICES. RATED WALLS WITHIN ROOMS DESIGNATED AS FUTURE SHALL BE FINISH TAPED BUT NOT PAINTED
130 SHIELDED ROOMS WITHIN EXTENTS OF FINISHED WALLS, PROVIDE CLOSURE PANELS TO ADJACENT WALLS, SEE DETAIL 4FIA8.16
131 DESIGNATED AREA SHALL REMAIN CLEAR OF ALL SYSTEMS FROM FLOOR TO UNDERSIDE OF DECK
132 PROVIDE WAINSCOT OF 3/4" CDX PLYWOOD TO ELEVATION OF 8'-4" ABOVE FINISHED FLOOR
137 PROVIDE 1/2" RECESS AT ENTRY OF FLOOR TILE
141 5'-2" CLEAR OPENING FOR OFCI RECYLING EQUIPMENT UNLESS NOTED OTHERWISE
148 MOP STRIP AND SHELF AT 4'-0" AFF ADJACENT TO MOP SINK
154 SOFT WALL CLEANROOM (OFCI) REFER TO LAB PLANS FOR TYPE AND LOCATION
155 PROVIDE 4" HIGH X 5" WIDE CONCRETE CURB AT PERIMETER OF SHAFT PENETRATIONS, SEAL
158 3 HOUR SHAFT ENCLOSURE PARTITION TYPE U0/3-6

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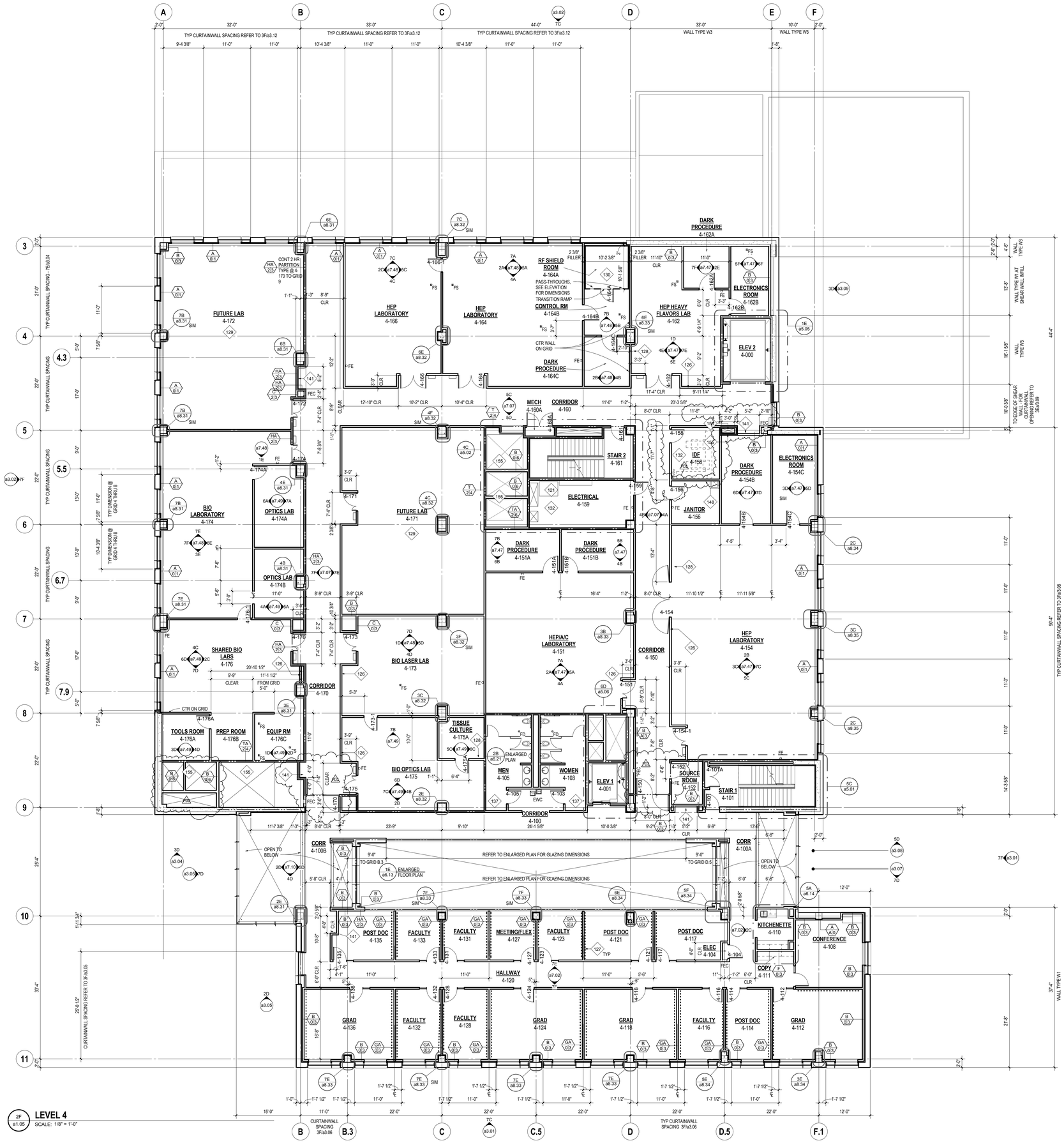
FLOOR PLAN - LEVEL 3

a1.04



2F a1.05 **LEVEL 4**
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

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F. REFER TO STRUCTURAL FOR SLEEVING AND CORE DRILLING RESTRICTIONS.
G. PLAN DIMENSIONS ARE TO FACE OF PARTITION ASSEMBLY, CENTERLINE OF COLUMN, OR FACE OF CONCRETE MASONRY UNLESS OTHERWISE NOTED
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J. PROVIDE CONTINUOUS FIRE RESISTIVE JOINT SYSTEM AT PERIMETER OF FLOOR SLABS. SYSTEM RATING SHALL BE COMPLIANT WITH RATINGS DEFINED ON SHEETS Is 0.01 and Is 0.02.
K. REFER TO EXTERIOR ELEVATIONS FOR EXTERIOR CONTROL AND EXPANSION JT LOCATIONS.
L. REFER TO CIVIL FOR FULL EXTENTS OF PAVING
M. EXTERIOR WALL TYPES SHALL BE W1 UNLESS OTHERWISE INDICATED
N. REFER TO ROOM FINISH PLANS FOR LOCATIONS OF CORNERGUARDS.
O. MAINTAIN DESIGNATED FIRE RATINGS ACROSS ALL JOINTS BETWEEN RATED WALL SYSTEMS TO ESTABLISH A CONTINUOUSLY RATED WALL ASSEMBLY. REFER TO LIFE SAFETY DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES.
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FLOOR PLAN LEGEND

- Fire - 1 HR
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- Fire - 3 HR
- Concealed wall strapping refer to keynote "127" (typical)

FLOOR PLAN KEYNOTES

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132 PROVIDE WAINSCOT OF 3/4" CDX PLYWOOD TO ELEVATION OF 8'-4" ABOVE FINISHED FLOOR
137 PROVIDE 1/2" RECESS AT EXTENT OF FLOOR TILE
141 5'-2" CLEAR OPENING FOR OFCI RECYLING EQUIPMENT UNLESS NOTED OTHERWISE
148 MOP STRIP AND SHELF AT 6'-0" AFF ADJACENT TO MOP SINK
155 PROVIDE 4" HIGH X 5" WIDE CONCRETE CURB AT PERIMETER OF SHAFT REFER TO DETAIL 3c/a8.02
158 3 HOUR SHAFT ENCLOSURE PARTITION TYPE UA/3-6

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
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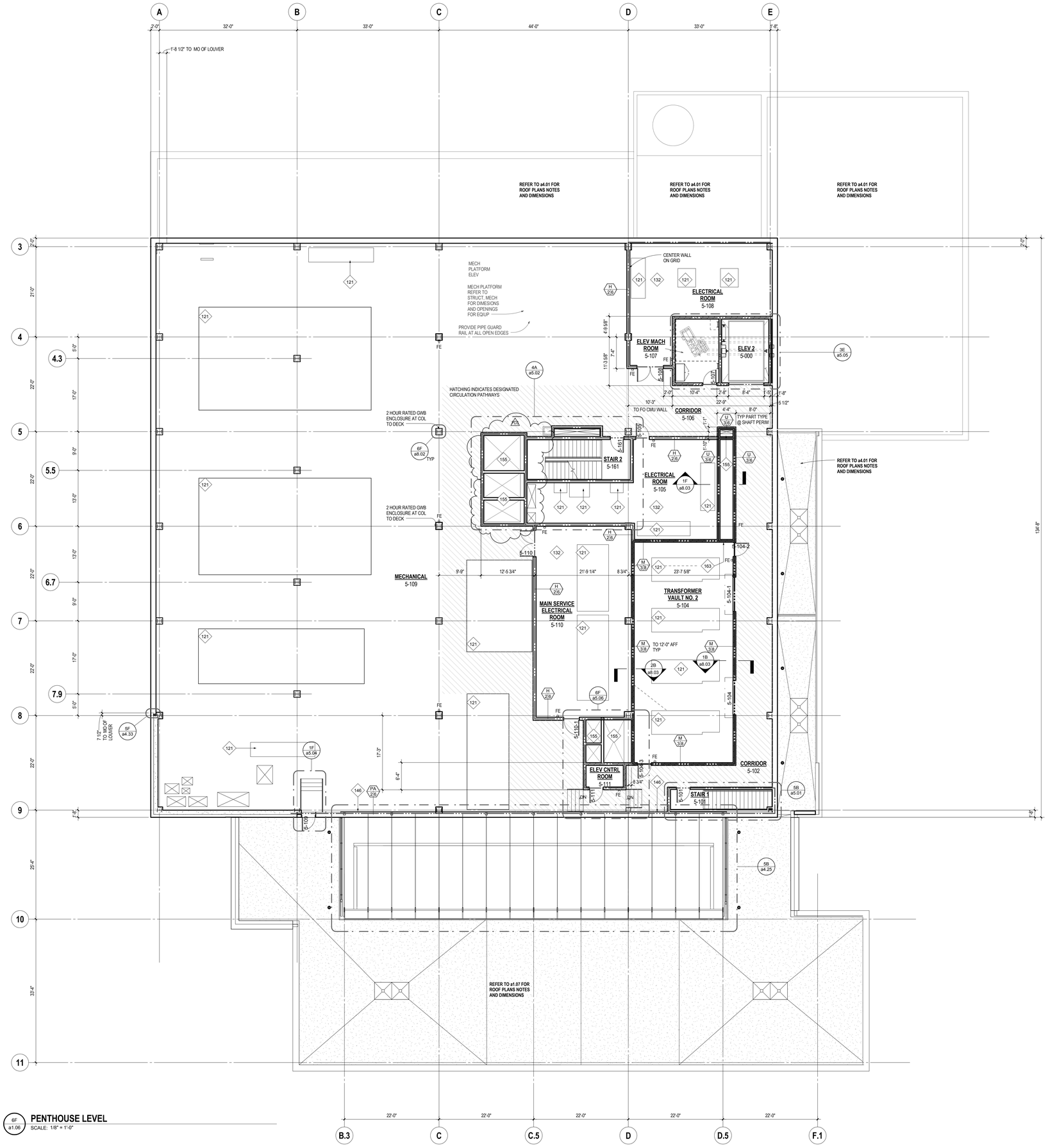
FLOOR PLAN - LEVEL 4

a1.05



6F a1.06 **PENTHOUSE LEVEL**
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

A. REFER TO SPECIFICATIONS VOLUMES 2, AND 3 AND DRAWING VOLUMES 2, 3, AND 4 FOR ADDITIONAL INFORMATION.
B. REFER TO DRAWING VOLUMES 2, 3, AND 4 FOR LOCATIONS OF MECHANICAL, ELECTRICAL AND EQUIPMENT HOUSEKEEPING PAD LOCATIONS SIZES AND DETAILS. COORDINATE WITH RESPECTIVE PIECES OF EQUIPMENT
C. REFER TO a8.01 FOR PARTITION TYPES.
D. PARTITIONS NOT DESIGNATED WITH A SPECIFIC PARTITION TYPE TAG SHALL RECIEVE PARTITION TYPE FA 0 3
E. REFER TO a4.01 FOR EXTERIOR ASSEMBLY TYPES
F. REFER TO STRUCTURAL FOR SLEEVING AND CORE DRILLING RESTRICTIONS.
G. PLAN DIMENSIONS ARE TO FACE OF PARTITION ASSEMBLY, CENTERLINE OF COLUMN, OR FACE OF CONCRETE MASONRY UNLESS OTHERWISE NOTED.
H. VERIFY HEIGHTS OF HOUSEKEEPING PADS WITH ASSOCIATED EQUIPMENT MANUFACTURER
I. REFER TO LIFE SAFETY DRAWINGS FOR ADDITIONAL BUILDING CODE INFORMATION
J. PROVIDE CONTINUOUS FIRE RESISTIVE JOINT SYSTEM AT PERIMETER OF FLOOR SLABS. SYSTEM RATING SHALL BE COMPLIANT WITH RATINGS DEFINED ON SHEETS ls 0.01 and ls 0.02
K. REFER TO EXTERIOR ELEVATIONS FOR EXTERIOR CONTROL AND EXPANSION JT LOCATIONS.
L. REFER TO CIVIL FOR FULL EXTENTS OF PAVING
M. EXTERIOR WALL TYPES SHALL BE W1 UNLESS OTHERWISE INDICATED
N. REFER TO ROOM FINISH PLANS FOR LOCATIONS OF CORNERGUARDS.
O. MAINTAIN DESIGNATED FIRE RATINGS ACROSS ALL JOINTS BETWEEN RATED WALL SYSTEMS TO ESTABLISH A CONTINUOUSLY RATED WALL ASSEMBLY. REFER TO LIFE SAFETY DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES.
P. MAINTAIN DESIGNATED ACOUSTIC RATINGS ACROSS ALL JOINTS, AND AROUND PERIMETER OF ALL OPENINGS. REFER TO STC CRITERIA NOTED ON RESPECTIVE PARTITION TYPES.
Q. HOUSE KEEPPING AND EQUIPMENT PADS SHALL BE FINISHED TO MATCH ADJACENT FLOOR FINISHS PRIOR TO INSTALLATION OF EQUIPMENT

FLOOR PLAN LEGEND

- Fire - 1 HR
- Fire - 2 HR
- Fire - 3 HR
- Concealed wall strapping refer to keynote "127" (typical)

FLOOR PLAN KEYNOTES

121 CONCRETE HOUSEKEEPING PAD REFER TO MECH AND ELECTRICAL FOR SIZES AND LOCATIONS
132 PROVIDE WAINSCOT OF 3/4" CDX PLYWOOD TO ELEVATION OF 8'-4" ABOVE FINISHED FLOOR
146 WALL MOUNT ACCESS PANEL WITH KEY LOCK. REFER TO LIFE SAFETY DRAWINGS FOR RATING REQUIREMENTs. PROVIDE 2'X 2' PANELS AT PENTHOUSE FLOOR TO SKYLIGHT
155 PROVIDE 4" HIGH X 5" WIDE CONCRETE CURB AT PERIMETER OF SHAFT SPACE. REFER TO STRUCTURAL
163 PROVIDE 2'-0" WIDE x 4'-0" HIGH LOCKABLE ACCESS PANEL - REFER TO STRUCTURAL FOR BOND BEAM REQUIREMENTS

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For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Drawn

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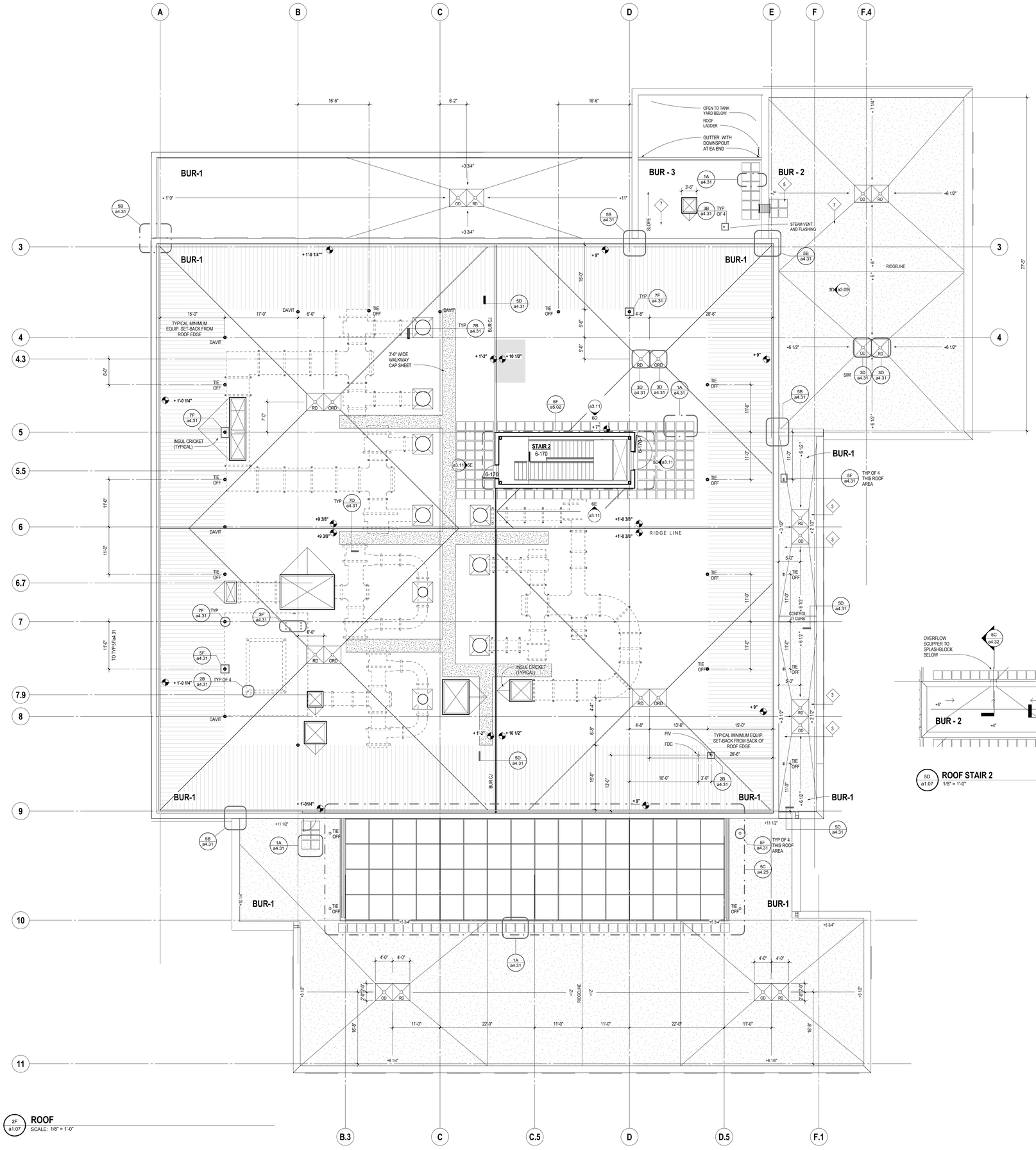
FLOOR PLAN - PENTHOUSE

a1.06



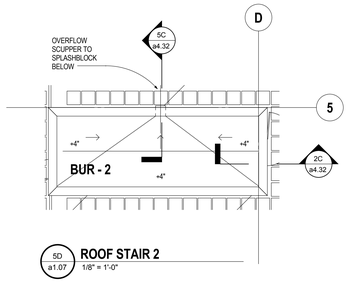
2F a1.07 **ROOF**
SCALE: 1/8" = 1'-0"

GENERAL ROOF PLAN NOTES

A. 3" BASE LAYER OF RIGID INSULATION HAS BEEN INCLUDED IN ROOF SLOPE CALCULATIONS
B. PROVIDE MINIMUM OF 1/4" PER FOOT SLOPE AT ALL ROOF SLOPES AND CRICKETS UNLESS NOTED OTHERWISE
C. PROVIDE NECESSARY CRICKETS TO PROVIDE POSITIVE DRAINAGE AROUND MECH PENETRATIONS
D. PROVIDE VAPOR RETARDER OVER CONCRETE DECK
E. MECHANICAL PLANS DEFINE CURBS, EQUIPMENT RAILS, AND SUPPORTS NOT OTHERWISE OTHERWISE IDENTIFIED
F. FILL VOIDS IN ALL PIPE SUPPORTS WITH INSUL-7
G. FALL ARREST AND RESTRAINT SYSTEM. ANCHOR TO DECK. HEIGHT OF POST SHALL EXTEND MINIMUM OF 8" ABOVE BUR CONTROL JOINT CURB

ROOF PLAN KEYNOTES

1. NOT USED
2. NOT USED
3. PROVIDE 1/2" PER FOOT TAPERED INSULATION TO ROOF DRAIN AND OVERFLOW DRAIN
4. PROVIDE SPLASH BLOCK AT BASE DOWNSPOUT.



5D a1.07 **ROOF STAIR 2**
1/8" = 1'-0"

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ROOF PLAN

a1.07

7F a2.01 **BASEMENT**
SCALE: 1/8" = 1'-0"

GENERAL CEILNG NOTES

1. CEILING HEIGHT 10'-0" UNLESS NOTED OTHERWISE
2. CENTER ACOUSTICAL CEILING TILES IN SPACE UNLESS NOTED OTHERWISE. CENTER SPRINKLER HEADS, SPEAKERS, WIRELESS ACCESS POINTS, CEILING EXHAUST PORTS IN ACOUSTICAL CEILING TILE UNLESS NOTED OTHERWISE.
3. ALL EXPOSED ACOUSTIC TILE EDGES SHALL BE FACTORY FINISHED. SITE CUT TILES MAY BE LOCATED ABUTTING FINISHED VERTICAL GYPSUM SURFACES.
4. COORDINATE LIGHTING WITH ELECTRICAL DRAWINGS. COORDINATE MECHANICAL DIFFUSERS WITH MECHANICAL DRAWINGS. LOCATIONS SHOWN ON ARCHITECTURAL REFLECTED CEILING PLANS FOR SPRINKLER HEADS IN PUBLIC AREA CEILINGS SHALL TAKE PRECEDENCE OVER LOCATIONS SHOWN ON FIRE PROTECTION DRAWINGS.
5. COORDINATE CEILING ASSEMBLIES WITH ABOVE-CEILING STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS. PROVIDE UNISTRUTS, CHANNEL, AND RUNNER SYSTEMS, AND BRACING AS REQUIRED TO STABILIZE CEILING SYSTEMS - TYPICAL.
6. PROVIDE GWB SOFFITS @ RECESSED RECYCLING AREAS NOTED ON FLOOR PLANS - VERIFY REQUIRED RATING WITH LIFE SAFETY PLANS
7. COPE PARTITION HEADS TO PROFILE OF DECK STRUCTURE AND SEAL AS INDICATED. REFER TO SHEET a8.02 FOR RESPECTIVE DETAILS.
8. LIGHT FIXTURES AT 10'-0" AND SHALL BE CENTERED IN THE MIDDLE OF ACOUSTIC TILE UNLESS NOTED OTHERWISE.

CEILING FIXTURE SYMBOLS

- RECESSED 2x4, LIGHT FIXTURE
- RECESSED 1X4 LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- RECESSED LINEAR LIGHT FIXTURE
- RECESSED LINEAR WALLWASHER LIGHT FIXTURE
- WALLWASHER LIGHT FIXTURE
- STRIP LIGHT FIXTURE
- RECESSED DOWNLIGHT FIXTURE
- FIRE SPRINKLER HEAD
- GWB-1
- GWB-2
- ACT-1
- AGC-1
- ROLLER SHADE
- ACCESS PANEL
- SUPPLY DIFFUSER
- EXHAUST DIFFUSER
- RETURN DIFFUSER
- MWP-4
- OVERHEAD SERVICE CARRIER - REFER TO LAB FURNISHINGS
- EQUIPMENT EXHAUST - REFER TO LAB FURNISHINGS AND MECHANICAL

CEILING PLAN KEYNOTE LEGEND

202	LIGHT AT 13'-1" AFF
203	OVERHEAD SERVICE CARRIER
204	CHEMICAL FUME HOOD ENCLOSURE - REFER TO LAB PLANS
206	2 HR HORIZONTAL SHAFT
217	MANUAL MONO-RAIL - SEE SB/a8.41
219	CLEAR TO STRUCTURE
233	EXPOSED STEEL STAIR (PT)
234	PROVIDE 12" CMU BOND BEAM TO ADJ. CIP BEAM
240	MAINTAIN 12'-6" CLEAR AFF ABOVE SOFT-WALL CLEANROOM
242	500 LBS HOIST
243	PROVIDE EMBEDS FOR FUTURE 2 TON MONORAIL CRANE AT JOIST/BEAM ABOVE PIT

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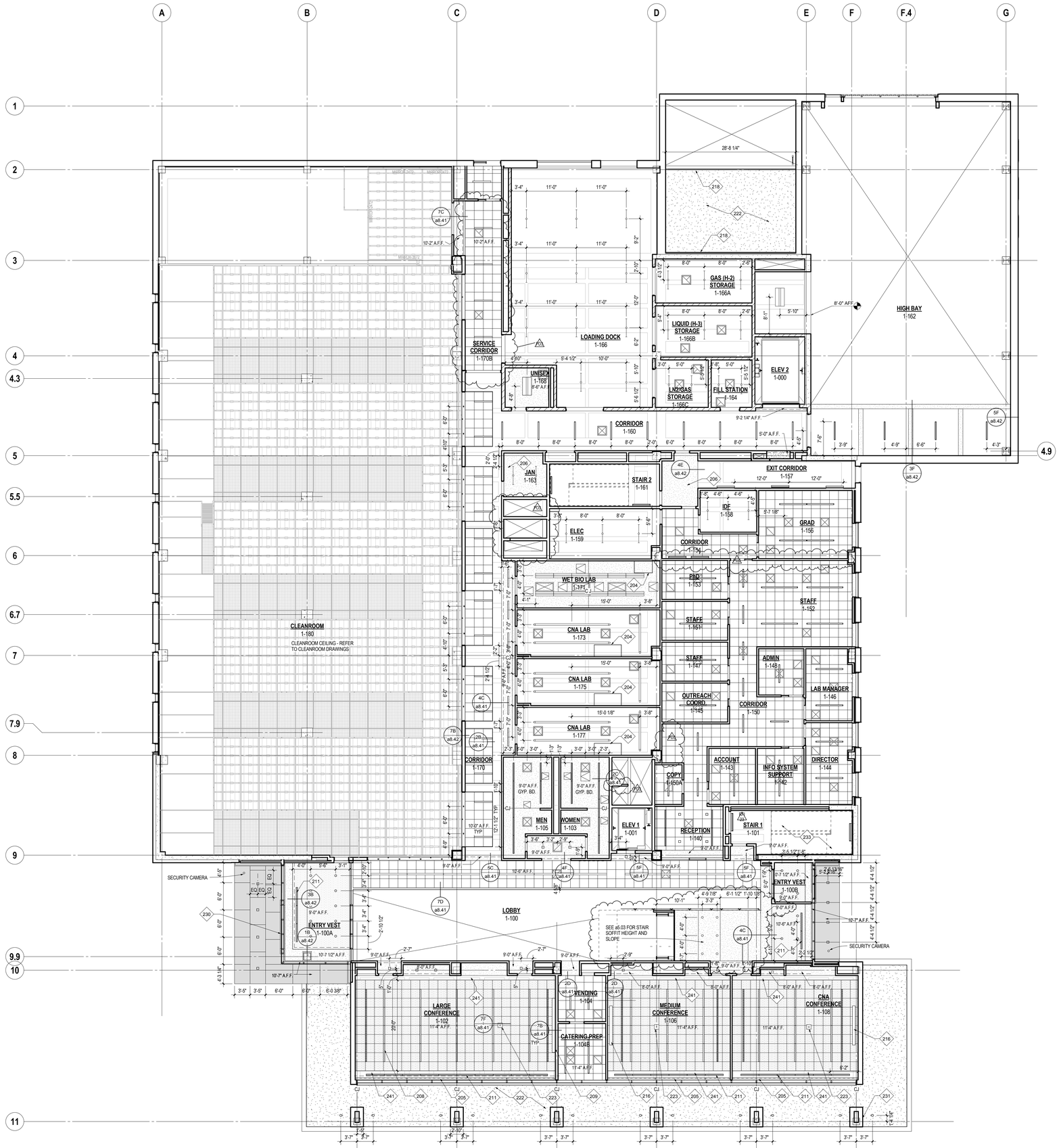
REFLECTED CEILING PLAN - BASEMENT

a2.01



7F a2.02 **LEVEL 1**
SCALE: 1/8" = 1'-0"

GENERAL CEILNG NOTES

1. CEILING HEIGHT 10'-0" UNLESS NOTED OTHERWISE
2. CENTER ACOUSTICAL CEILING TILES IN SPACE UNLESS NOTED OTHERWISE. CENTER SPRINKLER HEADS, SPEAKERS, WIRELESS ACCESS POINTS, CEILING EXHAUST PORTS IN ACOUSTICAL CEILING TILE UNLESS NOTED OTHERWISE.
3. ALL EXPOSED ACOUSTIC TILE EDGES SHALL BE FACTORY FINISHED. SITE CUT TILES MAY BE LOCATED ABUTTING FINISHED VERTICAL GYPSUM SURFACES.
4. COORDINATE LIGHTING WITH ELECTRICAL DRAWINGS. COORDINATE MECHANICAL DIFFUSERS WITH MECHANICAL DRAWINGS. LOCATIONS SHOWN ON ARCHITECTURAL REFLECTED CEILING PLANS FOR SPRINKLER HEADS IN PUBLIC AREA CEILINGS SHALL TAKE PRECEDENCE OVER LOCATIONS SHOWN ON FIRE PROTECTION DRAWINGS.
5. COORDINATE CEILING ASSEMBLIES WITH ABOVE-CEILING STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS. PROVIDE UNISTRUTS, CHANNEL, AND RUNNER SYSTEMS, AND BRACING AS REQUIRED TO STABILIZE CEILING SYSTEMS - TYPICAL.
6. PROVIDE GWB SOFFITS @ RECESSED RECYCLING AREAS NOTED ON FLOOR PLANS - VERIFY REQUIRED RATING WITH LIFE SAFETY PLANS.
7. COPE PARTITION HEADS TO PROFILE OF DECK STRUCTURE AND SEAL AS INDICATED. REFER TO SHEET a8.02 FOR RESPECTIVE DETAILS.
8. LIGHT FIXTURES AT 10'-0" AND SHALL BE CENTERED IN THE MIDDLE OF ACOUSTIC TILE UNLESS NOTED OTHERWISE.

CEILING FIXTURE SYMBOLS

- RECESSED 2x4, LIGHT FIXTURE
- RECESSED 1X4 LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- RECESSED LINEAR LIGHT FIXTURE
- RECESSED LINEAR WALLWASHER LIGHT FIXTURE
- WALLWASHER LIGHT FIXTURE
- STRIP LIGHT FIXTURE
- RECESSED DOWNLIGHT FIXTURE
- FIRE SPRINKLER HEAD
- GWB-1
- GWB-2
- ACT-1
- AGC-1
- ROLLER SHADE
- ACCESS PANEL
- SUPPLY DIFFUSER
- EXHAUST DIFFUSER
- RETURN DIFFUSER
- MWP-4
- OVERHEAD SERVICE CARRIER - REFER TO LAB FURNISHINGS
- EQUIPMENT EXHAUST - REFER TO LAB FURNISHINGS AND MECHANICAL

CEILING PLAN KEYNOTE LEGEND

204	CHEMICAL FUME HOOD ENCLOSURE - REFER TO LAB PLANS
205	RECESSED MOTORIZED ROLLER SHADES
206	2 HR HORIZONTAL SHAFT
208	RECESSED LIGHT, TYP
209	RECESSED MOTORIZED PROJECTION SCREEN
211	LINEAR DIFFUSER
216	MANUAL PROJECTION SCREEN
218	CONTINUOUS LINEAR SOFFIT VENT
222	EXTERIOR FINISH SYSTEM
223	CEILING MOUNTED PROJECTOR
225	FARADAY ROOM CEILING BY SHIELDING ROOM MFR. LIGHTS BY ELEC. FARADAY ROOM CEILING @ 8'-0"
230	1/2" X 1/2" EXTRUDED ALUM REVEAL @ LEVEL 1 WALL TRANSITION
231	1/2" X 1/2" EXTRUDED ALUM REVEAL @ RETURN OF ST-1 COL ENCLOSURE
232	SKIM COAT AND PAINT CONC BEAM ABOVE
233	EXPOSED STEEL STAIR (PT)
241	PAINT PT-6 ALL EXPOSED STRUCTURE AND MEP ABOVE PLANE OF CEILING

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REFLECTED CEILING PLAN - LEVEL 1

a2.02

7F a2.03 **LEVEL 2**
SCALE: 1/8" = 1'-0"

GENERAL CEILNG NOTES

1. CEILING HEIGHT 10'-0" UNLESS NOTED OTHERWISE
2. CENTER ACOUSTICAL CEILING TILES IN SPACE UNLESS NOTED OTHERWISE. CENTER SPRINKLER HEADS, SPEAKERS, WIRELESS ACCESS POINTS, CEILING EXHAUST PORTS IN ACOUSTICAL CEILING TILE UNLESS NOTED OTHERWISE.
3. ALL EXPOSED ACOUSTIC TILE EDGES SHALL BE FACTORY FINISHED. SITE CUT TILES MAY BE LOCATED ABUTTING FINISHED VERTICAL GYPSUM SURFACES.
4. COORDINATE LIGHTING WITH ELECTRICAL DRAWINGS. COORDINATE MECHANICAL DIFFUSERS WITH MECHANICAL DRAWINGS. LOCATIONS SHOWN ON ARCHITECTURAL REFLECTED CEILING PLANS FOR SPRINKLER HEADS IN PUBLIC AREA CEILINGS SHALL TAKE PRECEDENCE OVER LOCATIONS SHOWN ON FIRE PROTECTION DRAWINGS.
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- FIRE SPRINKLER HEAD
- GWB-1
- GWB-2
- ACT-1
- AGC-1
- ROLLER SHADE
- ACCESS PANEL
- SUPPLY DIFFUSER
- EXHAUST DIFFUSER
- RETURN DIFFUSER
- MWP-4
- OVERHEAD SERVICE CARRIER - REFER TO LAB FURNISHINGS
- EQUIPMENT EXHAUST - REFER TO LAB FURNISHINGS AND MECHANICAL

CEILING PLAN KEYNOTE LEGEND

202	LIGHT AT 13'-1" AFF
204	CHEMICAL FUME HOOD ENCLOSURE - REFER TO LAB PLANS
205	RECESSED MOTORIZED ROLLER SHADES
211	LINEAR DIFFUSER
213	CURTAIN BULKHEADS AT 10'-0" AFF
214	CURTAIN TRACK - REFER TO LAB FURNISHING DRAWINGS
215	INTUMESCENT PT @ JOIST DEC, BEAMS AND COLUMN AND ASSOCIATED CONNECTIONS
216	MANUAL PROJECTION SCREEN
217	MANUAL MONO-RAIL - SEE SB/a8.41
219	CLEAR TO STRUCTURE
223	CEILING MOUNTED PROJECTOR
224	UNISTRUT - REFER TO LAB FURNISHING DRAWINGS
233	EXPOSED STEEL STAIR (PT)
235	CRANE RAIL AND HOIST
236	SKIM COAT AND PAINT EXTENT OF CLEANROOM INTERSTITIAL SPACE

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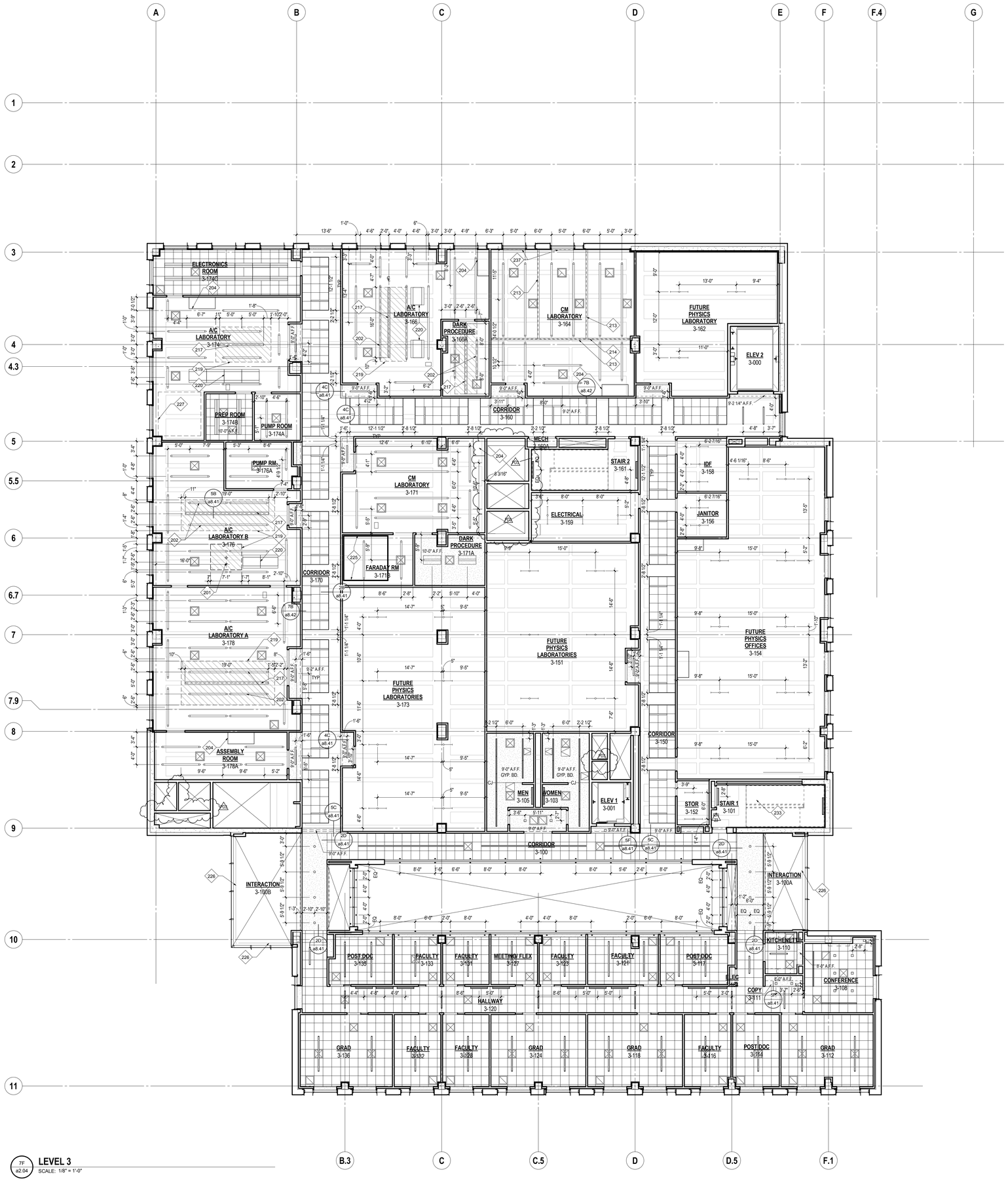
REFLECTED CEILING PLAN - LEVEL 2

a2.03



7F a2.04 **LEVEL 3**
SCALE: 1/8" = 1'-0"

GENERAL CEILNG NOTES

1. CEILING HEIGHT 10'-0" UNLESS NOTED OTHERWISE
2. CENTER ACOUSTICAL CEILING TILES IN SPACE UNLESS NOTED OTHERWISE. CENTER SPRINKLER HEADS, SPEAKERS, WIRELESS ACCESS POINTS, CEILING EXHAUST PORTS IN ACOUSTICAL CEILING TILE UNLESS NOTED OTHERWISE.
3. ALL EXPOSED ACOUSTIC TILE EDGES SHALL BE FACTORY FINISHED. SITE CUT TILES MAY BE LOCATED ABUTTING FINISHED VERTICAL GYPSUM SURFACES.
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6. PROVIDE GWB SOFFITS @ RECESSED RECYCLING AREAS NOTED ON FLOOR PLANS - VERIFY REQUIRED RATING WITH LIFE SAFETY PLANS.
7. COPE PARTITION HEADS TO PROFILE OF DECK STRUCTURE AND SEAL AS INDICATED. REFER TO SHEET a8.02 FOR RESPECTIVE DETAILS.
8. LIGHT FIXTURES AT 10'-0" AND SHALL BE CENTERED IN THE MIDDLE OF ACOUSTIC TILE UNLESS NOTED OTHERWISE.

CEILING FIXTURE SYMBOLS

- RECESSED 2x4, LIGHT FIXTURE
- RECESSED 1X4 LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- RECESSED LINEAR LIGHT FIXTURE
- RECESSED LINEAR WALLWASHER LIGHT FIXTURE
- WALLWASHER LIGHT FIXTURE
- STRIP LIGHT FIXTURE
- RECESSED DOWNLIGHT FIXTURE
- FIRE SPRINKLER HEAD
- GWB-1
- GWB-2
- ACT-1
- AGC-1
- ROLLER SHADE
- ACCESS PANEL
- SUPPLY DIFFUSER
- EXHAUST DIFFUSER
- RETURN DIFFUSER
- MWP-4
- OVERHEAD SERVICE CARRIER - REFER TO LAB FURNISHINGS
- EQUIPMENT EXHAUST - REFER TO LAB FURNISHINGS AND MECHANICAL

CEILING PLAN KEYNOTE LEGEND

201	2 TON HOIST
202	LIGHT AT 13'-1" AFF
204	CHEMICAL FUME HOOD ENCLOSURE - REFER TO LAB PLANS
213	CURTAIN BULKHEADS AT 10'-0" AFF
214	CURTAIN TRACK - REFER TO LAB FURNISHING DRAWINGS
217	MANUAL MONO-RAIL - SEE 5B/a8.41
219	CLEAR TO STRUCTURE
220	CHILLED BEAM
225	FARADAY ROOM CEILING BY SHIELDING ROOM MFR. LIGHTS BY ELEC. FARADAY ROOM CEILING @ 8'-0"
226	STEEL WIND GIRT - PAINT
227	TENT STYLE CLEANROOM LIGHTS AND HVAC BY CLEANROOM SUPPLIER. CONNECTIONS BY MECHANICAL - CEILING @ 8'-0"
233	EXPOSED STEEL STAIR (PT)
237	MANUAL BLACKOUT ROLLER SHADE

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For Architectural Alliance

By

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REFLECTED CEILING PLAN - LEVEL 3

a2.04

7F
a2.05
LEVEL 4
SCALE: 1/8" = 1'-0"

GENERAL CEILNG NOTES

1. CEILING HEIGHT 10'-0" UNLESS NOTED OTHERWISE
2. CENTER ACOUSTICAL CEILING TILES IN SPACE UNLESS NOTED OTHERWISE. CENTER SPRINKLER HEADS, SPEAKERS, WIRELESS ACCESS POINTS, CEILING EXHAUST PORTS IN ACOUSTICAL CEILING TILE UNLESS NOTED OTHERWISE.
3. ALL EXPOSED ACOUSTIC TILE EDGES SHALL BE FACTORY FINISHED. SITE CUT TILES MAY BE LOCATED ABUTTING FINISHED VERTICAL GYPSUM SURFACES.
4. COORDINATE LIGHTING WITH ELECTRICAL DRAWINGS. COORDINATE MECHANICAL DIFFUSERS WITH MECHANICAL DRAWINGS. LOCATIONS SHOWN ON ARCHITECTURAL REFLECTED CEILING PLANS FOR SPRINKLER HEADS IN PUBLIC AREA CEILINGS SHALL TAKE PRECEDENCE OVER LOCATIONS SHOWN ON FIRE PROTECTION DRAWINGS.
5. COORDINATE CEILING ASSEMBLIES WITH ABOVE-CEILING STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS. PROVIDE UNISTRUTS, CHANNEL, AND RUNNER SYSTEMS, AND BRACING AS REQUIRED TO STABILIZE CEILING SYSTEMS - TYPICAL.
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CEILING FIXTURE SYMBOLS

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- RECESSED 1X4 LIGHT FIXTURE
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- RECESSED LINEAR LIGHT FIXTURE
- RECESSED LINEAR WALLWASHER LIGHT FIXTURE
- WALLWASHER LIGHT FIXTURE
- STRIP LIGHT FIXTURE
- RECESSED DOWNLIGHT FIXTURE
- FIRE SPRINKLER HEAD
- GWB-1
- GWB-2
- ACT-1
- AGC-1
- ROLLER SHADE
- ACCESS PANEL
- SUPPLY DIFFUSER
- EXHAUST DIFFUSER
- RETURN DIFFUSER
- MWP-4
- OVERHEAD SERVICE CARRIER - REFER TO LAB FURNISHINGS
- EQUIPMENT EXHAUST - REFER TO LAB FURNISHINGS AND MECHANICAL

CEILING PLAN KEYNOTE LEGEND

204	CHEMICAL FUME HOOD ENCLOSURE - REFER TO LAB PLANS
211	LINEAR DIFFUSER
213	CURTAIN BULKHEADS AT 10'-0" AFF
214	CURTAIN TRACK - REFER TO LAB FURNISHING DRAWINGS
217	MANUAL MONO-RAIL - SEE 5B/a8.41
220	CHILLED BEAM
224	UNISTRUT - REFER TO LAB FURNISHING DRAWINGS
228	RF SHIELDING ROOM LIGHTS @ 8'-0" CEILING BY SHIELDING ROOM MFR.
233	EXPOSED STEEL STAIR (PT)

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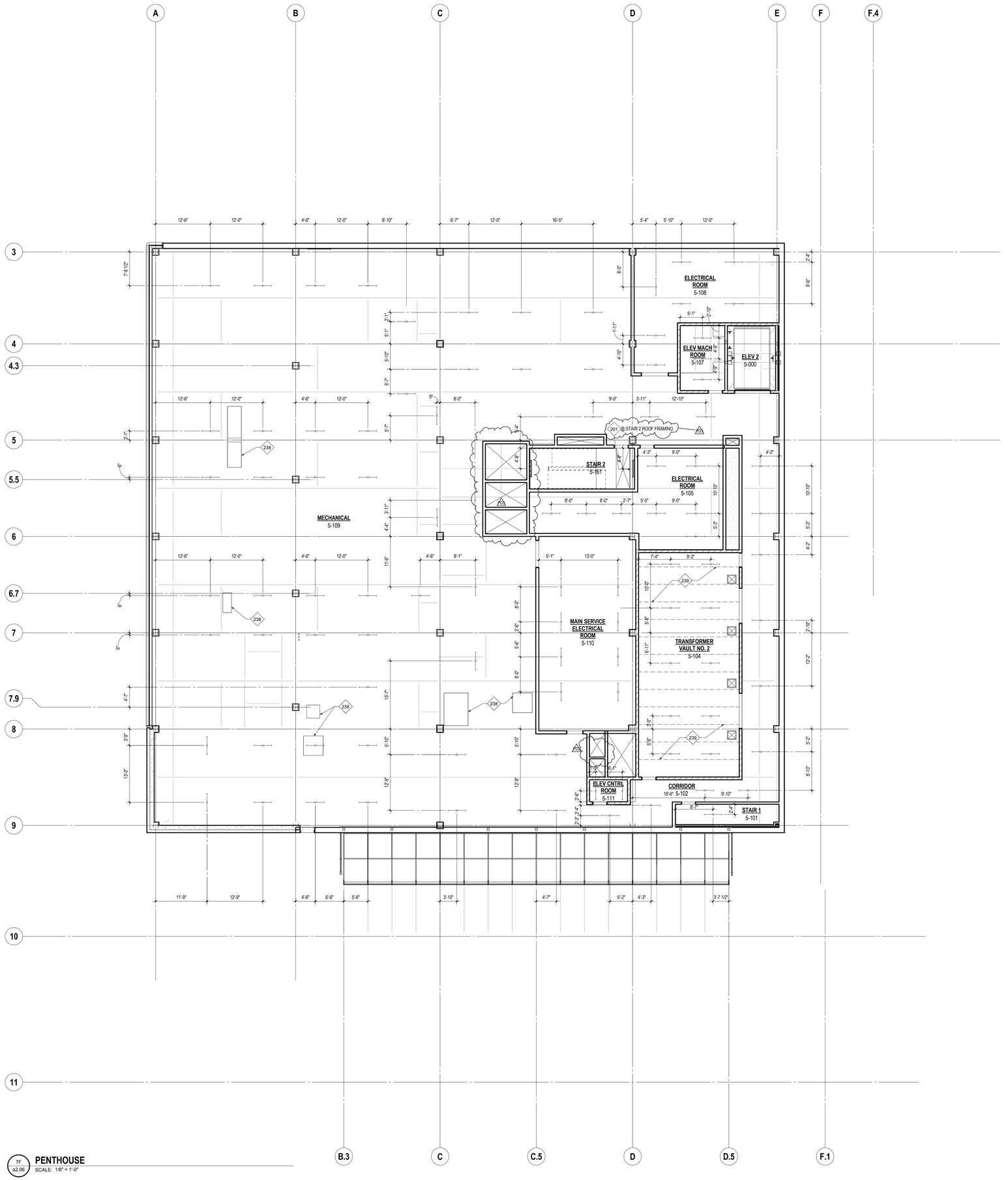
REFLECTED CEILING PLAN - LEVEL 4

a2.05



PENTHOUSE
SCALE: 1/8" = 1'-0"

GENERAL CEILNG NOTES

1. CEILING HEIGHT 10'-0" UNLESS NOTED OTHERWISE
2. CENTER ACOUSTICAL CEILING TILES IN SPACE UNLESS NOTED OTHERWISE. CENTER SPRINKLER HEADS, SPEAKERS, WIRELESS ACCESS POINTS, CEILING EXHAUST PORTS IN ACOUSTICAL CEILING TILE UNLESS NOTED OTHERWISE.
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- RECESSED 1X4 LIGHT FIXTURE
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- WALLWASHER LIGHT FIXTURE
- STRIP LIGHT FIXTURE
- RECESSED DOWNLIGHT FIXTURE
- FIRE SPRINKLER HEAD
- GWB-1
- GWB-2
- ACT-1
- AGC-1
- ROLLER SHADE
- ACCESS PANEL
- SUPPLY DIFFUSER
- EXHAUST DIFFUSER
- RETURN DIFFUSER
- MWP-4
- OVERHEAD SERVICE CARRIER - REFER TO LAB FURNISHINGS
- EQUIPMENT EXHAUST - REFER TO LAB FURNISHINGS AND MECHANICAL

CEILING PLAN KEYNOTE LEGEND

201	2 TON HOIST
238	DECK OPENING
239	FIRE RATED JOINTS @ PRECAST PANELS

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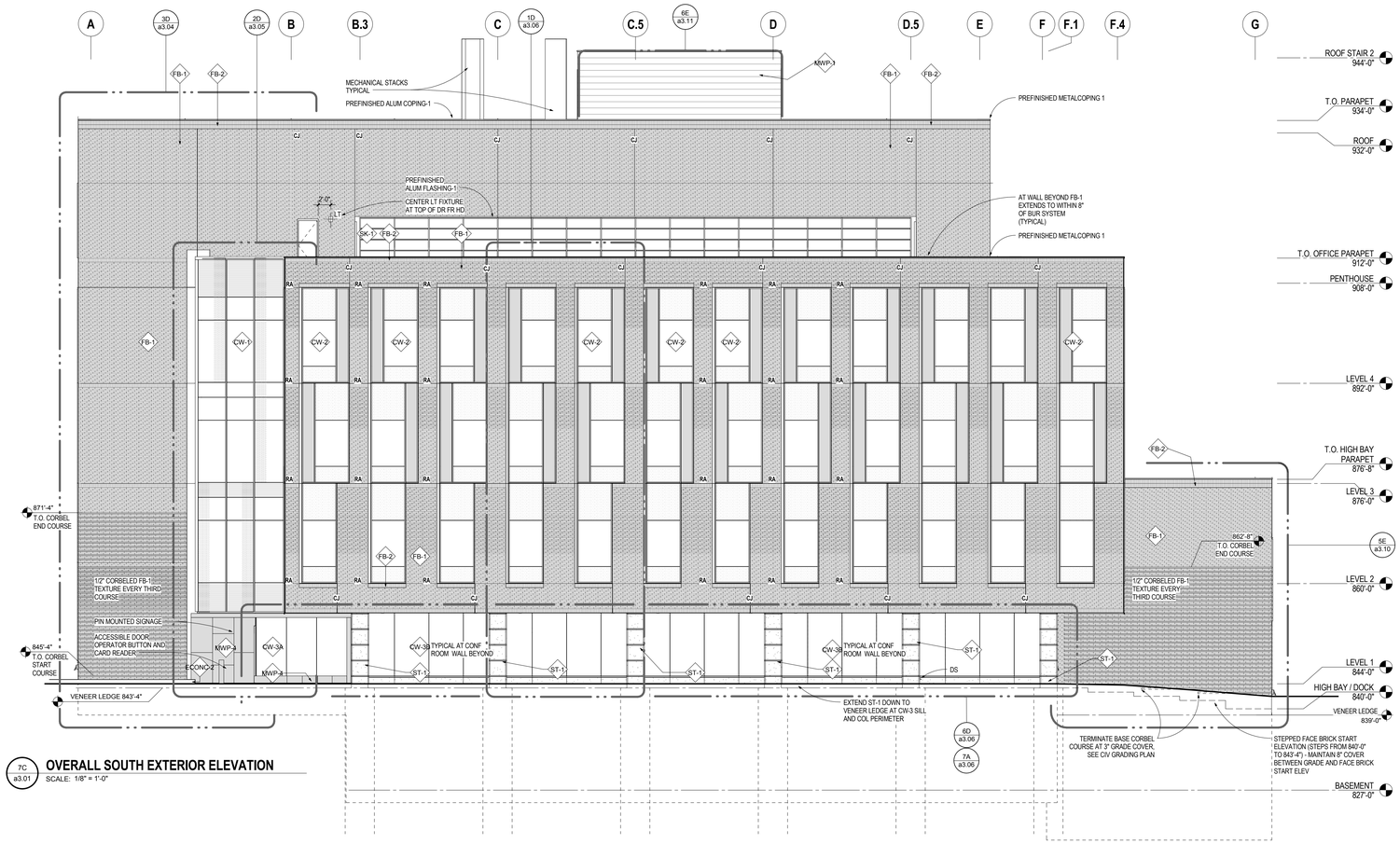
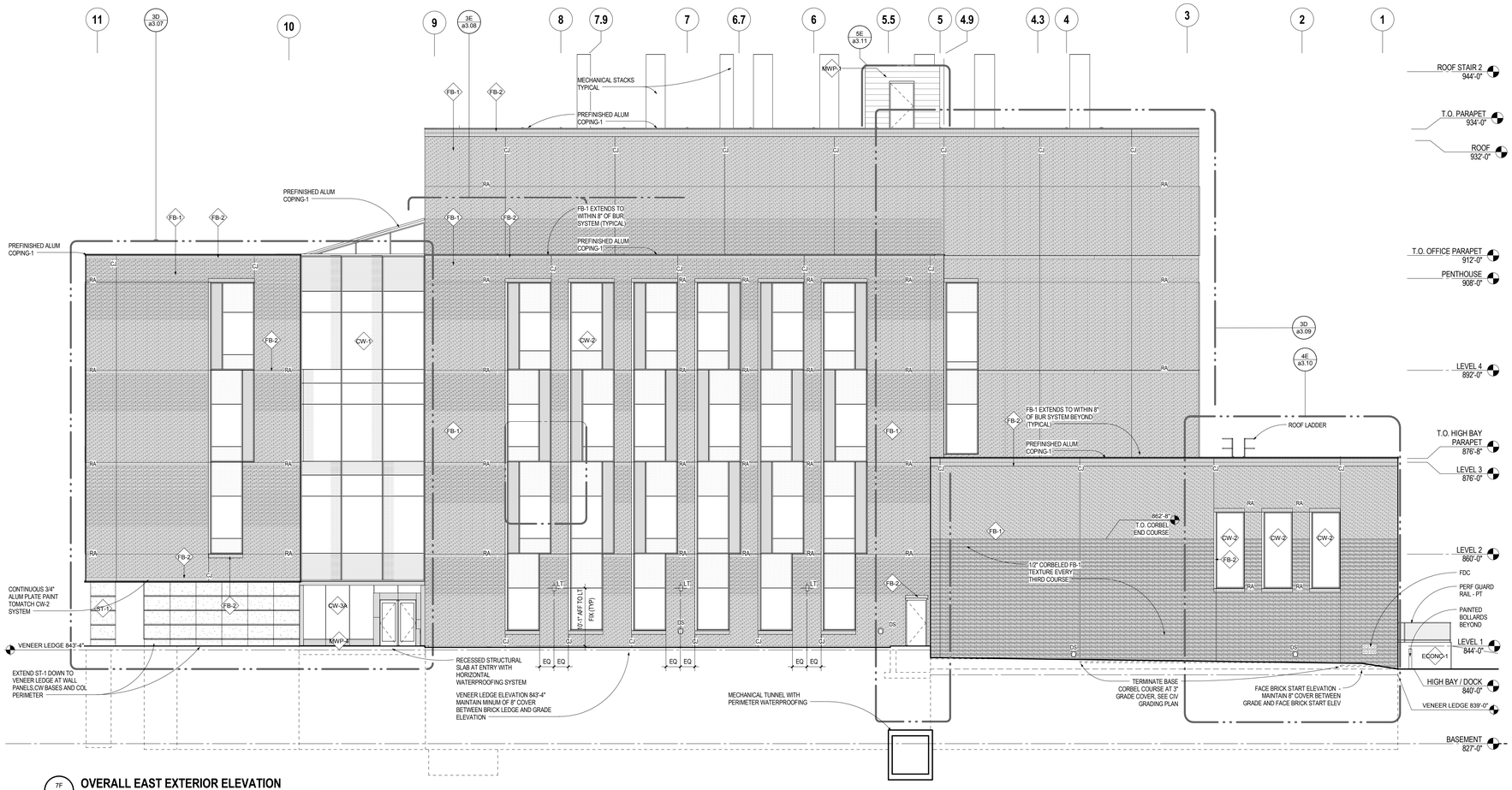
REFLECTED CEILING PLAN - PENTHOUSE

a2.06



7C a3.01 **OVERALL SOUTH EXTERIOR ELEVATION**
SCALE: 1/8" = 1'-0"



7F a3.01 **OVERALL EAST EXTERIOR ELEVATION**
SCALE: 1/8" = 1'-0"

EXTERIOR ELVATION MATERIAL KEYNOTES

CW-1	CURTAINWALL TYPE 1
CW-2	CURTAINWALL TYPE 2
CW-3A	CURTAINWALL TYPE 3A
CW-3B	CURTAINWALL TYPE 3B
ECONC-1	EXTERIOR CAST IN PLACE CONC TYPE 1
ECONC-2	EXTERIOR CAST IN PLACE CONC TYPE 2
FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
MWP-1	METAL WALL PANEL MWP-1
MWP-4	METAL WALL PANEL MWP-4
SK-1	SKYLIGHT SYSTEM
ST-1	GRANITE CLADDING

EXTERIOR ELEVATION GENERAL NOTES

1. REFER TO ENLARGED ELEVATIONS FOR ADDITIONAL NOTES AND DIMENSIONS
2. CONTROL JOINT WIDTH IS TYPICALLY 1/2"
3. SOFT JOINT AT RELIEVING ANGLE IS TYPICALLY 5/8"
4. REFER TO ENLARGED ELEVATIONS FOR GLAZING AND SPANDREL TYPES
5. REFER TO ROOF PLAN FOR ADDITIONAL SKYLIGHT SCOPE
6. CONTROL JOINTS SHALL BE LOCATED ON 8" NOMINAL MASONRY DIMENSIONS
7. REFER TO SPECIFICATIONS AND DETAILS FOR SPECIAL SHAPED BRICKS
8. PROVIDE CAVITY VENTS AT TOPS OF ALL MASONRY CAVITIES
9. AT 1/2" RECESSED BRICK HEADER ADJ TO JAMBS, CUT AND PRIME LEADING EDGE OF RELIEVING ANGLE TO ACCEPT UPFED HEADER BRICK COURSE

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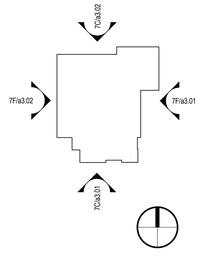

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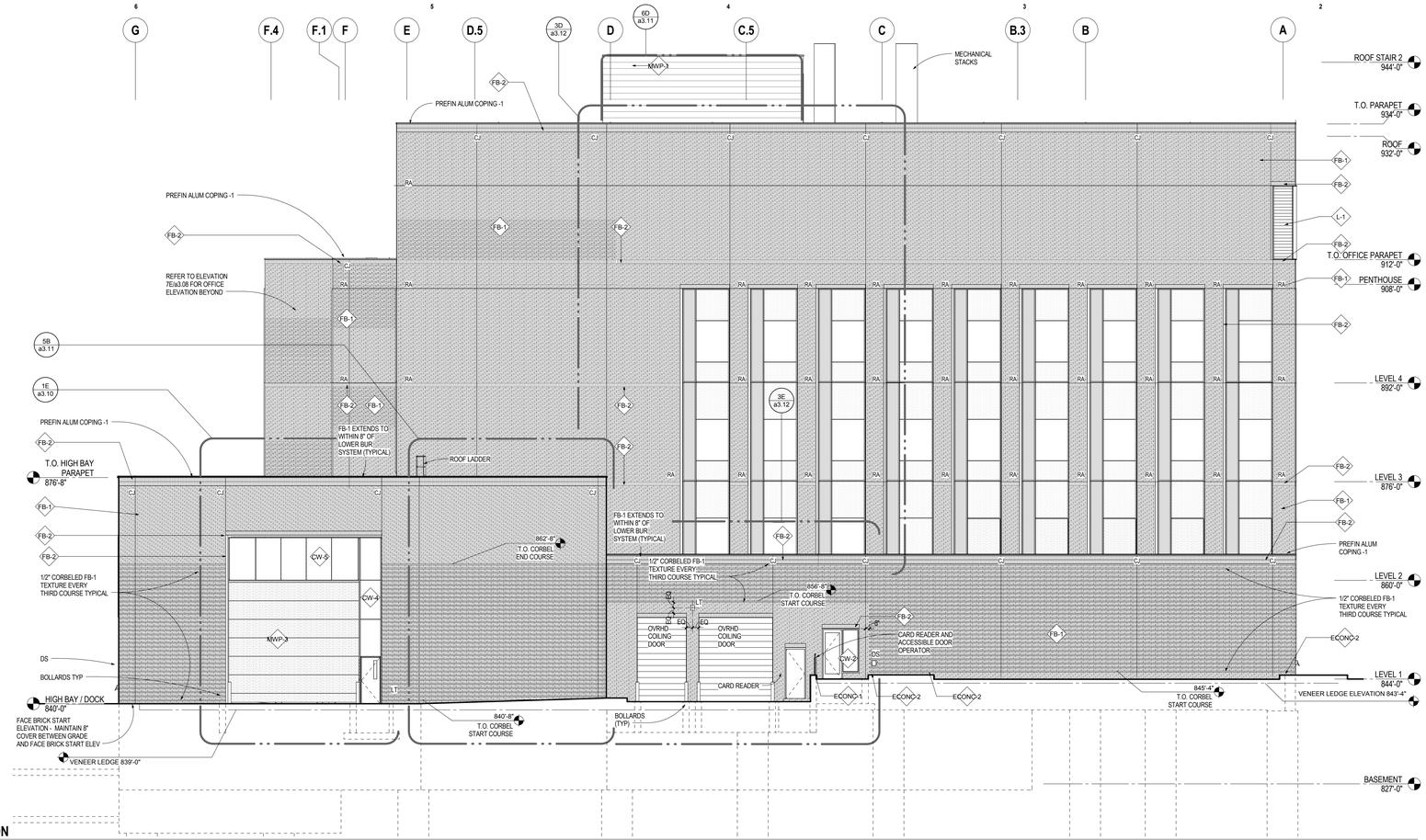
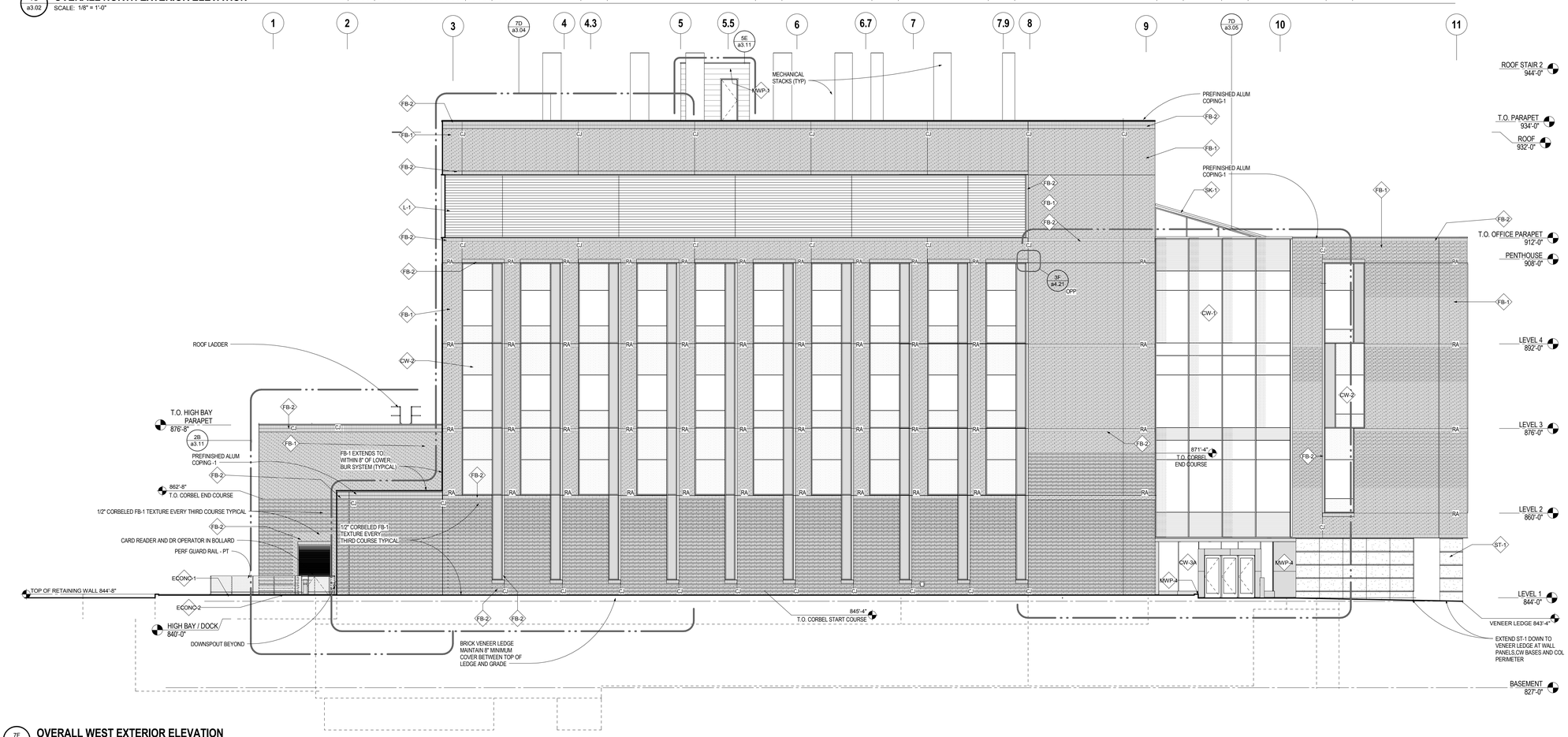
OVERALL SOUTH AND EAST EXTERIOR ELEVATIONS

a3.01



7C a3.02 **OVERALL NORTH EXTERIOR ELEVATION**
SCALE: 1/8" = 1'-0"



7F a3.02 **OVERALL WEST EXTERIOR ELEVATION**
SCALE: 1/8" = 1'-0"

EXTERIOR ELVATION MATERIAL KEYNOTES

CW-1	CURTAINWALL TYPE 1
CW-2	CURTAINWALL TYPE 2
CW-3A	CURTAINWALL TYPE 3A
CW-4	CURTAINWALL TYPE 4
CW-5	
ECONC-1	EXTERIOR CAST IN PLACE CONC TYPE 1
ECONC-2	EXTERIOR CAST IN PLACE CONC TYPE 2
FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
L-1	LOUVER WITH CONCEALED MULLIONS
MWP-1	METAL WALL PANEL MWP-1
MWP-3	METAL WALL PANEL MWP-3
MWP-4	METAL WALL PANEL MWP-4
SK-1	SKYLIGHT SYSTEM
ST-1	GRANITE CLADDING

EXTERIOR ELEVATION GENERAL NOTES

1. REFER TO ENLARGED ELEVATIONS FOR ADDITIONAL NOTES AND DIMENSIONS
2. CONTROL JOINT WIDTH IS TYPICALLY 1/2"
3. SOFT JOINT AT RELIEVING ANGLE IS TYPICALLY 5/8"
4. REFER TO ENLARGED ELEVATIONS FOR GLAZING AND SPANDREL TYPES
5. REFER TO ROOF PLAN FOR ADDITIONAL SKYLIGHT SCOPE
6. CONTROL JOINTS SHALL BE LOCATED ON 8" NOMINAL MASONRY DIMENSIONS
7. REFER TO SPECIFICATIONS AND DETAILS FOR SPECIAL SHAPED BRICKS
8. PROVIDE CAVITY VENTS AT TOPS OF ALL MASONRY CAVITIES
9. AT 1/2" RECESSED BRICK HEADER ADJ TO JAMBS, CUT AND PRIME LEADING EDGE OF RELIEVING ANGLE TO ACCEPT LIPPED HEADER BRICK COURSE

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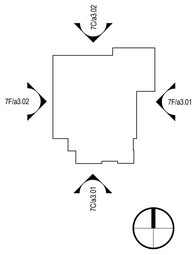

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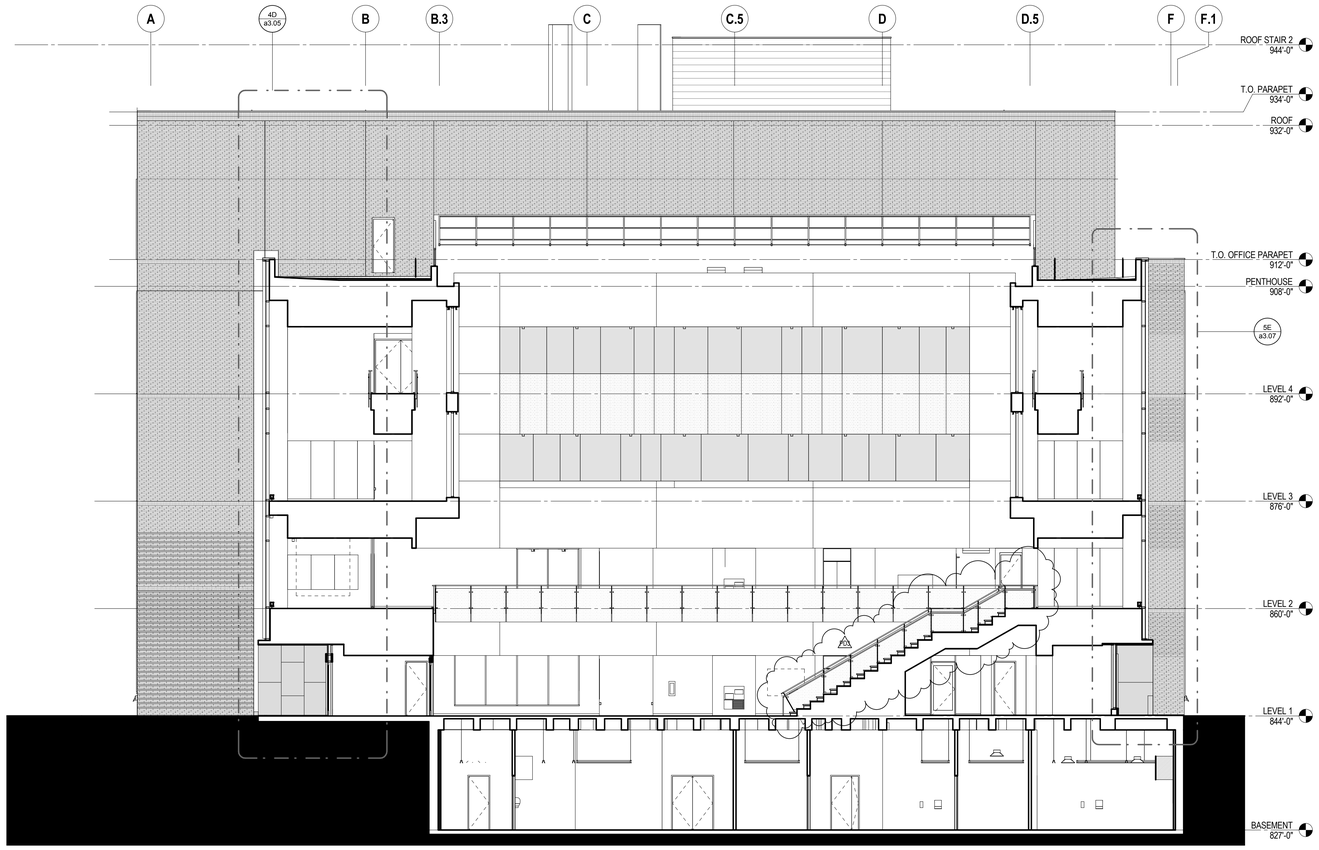
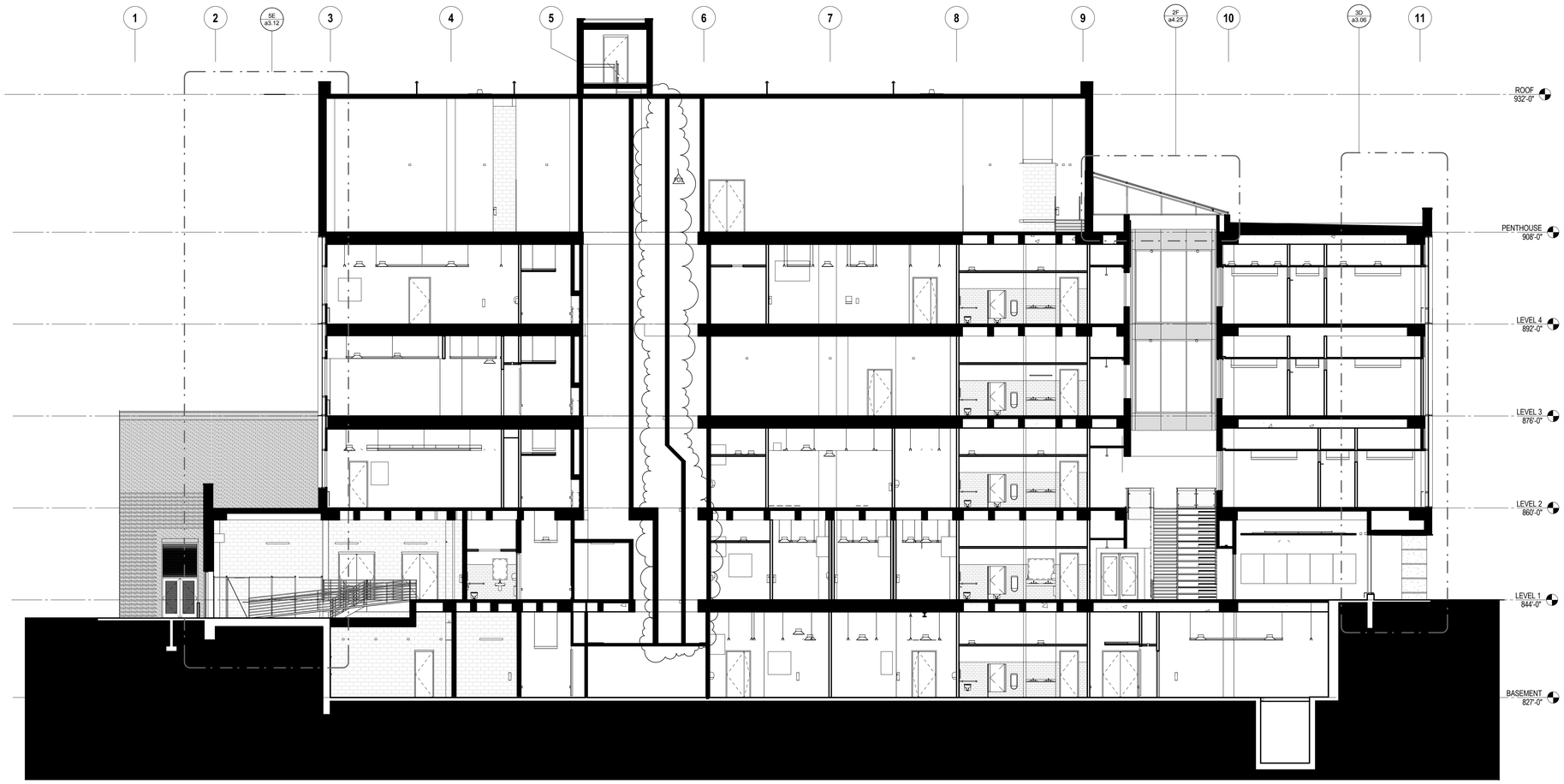
OVERALL NORTH AND WEST EXTERIOR ELEVATIONS

a3.02



5C a3.03 **EAST / WEST BUILDING SECTION**
SCALE: 1/8" = 1'-0"



5F a3.03 **NORTH SOUTH BUILDING SECTION**
SCALE: 1/8" = 1'-0"

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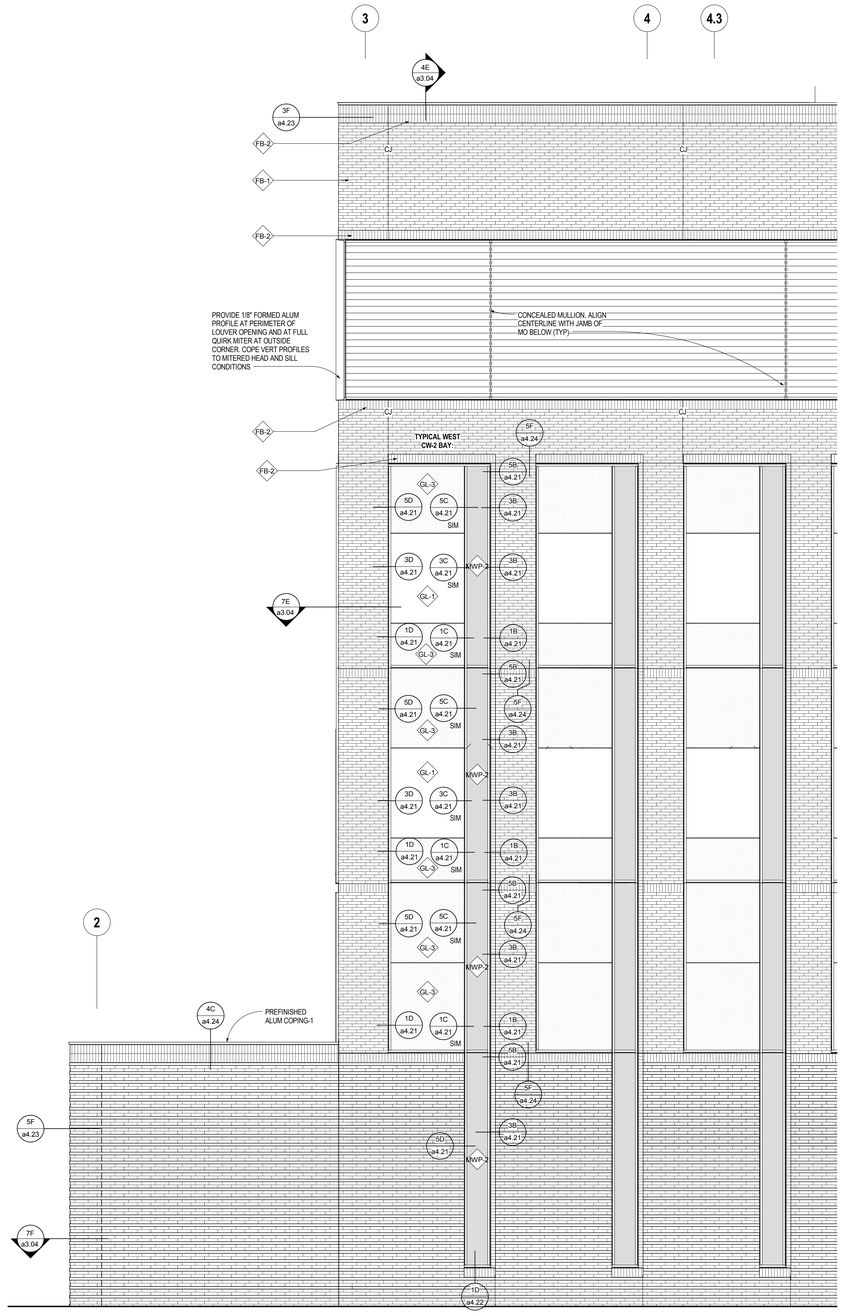
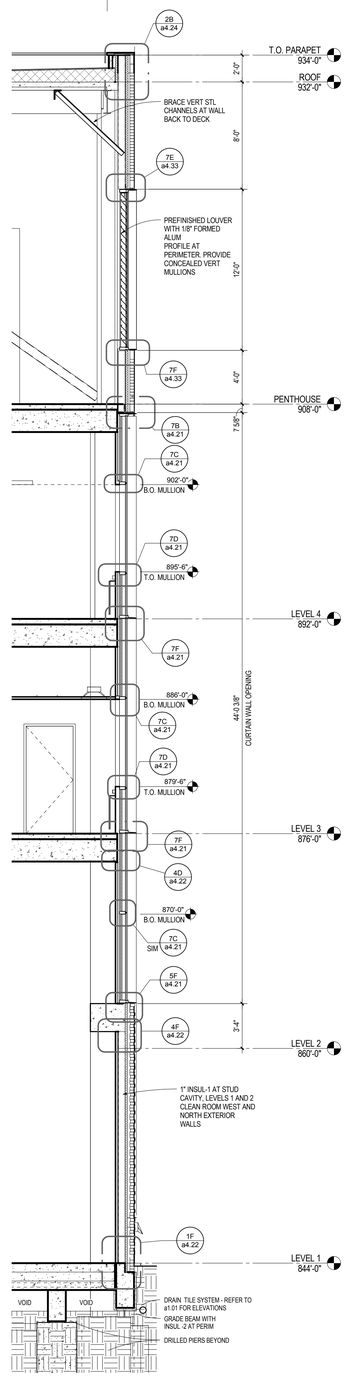
BUILDING SECTION/ELEVATIONS

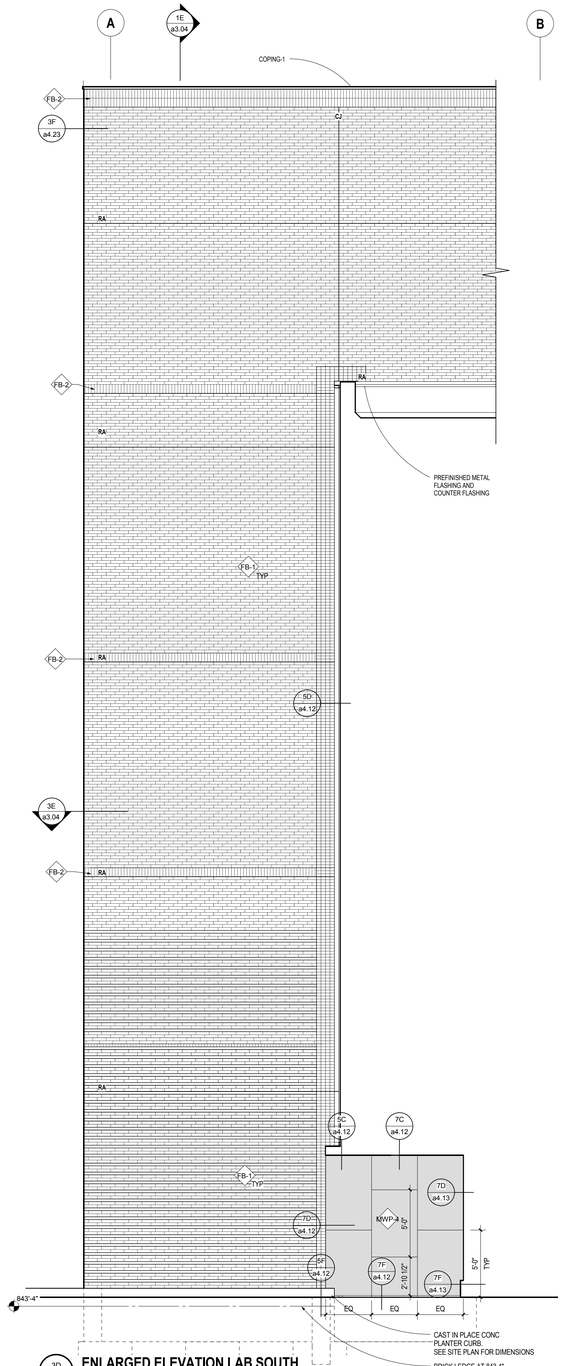
a3.03



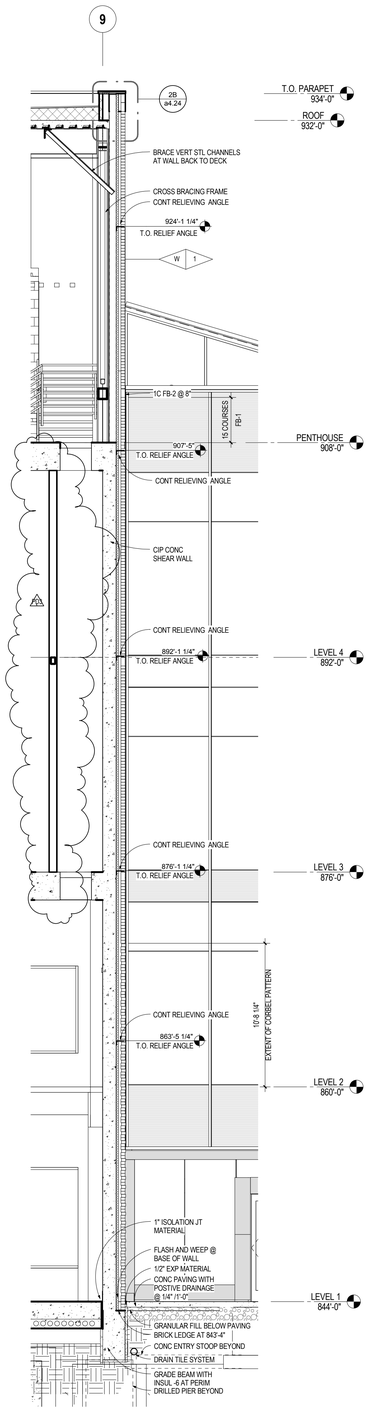
7D a3.04 **ENLARGED ELEVATION LAB WEST**
SCALE: 1/4" = 1'-0"



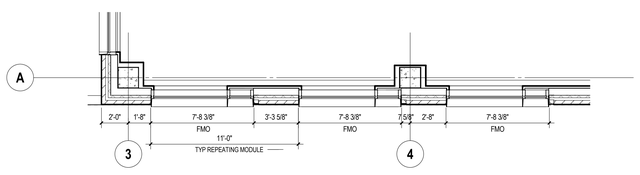
4E a3.04 **WALL SECTION AT LAB WEST FACADE**
SCALE: 1/4" = 1'-0"



3D a3.04 **ENLARGED ELEVATION LAB SOUTH**
SCALE: 1/4" = 1'-0"

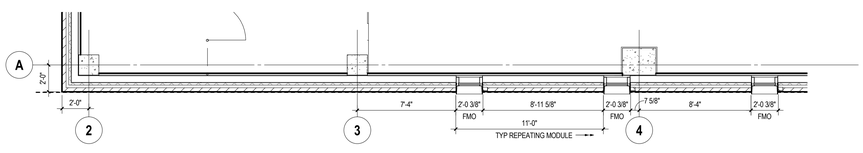


1E a3.04 **WALL SECTION AT LAB SOUTH FACADE**
SCALE: 1/4" = 1'-0"



7E a3.04 **ENLARGED FLOOR PLAN - LAB WEST FACADE LEVELS 3-4**
SCALE: 1/4" = 1'-0"

3E a3.04 **ENLARGED FLOOR PLAN - LAB SOUTH FACADE LEVEL 3**
SCALE: 1/4" = 1'-0"



7F a3.04 **ENLARGED FLOOR PLAN - LAB WEST FACADE LEVEL 1**
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION MATERIAL KEYNOTES

FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
GL-1	INSULATING VISION GLASS
GL-3	INSULATING SPANDREL GLASS
MWP-2	METAL WALL PANEL MWP-2
MWP-4	METAL WALL PANEL MWP-4

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For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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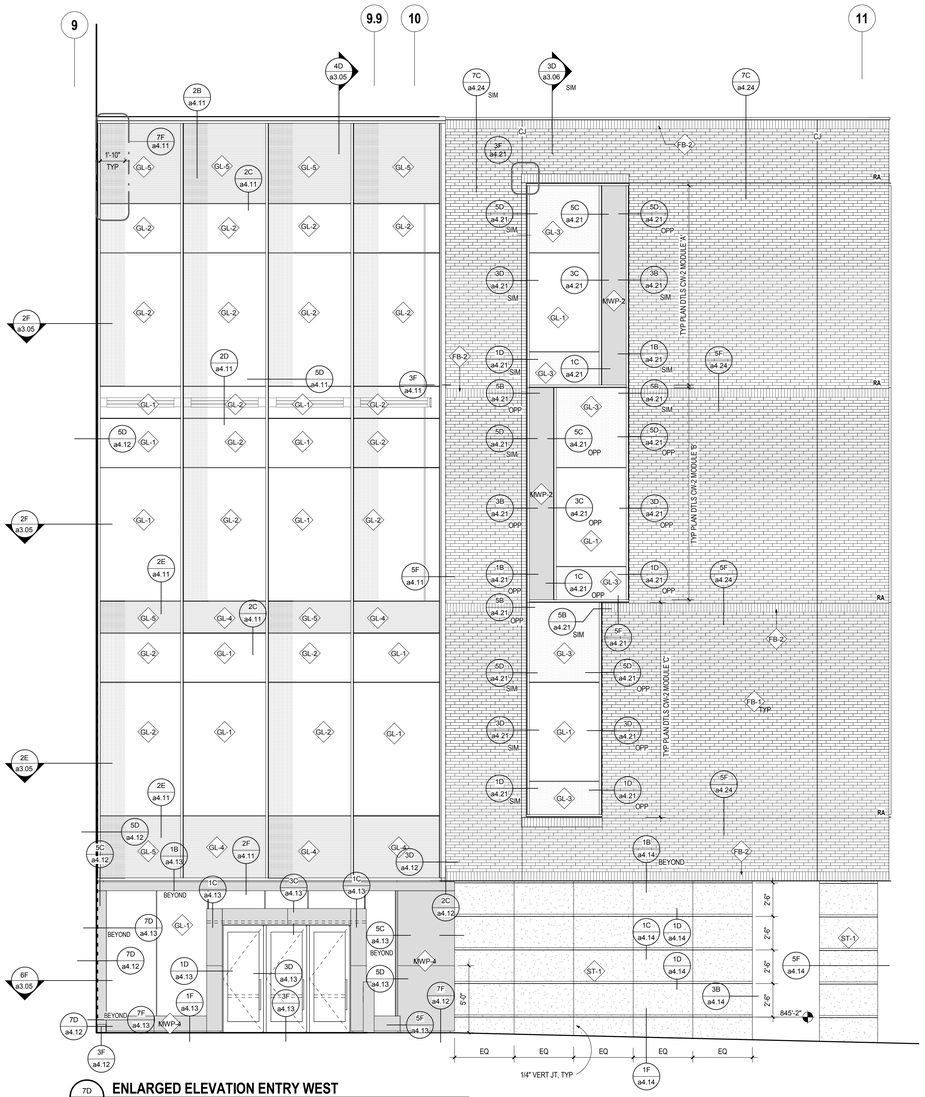
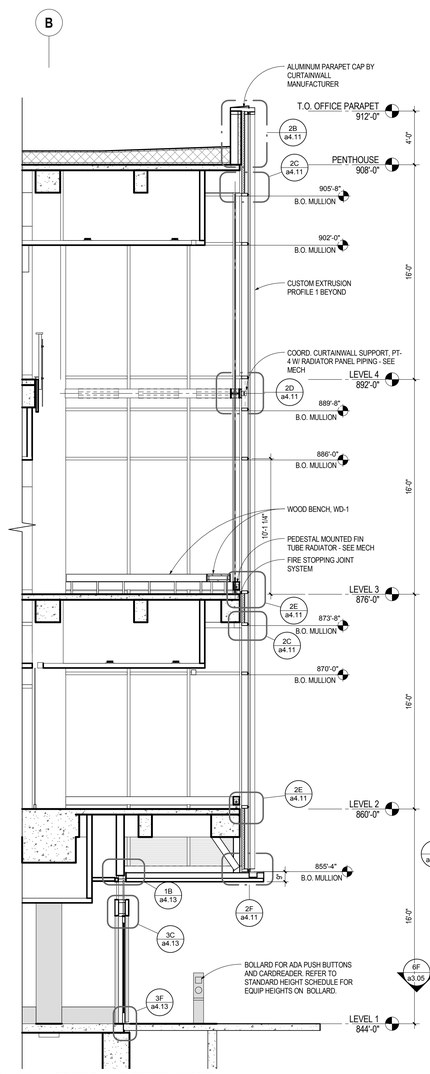
ENLARGED EXTERIOR ELEVATION / SECTION / PLAN - LAB WEST

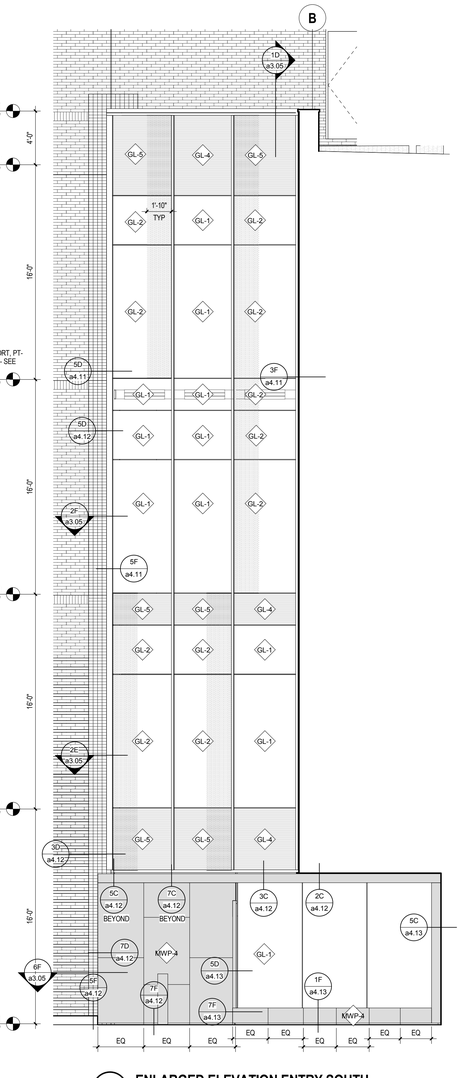
a3.04



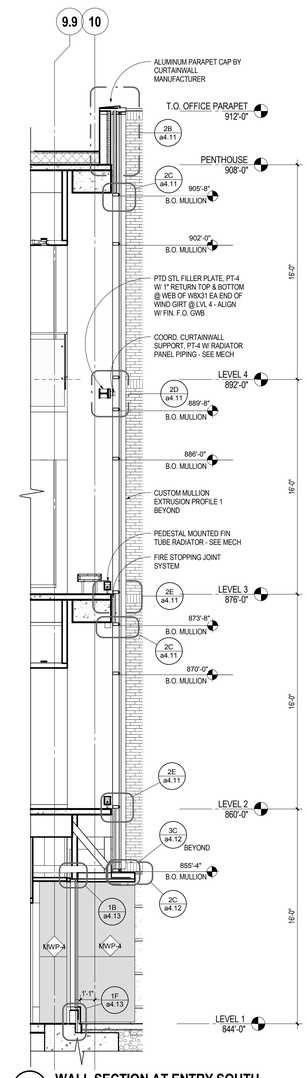
7D a3.05 **ENLARGED ELEVATION ENTRY WEST**
SCALE: 1/4" = 1'-0"



4D a3.05 **WALL SECTION AT ENTRY WEST**
SCALE: 1/4" = 1'-0"



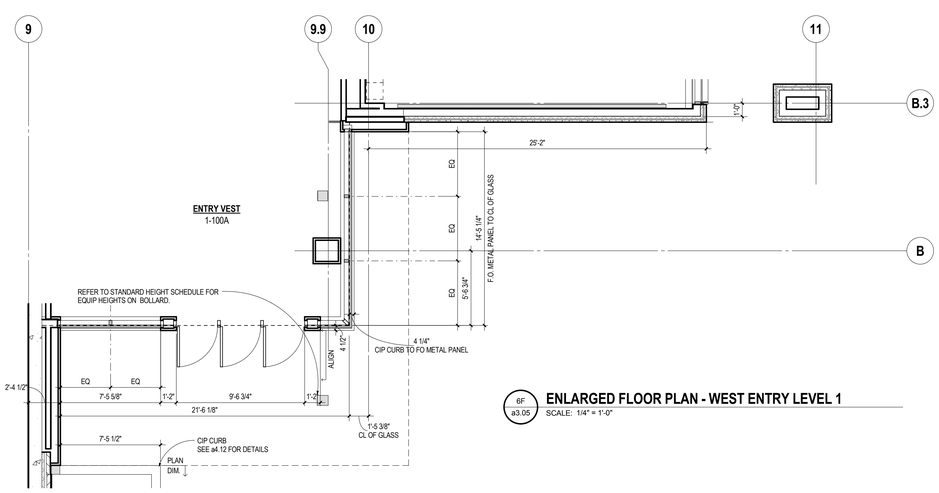
2D a3.05 **ENLARGED ELEVATION ENTRY SOUTH**
SCALE: 1/4" = 1'-0"



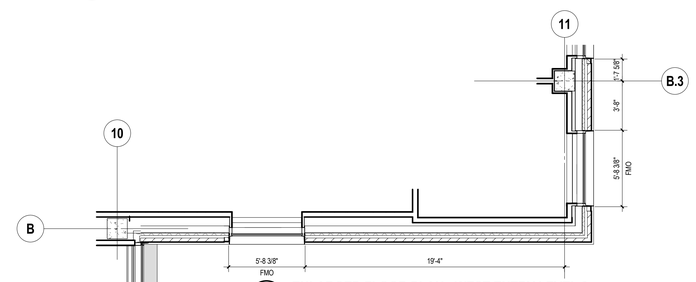
1D a3.05 **WALL SECTION AT ENTRY SOUTH**
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION MATERIAL KEYNOTES

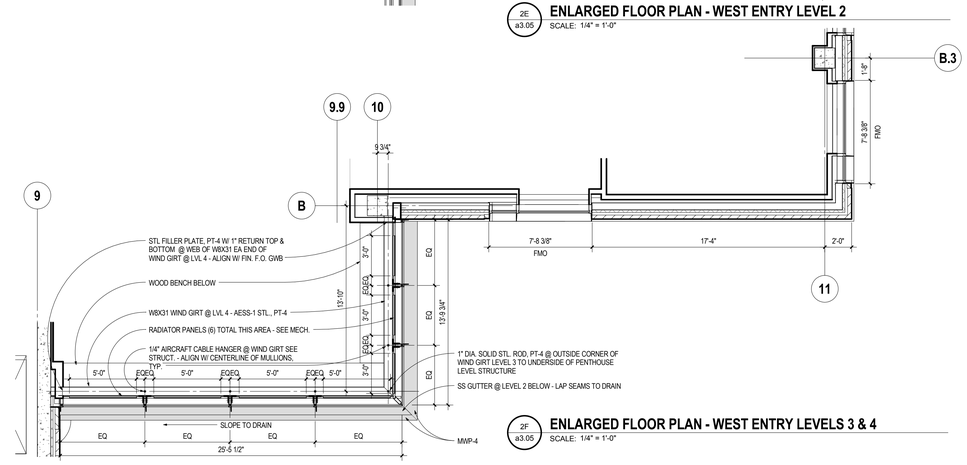
FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
GL-1	INSULATING VISION GLASS
GL-2	INSULATING VISION GLASS WITH FRIT
GL-3	INSULATING SPANDREL GLASS
GL-4	INSULATING VISION GLASS WITH BACKPAN
GL-5	INSULATED VISION GLASS WITH FRIT AND BACK PAN
MWP-2	METAL WALL PANEL MWP-2
MWP-4	METAL WALL PANEL MWP-4
ST-1	GRANITE CLADDING



6F a3.05 **ENLARGED FLOOR PLAN - WEST ENTRY LEVEL 1**
SCALE: 1/4" = 1'-0"



2E a3.05 **ENLARGED FLOOR PLAN - WEST ENTRY LEVEL 2**
SCALE: 1/4" = 1'-0"



2F a3.05 **ENLARGED FLOOR PLAN - WEST ENTRY LEVELS 3 & 4**
SCALE: 1/4" = 1'-0"

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For *Architectural Alliance*

By

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Date 02-24-2012 Reg. No. 14703

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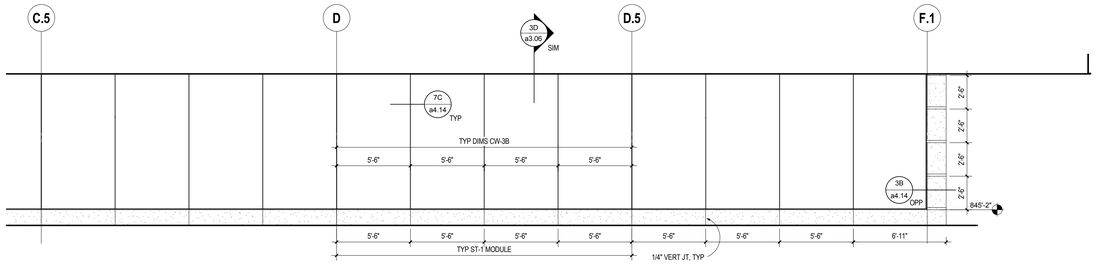
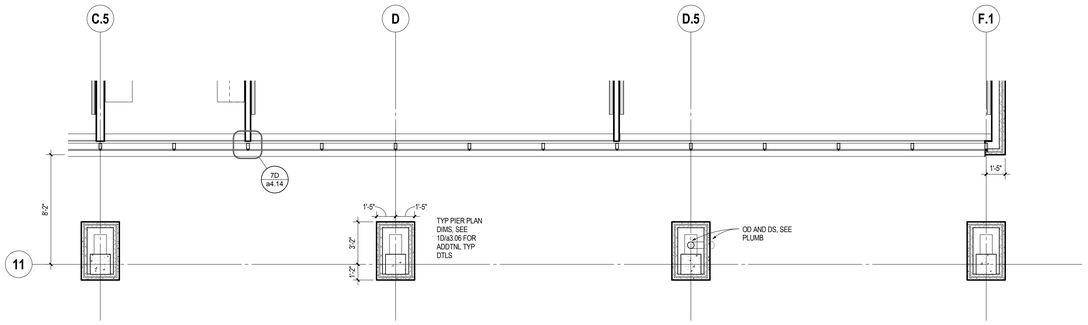
ENLARGED EXTERIOR ELEVATION / SECTION / PLAN - WEST ENTRY

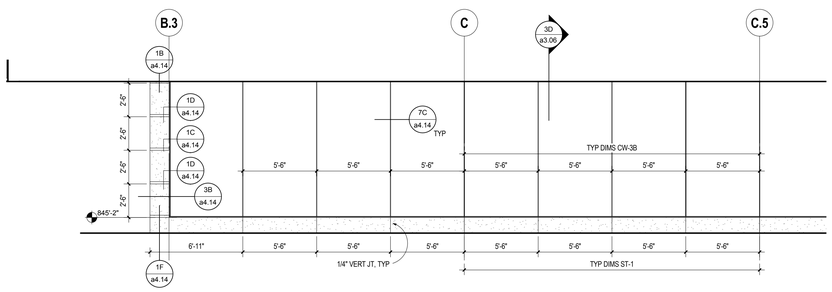
a3.05



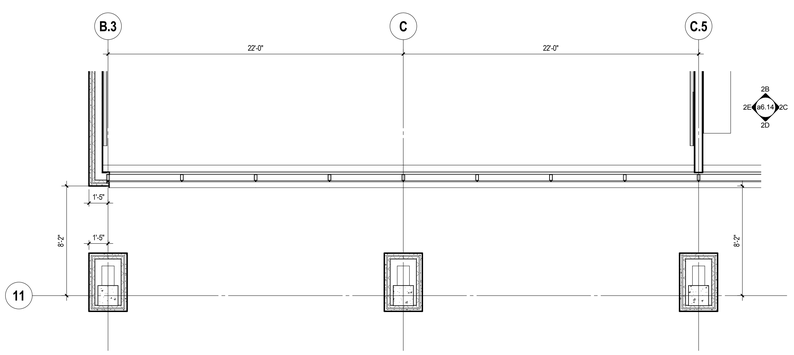
7A a3.06 **ENLARGED ELEVATION - UNDERSTORY EAST**
SCALE: 1/4" = 1'-0"



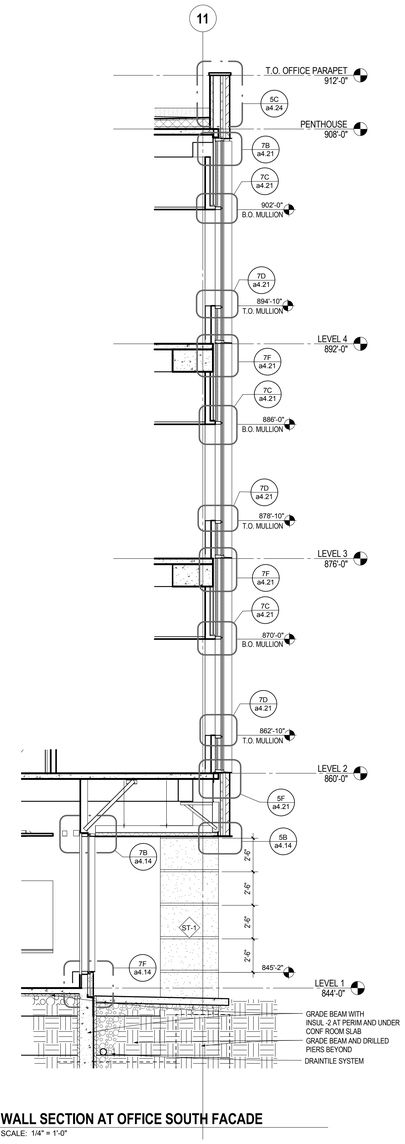
7B a3.06 **ENLARGED FLOOR PLAN - UNDERSTORY EAST**
SCALE: 1/4" = 1'-0"



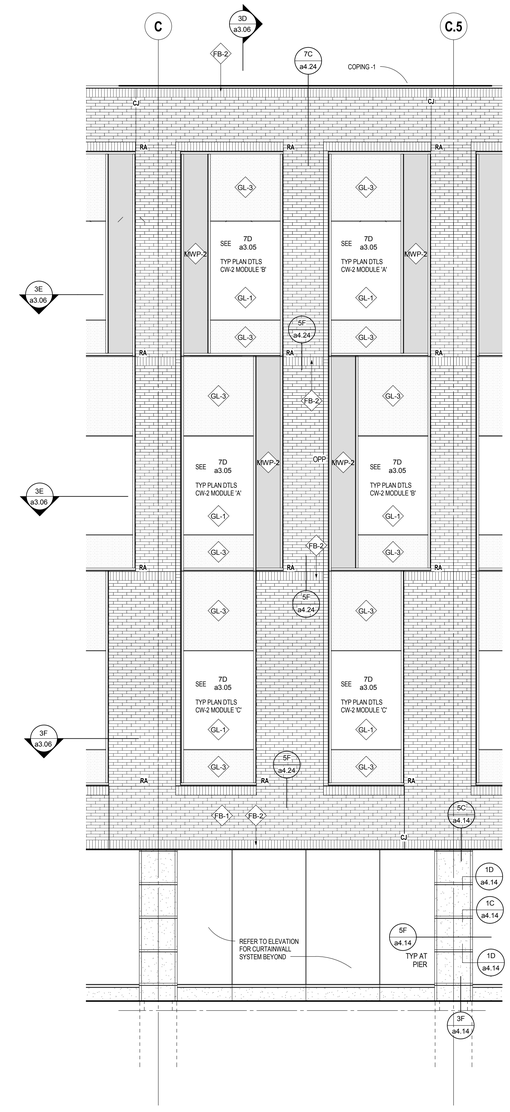
6D a3.06 **ENLARGED ELEVATION - UNDERSTORY WEST**
SCALE: 1/4" = 1'-0"



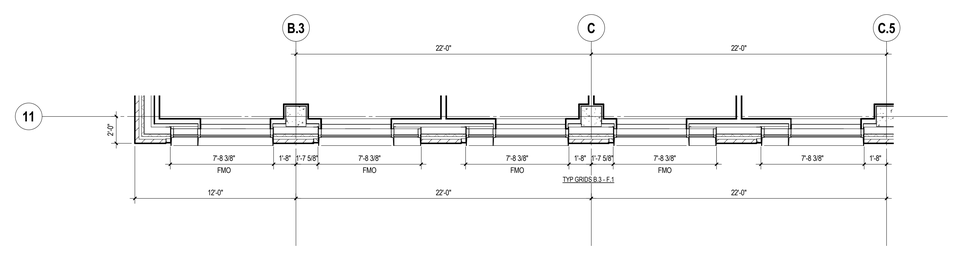
6E a3.06 **ENLARGED FLOOR PLAN - UNDERSTORY WEST**
SCALE: 1/4" = 1'-0"



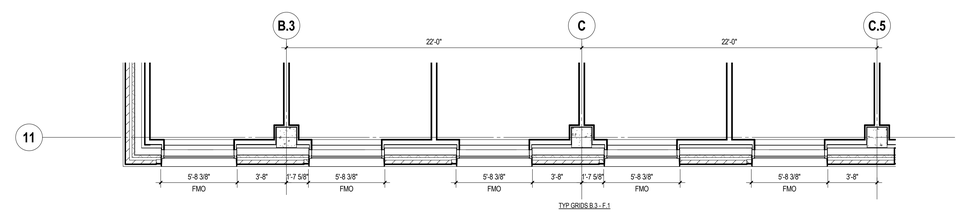
3D a3.06 **WALL SECTION AT OFFICE SOUTH FACADE**
SCALE: 1/4" = 1'-0"



1D a3.06 **ENLARGED ELEVATION OFFICE SOUTH**
SCALE: 1/4" = 1'-0"



3E a3.06 **ENLARGED FLOOR PLAN - OFFICE SOUTH LEVELS 3 & 4**
SCALE: 1/4" = 1'-0"



3F a3.06 **ENLARGED FLOOR PLAN - OFFICE SOUTH LEVEL 2**
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION MATERIAL KEYNOTES

FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
GL-1	INSULATING VISION GLASS
GL-3	INSULATING SPANDREL GLASS
MWP-2	METAL WALL PANEL MWP-2
ST-1	GRANITE CLADDING

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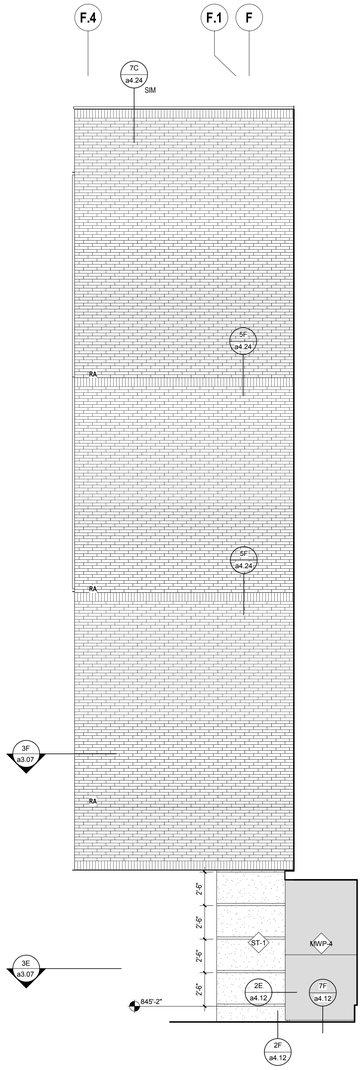
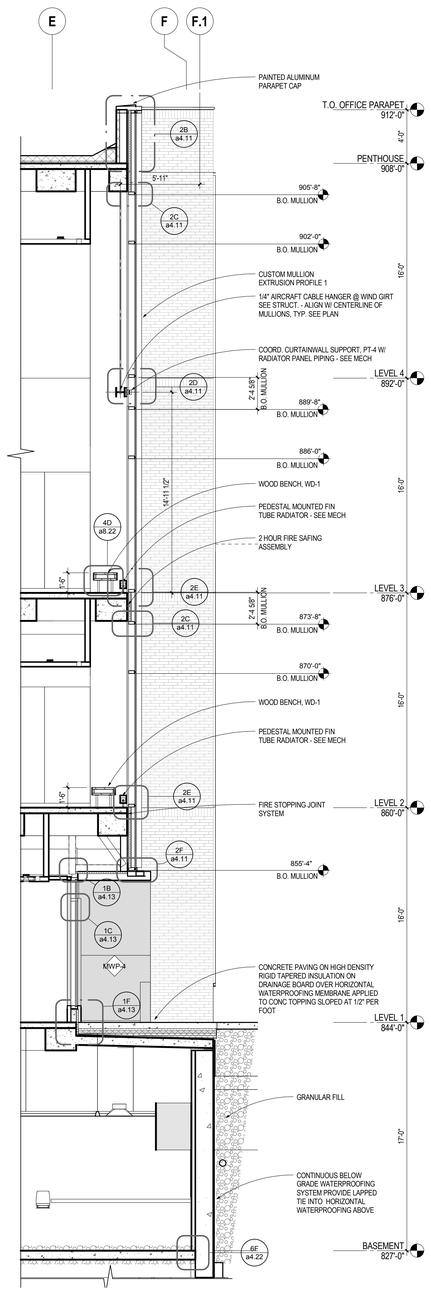
ENLARGED EXTERIOR ELEVATION / SECTION / PLAN - OFFICE BAR SOUTH

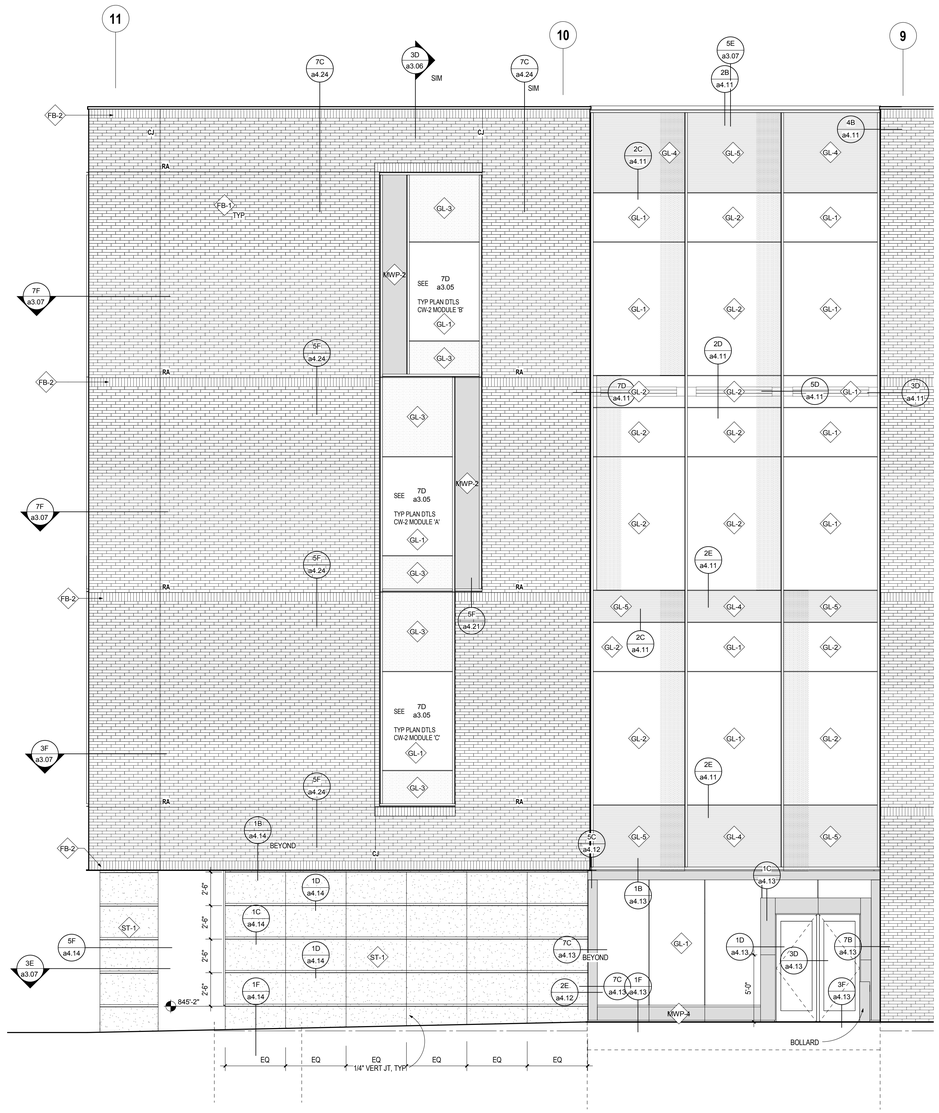
a3.06



7D a3.07 **ENLARGED NORTH ELEVATION - EAST ENTRY**
SCALE: 1/4" = 1'-0"



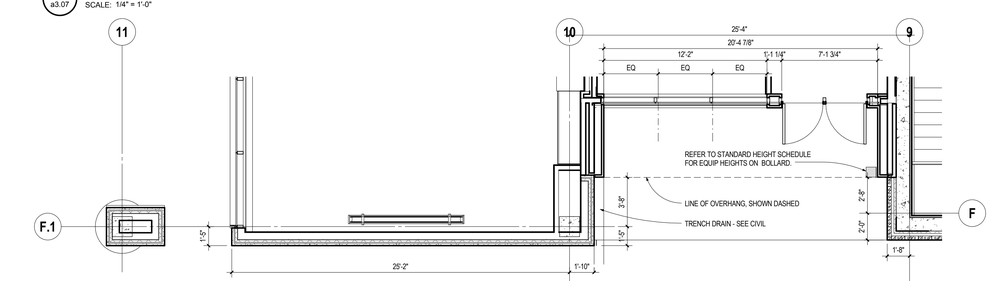
5E a3.07 **WALL SECTION AT ENTRY EAST**
SCALE: 1/4" = 1'-0"



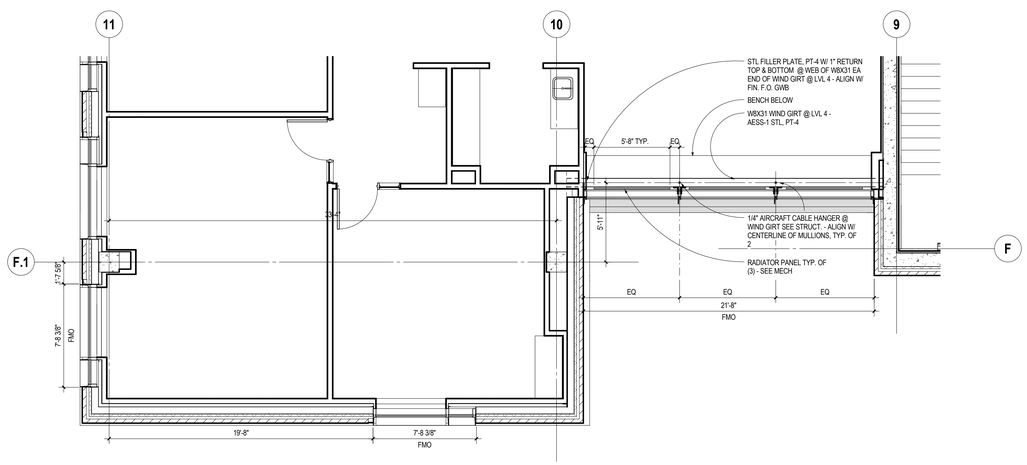
3D a3.07 **ENLARGED ELEVATION ENTRY EAST**
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION MATERIAL KEYNOTES

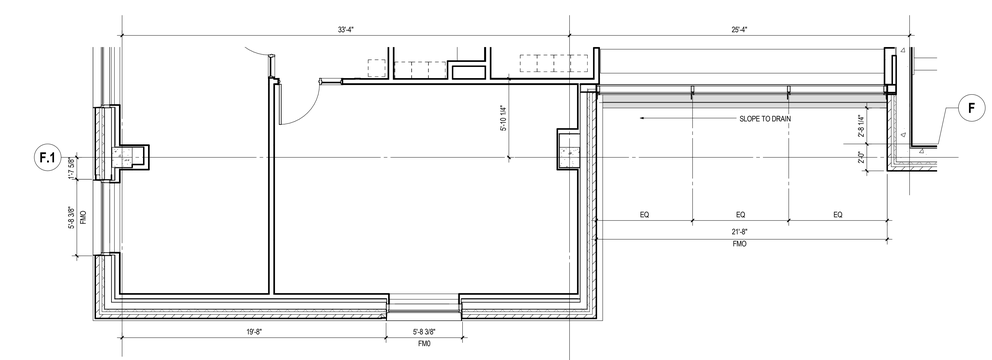
FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
GL-1	INSULATING VISION GLASS
GL-2	INSULATING VISION GLASS WITH FRIT
GL-3	INSULATING SPANDREL GLASS
GL-4	INSULATING VISION GLASS WITH BACKPAN
GL-5	INSULATED VISION GLASS WITH FRIT AND BACK PAN
MWP-2	METAL WALL PANEL MWP-2
MWP-4	METAL WALL PANEL MWP-4
ST-1	GRANITE CLADDING



3E a3.07 **ENLARGED FLOOR PLAN - EAST ENTRY LEVEL 1**
SCALE: 1/4" = 1'-0"



7F a3.07 **ENLARGED FLOOR PLAN - EAST ENTRY LEVELS 3 & 4**
SCALE: 1/4" = 1'-0"



3F a3.07 **ENLARGED FLOOR PLAN - EAST ENTRY LEVEL 2**
SCALE: 1/4" = 1'-0"

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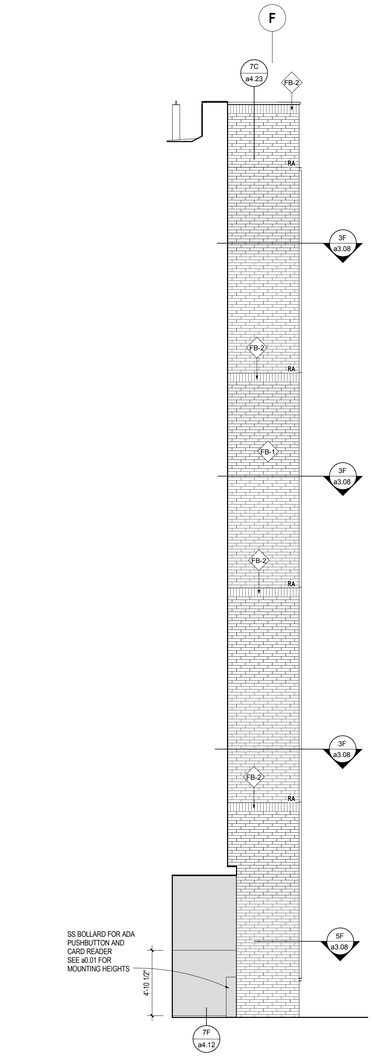
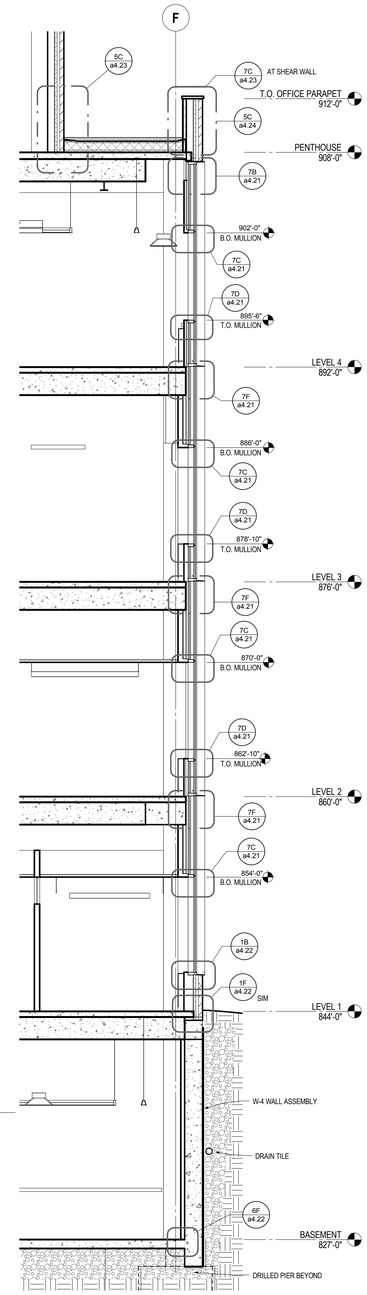
ENLARGED EXTERIOR ELEVATION / SECTION / PLAN - EAST ENTRY

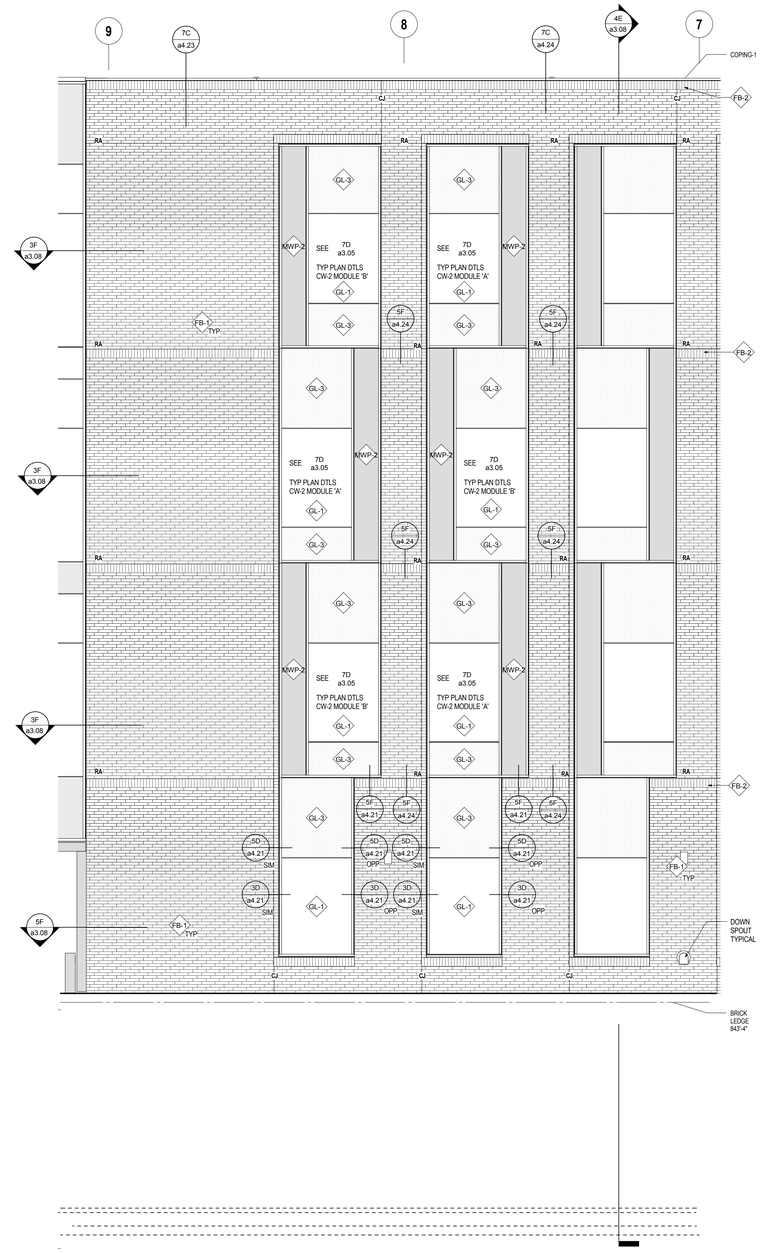
a3.07



5D a3.08 **ENLARGED ELEVATION AT NORTH WALL OF EAST VESTIBULE**
SCALE: 1/4" = 1'-0"



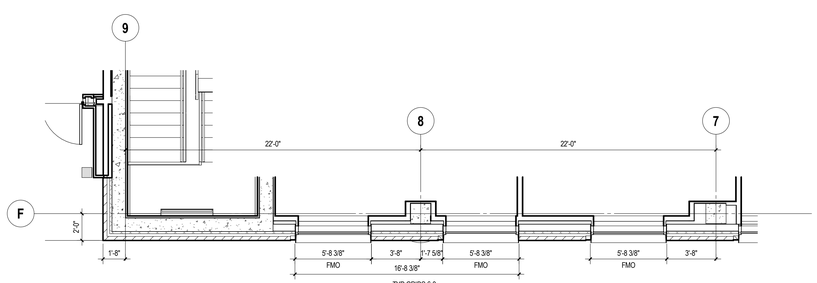
4E a3.08 **WALL SECTION AT OFFICE EAST FACADE**
SCALE: 1/4" = 1'-0"



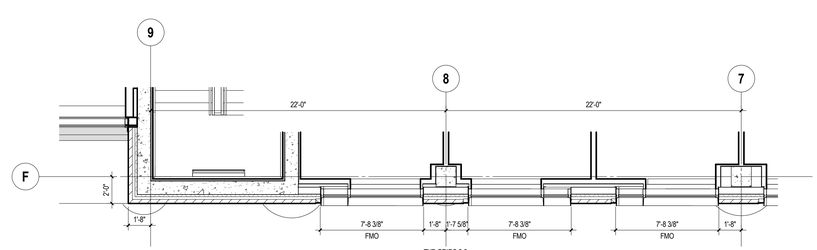
3E a3.08 **ENLARGED ELEVATION OFFICE EAST**
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION MATERIAL KEYNOTES

FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
GL-1	INSULATING VISION GLASS
GL-3	INSULATING SPANDREL GLASS
MWP-2	METAL WALL PANEL MWP-2



5F a3.08 **ENLARGED FLOOR PLAN - OFFICE EAST LEVEL 1**
SCALE: 1/4" = 1'-0"



3F a3.08 **ENLARGED FLOOR PLAN - OFFICE EAST LEVELS 2, 3, 4**
SCALE: 1/4" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
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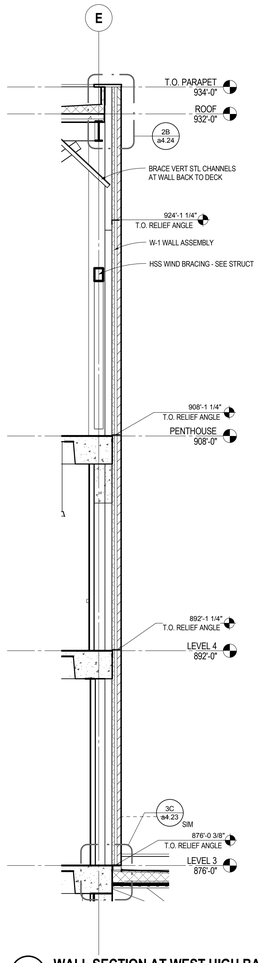
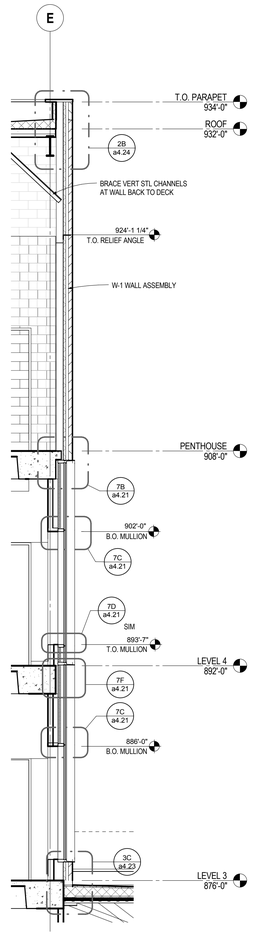
ENLARGED EXTERIOR ELEVATION / SECTION / PLAN - LAB EAST

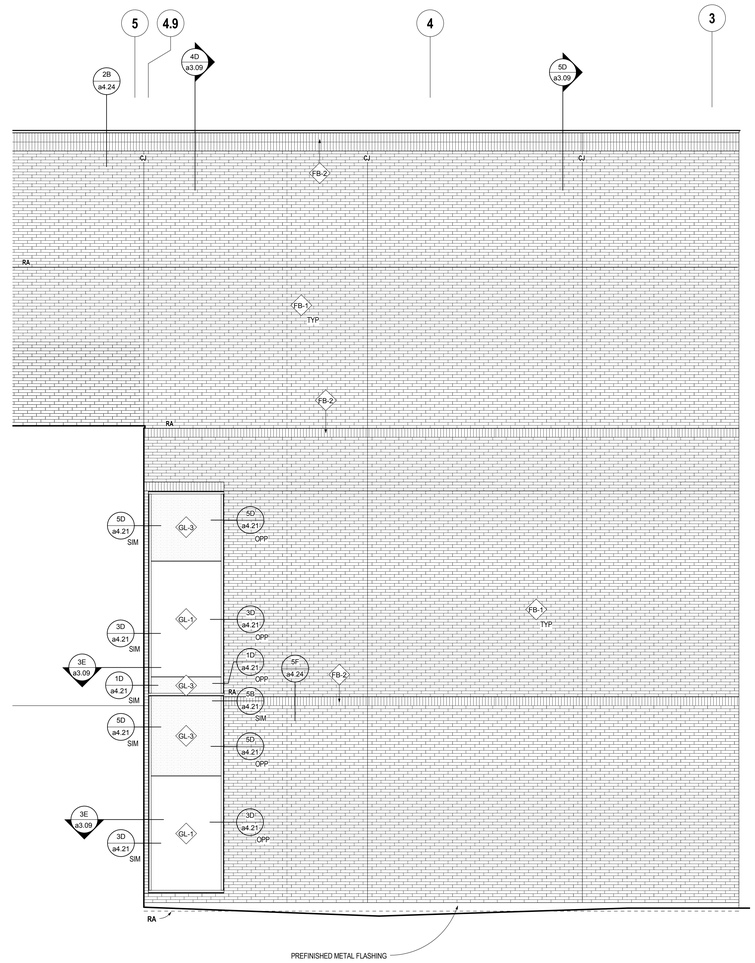
a3.08



5D a3.09 **WALL SECTION AT WEST HIGH BAY SHEAR WALL**
SCALE: 1/4" = 1'-0"



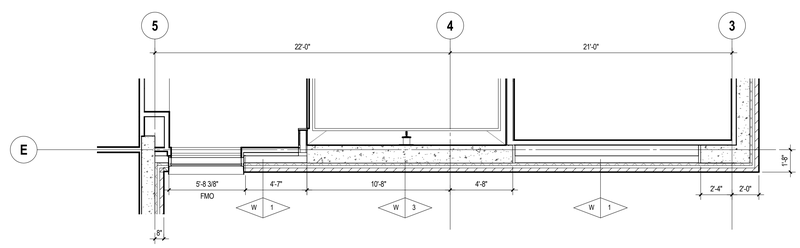
4D a3.09 **WALL SECTION AT LAB EAST FACADE**
SCALE: 1/4" = 1'-0"



3D a3.09 **ENLARGED ELEVATION LAB EAST**
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION MATERIAL KEYNOTES

FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
GL-1	INSULATING VISION GLASS
GL-3	INSULATING SPANDREL GLASS



3E a3.09 **ENLARGED FLOOR PLAN - LAB EAST FACADE LEVELS 3 & 4**
SCALE: 1/4" = 1'-0"

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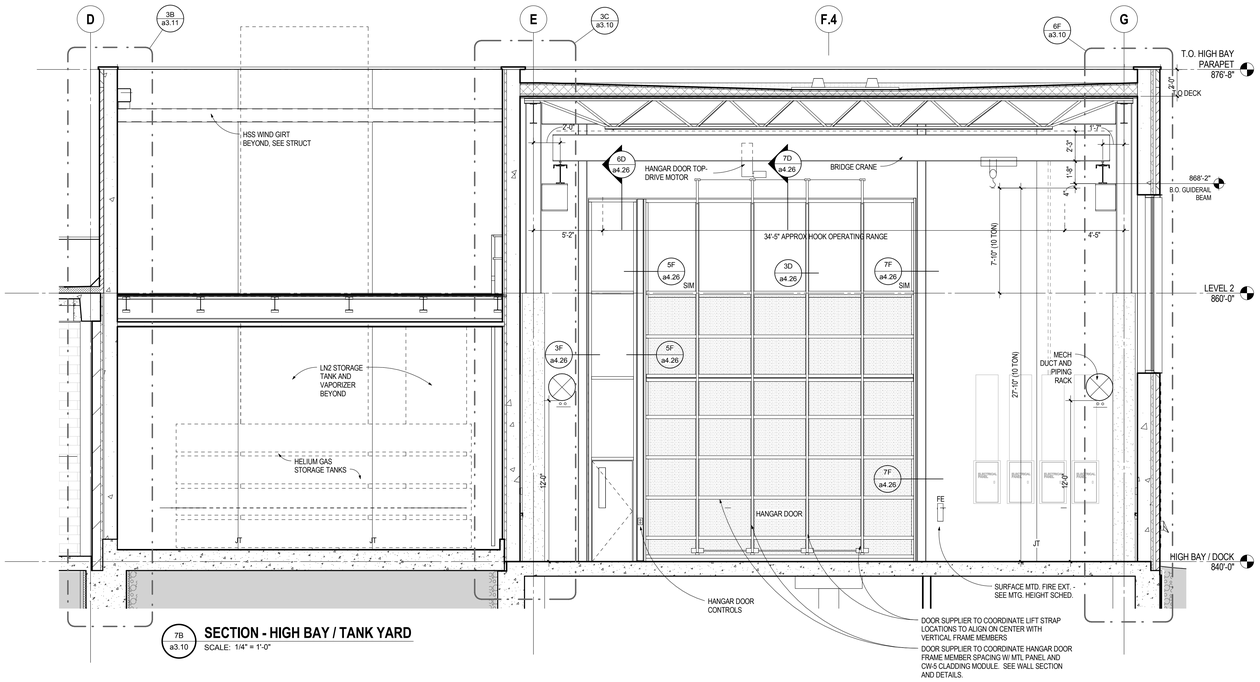
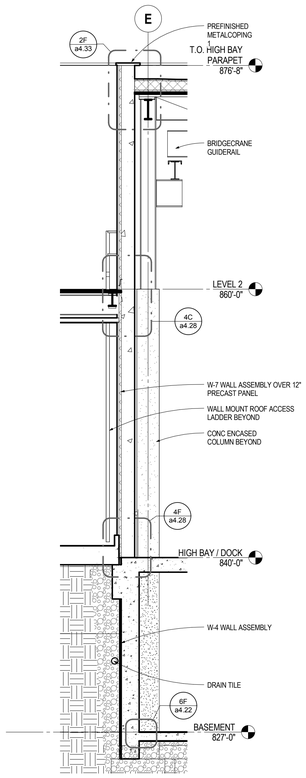
ENLARGED EXTERIOR ELEVATION / SECTION / PLAN - LAB EAST

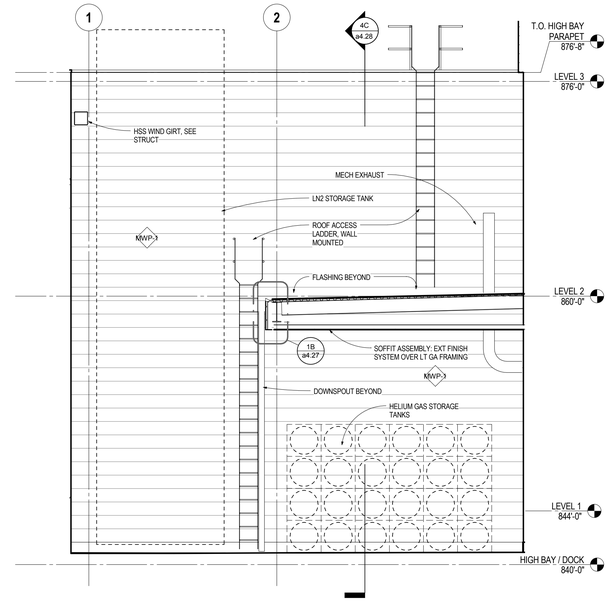
a3.09



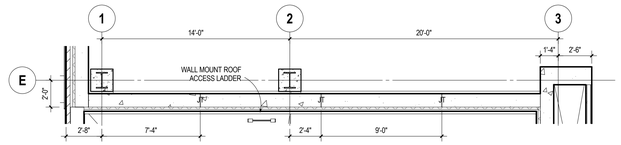
7B a3.10 **SECTION - HIGH BAY / TANK YARD**
SCALE: 1/4" = 1'-0"



3C a3.10 **WALL SECTION AT HIGH BAY WEST**
SCALE: 1/4" = 1'-0"



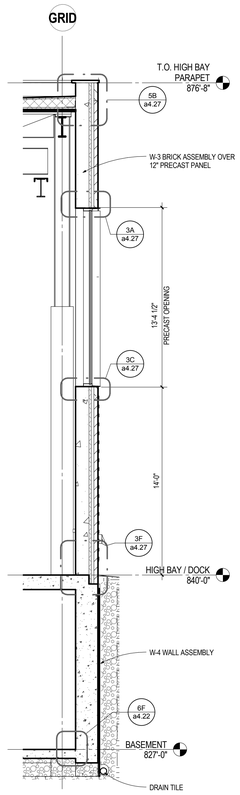
1B a3.10 **ENLARGED ELEVATION HIGH BAY WEST**
SCALE: 1/4" = 1'-0"



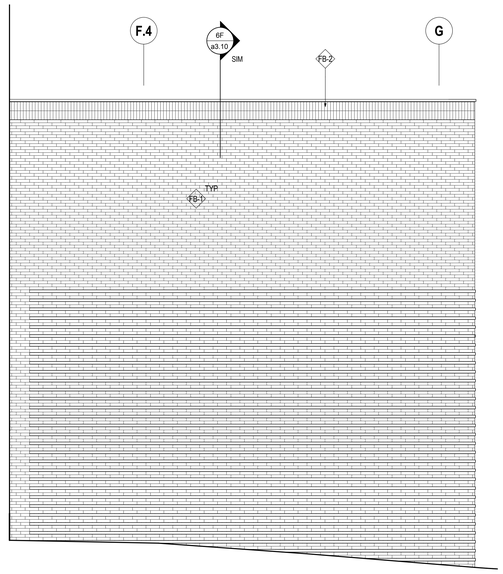
1C a3.10 **ENLARGED FLOOR PLAN - HIGH BAY WEST FACADE**
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION MATERIAL KEYNOTES

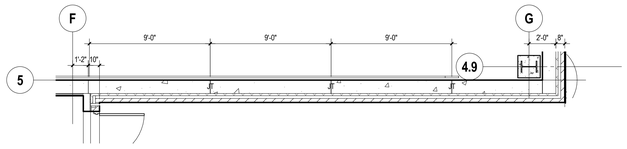
FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
GL-1	INSULATING VISION GLASS
GL-1A	
MWP-1	METAL WALL PANEL MWP-1
MWP-3	METAL WALL PANEL MWP-3



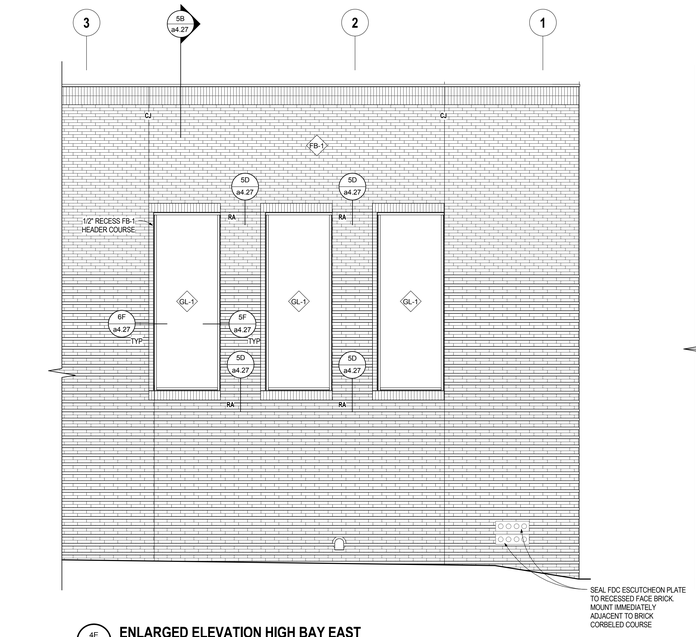
6F a3.10 **WALL SECTION AT HIGH BAY**
SCALE: 1/4" = 1'-0"



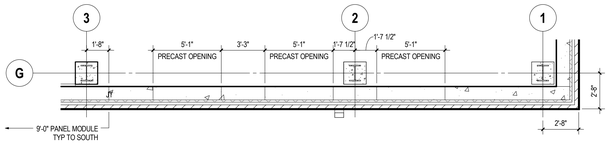
5E a3.10 **ENLARGED ELEVATION HIGH BAY SOUTH**
SCALE: 1/4" = 1'-0"



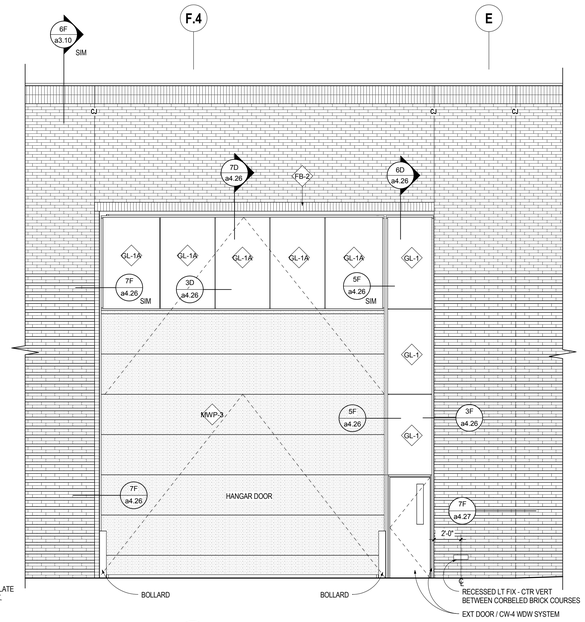
5F a3.10 **ENLARGED FLOOR PLAN - HIGH BAY SOUTH FACADE**
SCALE: 1/4" = 1'-0"



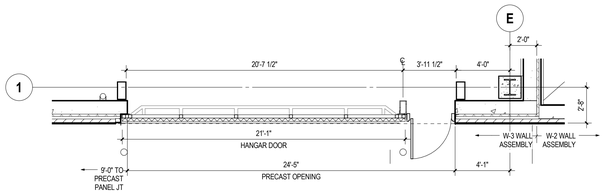
4E a3.10 **ENLARGED ELEVATION HIGH BAY EAST**
SCALE: 1/4" = 1'-0"



4F a3.10 **ENLARGED FLOOR PLAN - HIGH BAY EAST FACADE**
SCALE: 1/4" = 1'-0"



1E a3.10 **ENLARGED ELEVATION HIGH BAY NORTH**
1/4" = 1'-0"



1F a3.10 **ENLARGED FLOOR PLAN - HIGH BAY NORTH FACADE**
SCALE: 1/4" = 1'-0"

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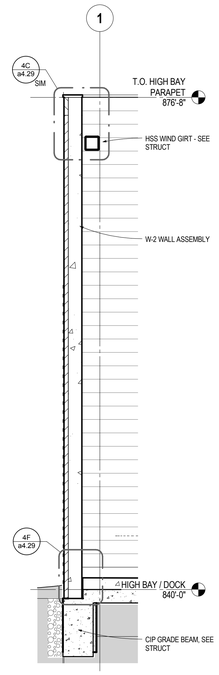
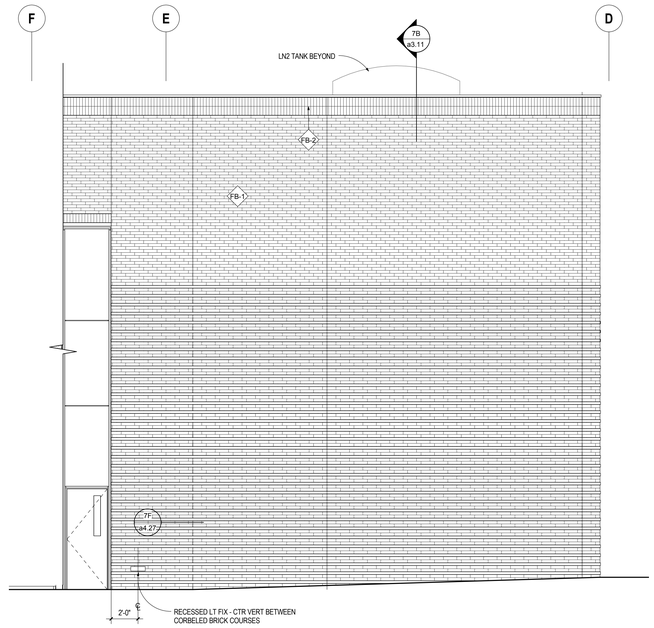
ENLARGED EXTERIOR ELEVATION / SECTION / PLAN - HIGH BAY & TANK YARD

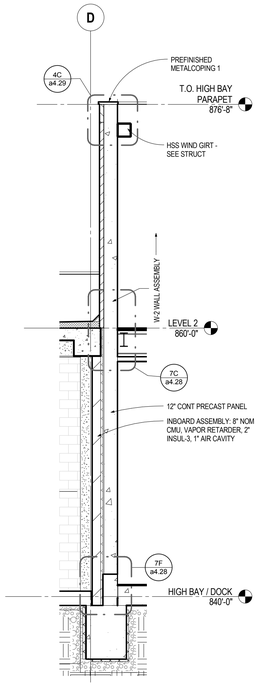
a3.10



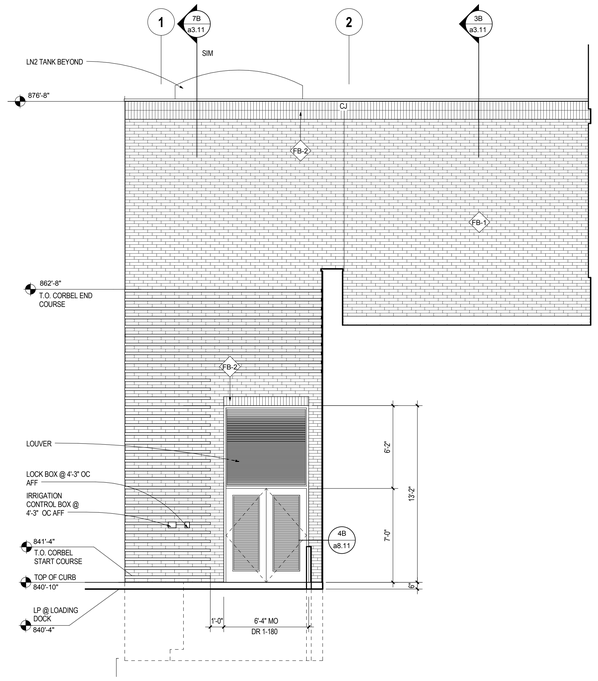
7B a3.11 **WALL SECTION AT TANK YARD NORTH**
SCALE: 1/4" = 1'-0"



5B a3.11 **ENLARGED ELEVATION TANK YARD NORTH**
SCALE: 1/4" = 1'-0"



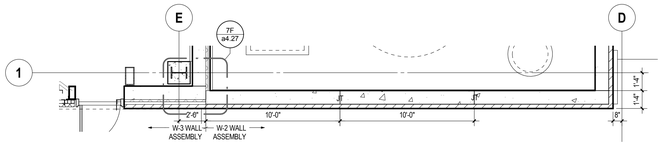
3B a3.11 **WALL SECTION AT TANK YARD WEST**
SCALE: 1/4" = 1'-0"



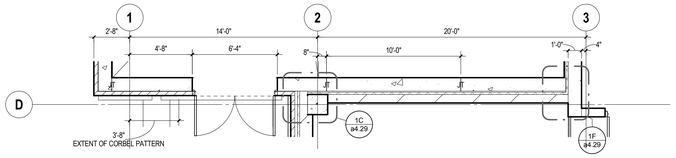
2B a3.11 **ENLARGED ELEVATION TANK YARD WEST**
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION MATERIAL KEYNOTES

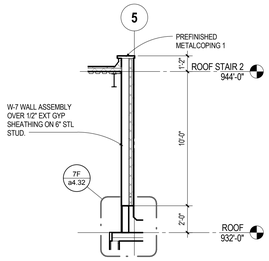
FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
MWP-1	METAL WALL PANEL MWP-1



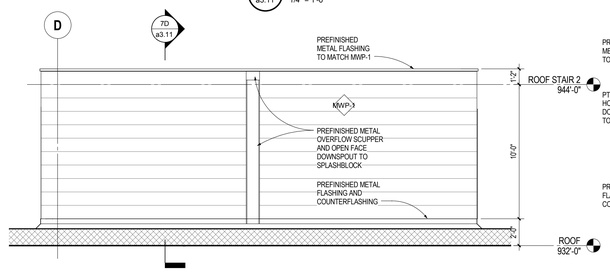
5C a3.11 **ENLARGED FLOOR PLAN - TANK YARD NORTH FACADE**
1/4" = 1'-0"



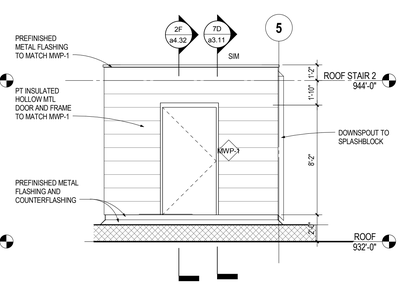
2C a3.11 **ENLARGED FLOOR PLAN - TANK YARD WEST FACADE**
SCALE: 1/4" = 1'-0"



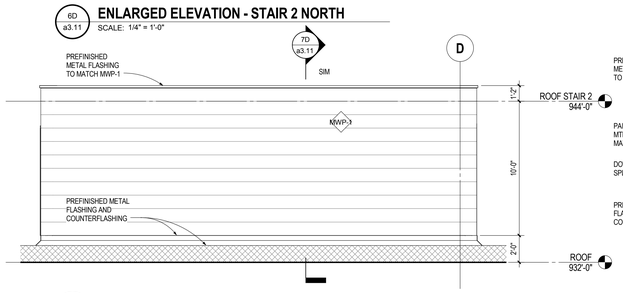
7D a3.11 **SECTION AT STAIR 2 ROOF**
SCALE: 1/4" = 1'-0"



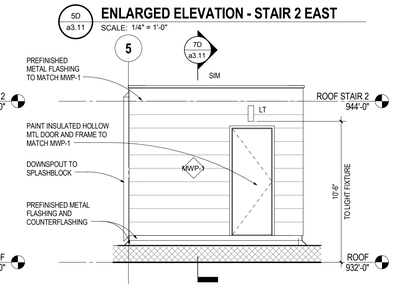
6D a3.11 **ENLARGED ELEVATION - STAIR 2 NORTH**
SCALE: 1/4" = 1'-0"



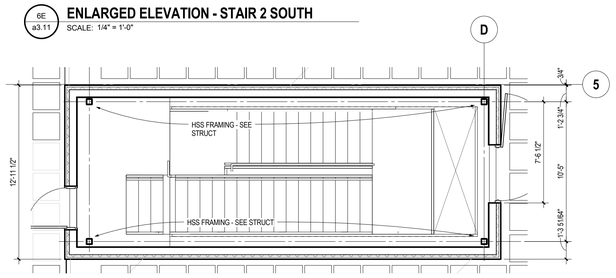
5D a3.11 **ENLARGED ELEVATION - STAIR 2 EAST**
SCALE: 1/4" = 1'-0"



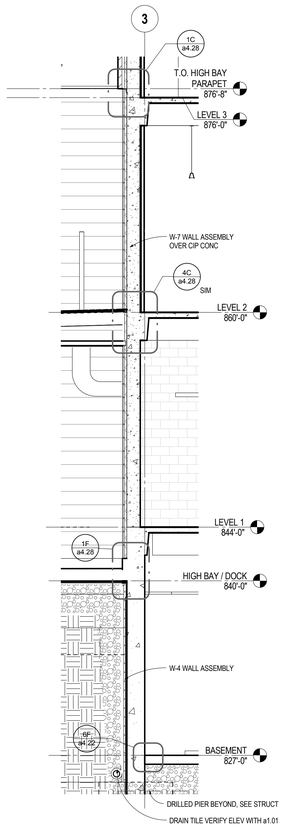
6E a3.11 **ENLARGED ELEVATION - STAIR 2 SOUTH**
SCALE: 1/4" = 1'-0"



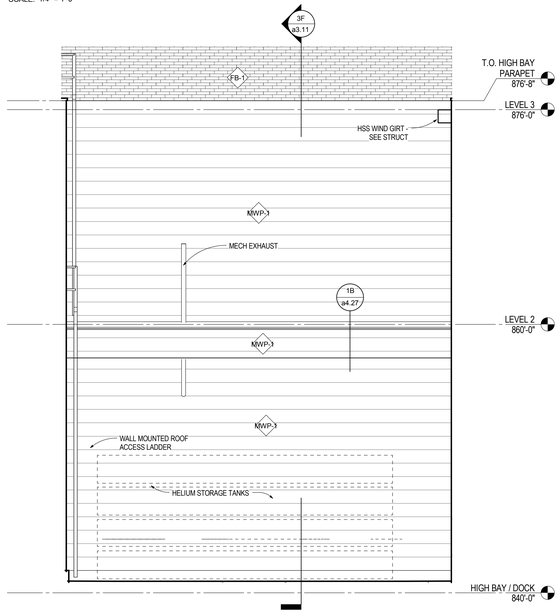
5E a3.11 **ENLARGED ELEVATION - STAIR 2 WEST**
SCALE: 1/4" = 1'-0"



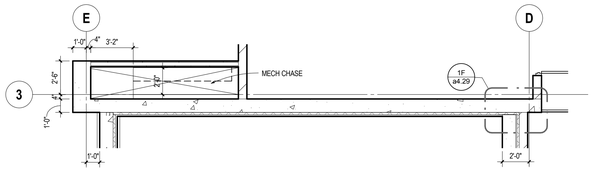
6F a3.11 **ENLARGED FLOOR PLAN, STAIR 2 ROOF**
SCALE: 1/4" = 1'-0"



3F a3.11 **WALL SECTION AT TANK YARD SOUTH**
SCALE: 1/4" = 1'-0"



2E a3.11 **ENLARGED ELEVATION TANK YARD SOUTH**
SCALE: 1/4" = 1'-0"



2F a3.11 **ENLARGED FLOOR PLAN - TANK YARD SOUTH FACADE**
SCALE: 1/4" = 1'-0"

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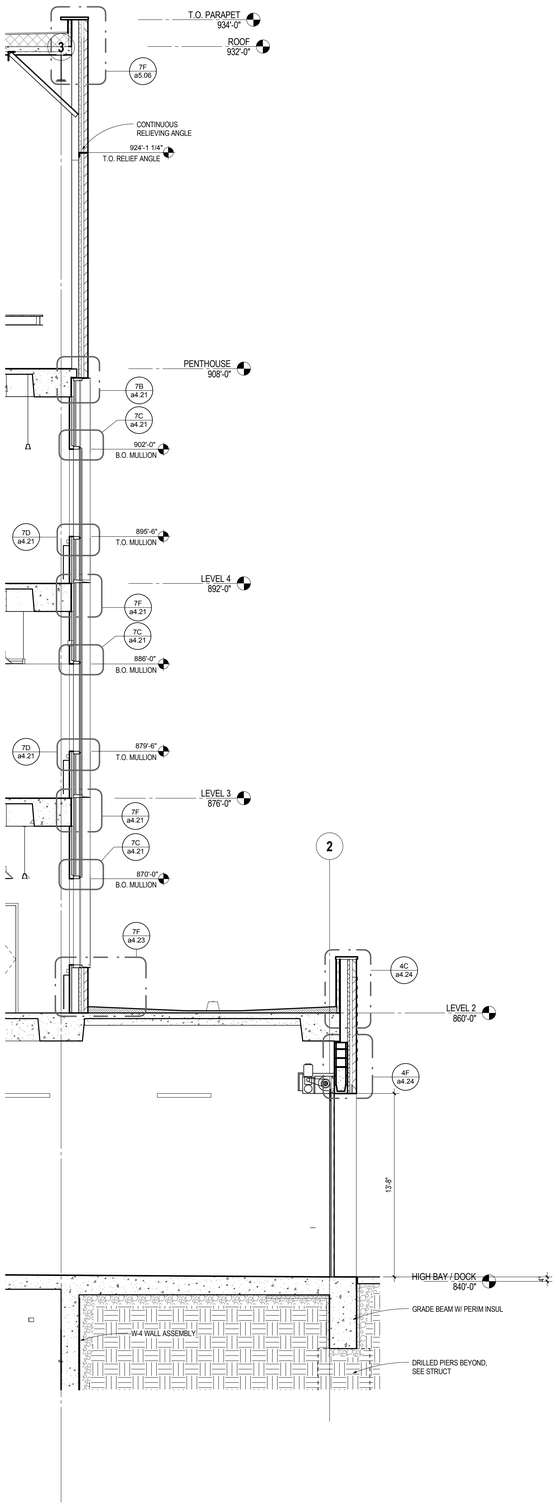
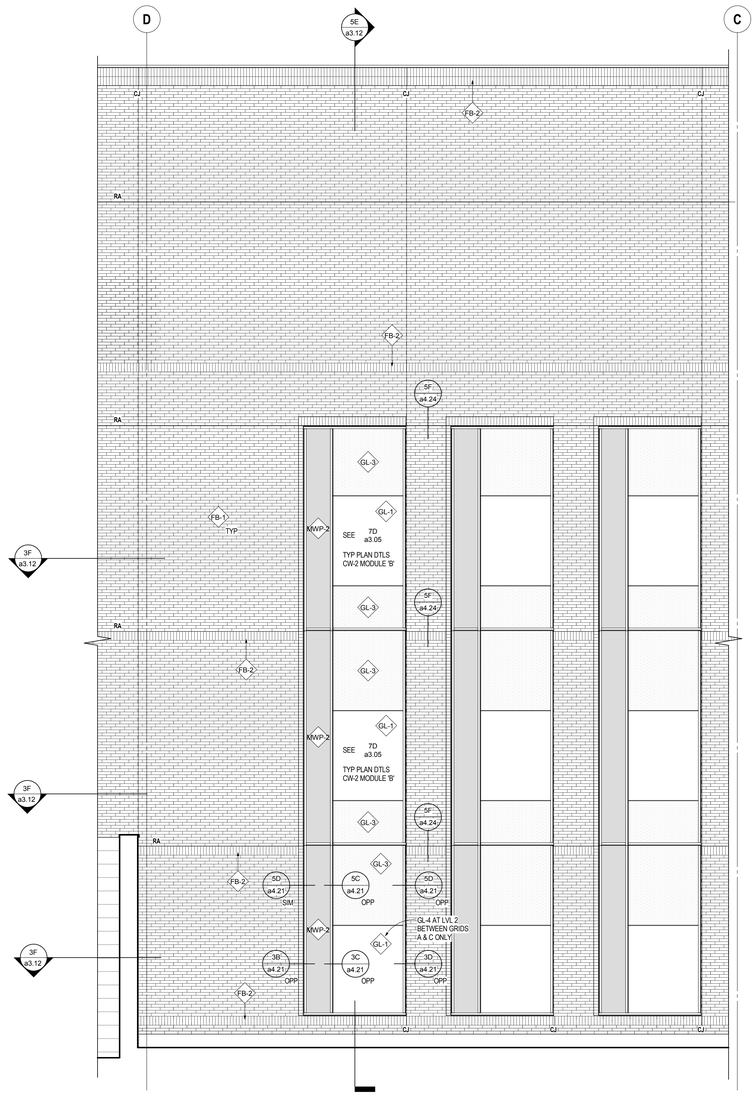
ENLARGED EXTERIOR ELEVATION / SECTION / PLAN - HIGH BAY, TANK YARD, STAIR 2 EXTERIOR

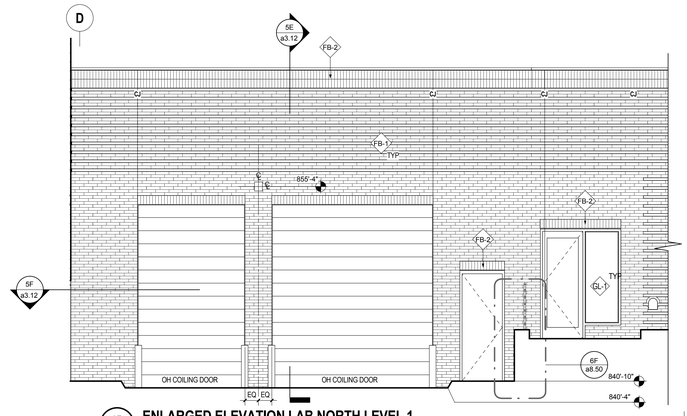
a3.11



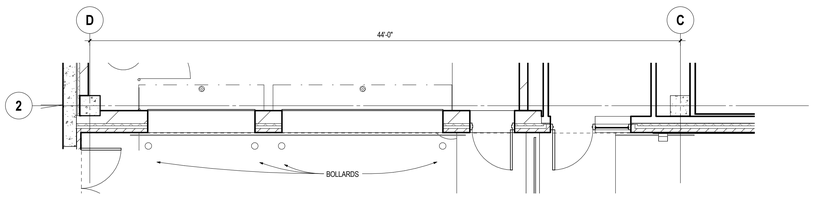
5E a3.12 **WALL SECTION AT LAB NORTH FACADE**
SCALE: 1/4" = 1'-0"



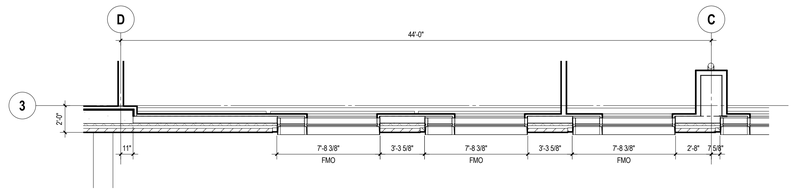
3D a3.12 **ENLARGED ELEVATION LAB NORTH**
SCALE: 1/4" = 1'-0"



3E a3.12 **ENLARGED ELEVATION LAB NORTH LEVEL 1**
SCALE: 1/4" = 1'-0"



5F a3.12 **ENLARGED FLOOR PLAN - LOADING DOCK NORTH LEVEL 1**
SCALE: 1/4" = 1'-0"



3F a3.12 **ENLARGED FLOOR PLAN - LAB NORTH FACADE LEVELS 2, 3 & 4**
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION MATERIAL KEYNOTES

FB-1	NORMAN FACE BRICK - TYPICAL STRETCHER COURSES
FB-2	MODULAR FACE BRICK - TYPICAL SOLDIER AND HEADER COURSES
GL-1	INSULATING VISION GLASS
GL-3	INSULATING SPANDREL GLASS
MWP-2	METAL WALL PANEL MWP-2

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012

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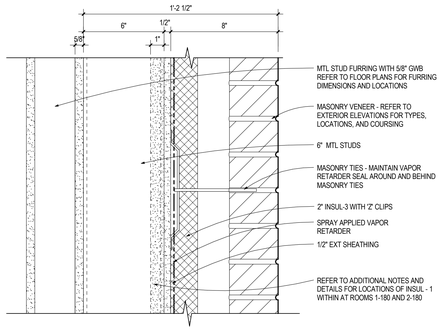
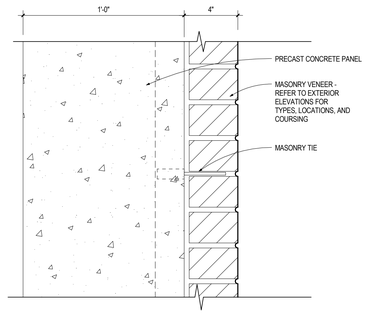
ENLARGED EXTERIOR ELEVATION / SECTION / PLAN - LAB NORTH

a3.12

EXTERIOR WALL ASSEMBLIES



W 1 **BRICK MASONRY ON MTL STUDS**
SCALE: 3" = 1'-0"



W 2 **BRICK MASONRY (NON-INSUL) ON PRECAST PANEL**
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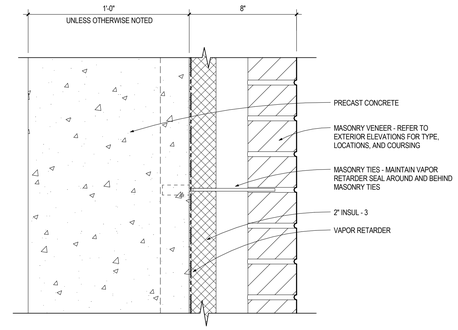

W 3 **BRICK MASONRY ON CONC**
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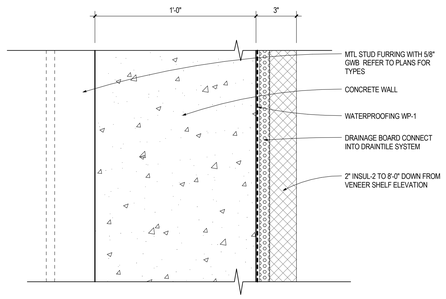

W 4 **BELOW GRADE WATERPROOFING ON CONCRETE**
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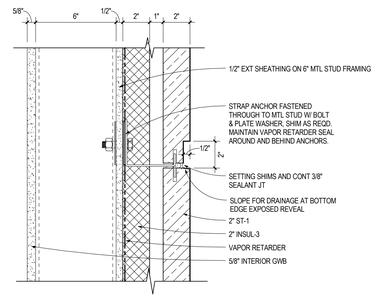
W 5 **NOT USED**
SCALE: 3" = 1'-0"



W 6 **STONE VENEER ON MTL STUDS**
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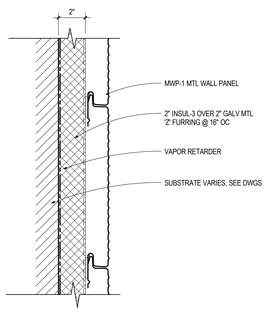
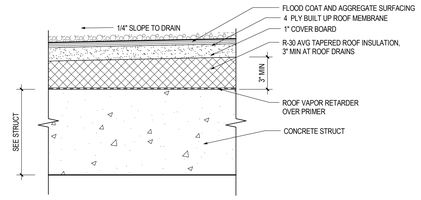


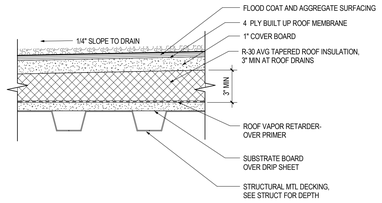
SECTION

W 7 **HORIZONTAL MTL PROFILE PANEL**
SCALE: 3" = 1'-0"

ROOF ASSEMBLIES



BUR 1 **BUILT UP ROOF ON CONCRETE**
SCALE: 3" = 1'-0"



BUR 2 **BUILT UP ROOF ON MTL DECK**
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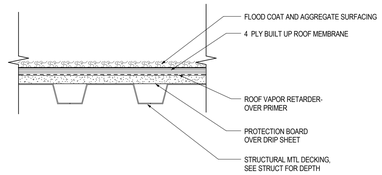
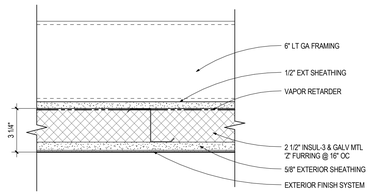


BUR 3 **BUILT UP ROOF ON MTL DECK (NON-INSUL)**
SCALE: 3" = 1'-0"

CEILING ASSEMBLIES



C 1 **EXTERIOR FINISH SYSTEM CEILING**
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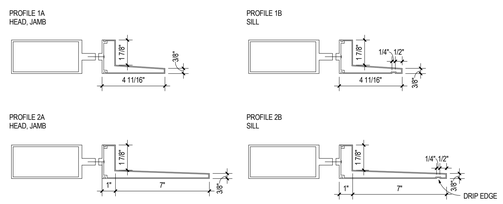

MULLION EXTRUSION PROFILES
SCALE: 3" = 1'-0"

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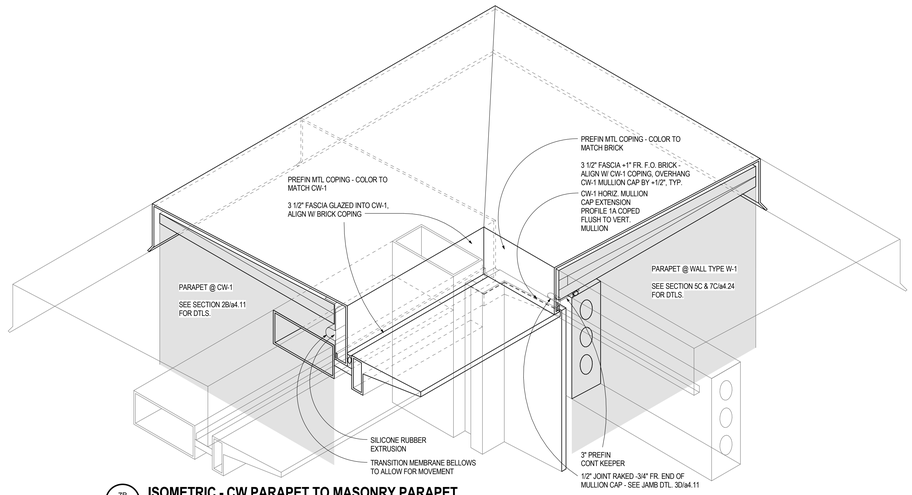
TYPICAL EXTERIOR BUILDING ASSEMBLIES

a4.01



7B a4.11 **ISOMETRIC - CW PARAPET TO MASONRY PARAPET**
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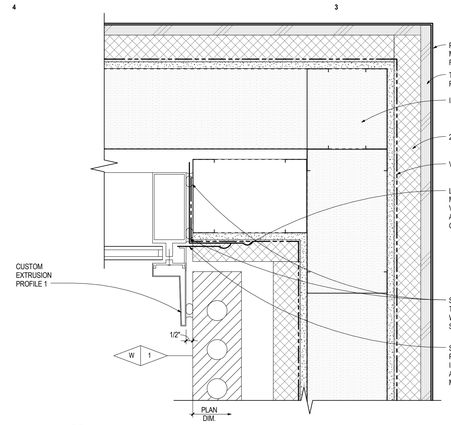

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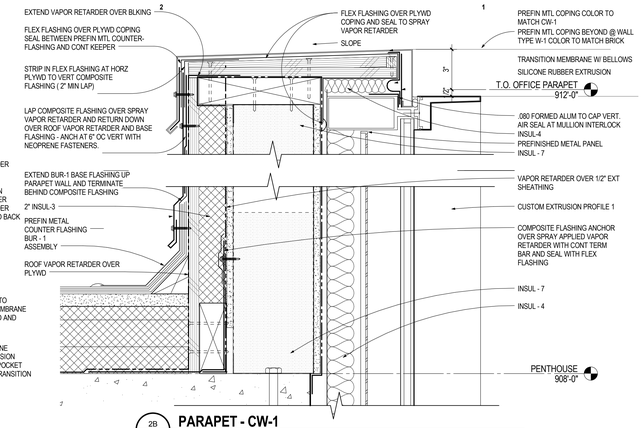

2B a4.11 **PARAPET - CW-1**
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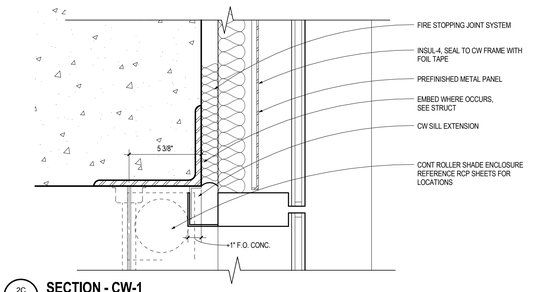

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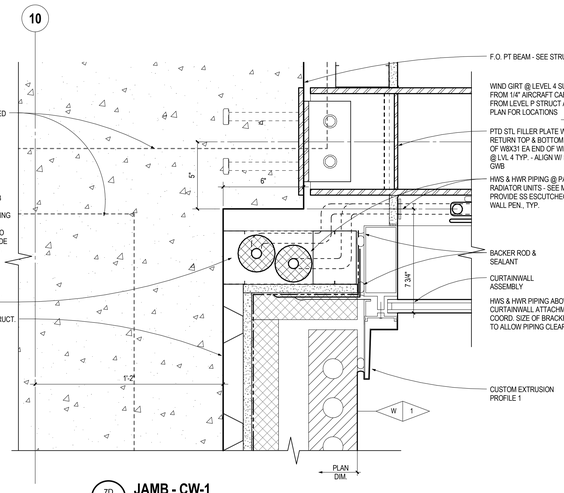

7D a4.11 **JAMB - CW-1**
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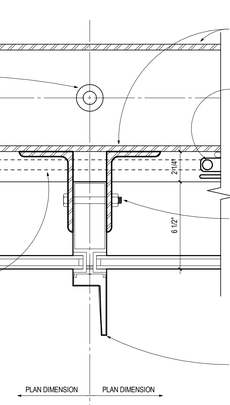

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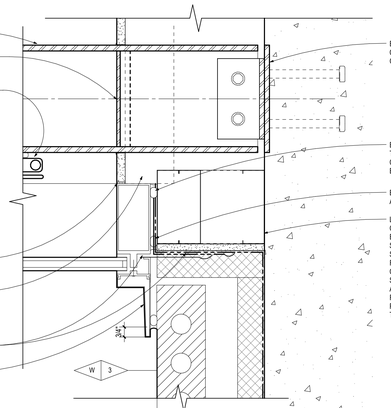

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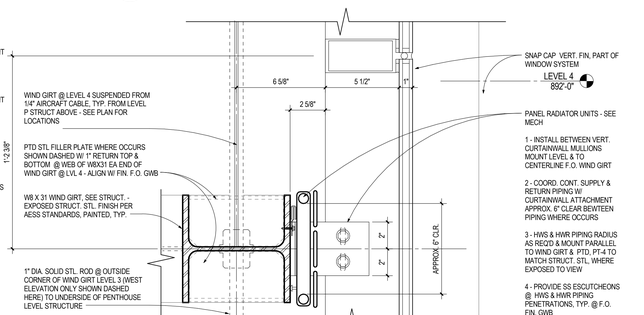

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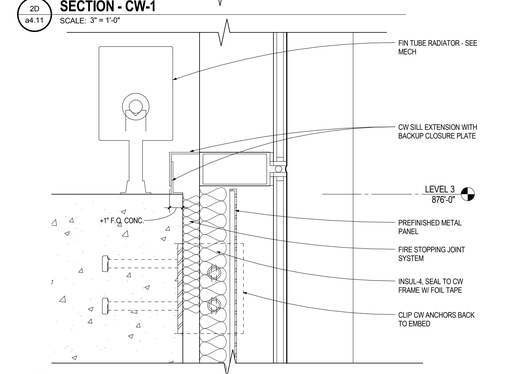

2E a4.11 **HORIZONTAL MULLION - CW-1**
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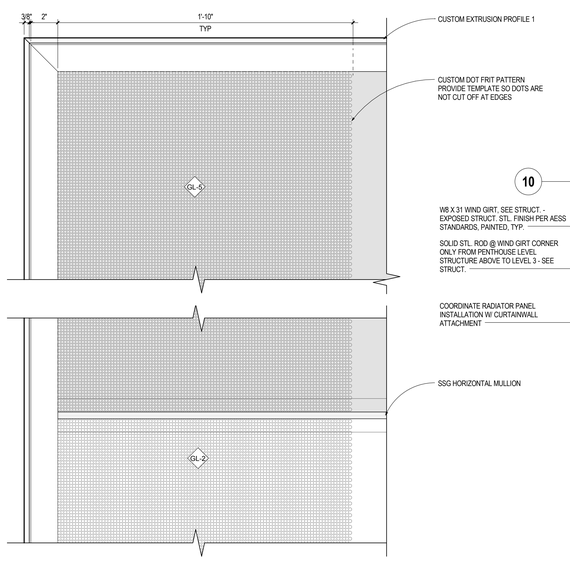

7F a4.11 **ENLARGED ELEVATION - CW-1**
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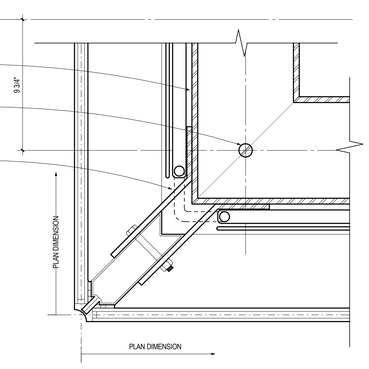

5F a4.11 **CORNER MULLION - CW-1**
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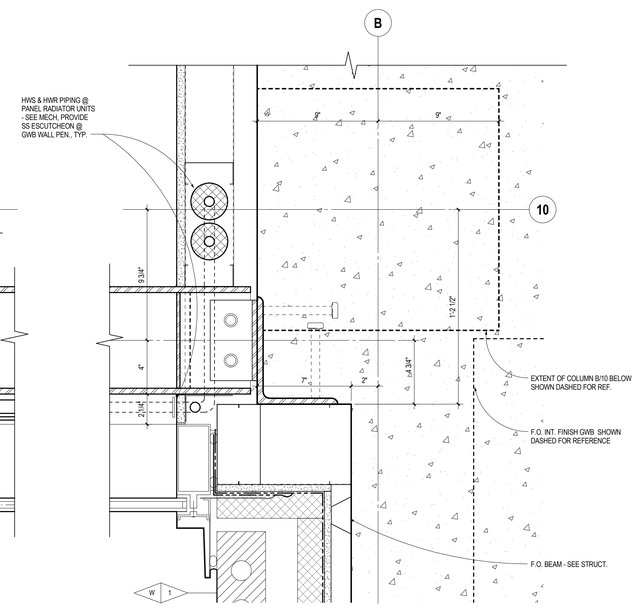

3F a4.11 **JAMB - CW-1**
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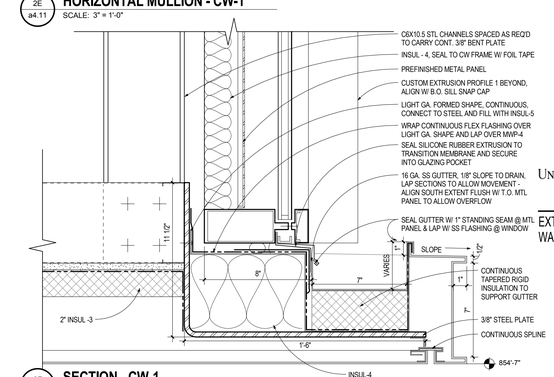

2F a4.11 **SECTION - CW-1**
SCALE: 3" = 1'-0"

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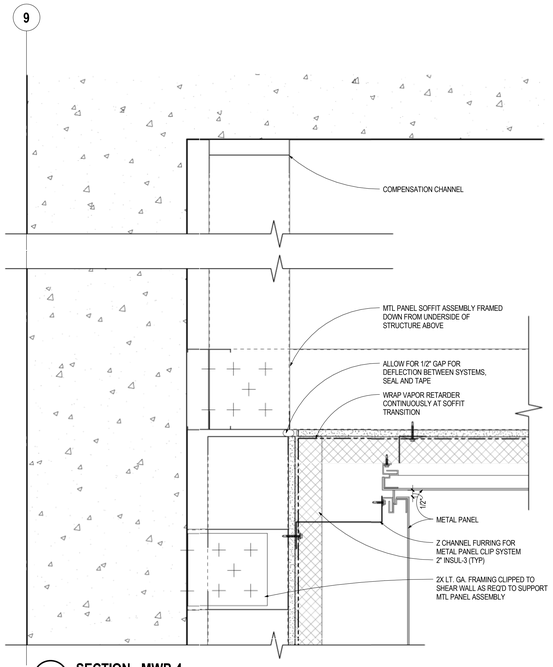
EXTERIOR DETAIL - CURTAIN WALL

a4.11



7C a4.12 **SECTION - MWP-4**
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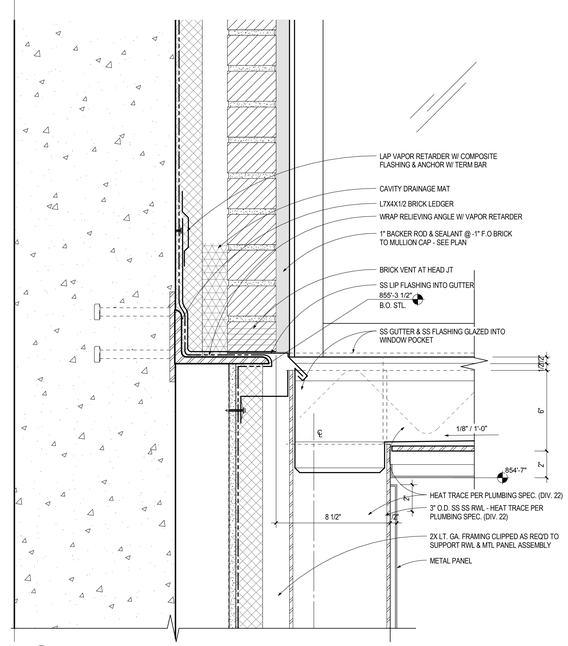

5C a4.12 **SECTION - GUTTER & RWL**
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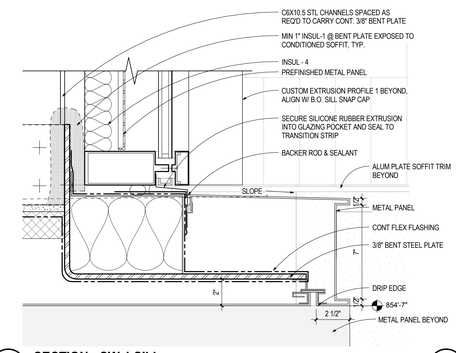

3C a4.12 **SECTION - CW-1 SILL**
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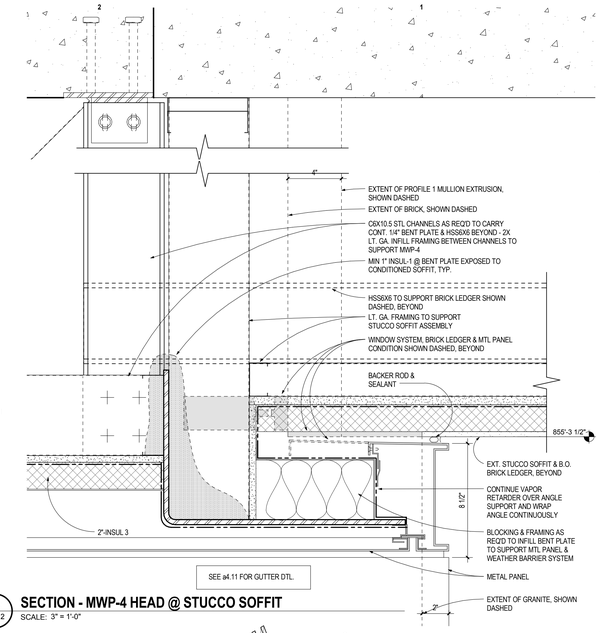

2C a4.12 **SECTION - MWP-4 HEAD @ STUCCO SOFFIT**
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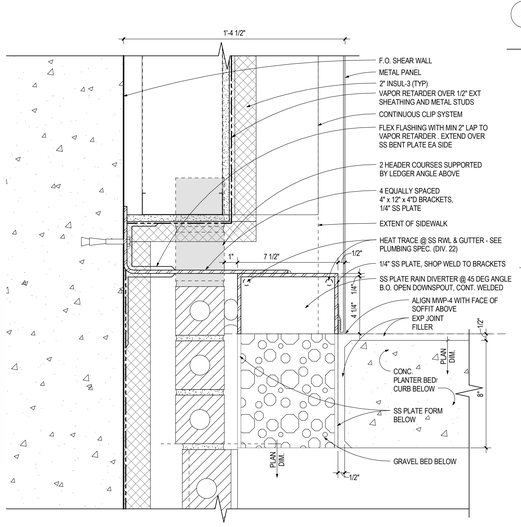

7D a4.12 **PLAN - MWP-4 AT CONC. PLANTER BED CURB**
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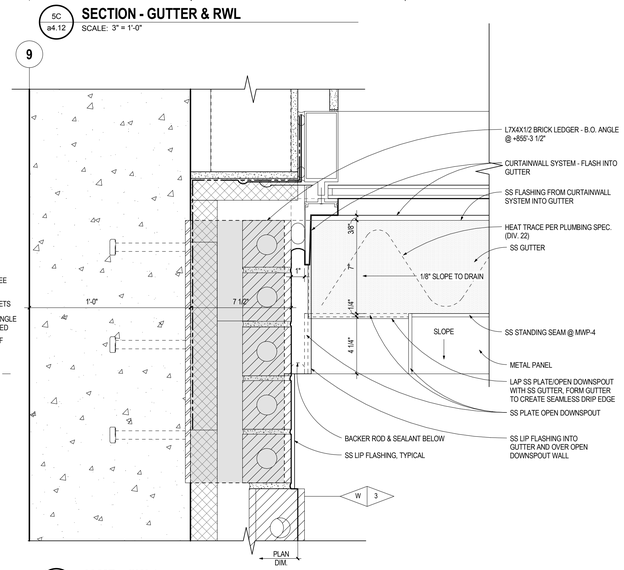

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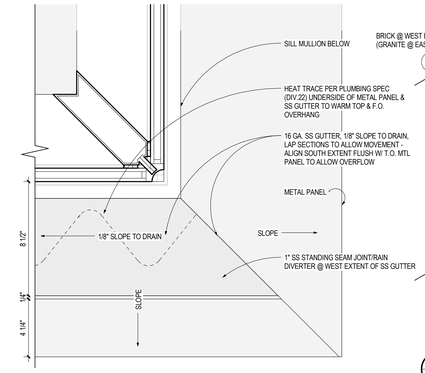

3D a4.12 **PLAN - CW-1 CORNER**
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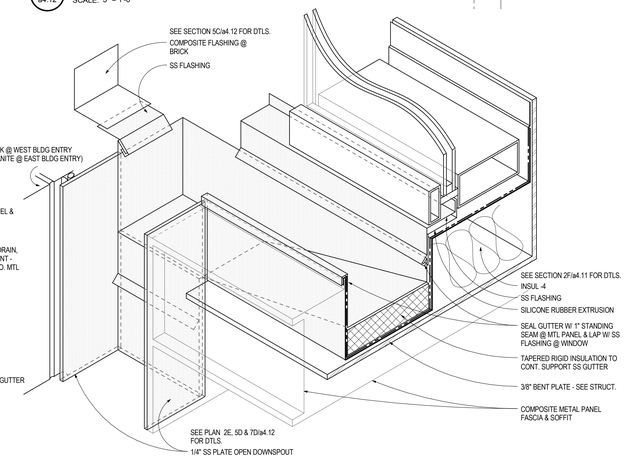
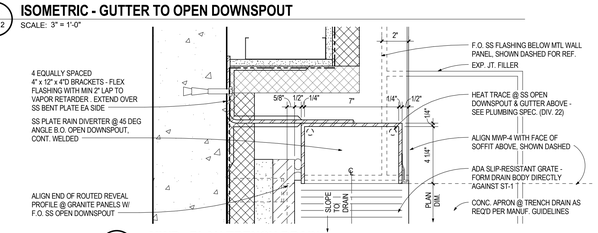


2D a4.12 **ISOMETRIC - GUTTER TO OPEN DOWNSPOUT**
SCALE: 3" = 1'-0"



2E a4.12 **MWP - PLAN TRENCH DRAIN**
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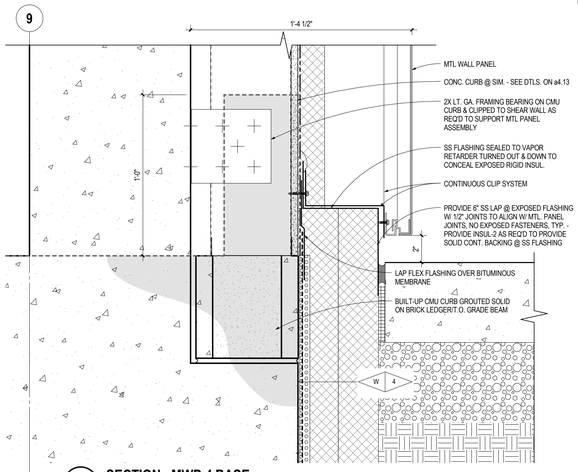

7F a4.12 **SECTION - MWP-4 BASE**
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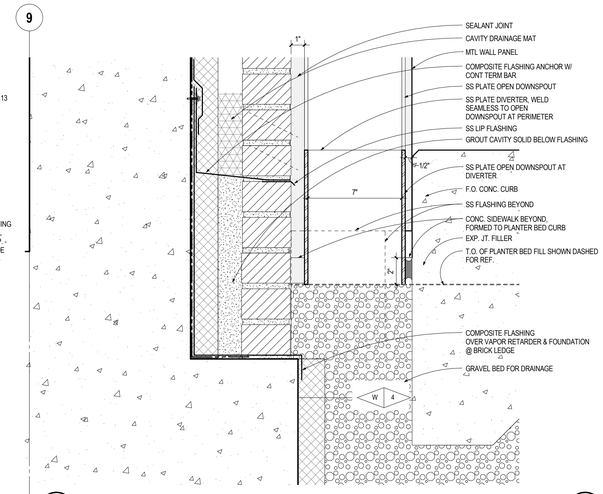
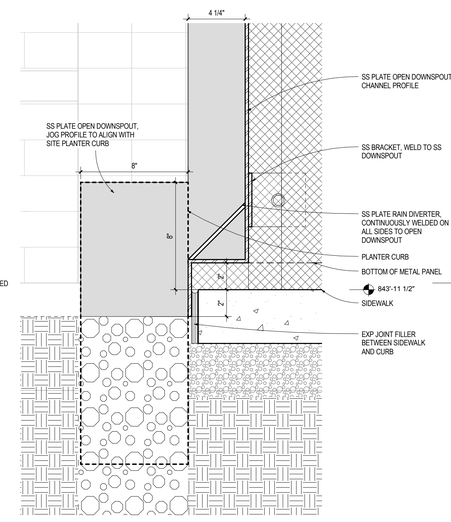


5F a4.12 **SECTION - MWP-4 AT PLANTER BED CURB**
SCALE: 3" = 1'-0"



3F a4.12 **MWP -DOWNSPOUT AT CURB**
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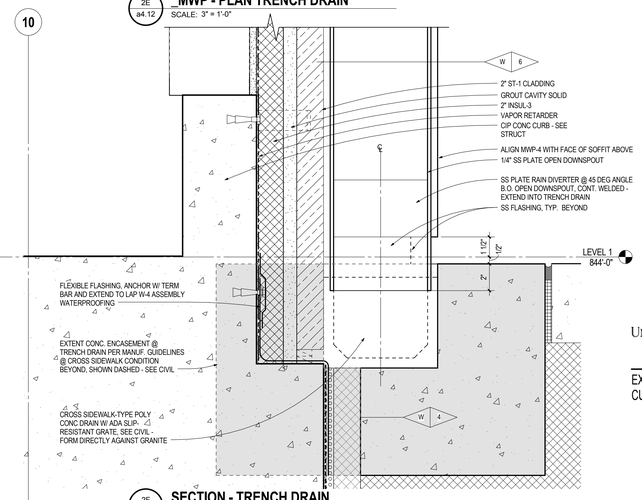

2F a4.12 **SECTION - TRENCH DRAIN**
SCALE: 3" = 1'-0"

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For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

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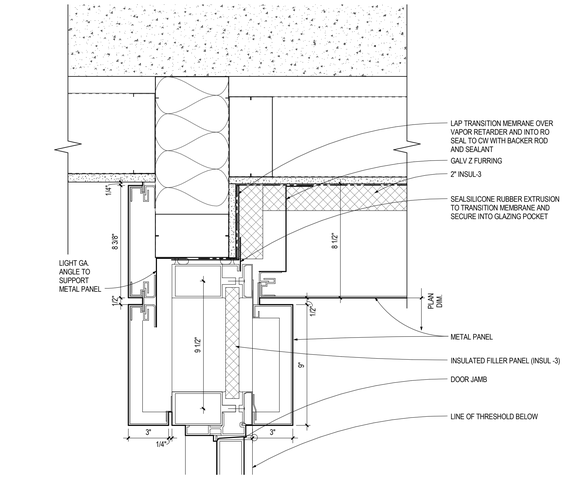
EXTERIOR DETAILS - CURTAINWALL

a4.12



7B a4.13 **JAMB - CW-3**
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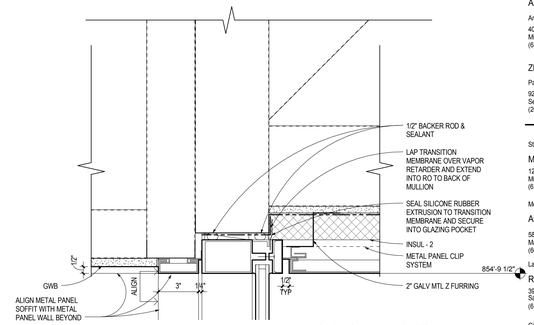
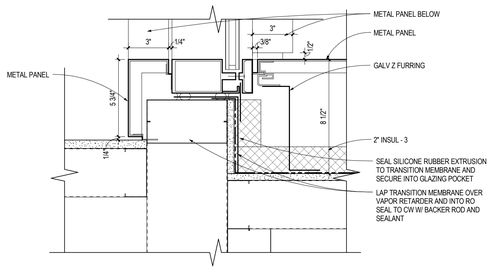


REFER TO ELEVATIONS FOR GLAZING TYPES

1B a4.13 **HEAD - CW-3**
SCALE: 3" = 1'-0"



7C a4.13 **JAMB - CW-3**
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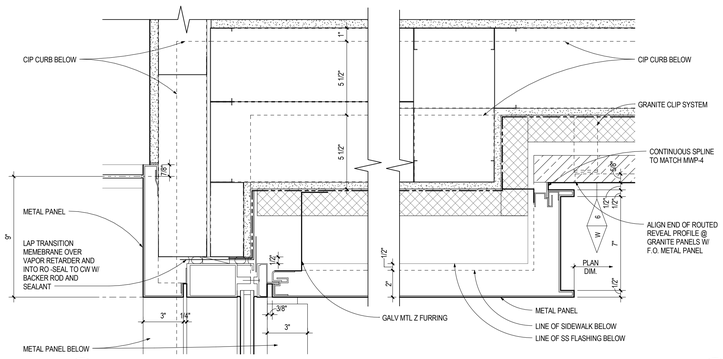

5C a4.13 **JAMB - CW-3**
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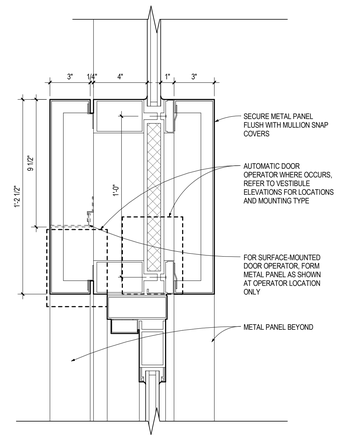

3C a4.13 **HEAD - CW-3**
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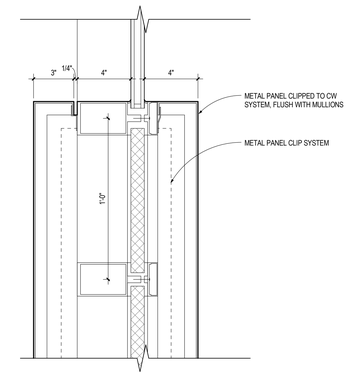

1C a4.13 **SECTION - CW-3**
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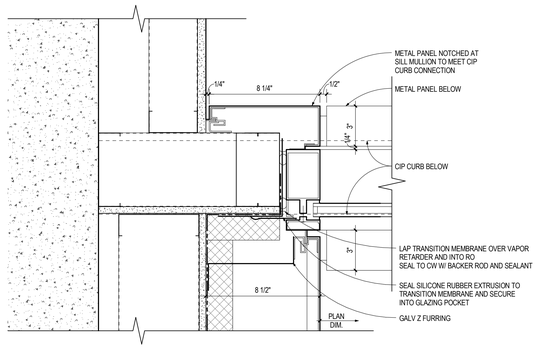

7D a4.13 **JAMB - CW-3**
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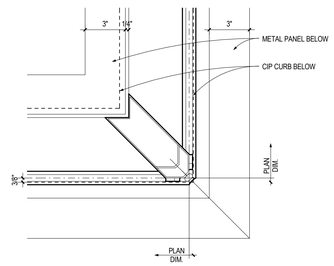

5D a4.13 **CORNER MULLION - CW-3**
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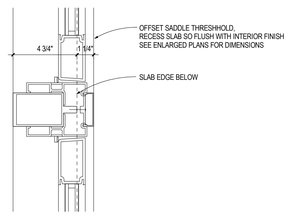

3D a4.13 **JAMB - CW-3**
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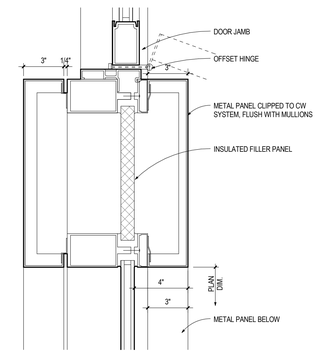

1D a4.13 **PLAN - CW-3**
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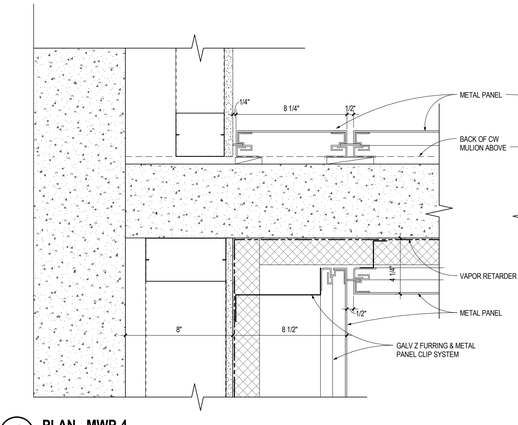

7F a4.13 **PLAN - MWP-4**
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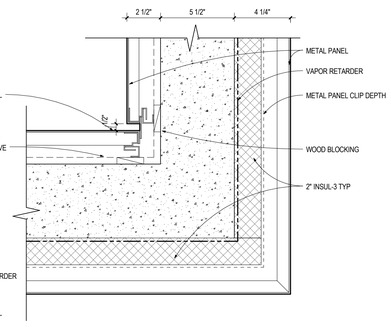

5F a4.13 **PLAN - MWP-4 CORNER**
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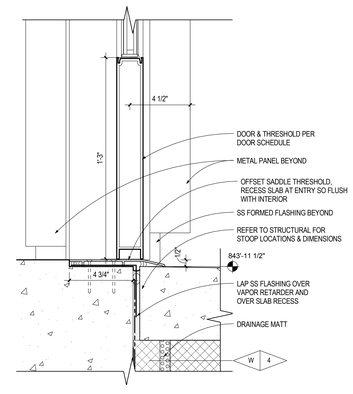

3F a4.13 **THRESHOLD - CW-3**
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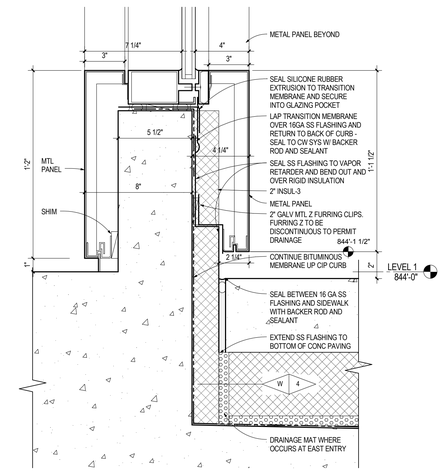

1F a4.13 **SILL - CW-3**
SCALE: 3" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

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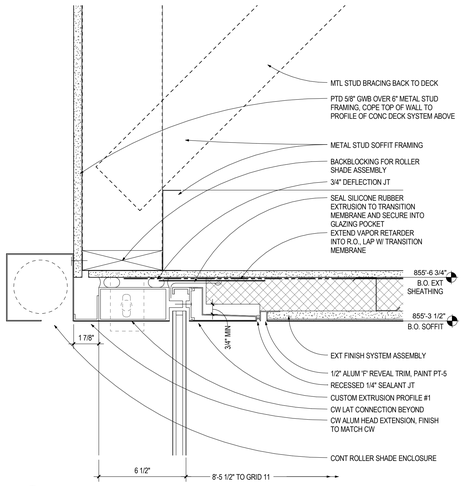
EXTERIOR DETAILS - CURTAINWALL

a4.13



7B a4.14 **SECTION, CW-3B HEAD**
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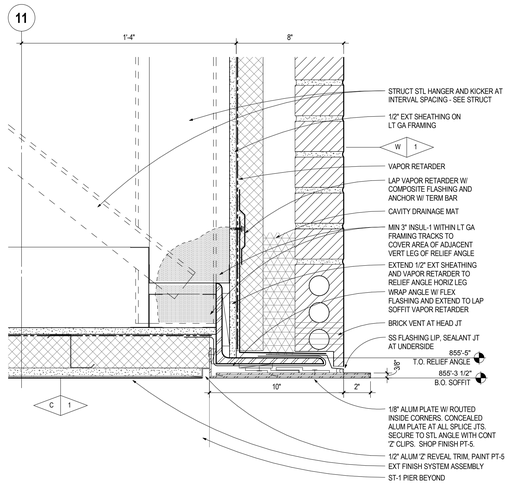

5B a4.14 **SECTION AT SOUTH SOFFIT**
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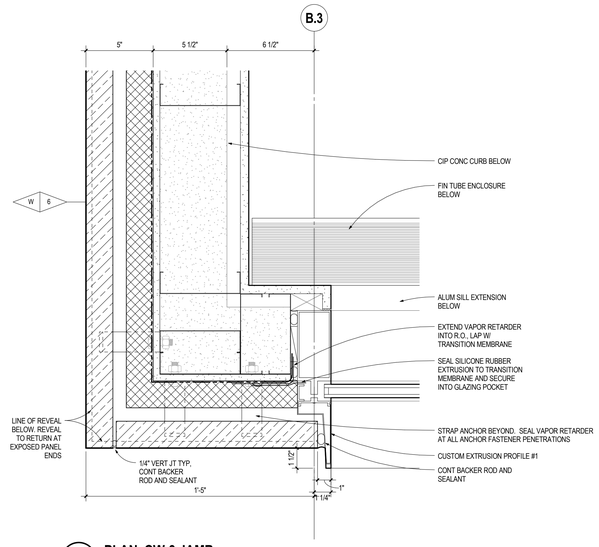

3B a4.14 **PLAN, CW-3 JAMB**
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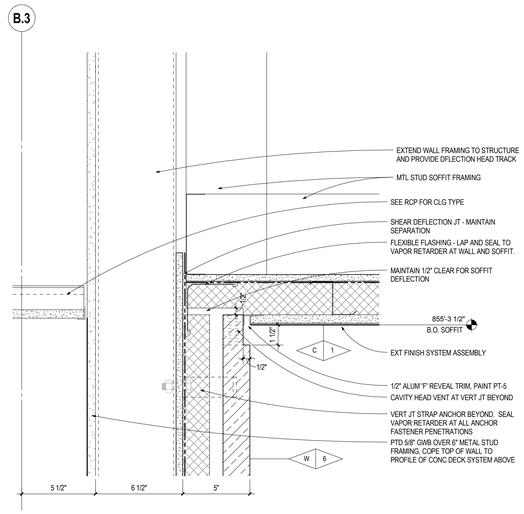

1B a4.14 **SECTION, ST-1 HEAD**
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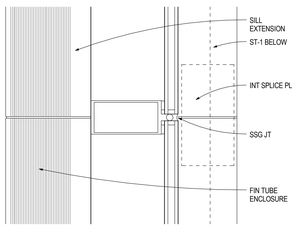

7C a4.14 **PLAN, CW-3B**
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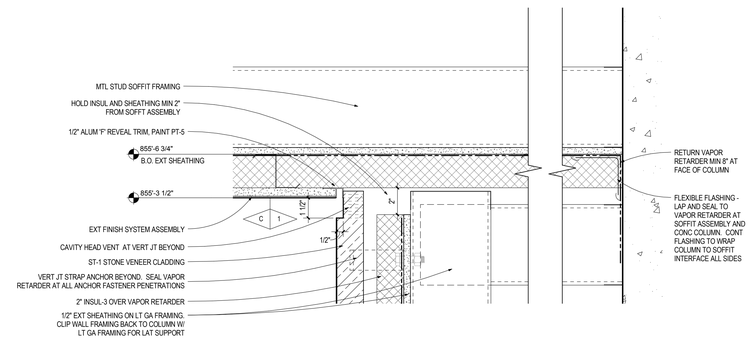

5C a4.14 **SECTION, PIER HEAD**
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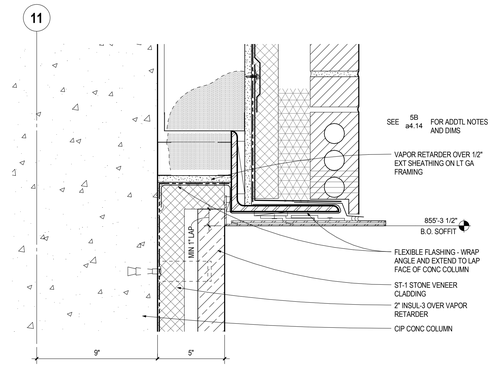

3C a4.14 **SECTION, PIER HEAD**
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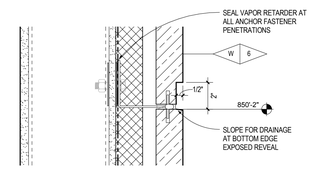

1C a4.14 **SECTION, ST-1 REVEAL AT JT**
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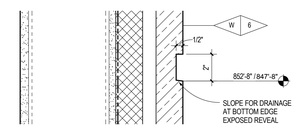

1D a4.14 **SECTION, ST-1 REVEAL**
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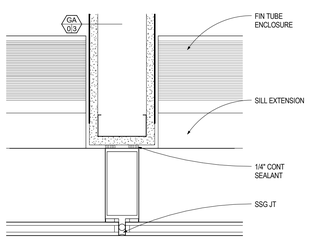

7D a4.14 **CLOSURE @ CW-3 AND PARTITION WALL**
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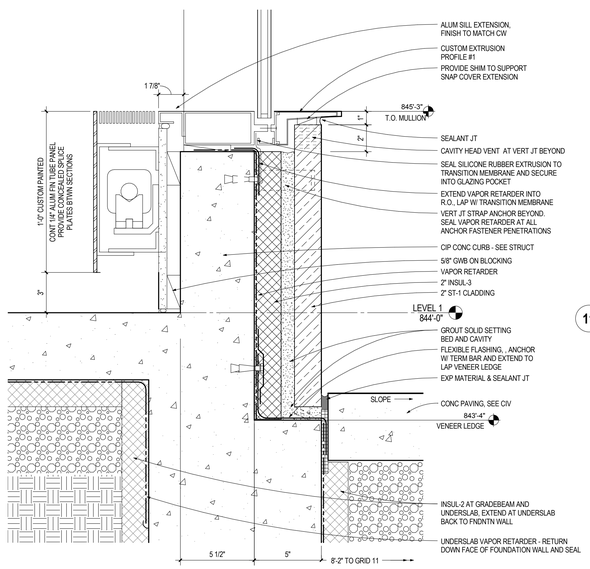

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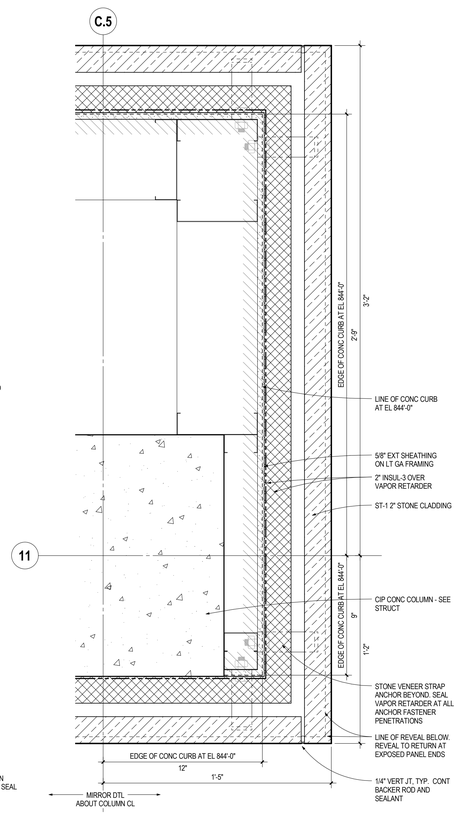
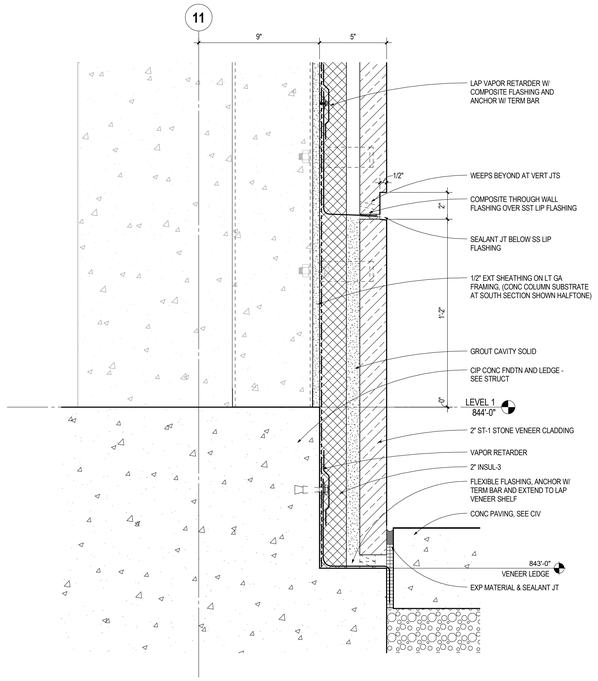


5F a4.14 **PLAN AT ST-1 PIER**
SCALE: 3" = 1'-0"



3F a4.14 **SECTION, PIER BASE**
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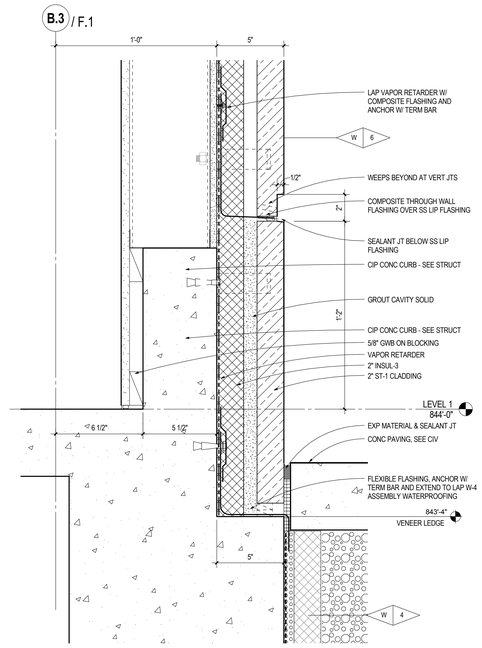

1F a4.14 **SECTION, ST-1 BASE**
SCALE: 3" = 1'-0"

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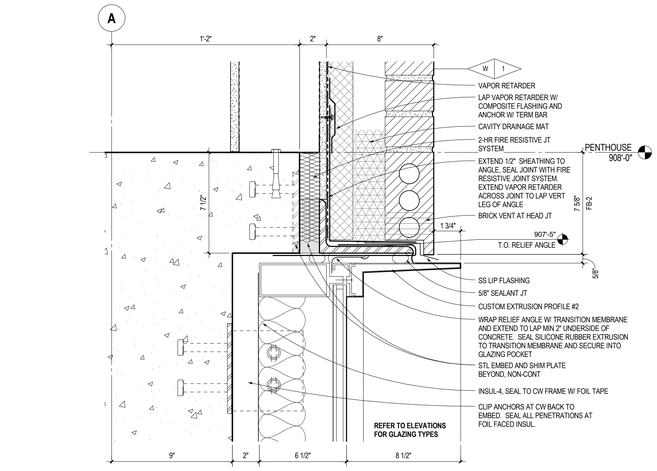
EXTERIOR DETAILS

a4.14



7B a4.21 **SECTION, CW-2 HEAD**
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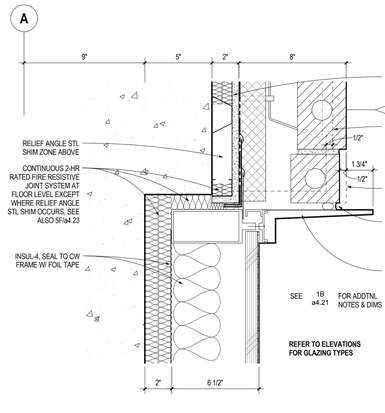

5B a4.21 **PLAN, CW-2 JAMB AT SLAB**
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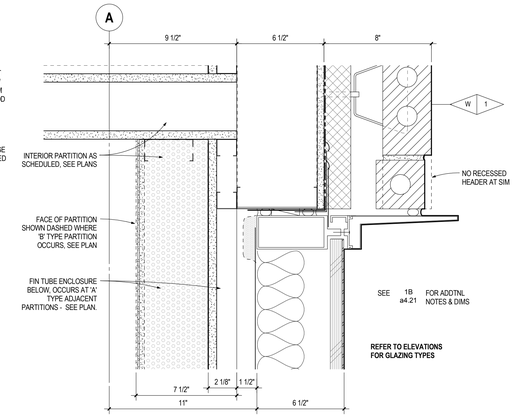

3B a4.21 **PLAN, CW-2 JAMB**
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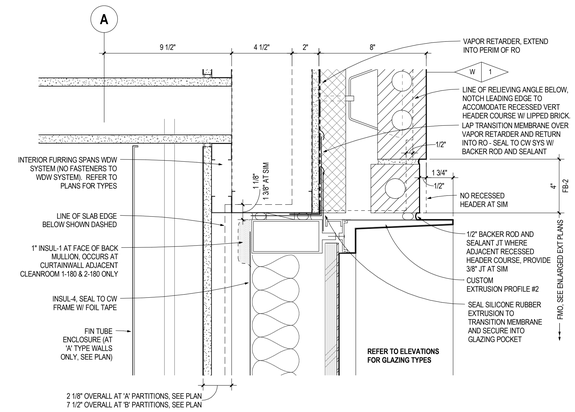
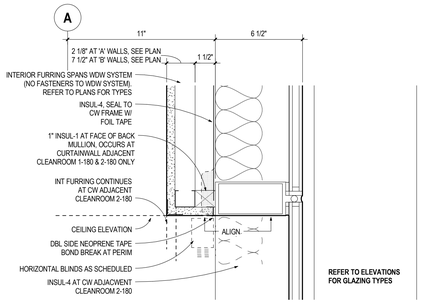


1B a4.21 **PLAN, CW-2 JAMB**
SCALE: 3" = 1'-0"



7C a4.21 **SECTION, CW-2**
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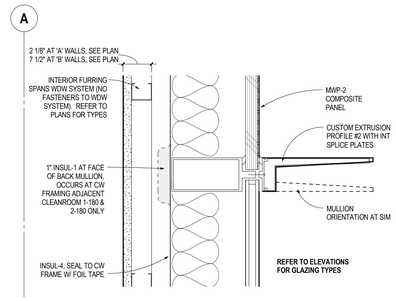

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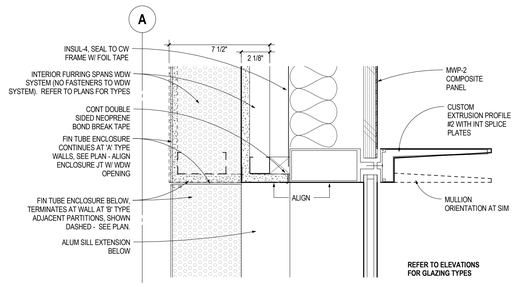

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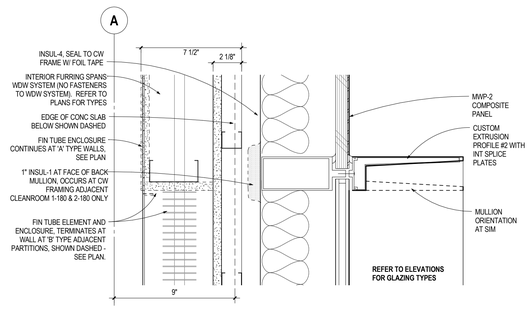

1C a4.21 **PLAN, CW-2**
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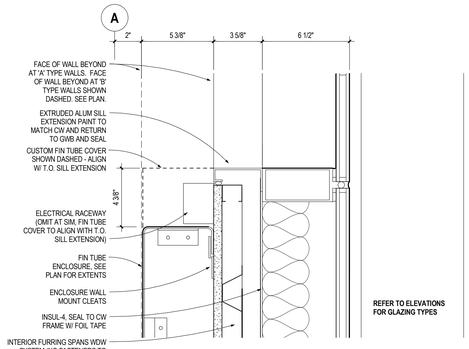

7D a4.21 **SECTION, CW-2**
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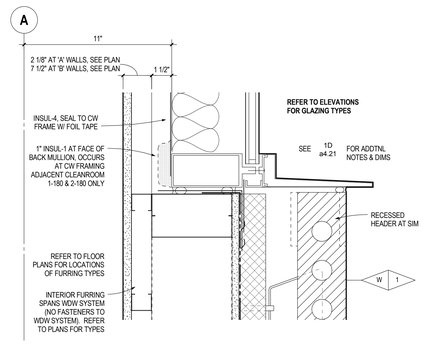
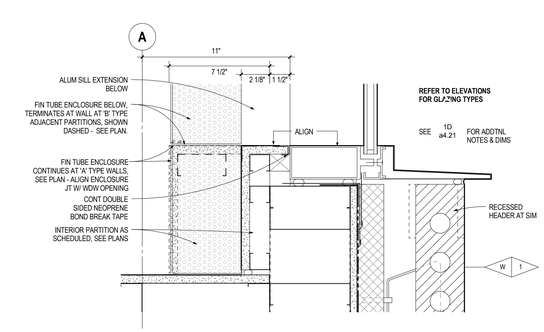


5D a4.21 **PLAN, CW-2 JAMB**
SCALE: 3" = 1'-0"



3D a4.21 **PLAN, CW-2 JAMB**
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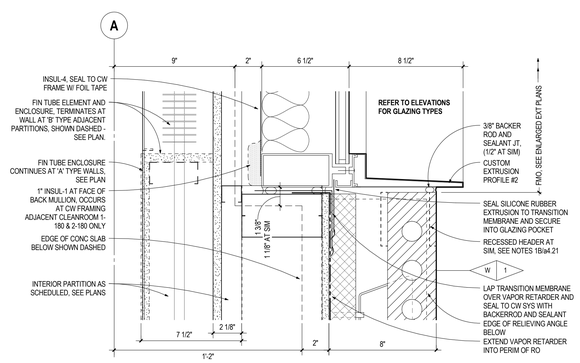
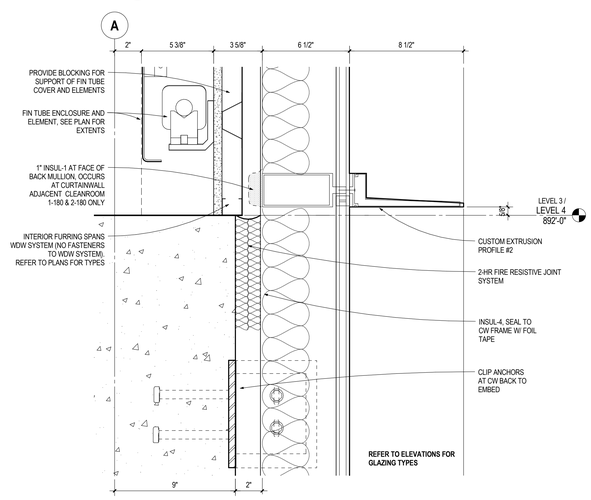
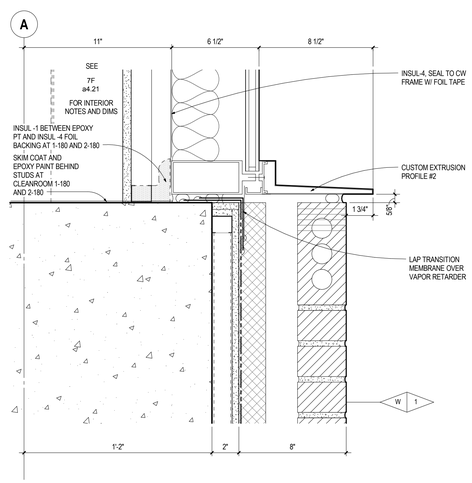


1D a4.21 **PLAN, CW-2 JAMB**
SCALE: 3" = 1'-0"



7F a4.21 **SECTION, CW-2 AT SLAB**
SCALE: 3" = 1'-0"



5F a4.21 **SECTION, CW-2 SILL**
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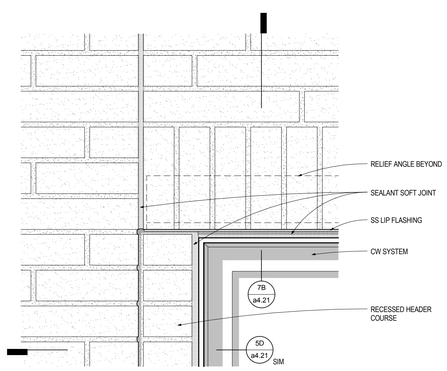

3F a4.21 **ELEVATION AT BRICK EXPANSION JOINT**
SCALE: 3" = 1'-0"

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For Architectural Alliance

By

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Date 02-24-2012 Reg. No. 14703

Issued for	Date
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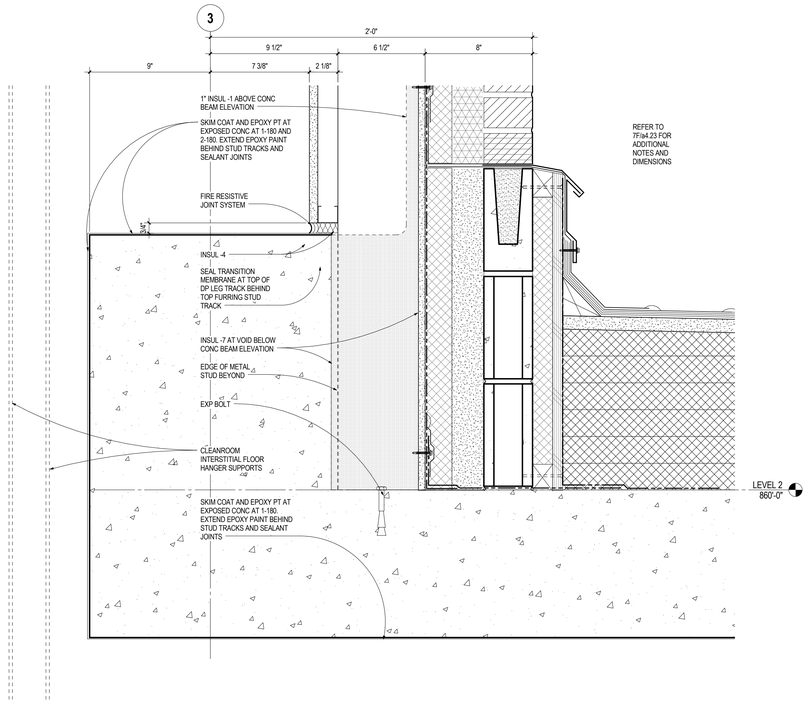
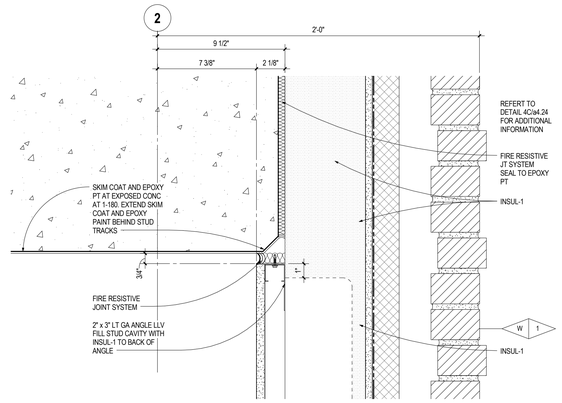
EXTERIOR DETAILS

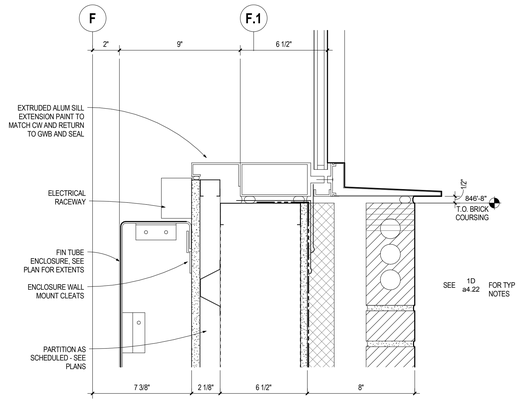
a4.21



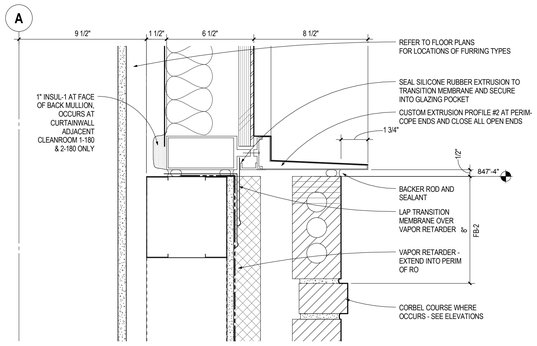
7C a4.22 **SECTION - CLEANROOM NORTH WALL LEVEL 2**
SCALE: 3" = 1'-0"



4C a4.22 **SECTION - CLEANROOM NORTH WALL LEVEL 1**
SCALE: 3" = 1'-0"



1B a4.22 **SECTION CW-2, SILL**
SCALE: 3" = 1'-0"



1D a4.22 **SECTION, CW-2 SILL**
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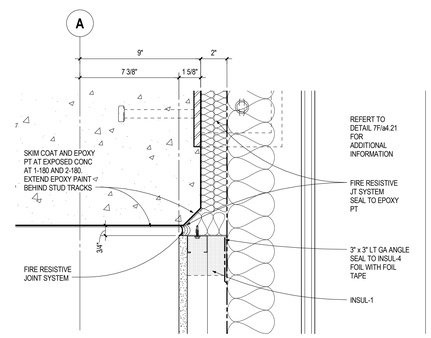
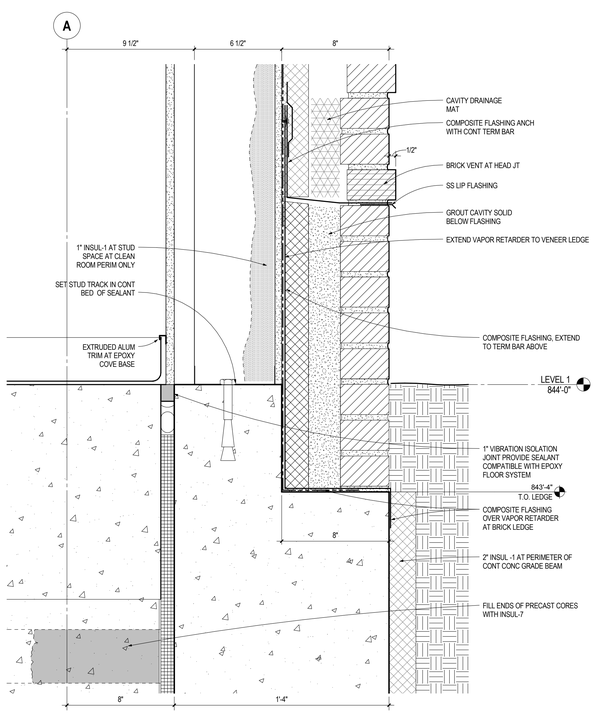
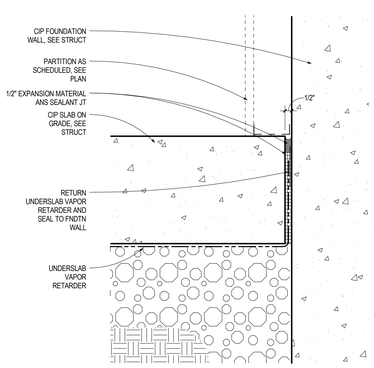


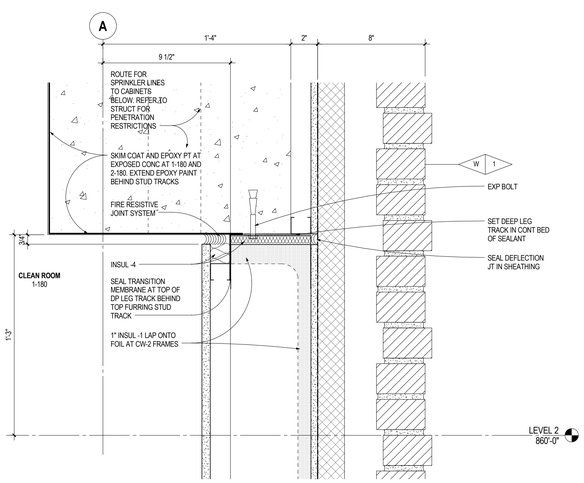
4D a4.22 **SECTION - CLEANROOM WEST WALL LEVEL 3**
SCALE: 3" = 1'-0"



1F a4.22 **SECTION - BASE OF WALL**
SCALE: 3" = 1'-0"



6F a4.22 **SECTION - SLAB ON GRADE ISOLATION JT**
SCALE: 3" = 1'-0"



4F a4.22 **SECTION - CLEANROOM WEST WALL LEVEL 2**
SCALE: 3" = 1'-0"

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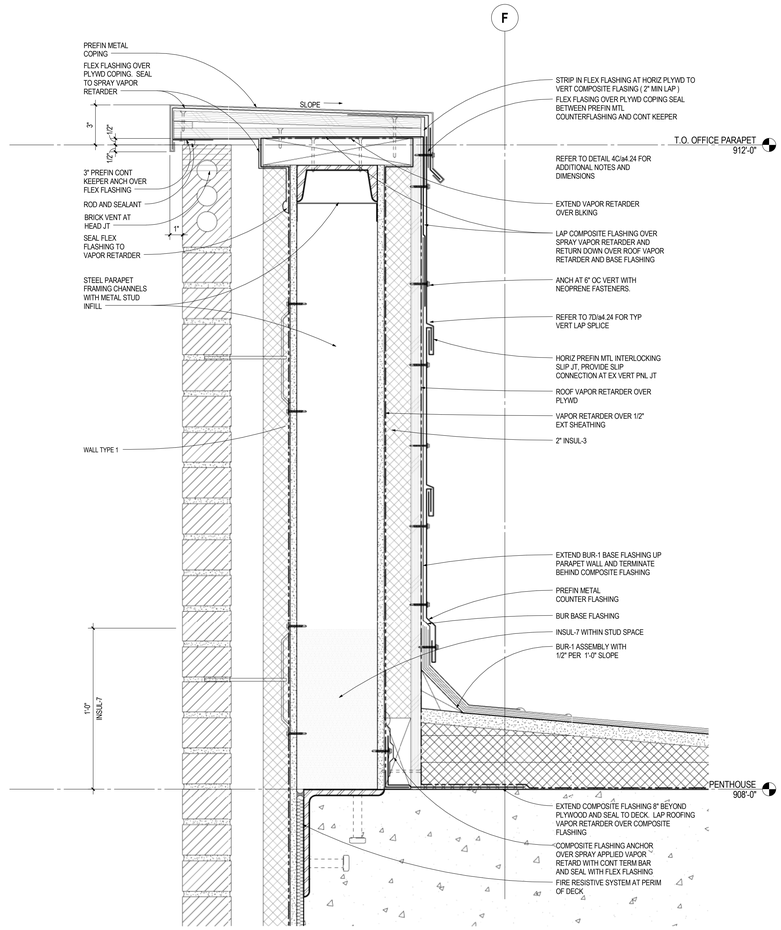
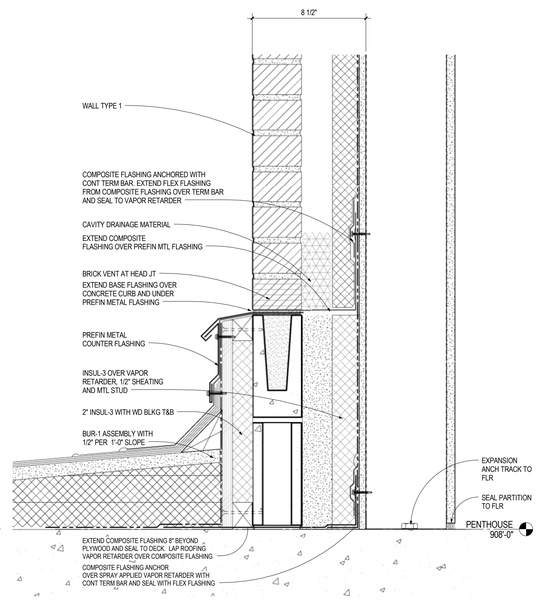
EXTERIOR DETAILS AND EXTERIOR CLEANROOM DETAIL

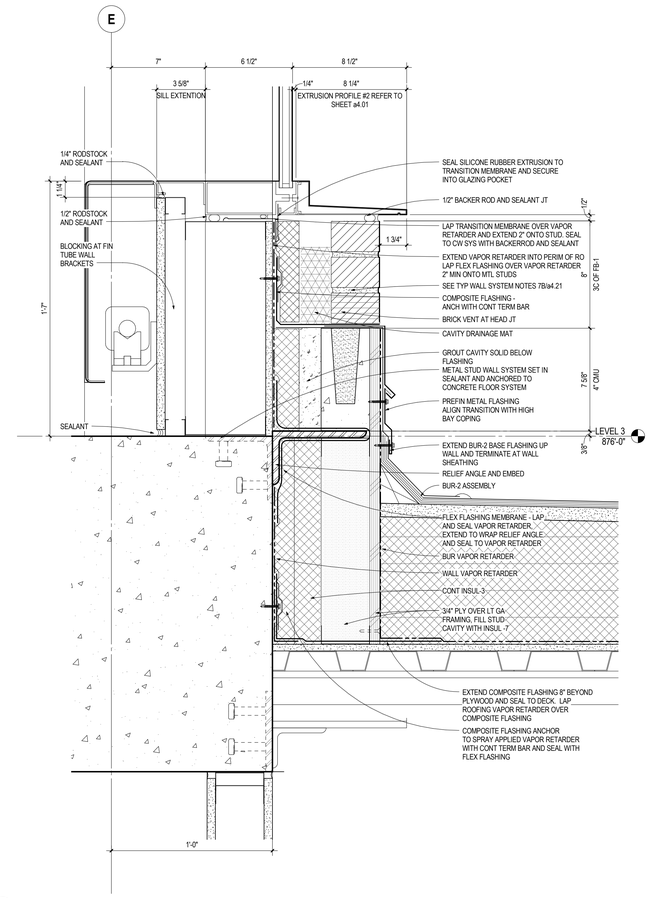
a4.22



7C a4.23 **EAST LAB PARAPET AT SHEAR WALL**
SCALE: 3" = 1'-0"



5C a4.23 **EAST LAB WALL ROOF TIE IN AT PENTHOUSE**
SCALE: 3" = 1'-0"



3C a4.23 **SECTION DETAIL AT HIGH BAY ROOF**
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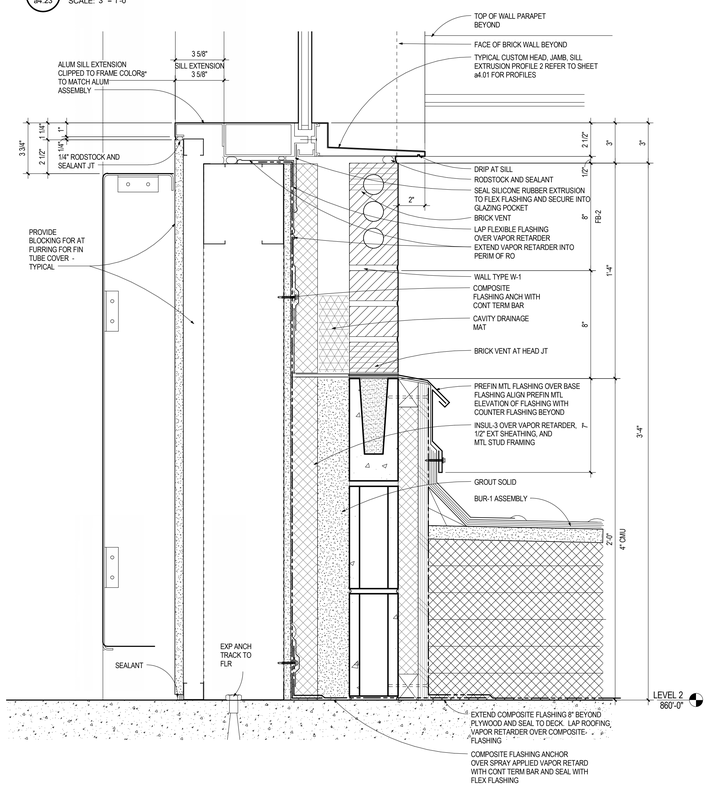

7F a4.23 **LOADING DOCK / NORTH LAB FACADE WALL TRANSITION**
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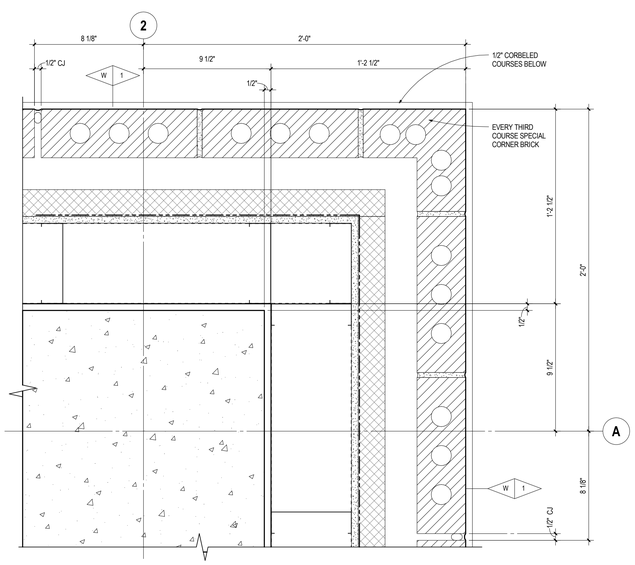
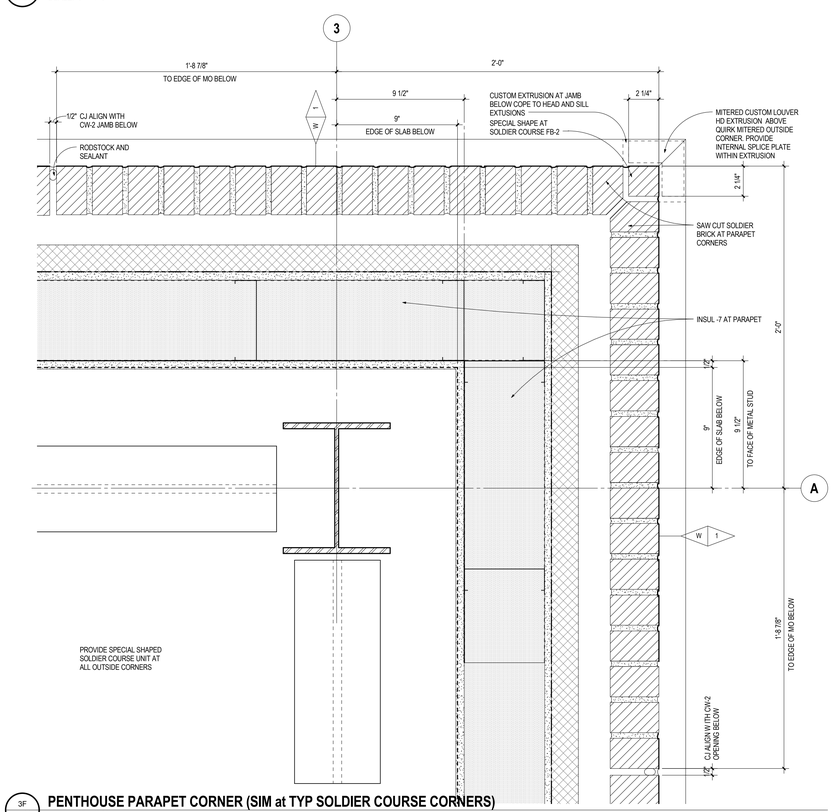


5F a4.23 **MASONRY CORNER STRETCHER COURSES**
SCALE: 3" = 1'-0"



3F a4.23 **PENTHOUSE PARAPET CORNER (SIM at TYP SOLDIER COURSE CORNERS)**
SCALE: 3" = 1'-0"

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EXTERIOR DETAILS

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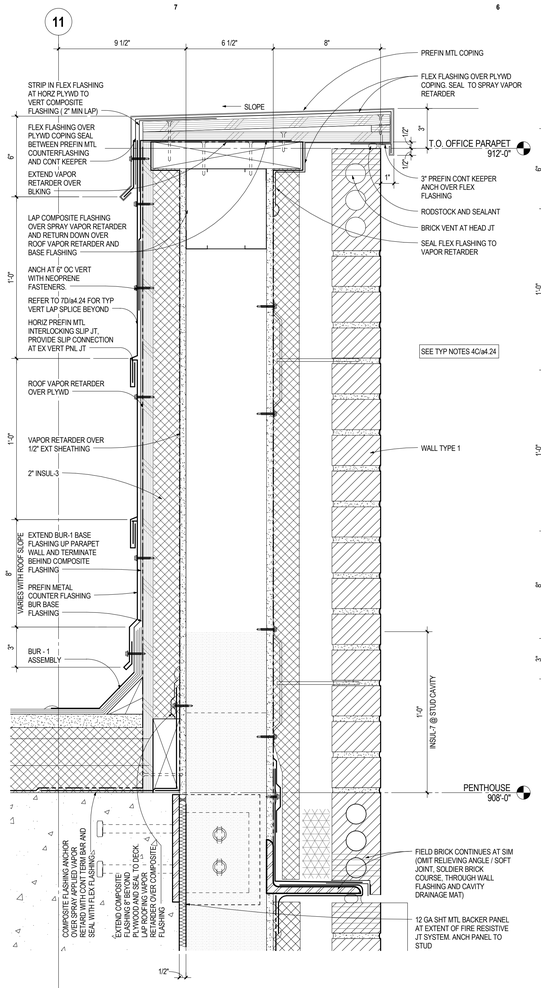

7C a4.24 **PARAPET**
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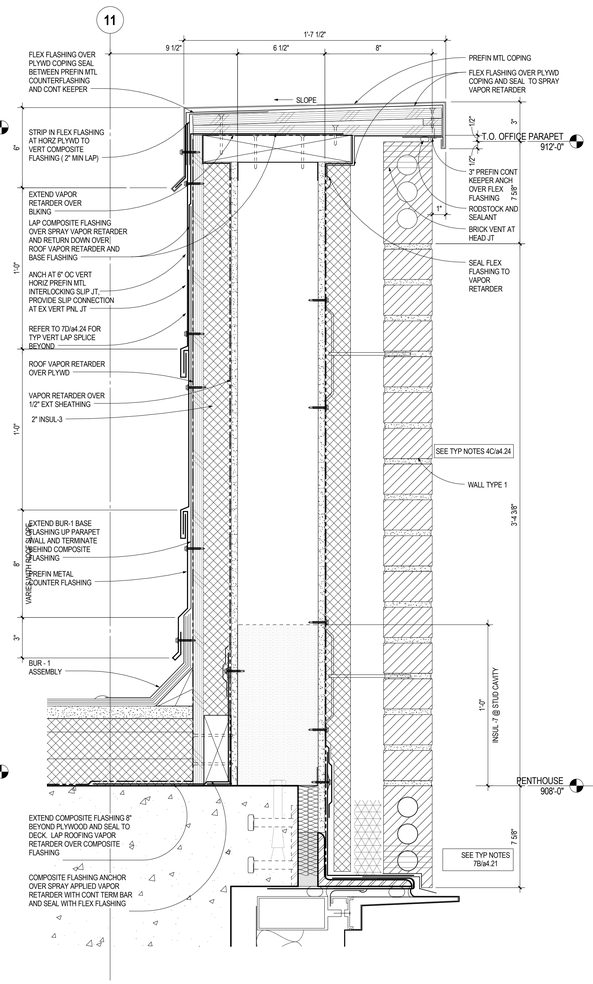
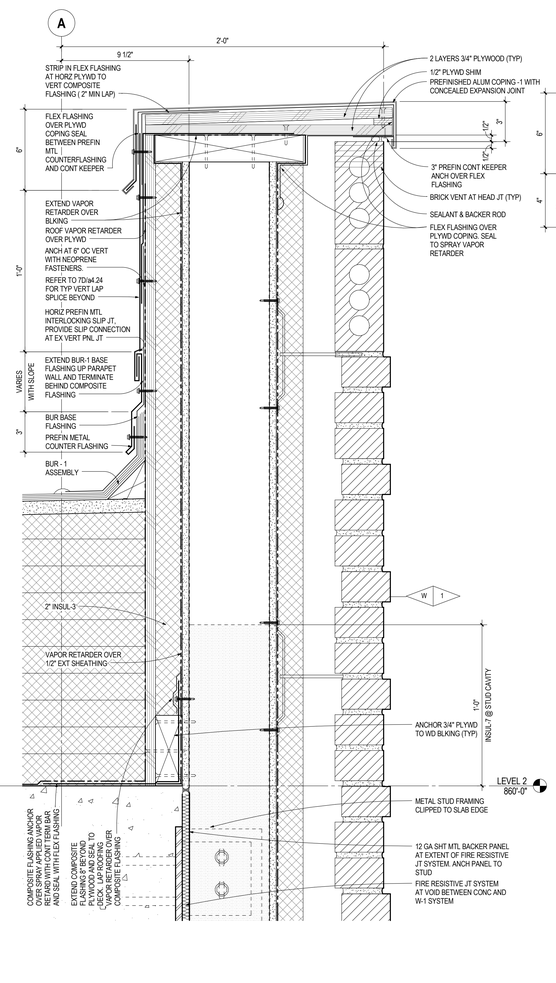
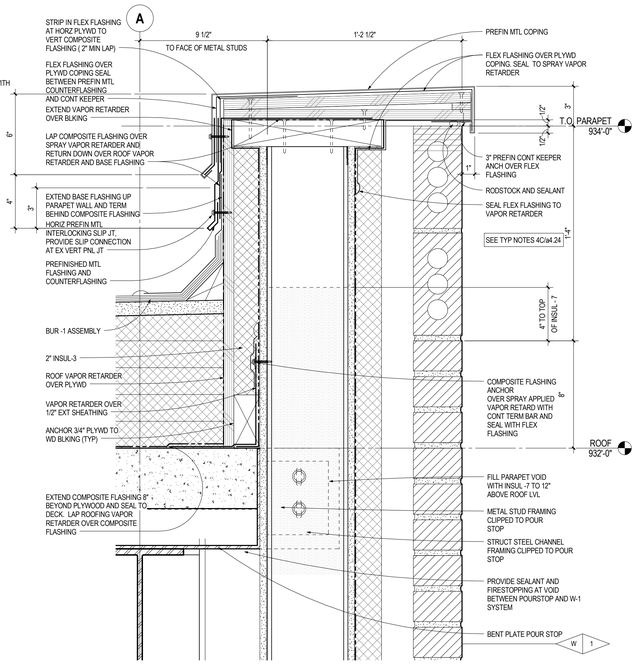


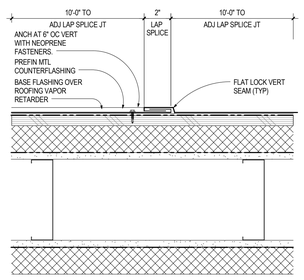
5C a4.24 **PARAPET AT CW-2 HEAD**
SCALE: 3" = 1'-0"



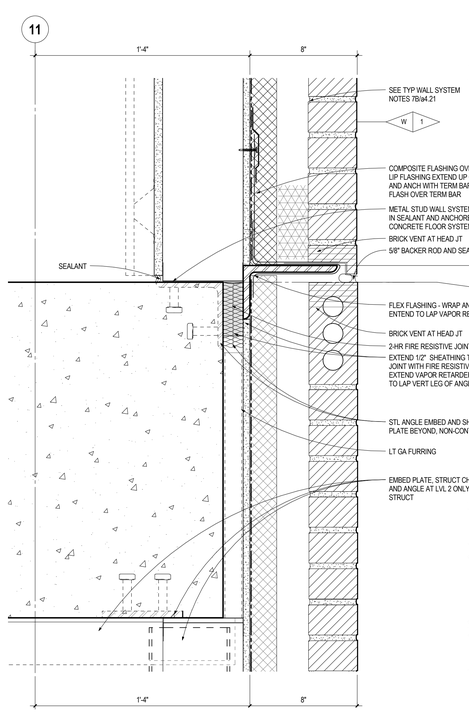
4C a4.24 **NORTH WALL PARAPET AT LEVEL 2**
SCALE: 3" = 1'-0"



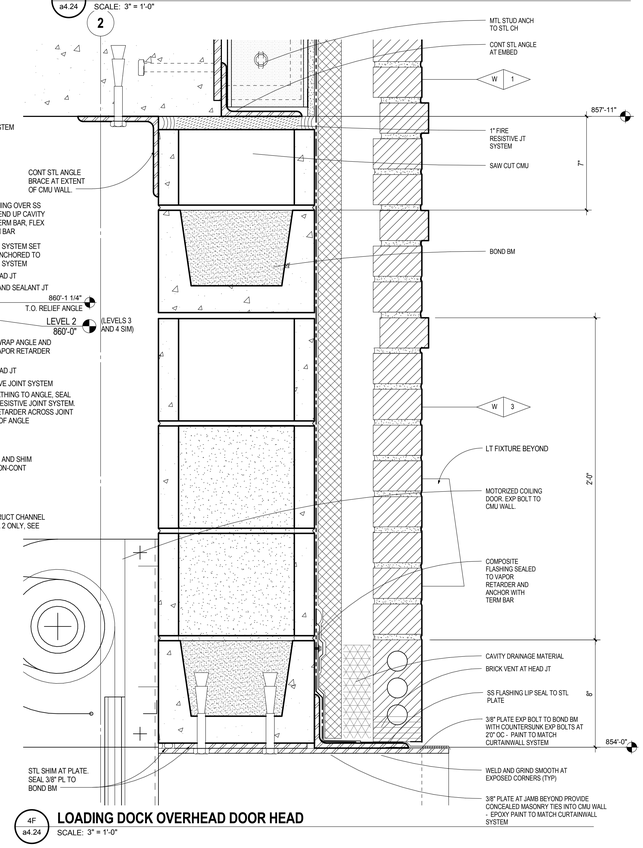
2B a4.24 **PARAPET AT PENTHOUSE**
SCALE: 3" = 1'-0"



7D a4.24 **PREFIN METAL LAP SPLICE**
SCALE: 3" = 1'-0"



5F a4.24 **SECTION AT SLAB EDGE BTWN CW-2**
SCALE: 3" = 1'-0"



4F a4.24 **LOADING DOCK OVERHEAD DOOR HEAD**
SCALE: 3" = 1'-0"

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EXTERIOR DETAILS

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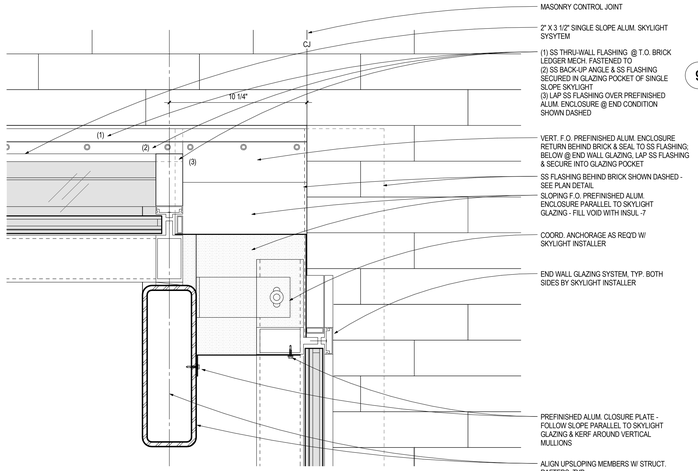
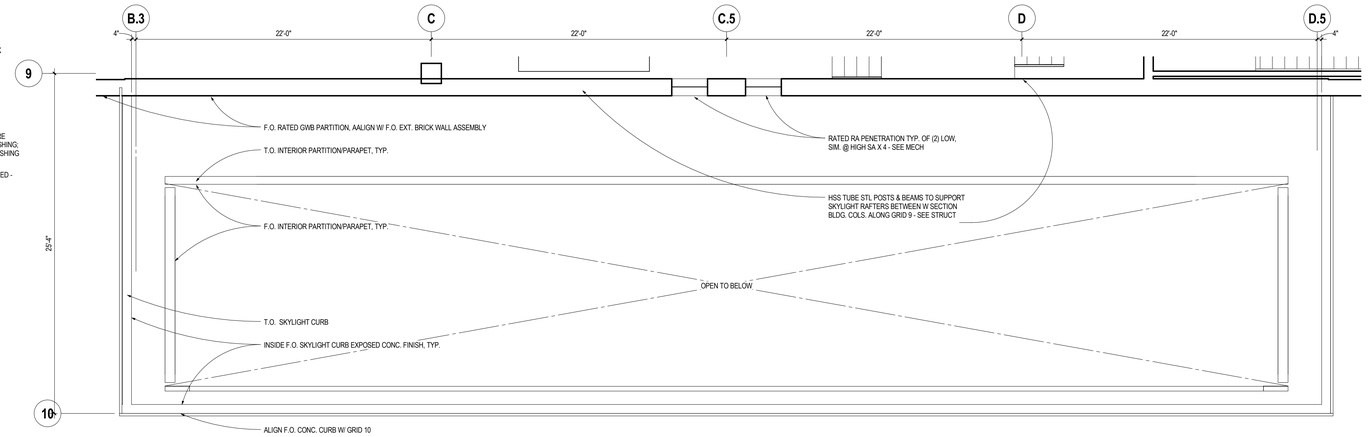


6B a4.25 **SKYLIGHT E/W END HEAD**
SCALE: 3" = 1'-0"



5B a4.25 **ENLARGED FLOOR PLAN - SKYLIGHT PENTHOUSE**
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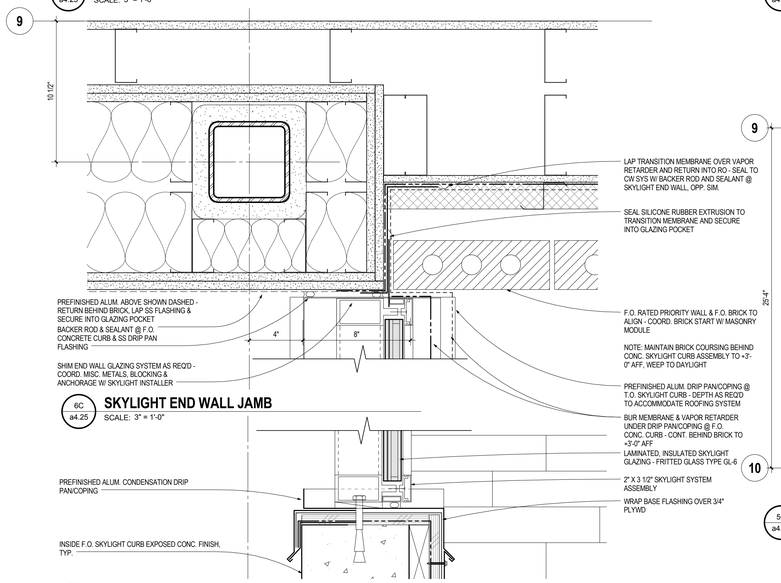
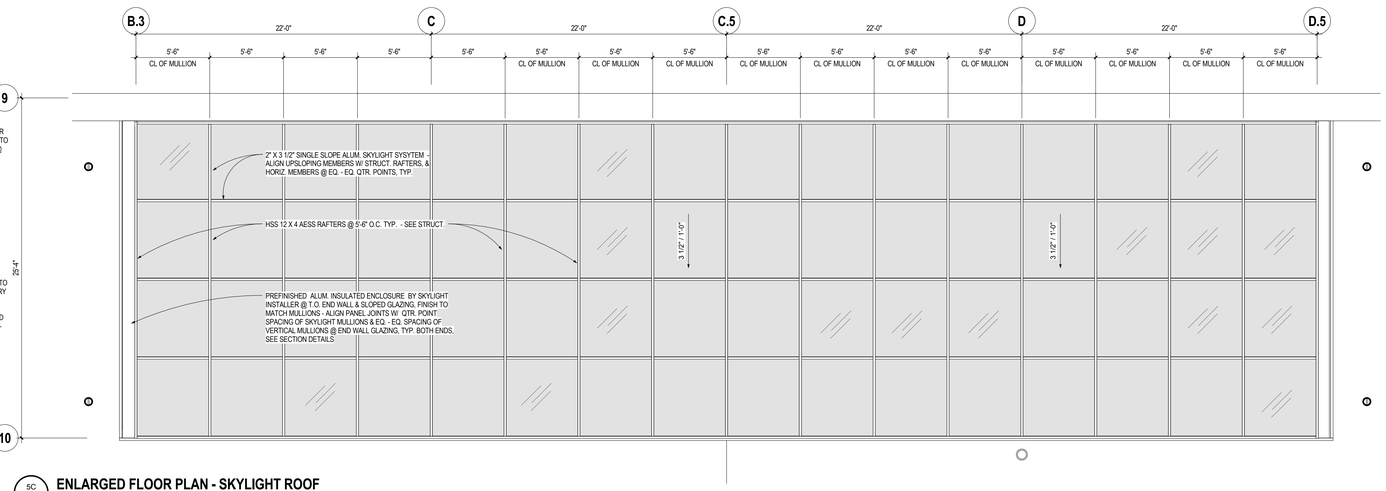
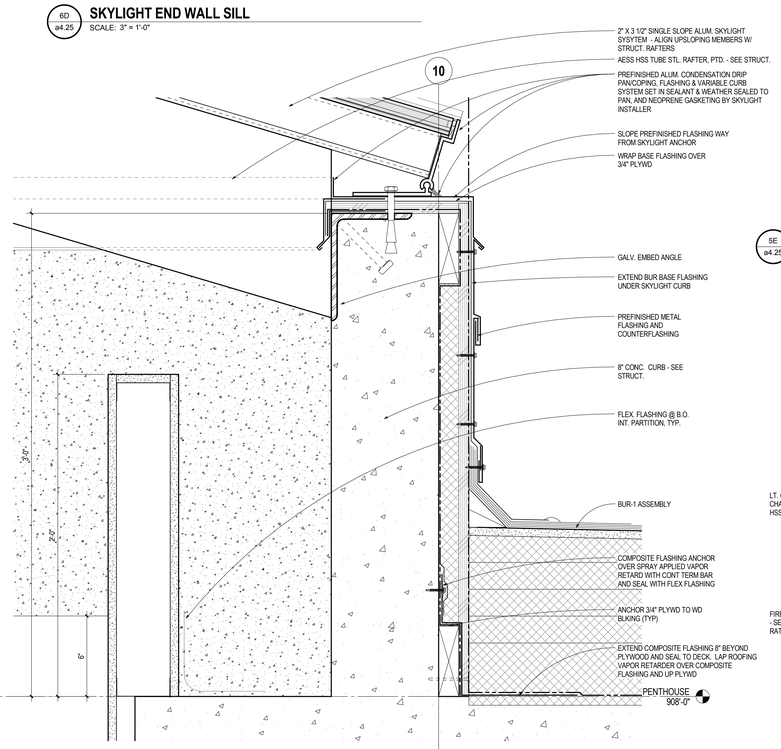


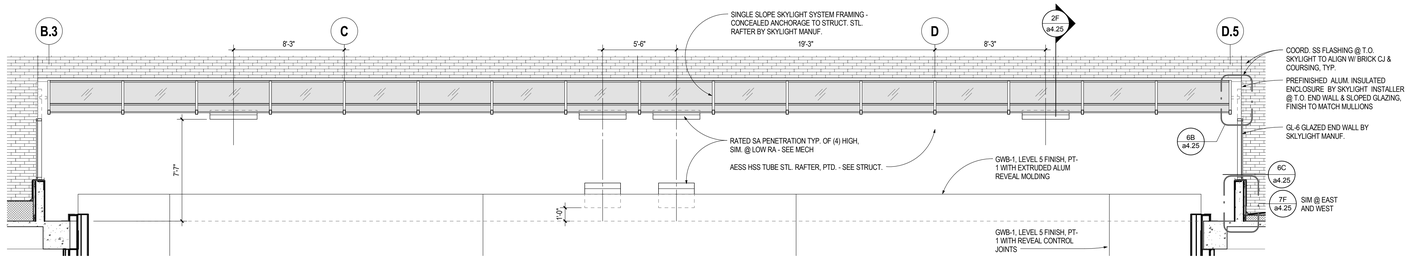
6C a4.25 **SKYLIGHT END WALL JAMB**
SCALE: 3" = 1'-0"



5C a4.25 **ENLARGED FLOOR PLAN - SKYLIGHT ROOF**
SCALE: 1/4" = 1'-0"

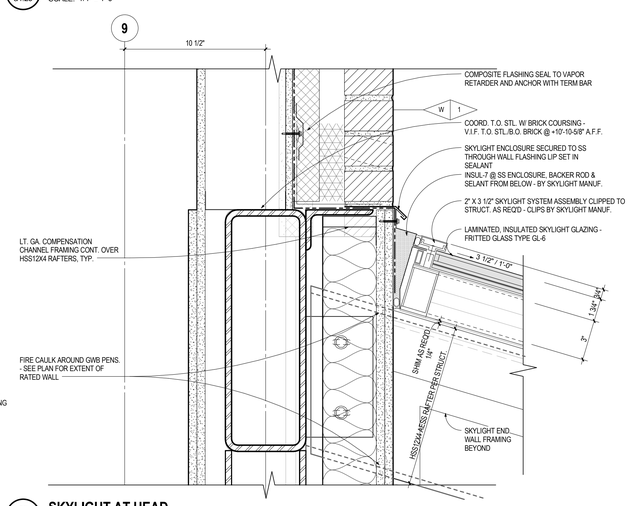


6D a4.25 **SKYLIGHT END WALL SILL**
SCALE: 3" = 1'-0"

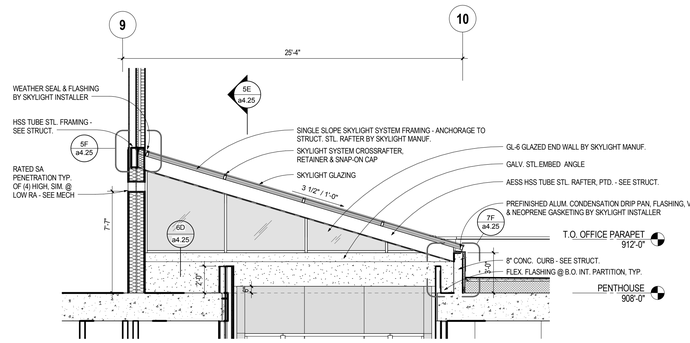


5E a4.25 **E/W SECTION AT SKYLIGHT**
SCALE: 1/4" = 1'-0"

7F a4.25 **SKYLIGHT SOUTH CURB**
SCALE: 3" = 1'-0"



5F a4.25 **SKYLIGHT AT HEAD**
SCALE: 3" = 1'-0"



2F a4.25 **N/S SECTION AT SKYLIGHT**
SCALE: 1/4" = 1'-0"

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For Architectural Alliance

By

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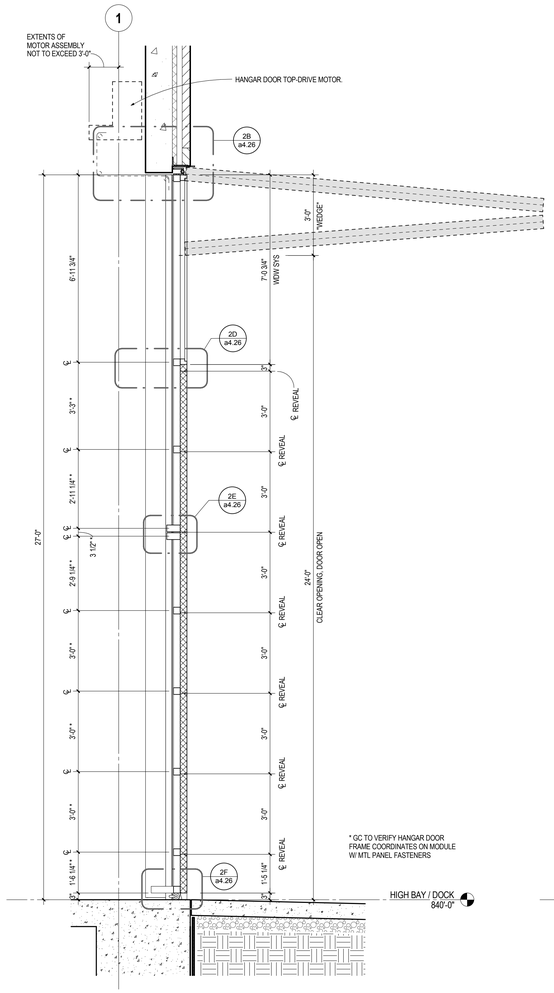
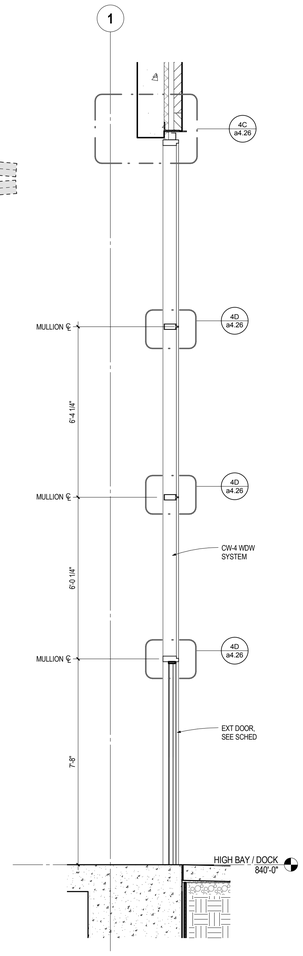
EXTERIOR DETAIL - SKYLIGHT

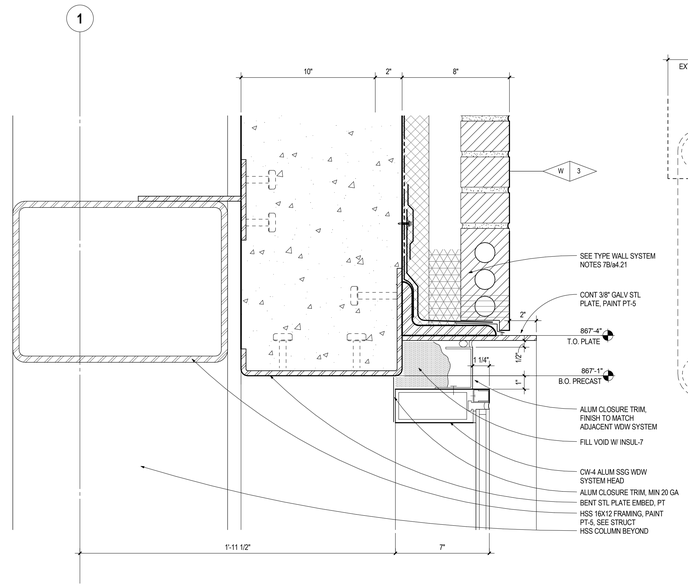
a4.25



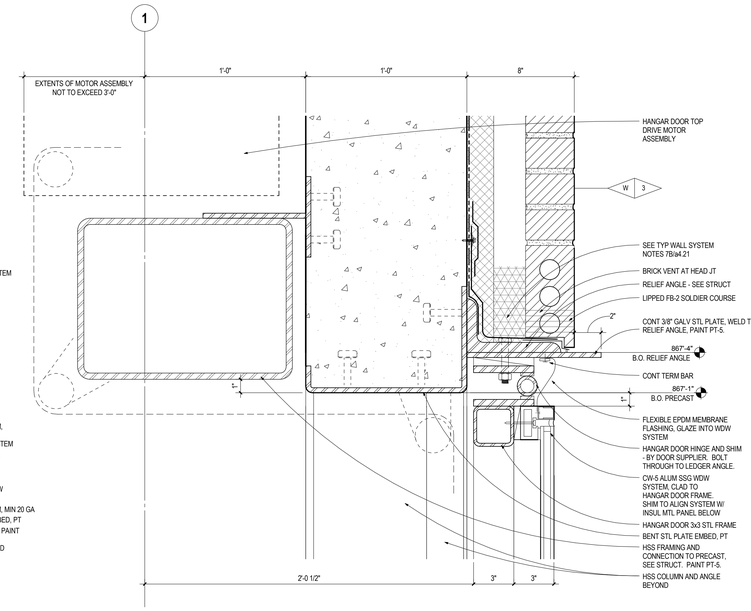
7D a4.26 **WALL SECTION AT HANGAR DOOR**
SCALE: 1/2" = 1'-0"



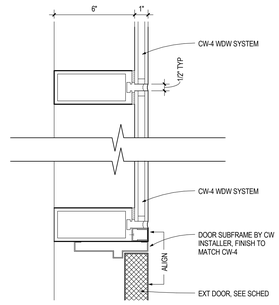
6D a4.26 **WALL SECTION AT CW-4**
SCALE: 1/2" = 1'-0"



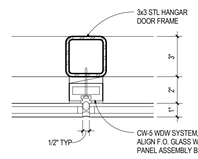
4C a4.26 **SECTION - HEAD AT HANGAR DOOR ADJ WDW SYS**
SCALE: 3" = 1'-0"



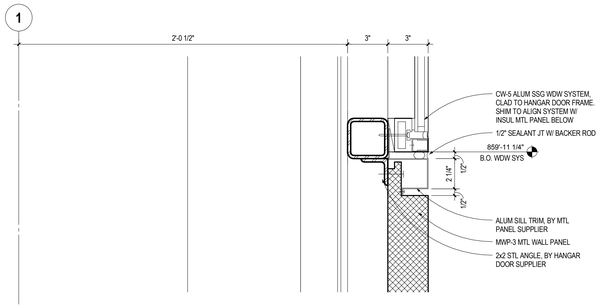
2B a4.26 **SECTION - HEAD AT HANGAR DOOR**
SCALE: 3" = 1'-0"



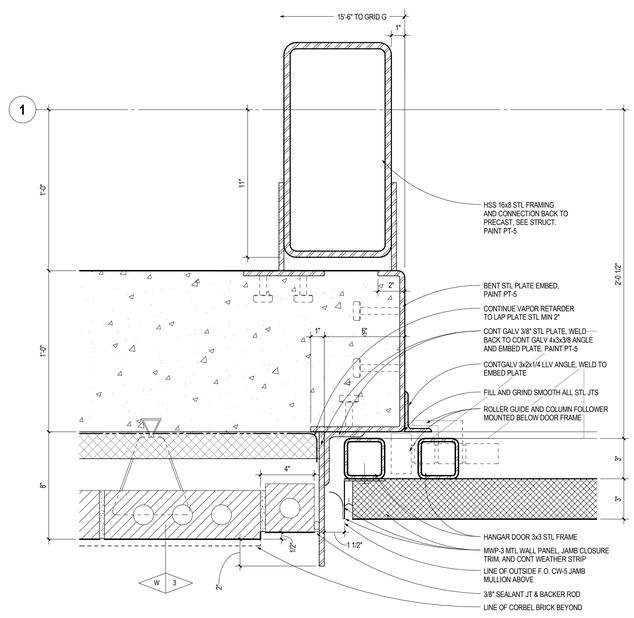
4D a4.26 **HORIZ MULLION AT CW-4**
SCALE: 3" = 1'-0"



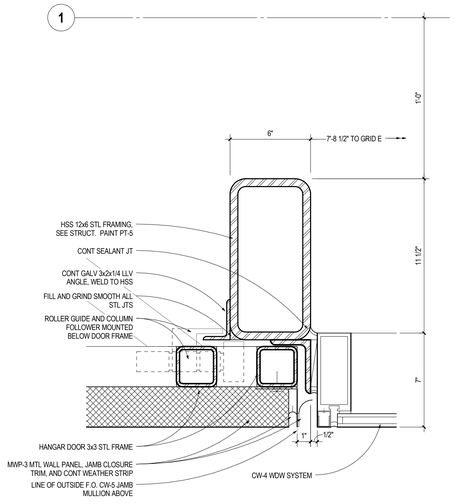
3D a4.26 **VERT MULLION AT CW-5**
SCALE: 3" = 1'-0"



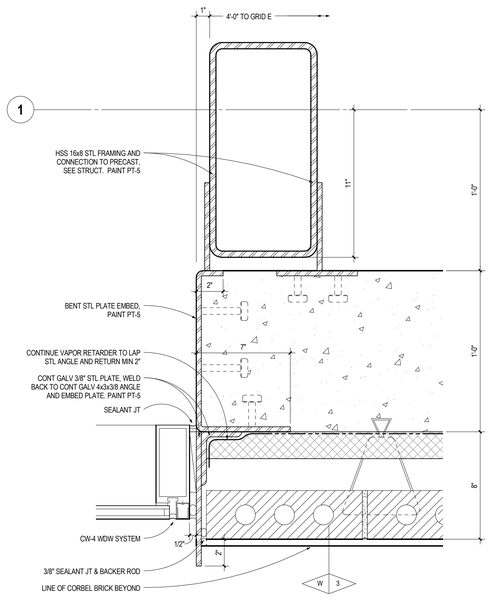
2D a4.26 **HANGAR DOOR - MTL PANEL HEAD**
SCALE: 3" = 1'-0"



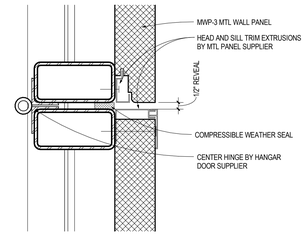
7F a4.26 **PLAN - EAST JAMB AT HANGAR DOOR**
SCALE: 3" = 1'-0"



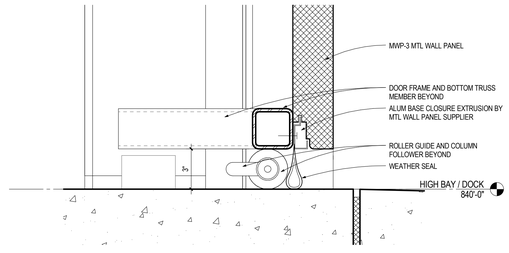
5F a4.26 **PLAN - WEST JAMB AT HANGAR DOOR**
SCALE: 3" = 1'-0"



3F a4.26 **PLAN - WEST JAMB AT CW-4**
SCALE: 3" = 1'-0"



2E a4.26 **HANGAR DOOR - MTL PANEL AT CENTER HINGE**
SCALE: 3" = 1'-0"



2F a4.26 **HANGAR DOOR - BASE**
SCALE: 3" = 1'-0"

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For *Architectural Alliance*

By

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Date 02-24-2012 Reg. No. 14703

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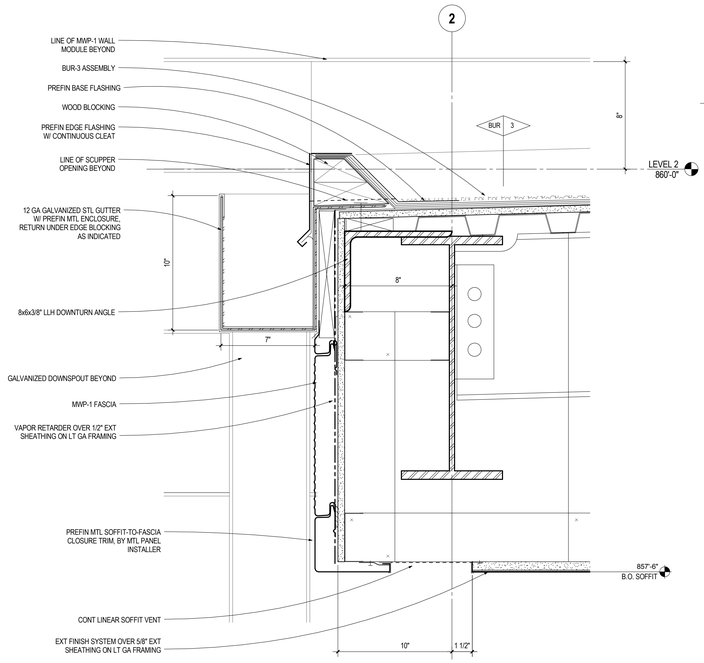
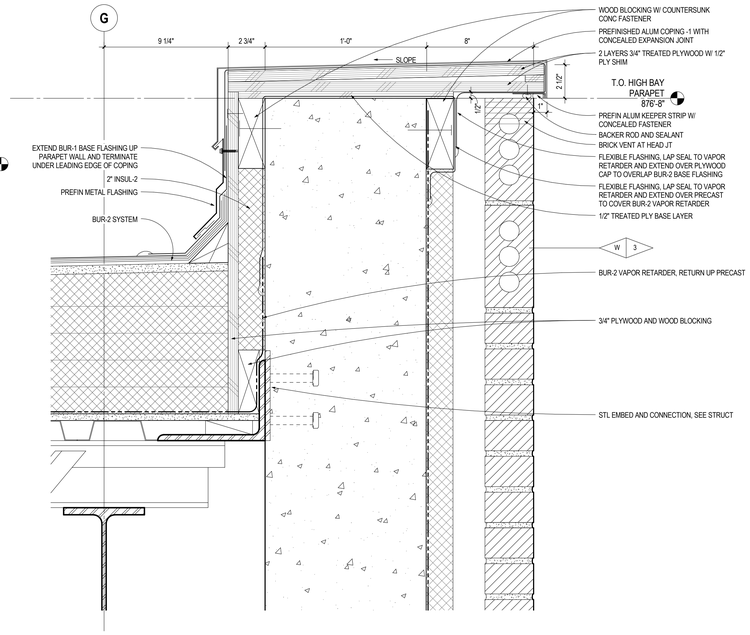
EXTERIOR DETAILS - HANGAR DOOR

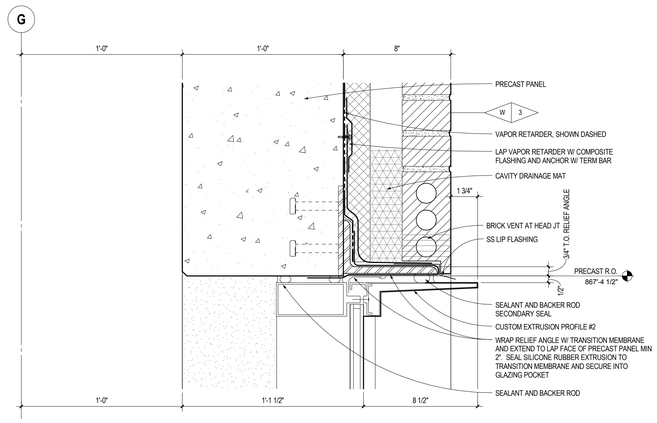
a4.26



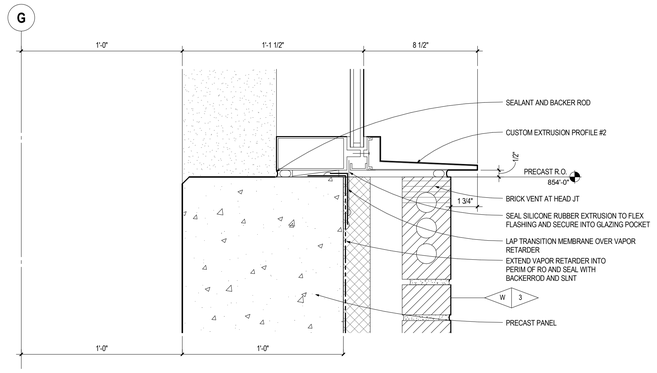
1B a4.27 **ROOF EDGE AT TANK YARD CANOPY**
SCALE: 3" = 1'-0"



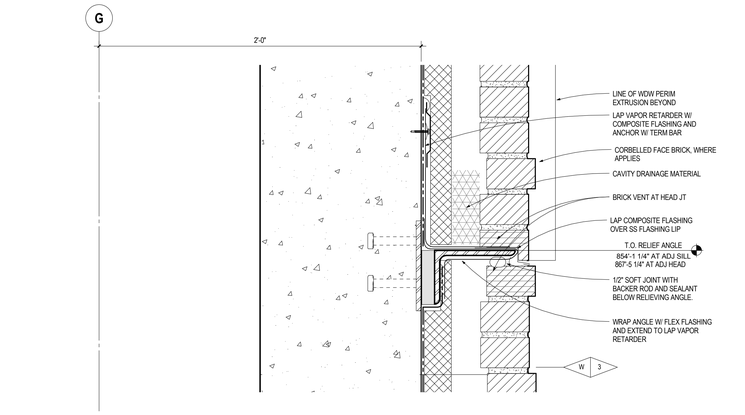
5B a4.27 **PARAPET AT HIGH BAY**
SCALE: 3" = 1'-0"



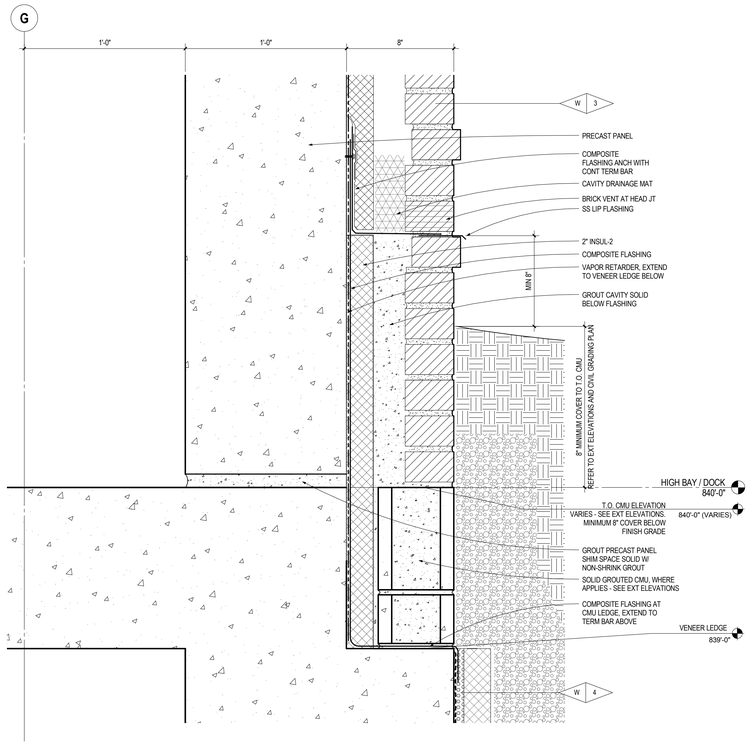
3A a4.27 **HEAD AT HIGH BAY WDW**
SCALE: 3" = 1'-0"



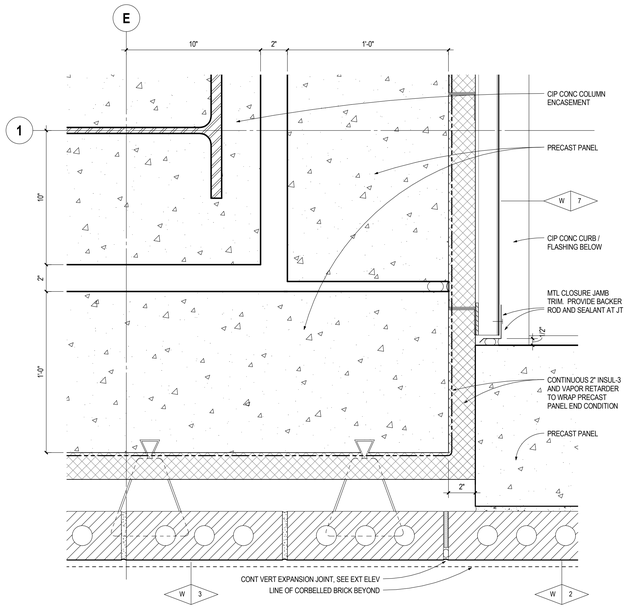
3C a4.27 **SILL AT HIGH BAY WDW**
SCALE: 3" = 1'-0"



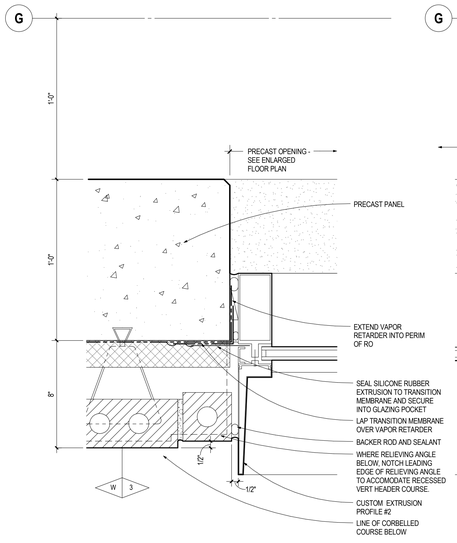
5D a4.27 **SECTION - RELIEF ANGLE AT HIGH BAY**
SCALE: 3" = 1'-0"



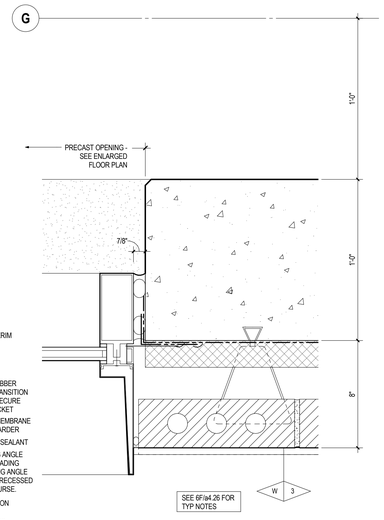
3F a4.27 **BASE AT HIGH BAY**
SCALE: 3" = 1'-0"



7E a4.27 **PLAN - HIGHBAY NW CORNER**
SCALE: 3" = 1'-0"



6F a4.27 **PLAN - SOUTH JAMB AT HIGH BAY WDW**
SCALE: 3" = 1'-0"



5F a4.27 **PLAN - NORTH JAMB AT HIGH BAY WDW**
SCALE: 3" = 1'-0"

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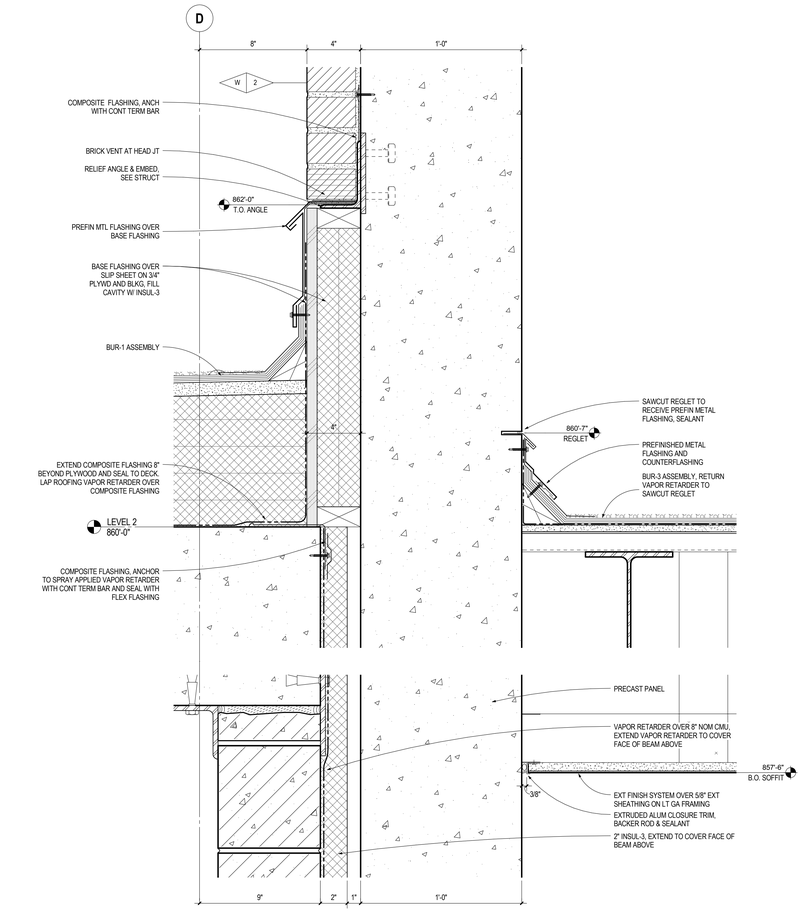
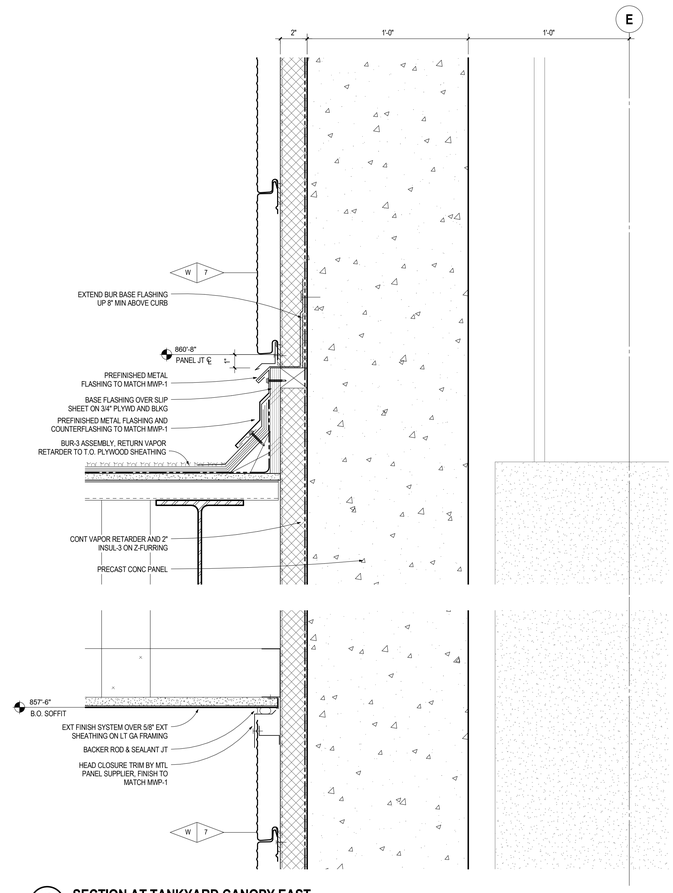
EXTERIOR DETAILS - HIGH BAY & TANK YARD

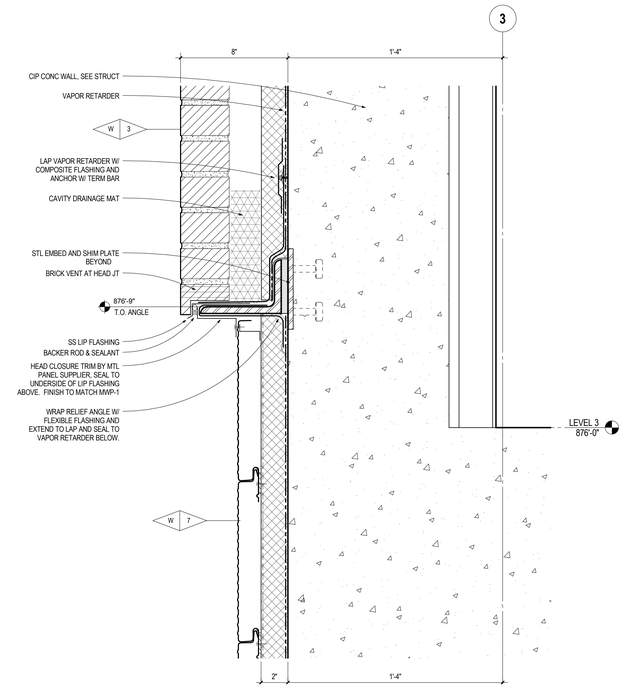
a4.27



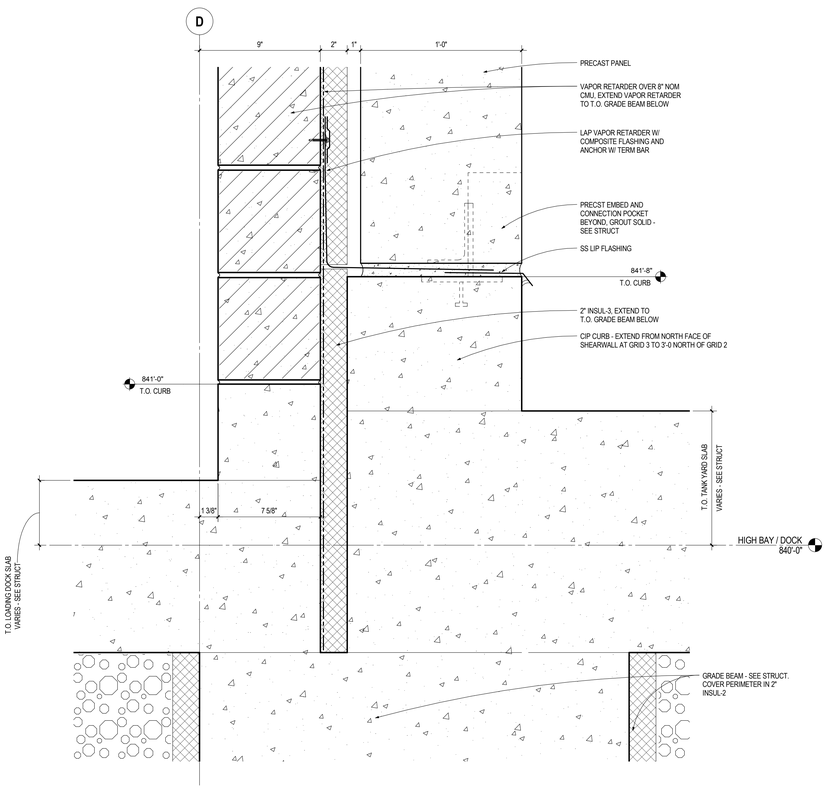
7C a4.28 **SECTION AT TANK YARD CANOPY WEST**
SCALE: 3" = 1'-0"



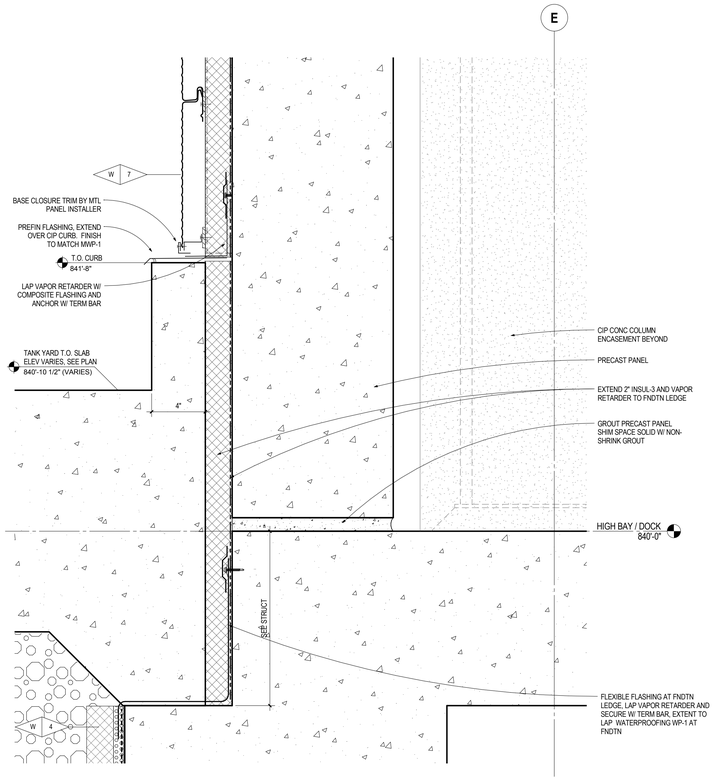
4C a4.28 **SECTION AT TANKYARD CANOPY EAST**
SCALE: 3" = 1'-0"



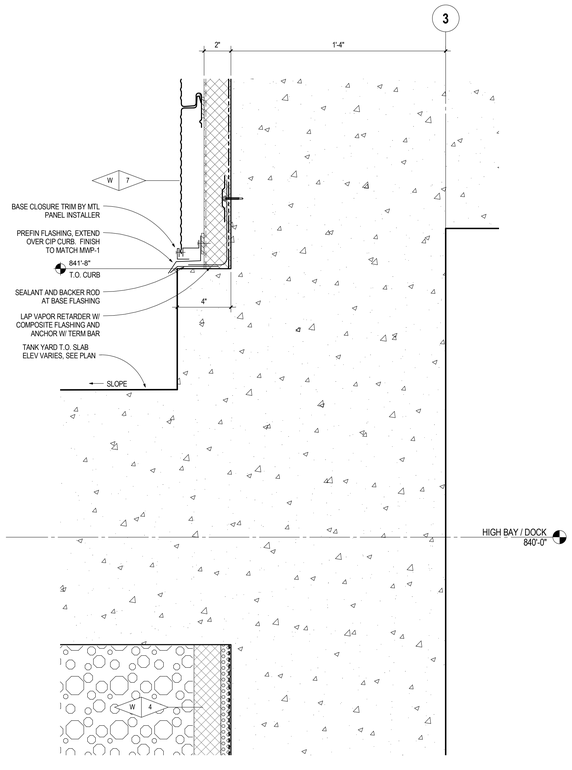
1C a4.28 **SECTION AT TANK YARD SOUTH**
SCALE: 3" = 1'-0"



7F a4.28 **BASE AT TANKYARD WEST**
SCALE: 3" = 1'-0"



4F a4.28 **BASE AT HIGH BAY WEST**
SCALE: 3" = 1'-0"



1F a4.28 **BASE AT TANKYARD SOUTH**
SCALE: 3" = 1'-0"

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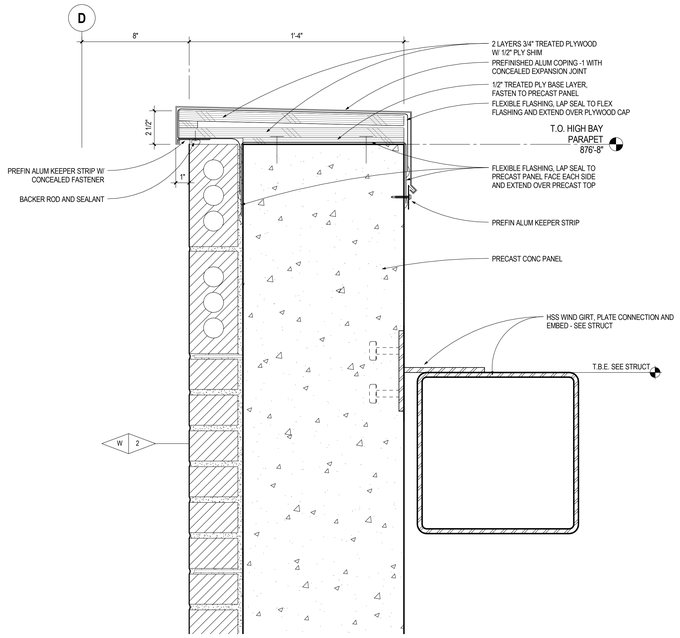
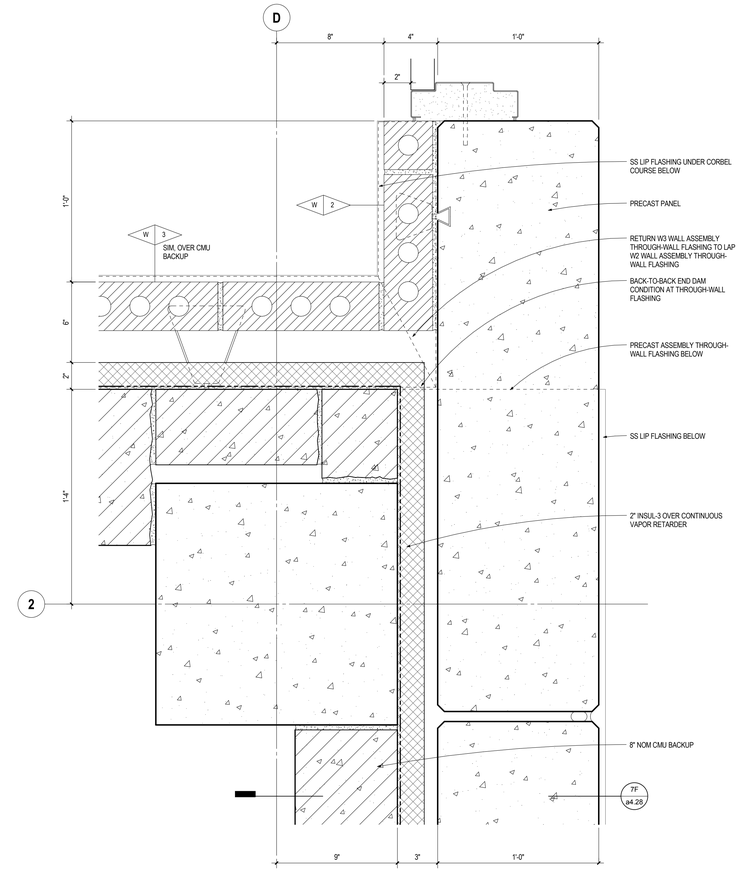
EXTERIOR DETAILS - TANK YARD

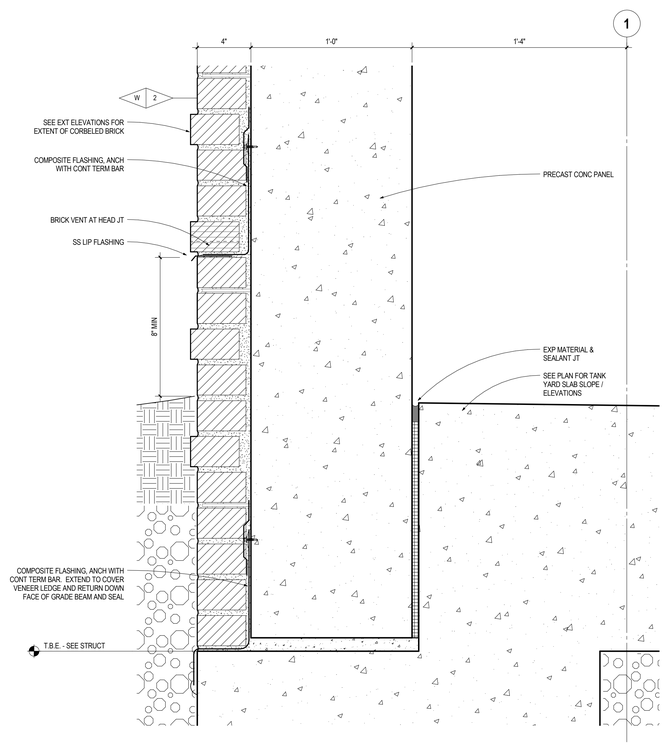
a4.28



4C a4.29 **SECTION AT TANK YARD NORTH/WEST PARAPET**
SCALE: 3" = 1'-0"



1C a4.29 **PLAN - TANKYARD WEST WALL**
SCALE: 3" = 1'-0"



4F a4.29 **BASE AT TANK YARD NORTH/WEST**
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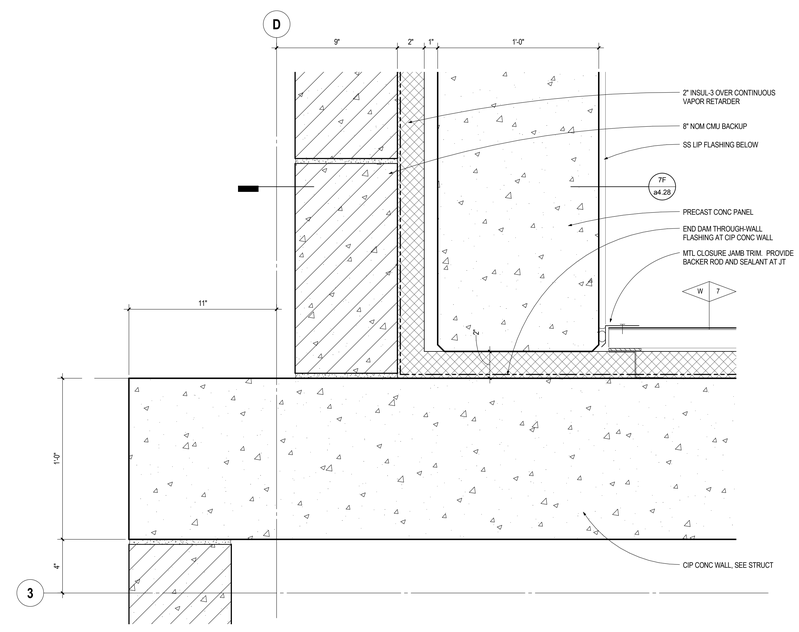

1F a4.29 **PLAN - TANKYARD WEST WALL**
SCALE: 3" = 1'-0"

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For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
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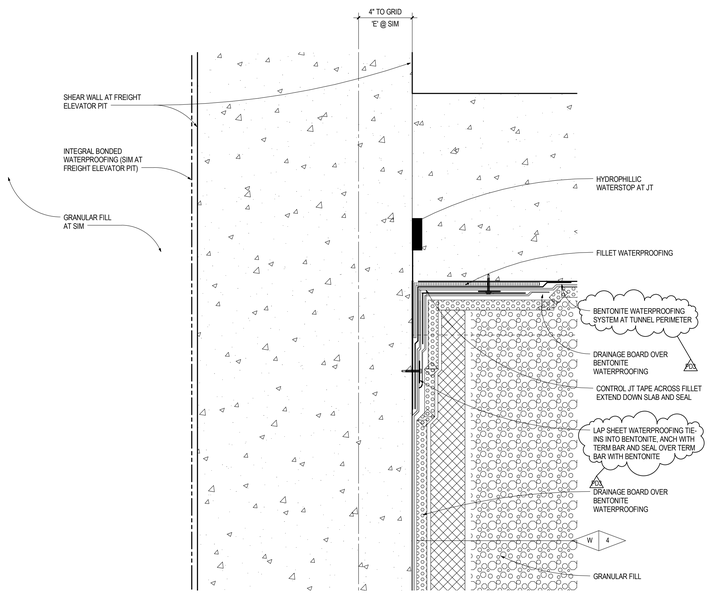
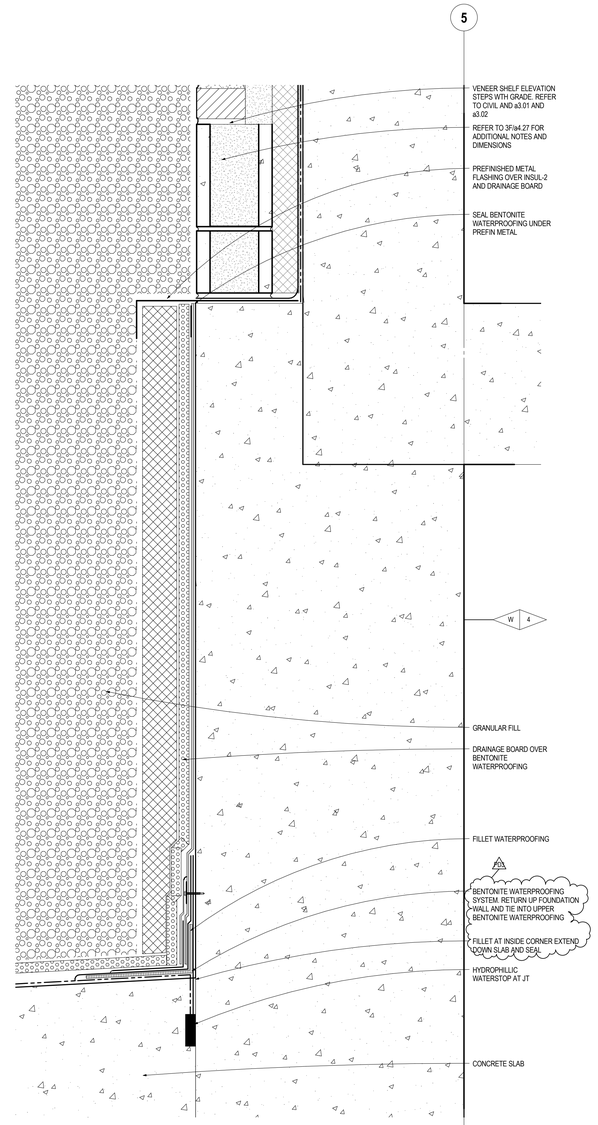
EXTERIOR DETAILS - TANK YARD

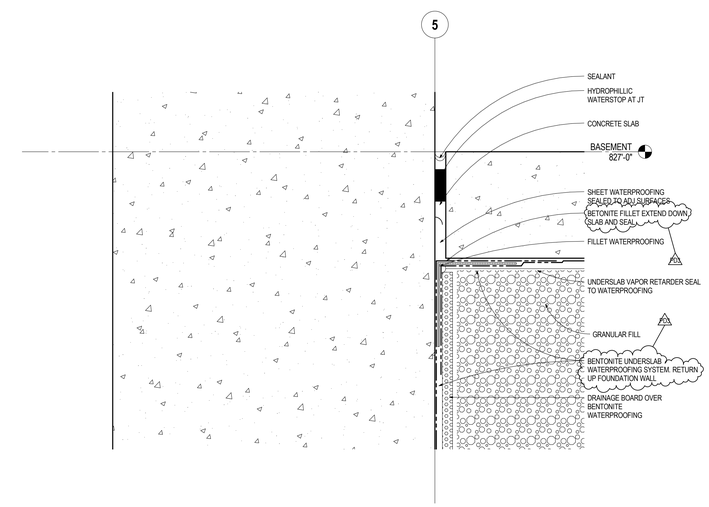
a4.29



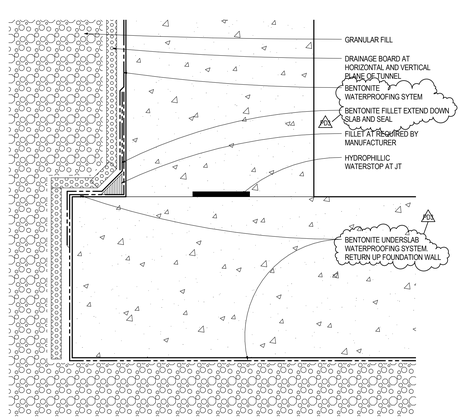
7C a4.30 **PLAN FOUNDATION TO TUNNEL WATERPROOFING**
SCALE: 3" = 1'-0"



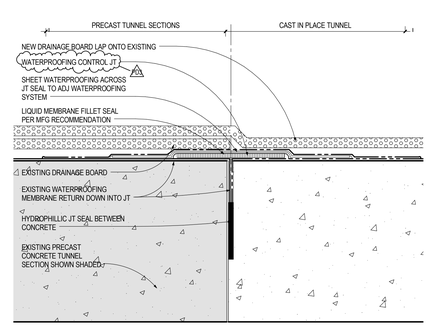
5D a4.30 **SECTION - WATERPROOFING AT CONC TUNNEL DECK TO WALL**
SCALE: 3" = 1'-0"



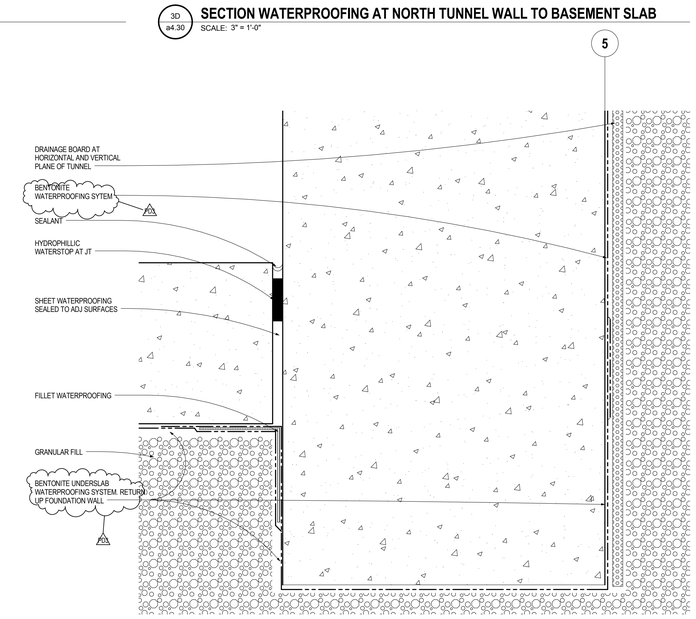
3D a4.30 **SECTION WATERPROOFING AT NORTH TUNNEL WALL TO BASEMENT SLAB**
SCALE: 3" = 1'-0"



7F a4.30 **SECTION - WATERPROOFING AT WALL TO SLAB**
SCALE: 3" = 1'-0"



6F a4.30 **SECTION - WATERPROOFING TIE-IN DETAIL AT PERIMETER OF TUNNEL**
SCALE: 3" = 1'-0"



3F a4.30 **SECTION - NORTH TUNNEL WALL WATERPROOFING**
SCALE: 3" = 1'-0"

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For *Architectural Alliance*

By

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Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
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Project Directive No. 3	05-11-2012

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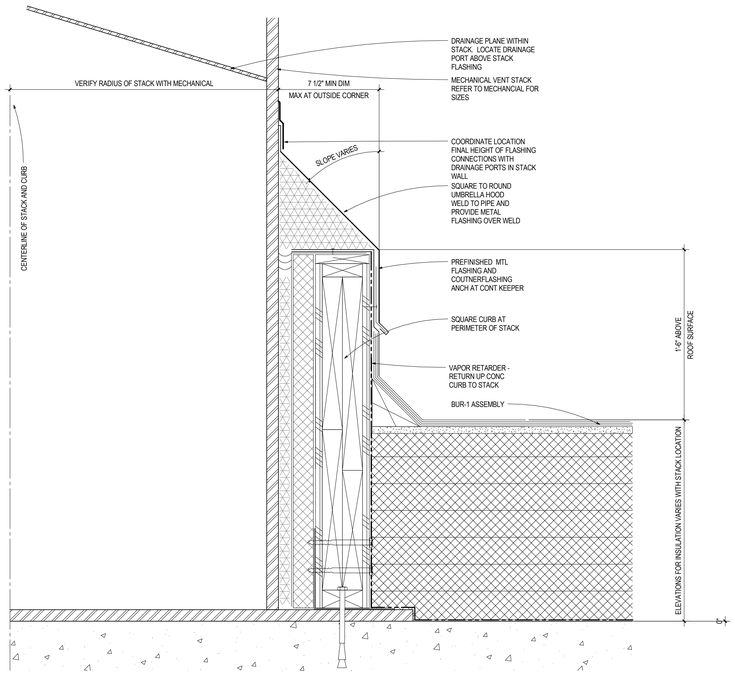
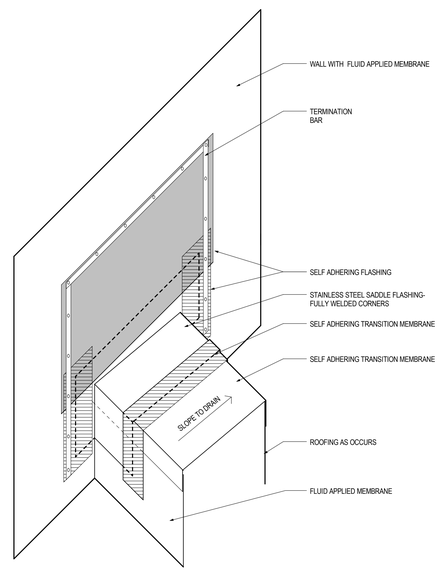
WATERPROOFING DETAILS

a4.30



7B a4.31 **VENT STACK DETAIL**
SCALE: 3" = 1'-0"



5B a4.31 **SADDLE FLASHING**
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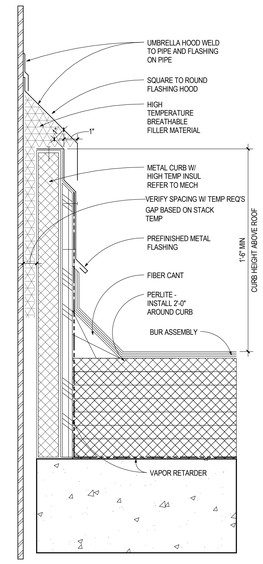
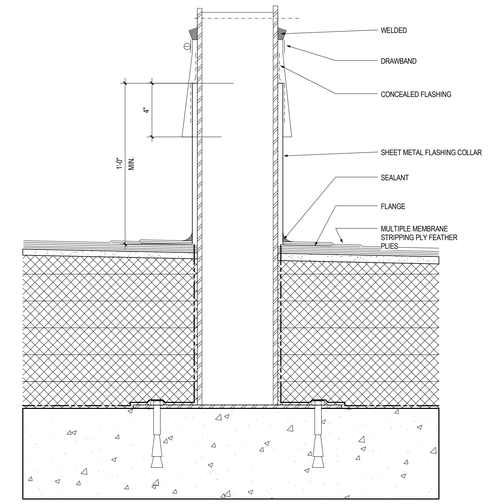
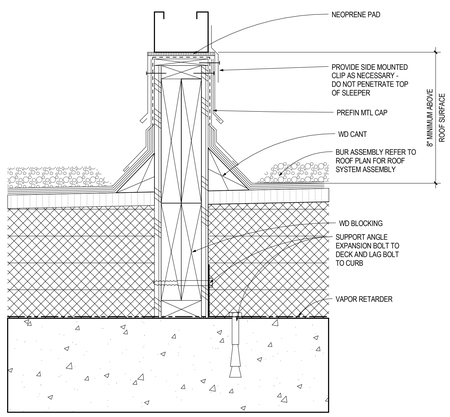


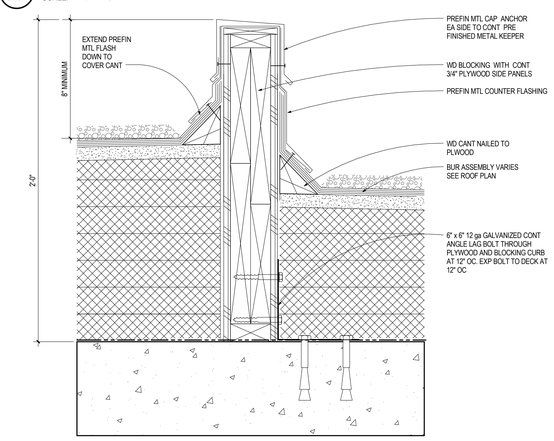
3B a4.31 **STEAM VENT STACK**
SCALE: 3" = 1'-0"



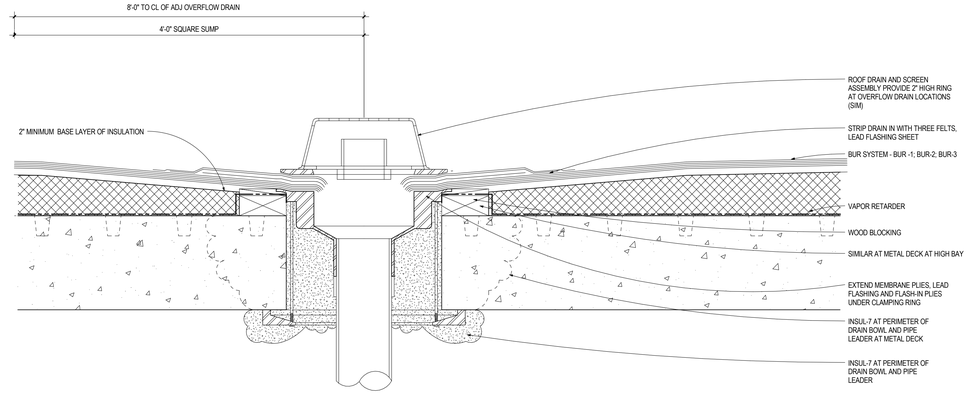
2B a4.31 **MECH EQUIP COL**
SCALE: 3" = 1'-0"



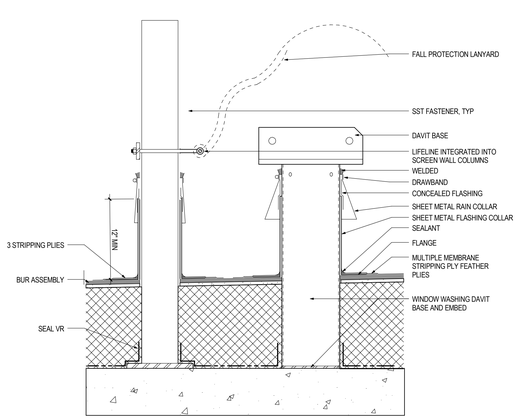
7D a4.31 **ROOF SLEEPER**
SCALE: 3" = 1'-0"



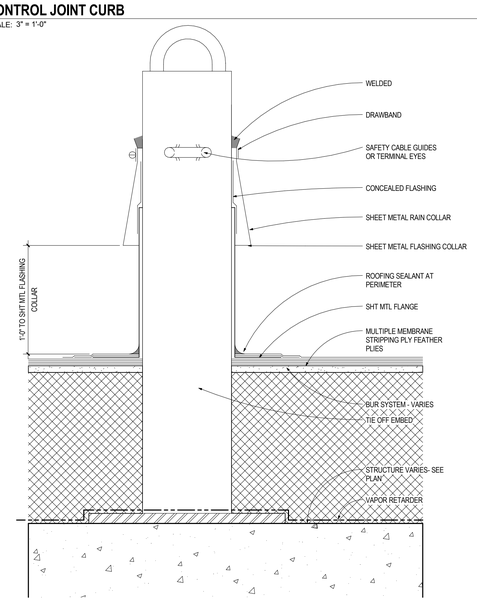
5D a4.31 **CONTROL JOINT CURB**
SCALE: 3" = 1'-0"



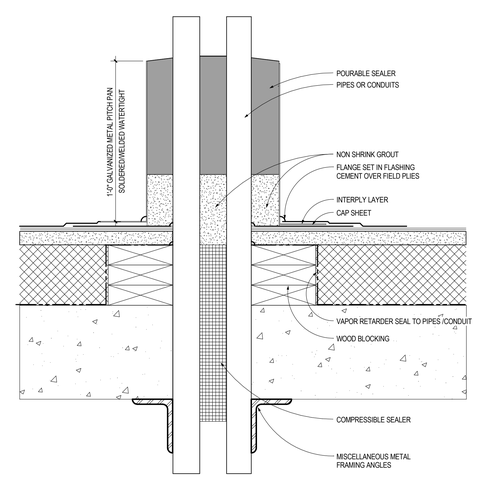
3D a4.31 **ROOF DRAIN SECTIONS**
SCALE: 3" = 1'-0"



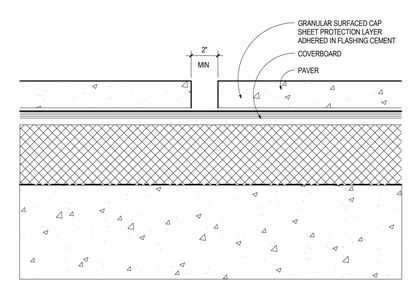
7F a4.31 **ROOF DAVIT**
SCALE: 1 1/2" = 1'-0"



5F a4.31 **ROOF TIE OFF**
SCALE: 3" = 1'-0"



3F a4.31 **PIPE PENETRATION PITCH POCKET**
SCALE: 3" = 1'-0"



1A a4.31 **CONCRETE WALKWAY PAVER**
SCALE: 3" = 1'-0"

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For *Architectural Alliance*

By

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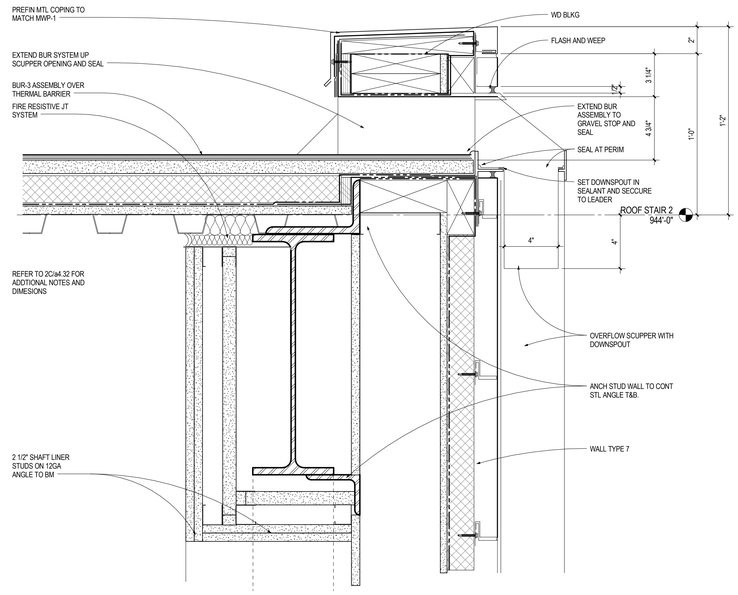
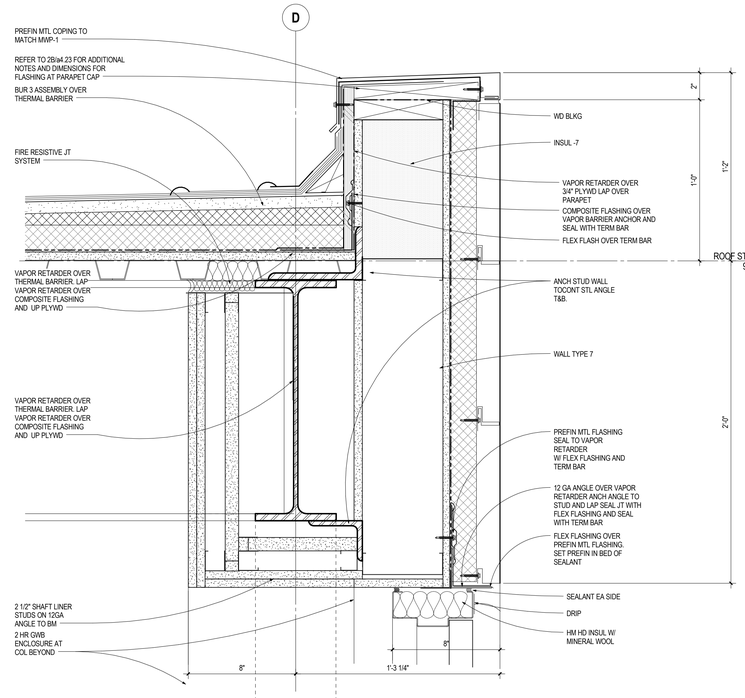
EXTERIOR DETAILS - TYPICAL ROOF DETAILS

a4.31



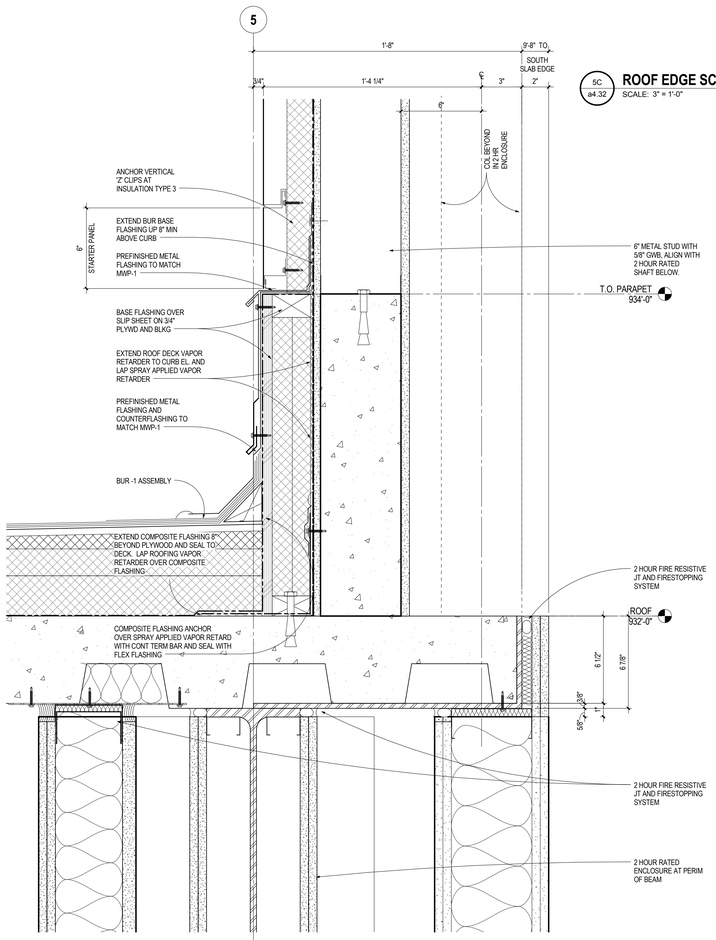
5C / a4.32 ROOF EDGE SCUPPER @ WALL TYPE 7 STAIR 2 ENCLOSURE

SCALE: 3" = 1'-0"



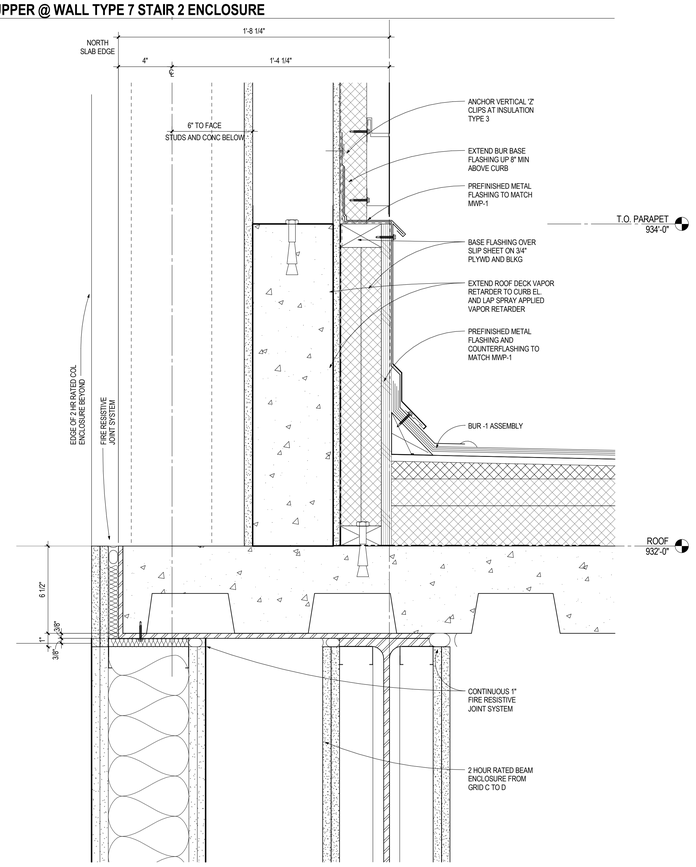
2C / a4.32 ROOF EDGE - 6-170.1 WALL TYPE 7 STAIR 2 ENCLOSURE

SCALE: 3" = 1'-0"



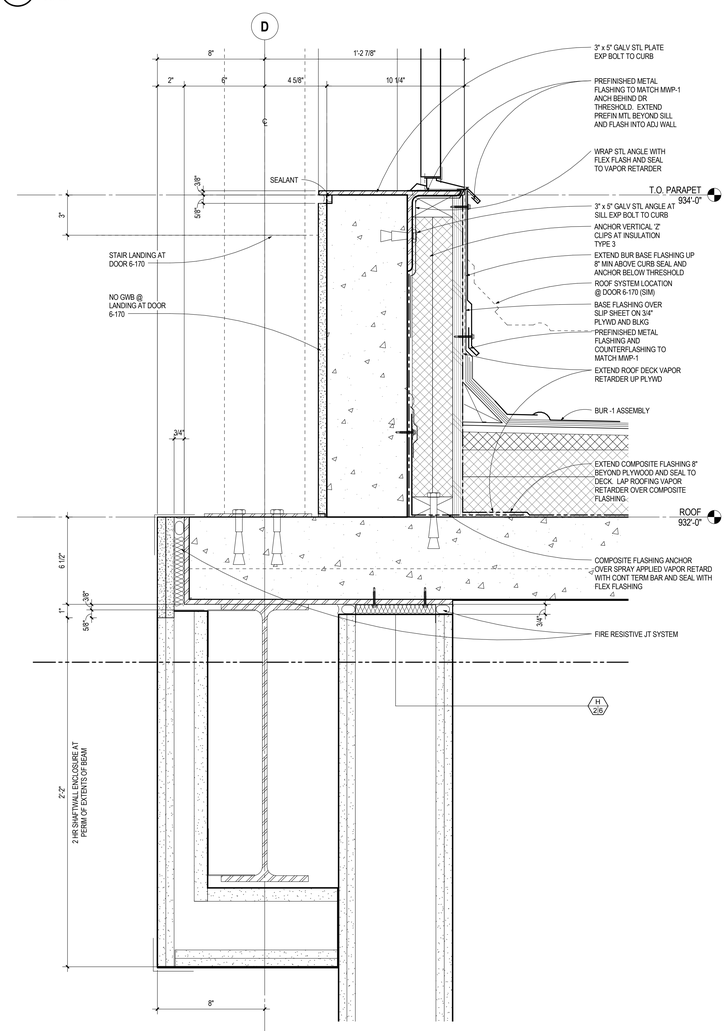
7F / a4.32 MWP-1 BASE AT ROOF DECK

SCALE: 3" = 1'-0"



4F / a4.32 MWP-1 BASE AT ROOF DECK

SCALE: 3" = 1'-0"



2F / a4.32 STAIR 2 - HOISTWAY ACCESS DOOR

SCALE: 3" = 1'-0"

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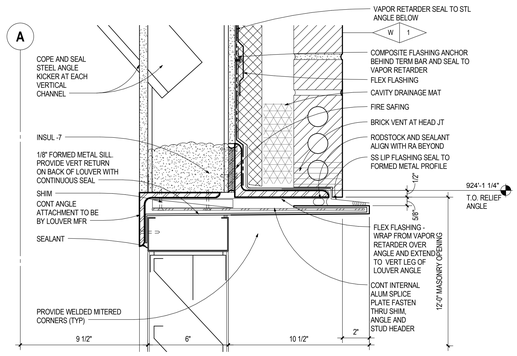
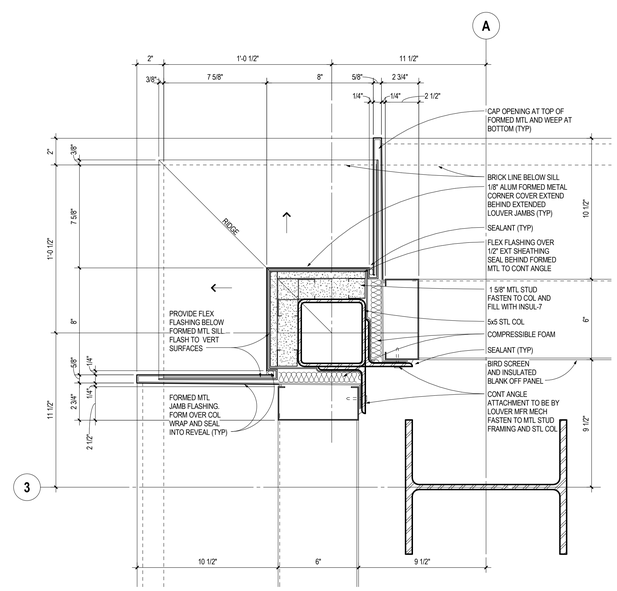
ROOF DETAILS

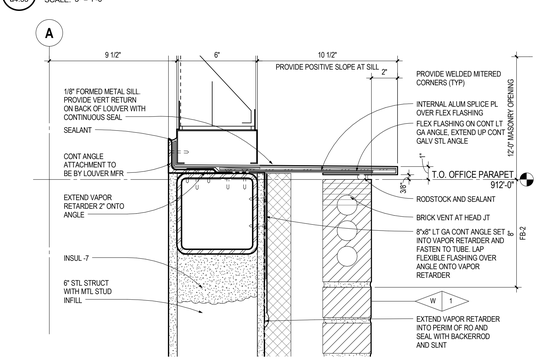
a4.32



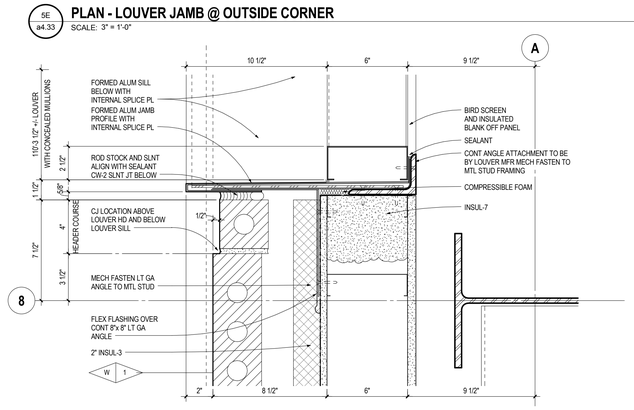
7E a4.33 **SECTION - LOUVER HEAD**
SCALE: 3" = 1'-0"



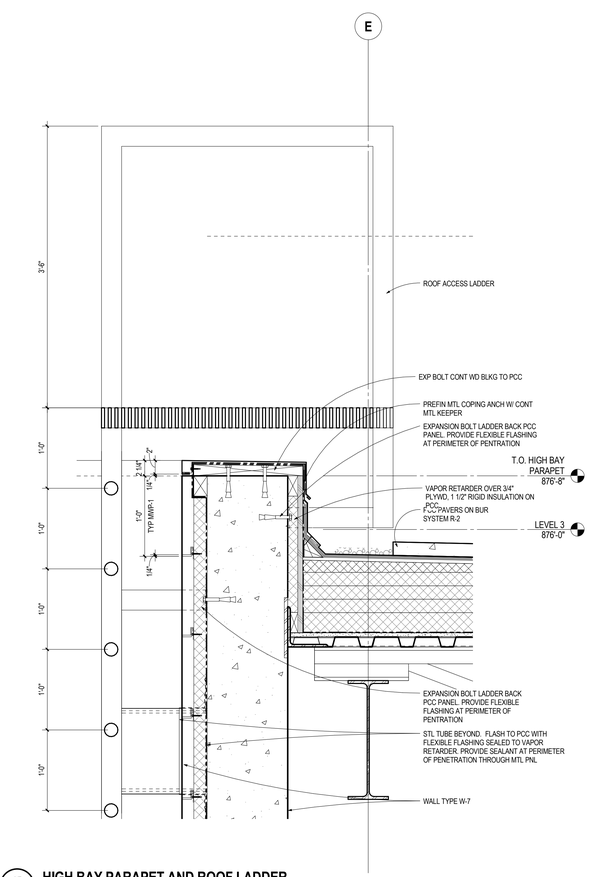
5E a4.33 **PLAN - LOUVER JAMB @ OUTSIDE CORNER**
SCALE: 3" = 1'-0"



7F a4.33 **SECTION - LOUVER SILL**
SCALE: 3" = 1'-0"



5F a4.33 **PLAN - LOUVER JAMB**
SCALE: 3" = 1'-0"



2F a4.33 **HIGH BAY PARAPET AND ROOF LADDER**
SCALE: 1 1/2" = 1'-0"

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ROOF DETAILS

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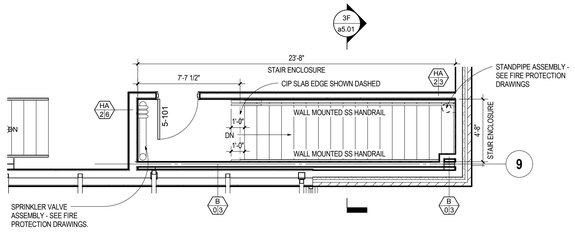
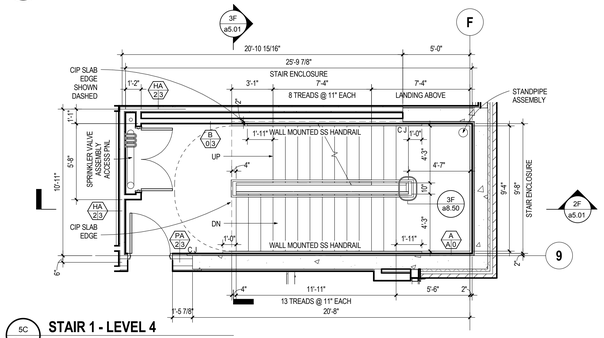
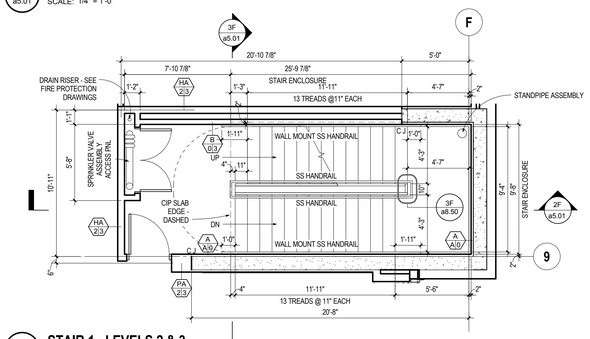


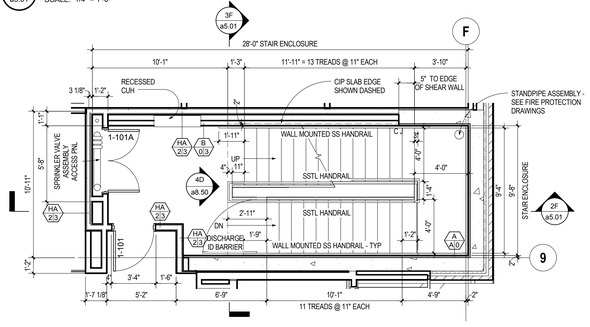
5B a5.01 **STAIR 1 - PENTHOUSE**
SCALE: 1/4" = 1'-0"



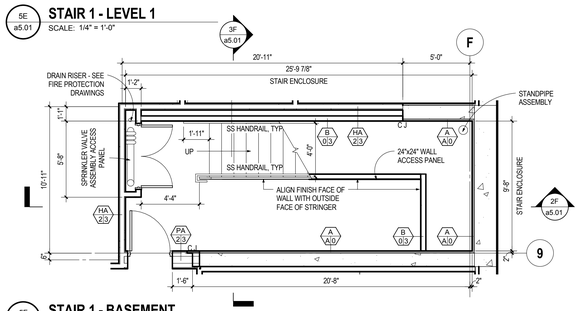
5C a5.01 **STAIR 1 - LEVEL 4**
SCALE: 1/4" = 1'-0"



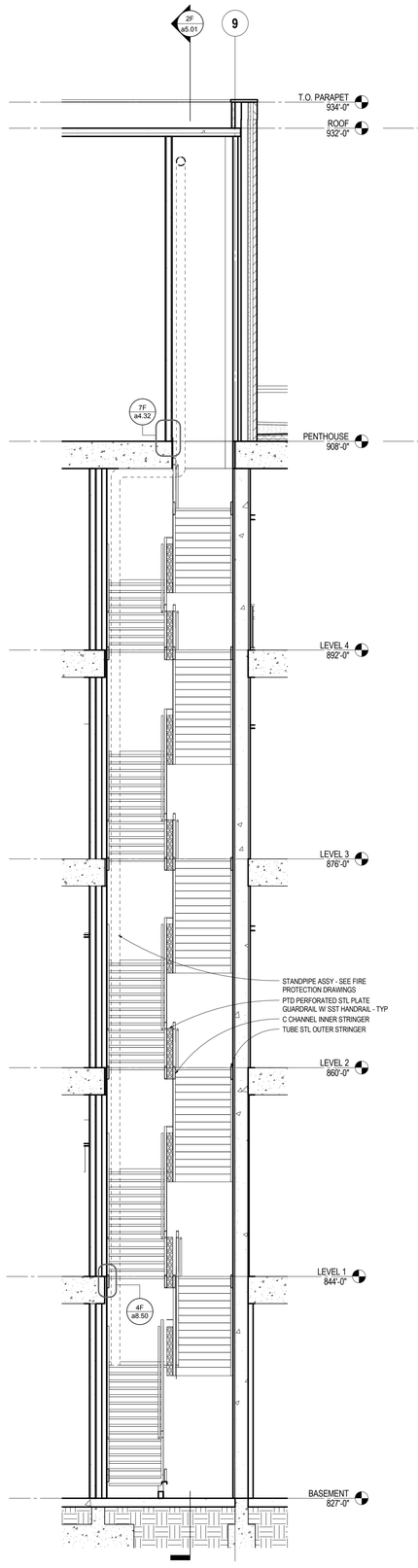
5D a5.01 **STAIR 1 - LEVELS 2 & 3**
SCALE: 1/4" = 1'-0"



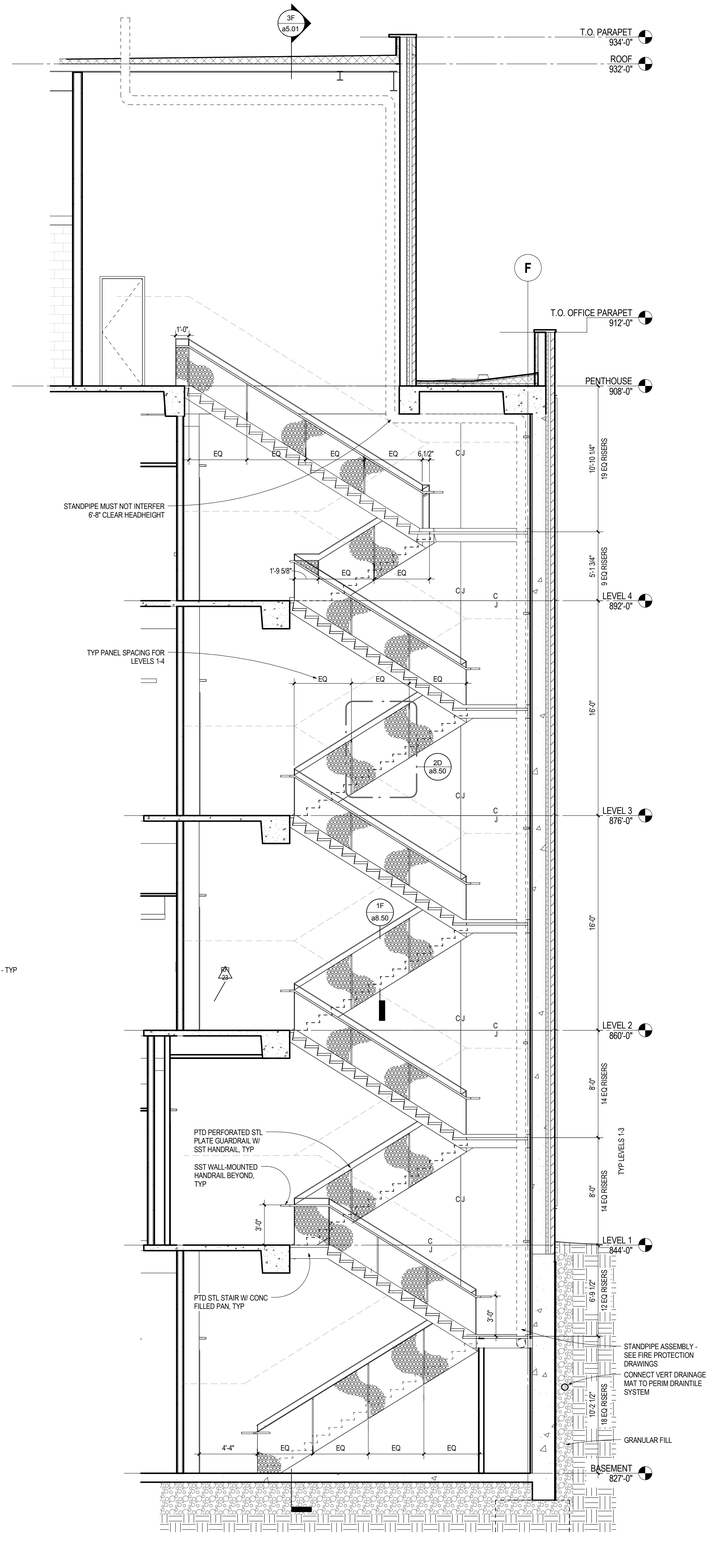
5E a5.01 **STAIR 1 - LEVEL 1**
SCALE: 1/4" = 1'-0"



5F a5.01 **STAIR 1 - BASEMENT**
SCALE: 1/4" = 1'-0"



3F a5.01 **STAIR 1 - TRANSVERSE SECTION**
SCALE: 1/4" = 1'-0"



2F a5.01 **STAIR 1 - SECTION**
SCALE: 1/4" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

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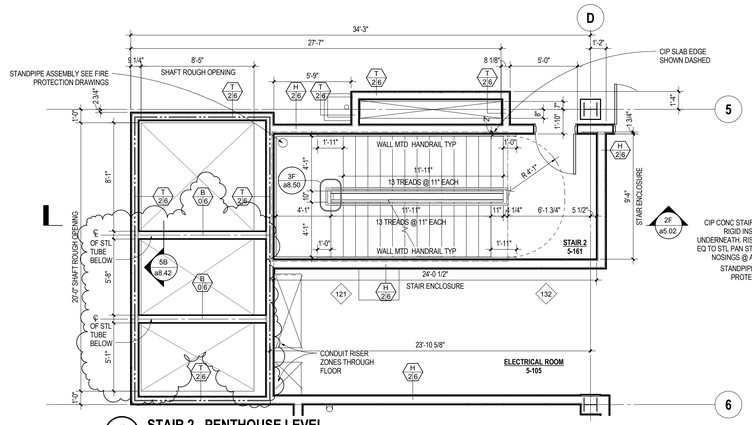
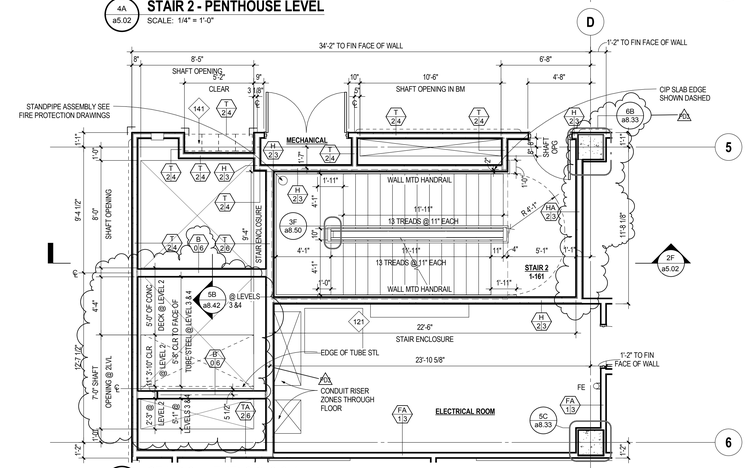
ENLARGED INTERIOR PLAN / ELEVATION / SECTION - STAIR NO. 1

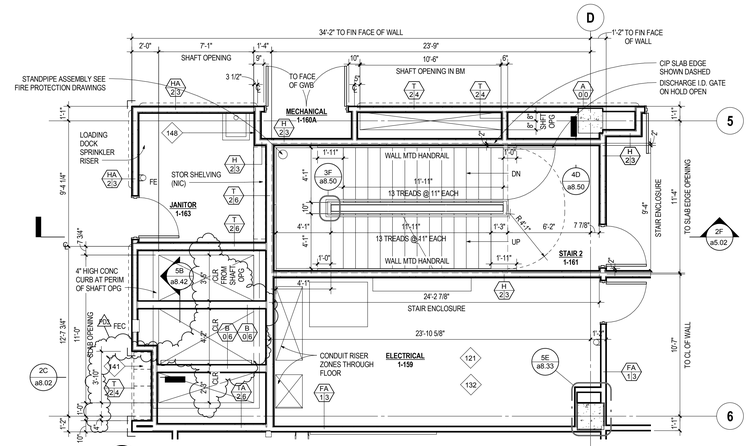
a5.01



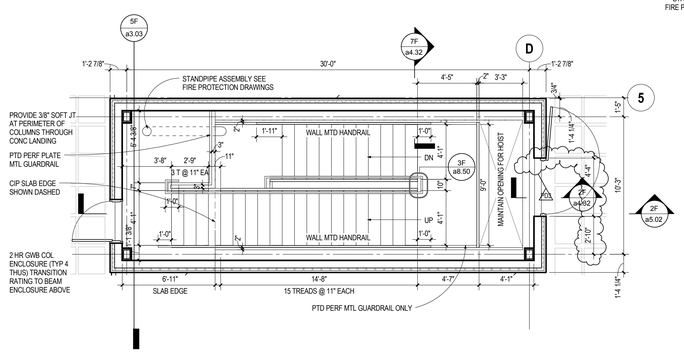
4A a5.02 **STAIR 2 - PENTHOUSE LEVEL**
SCALE: 1/4" = 1'-0"



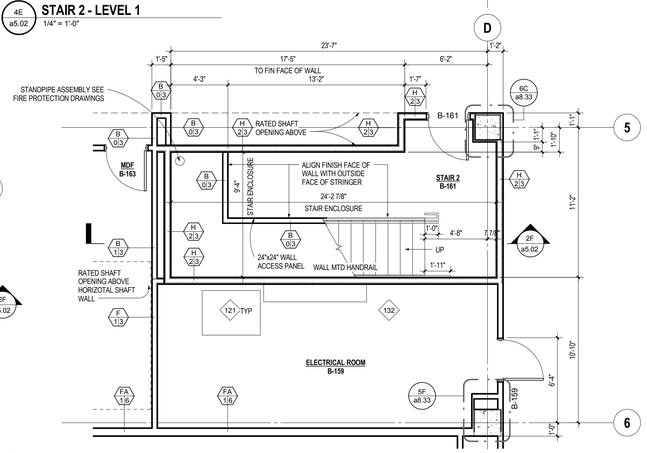
4C a5.02 **STAIR 2 - LEVELS 2, 3 & 4**
SCALE: 1/4" = 1'-0"



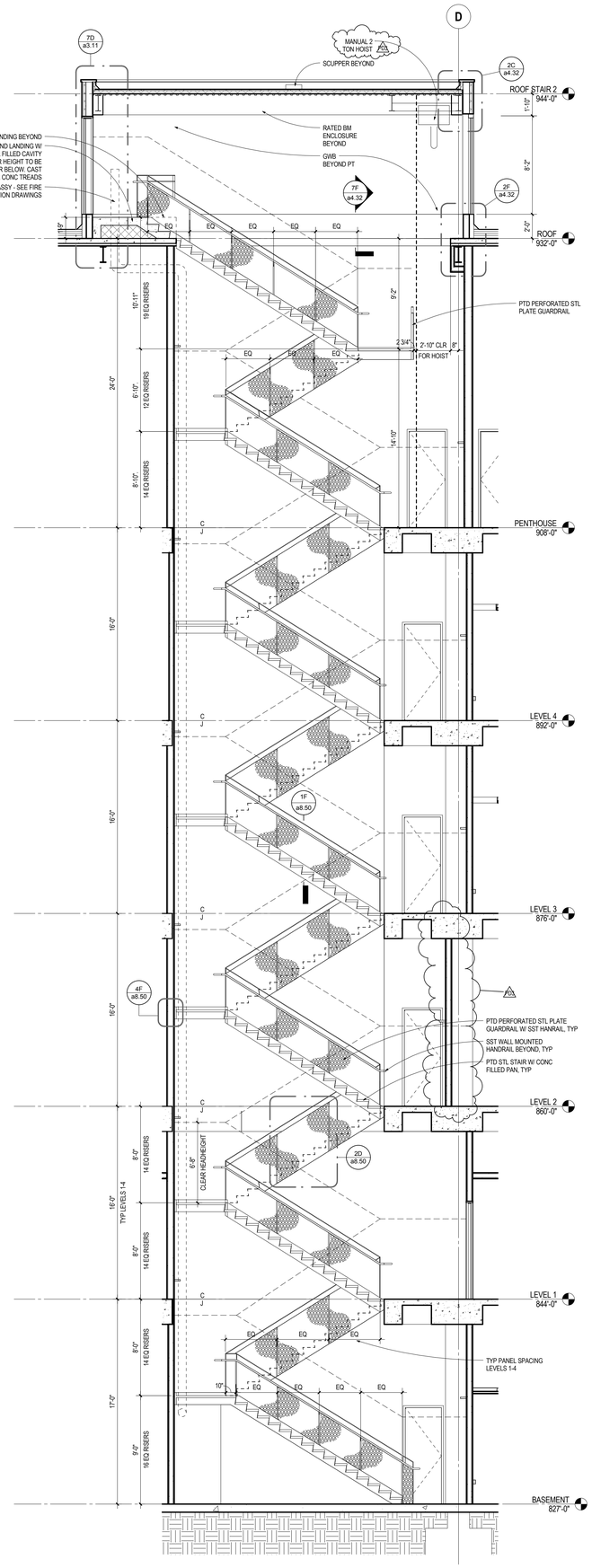
4E a5.02 **STAIR 2 - LEVEL 1**
1/4" = 1'-0"



6F a5.02 **STAIR 2 - ROOF**
SCALE: 1/4" = 1'-0"



4F a5.02 **STAIR 2 - BASEMENT**
SCALE: 1/4" = 1'-0"



2F a5.02 **SECTION AT STAIR 2**
SCALE: 1/4" = 1'-0"

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For Architectural Alliance

By

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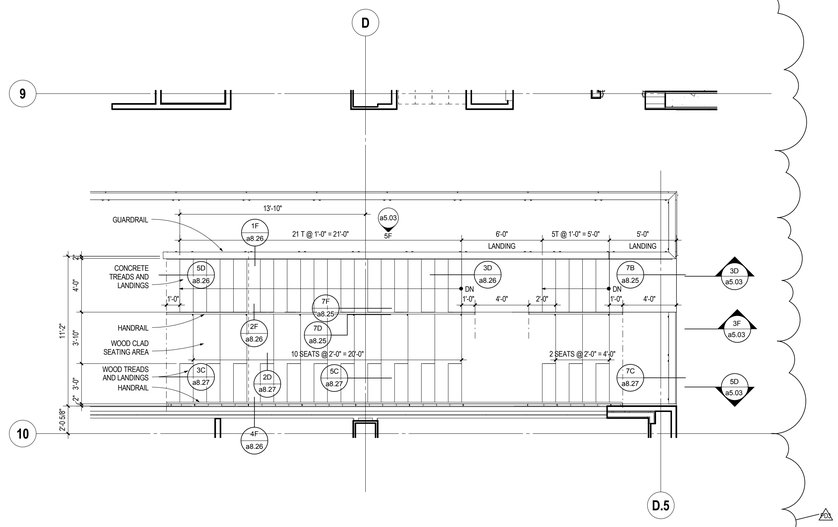
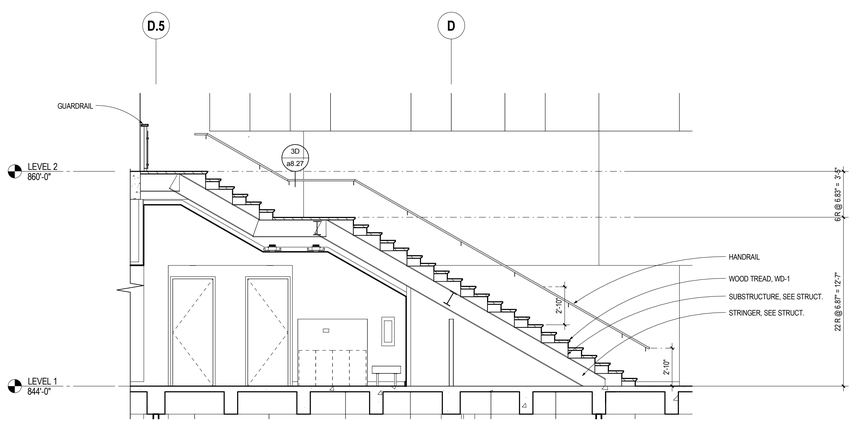
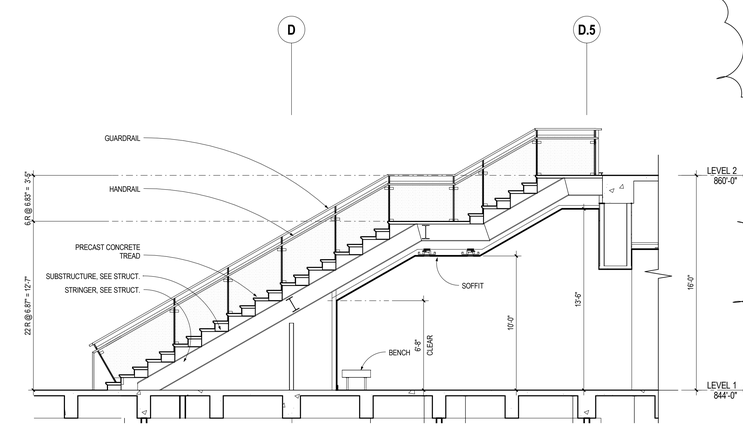
a5.02



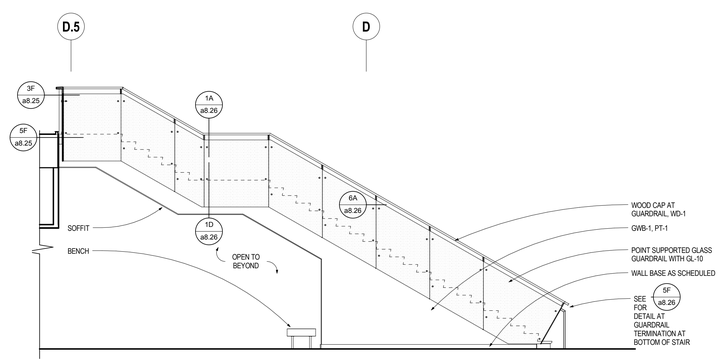
3B a5.03 **ENLARGED FLOOR PLAN - STAIR NO. 3**
SCALE: 1/4" = 1'-0"



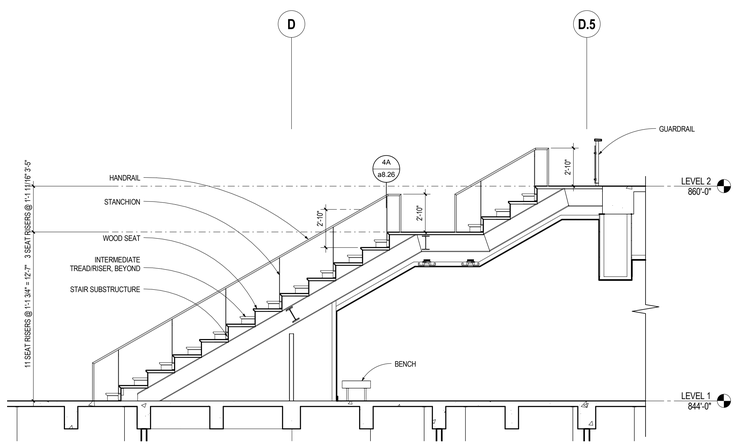
5D a5.03 **SECTION AT STAIR 3 SOUTH**
SCALE: 1/4" = 1'-0"



3D a5.03 **SECTION AT STAIR 3 NORTH**
SCALE: 1/4" = 1'-0"



5F a5.03 **ELEVATION - 1-100D/2-100D STAIR 3 NORTH**
SCALE: 1/4" = 1'-0"



3F a5.03 **SECTION AT STAIR 3 NORTH - SEATING AREA**
SCALE: 1/4" = 1'-0"

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a5.03

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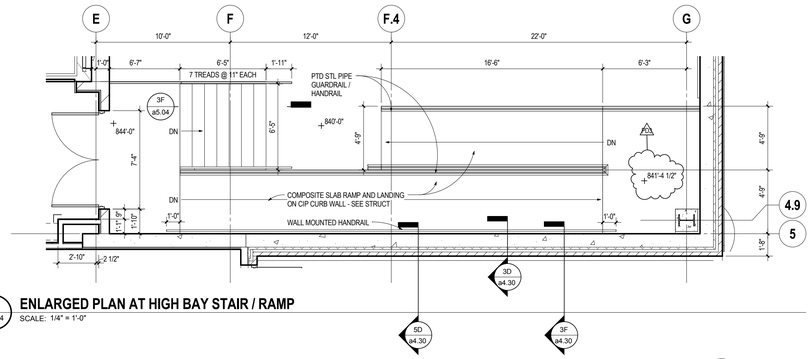
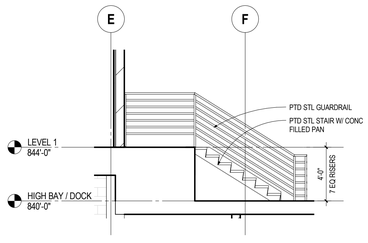
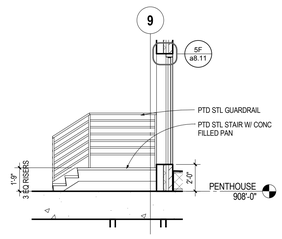


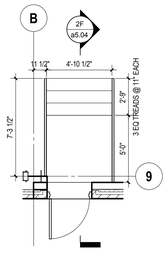
3E a5.04 **ENLARGED PLAN AT HIGH BAY STAIR / RAMP**
SCALE: 1/4" = 1'-0"



3F a5.04 **SECTION @ HIGH BAY STAIR**
SCALE: 1/4" = 1'-0"



2F a5.04 **PENTHOUSE ROOF ACCESS STAIR**
SCALE: 1/4" = 1'-0"



1F a5.04 **PENTHOUSE ROOF ACCESS STAIR**
SCALE: 1/4" = 1'-0"

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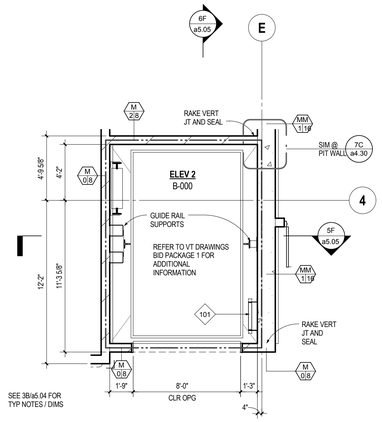
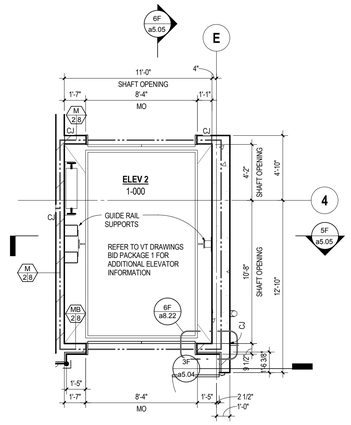
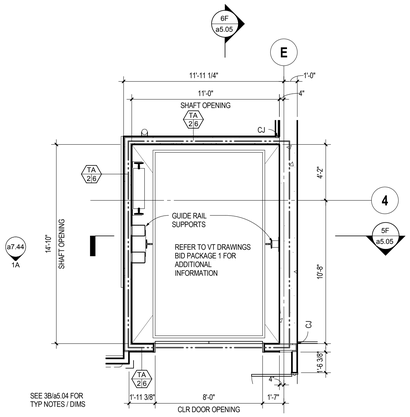
a5.04



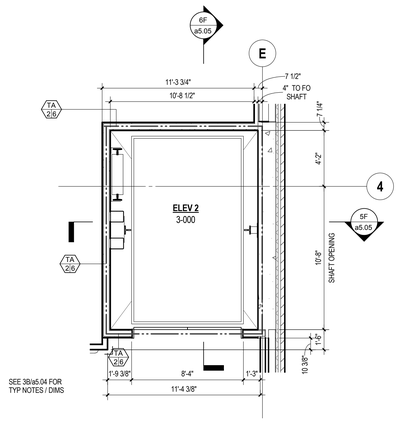
1B a5.05 **FREIGHT ELEV - BASEMENT**
SCALE: 1/4" = 1'-0"



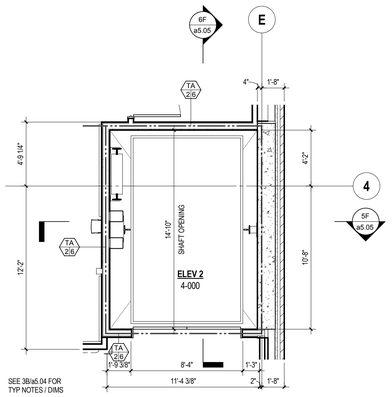
3B a5.05 **FREIGHT ELEV - LEVEL 1 / HIGH BAY**
SCALE: 1/4" = 1'-0"



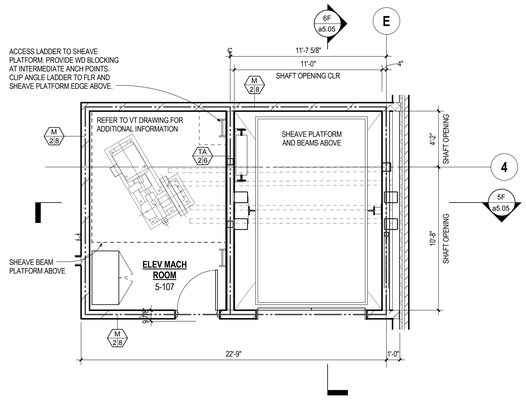
1C a5.05 **FREIGHT ELEV - LEVEL 2**
SCALE: 1/4" = 1'-0"



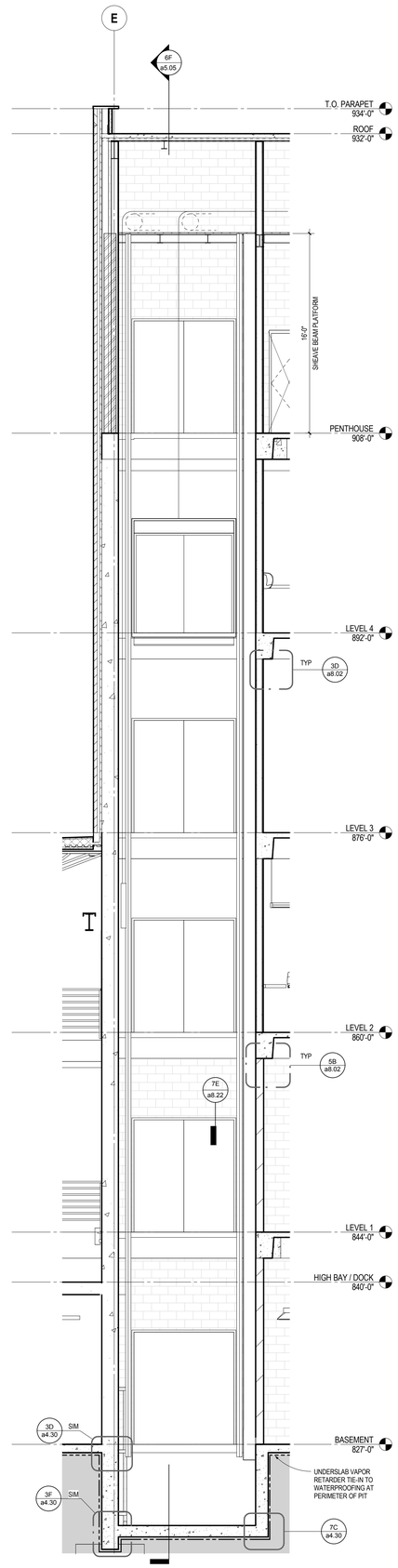
3C a5.05 **FREIGHT ELEV - LEVEL 3**
SCALE: 1/4" = 1'-0"



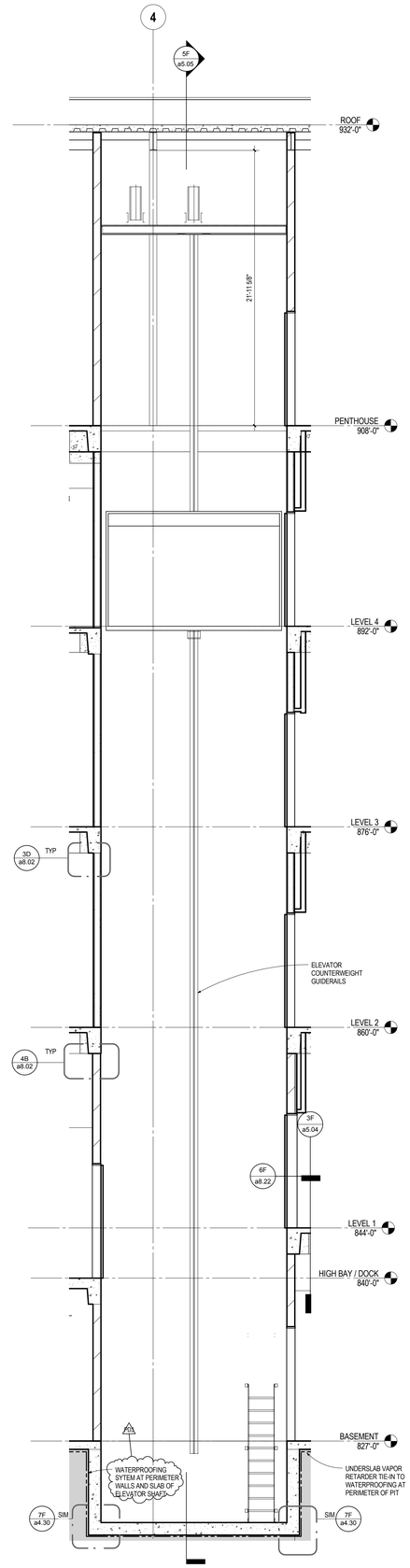
1E a5.05 **FREIGHT ELEV - LEVEL 4**
SCALE: 1/4" = 1'-0"



3E a5.05 **FREIGHT ELEV - PENTHOUSE**
SCALE: 1/4" = 1'-0"



5F a5.05 **E/W SECTION - FREIGHT ELEV**
SCALE: 1/4" = 1'-0"



6F a5.05 **N/S SECTION - FREIGHT ELEV**
SCALE: 1/4" = 1'-0"

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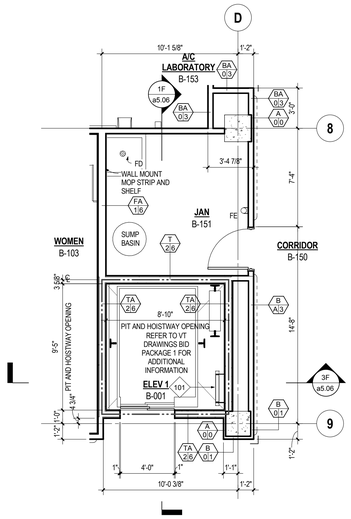
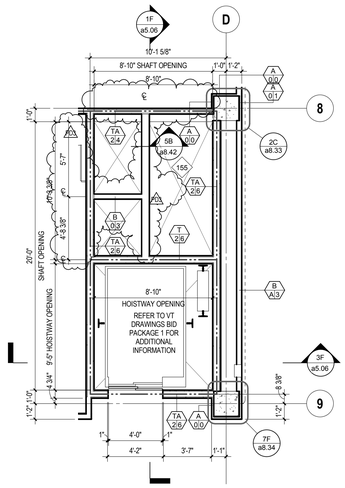
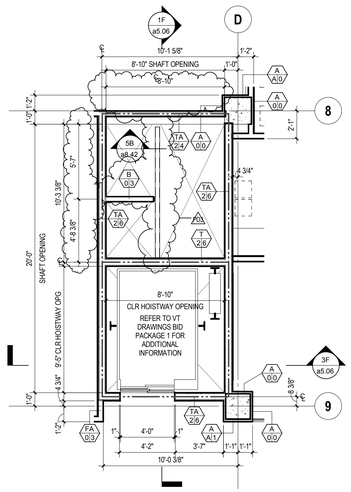


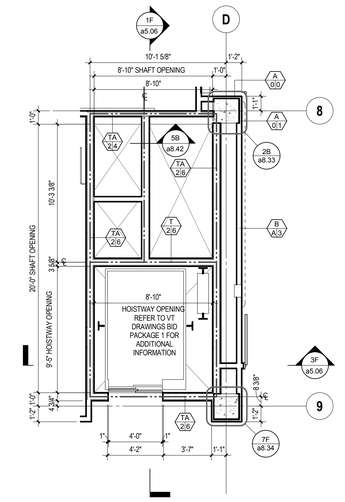
7B a5.06 **PASS ELEV - BASEMENT**
SCALE: 1/4" = 1'-0"



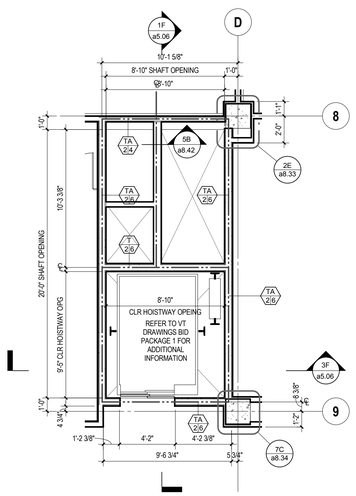
6B a5.06 **PASS ELEV - LEVEL 3**
SCALE: 1/4" = 1'-0"



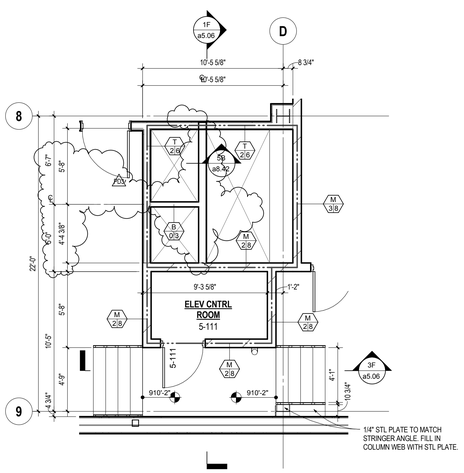
7D a5.06 **PASS ELEV - LEVEL 1**
SCALE: 1/4" = 1'-0"



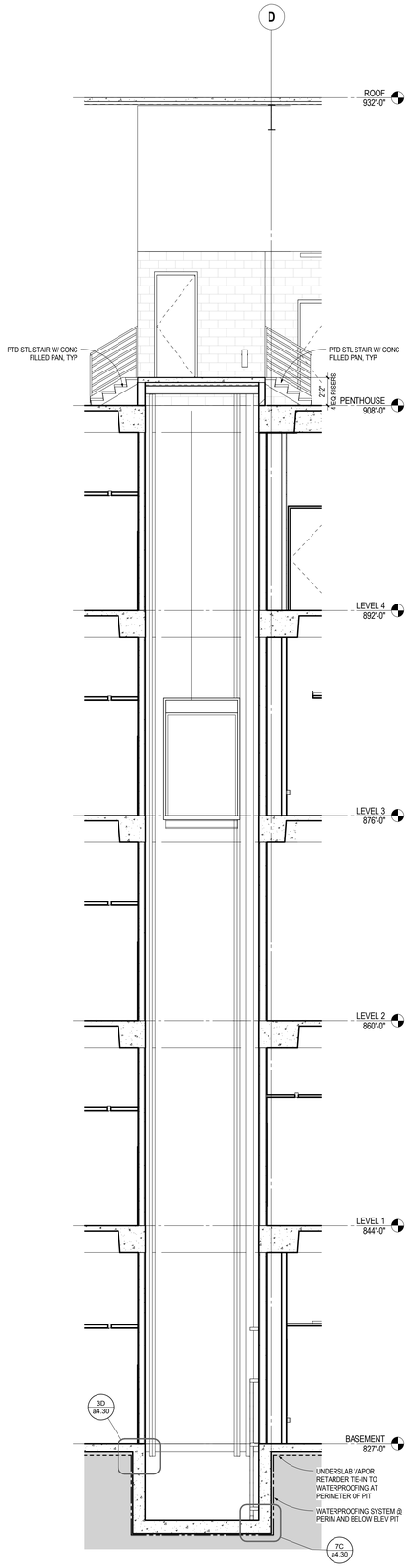
6D a5.06 **PASS ELEV - LEVEL 4**
SCALE: 1/4" = 1'-0"



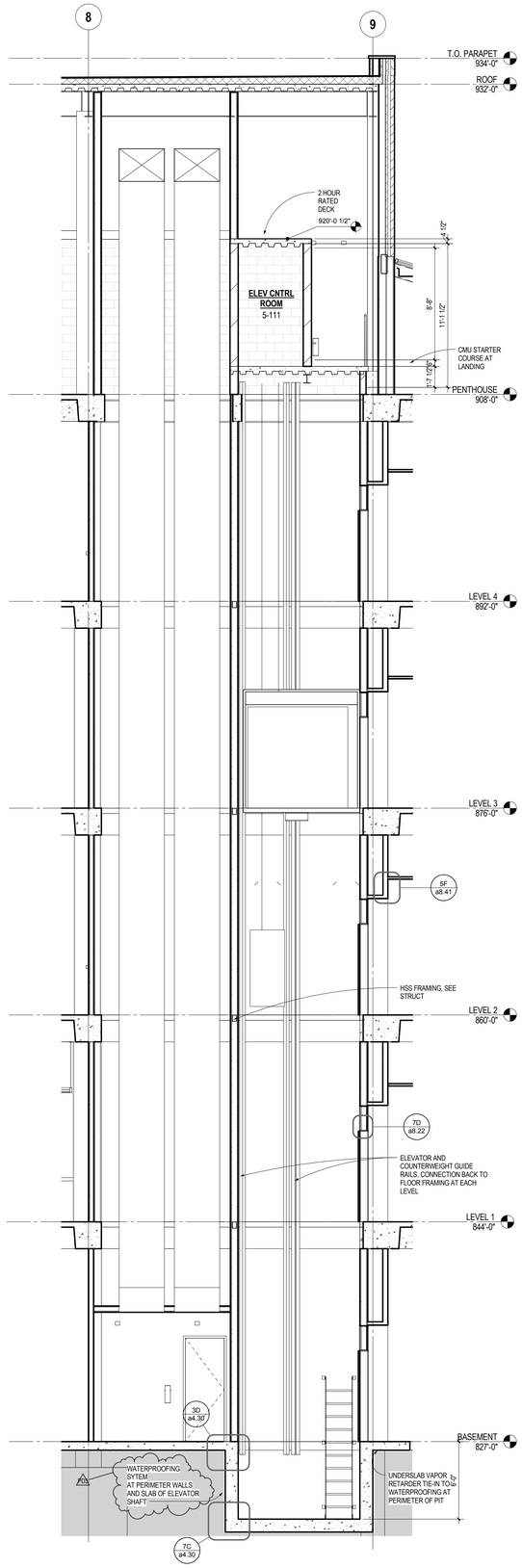
7F a5.06 **PASS ELEV - LEVEL 2**
SCALE: 1/4" = 1'-0"



6F a5.06 **PASS ELEV - PENTHOUSE**
SCALE: 1/4" = 1'-0"



3F a5.06 **E/W SECTION - PASS ELEV**
SCALE: 1/4" = 1'-0"



1F a5.06 **N/S SECTION - PASS ELEV**
SCALE: 1/4" = 1'-0"

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For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
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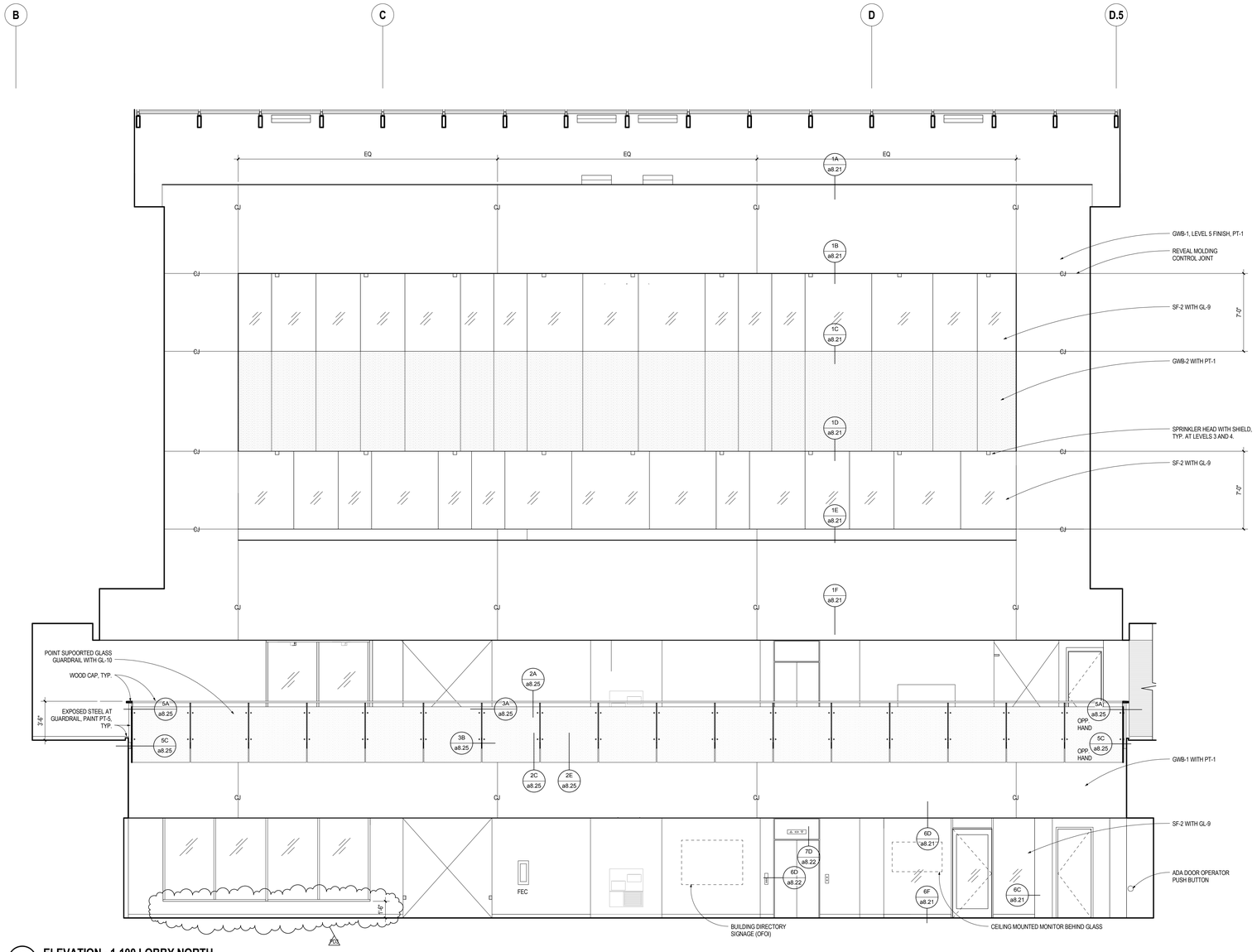
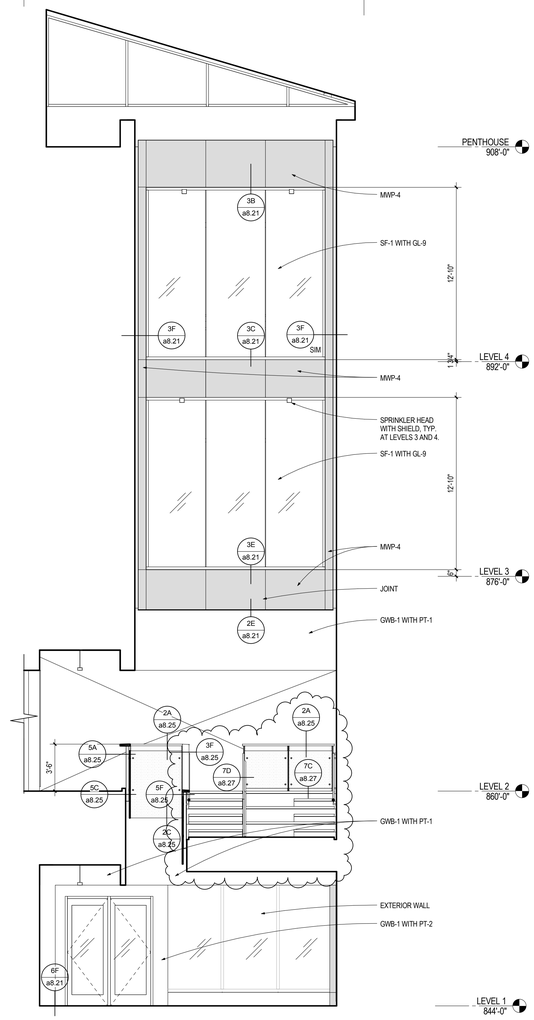
ENLARGED INTERIOR PLAN / ELEVATION / SECTION - PASSENGER ELEVATOR

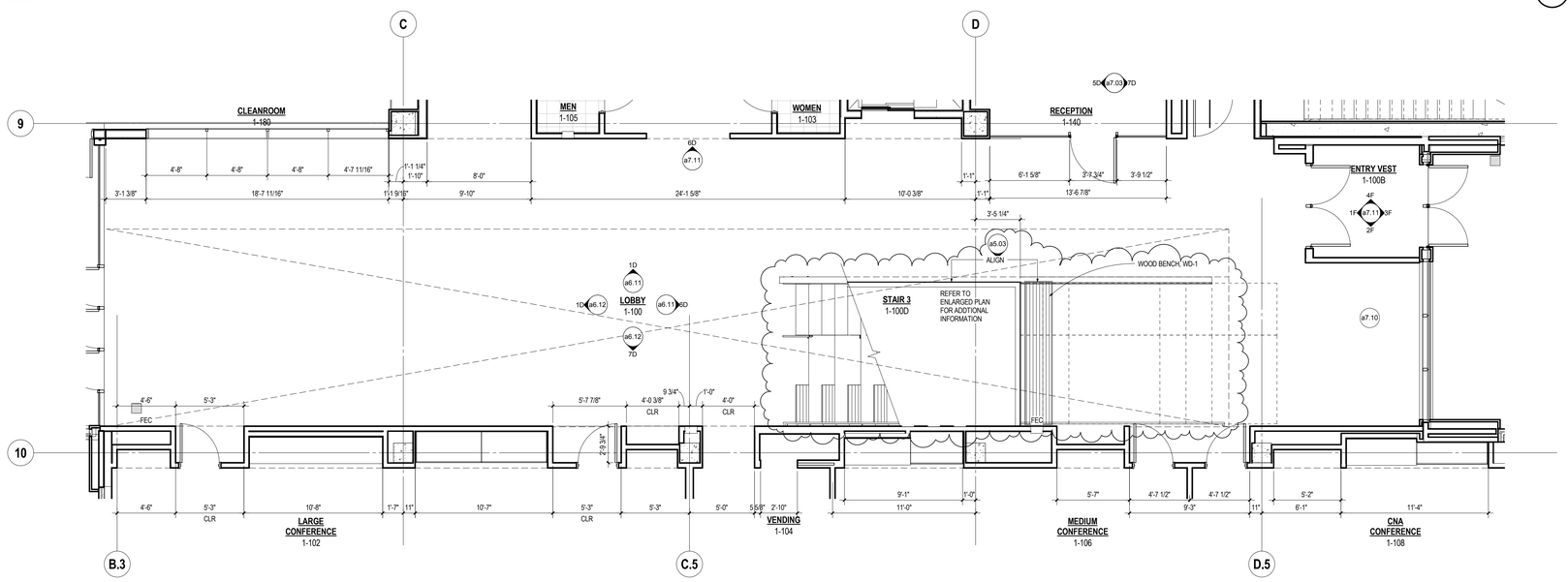
a5.06



1D a6.11 **ELEVATION - 1-100 LOBBY NORTH**
SCALE: 1/4" = 1'-0"



6D a6.11 **ELEVATION - 1-100 LOBBY EAST**
SCALE: 1/4" = 1'-0"



1F a6.11 **ENLARGED FLOOR PLAN - LOBBY LEVEL 1**
SCALE: 1/4" = 1'-0"

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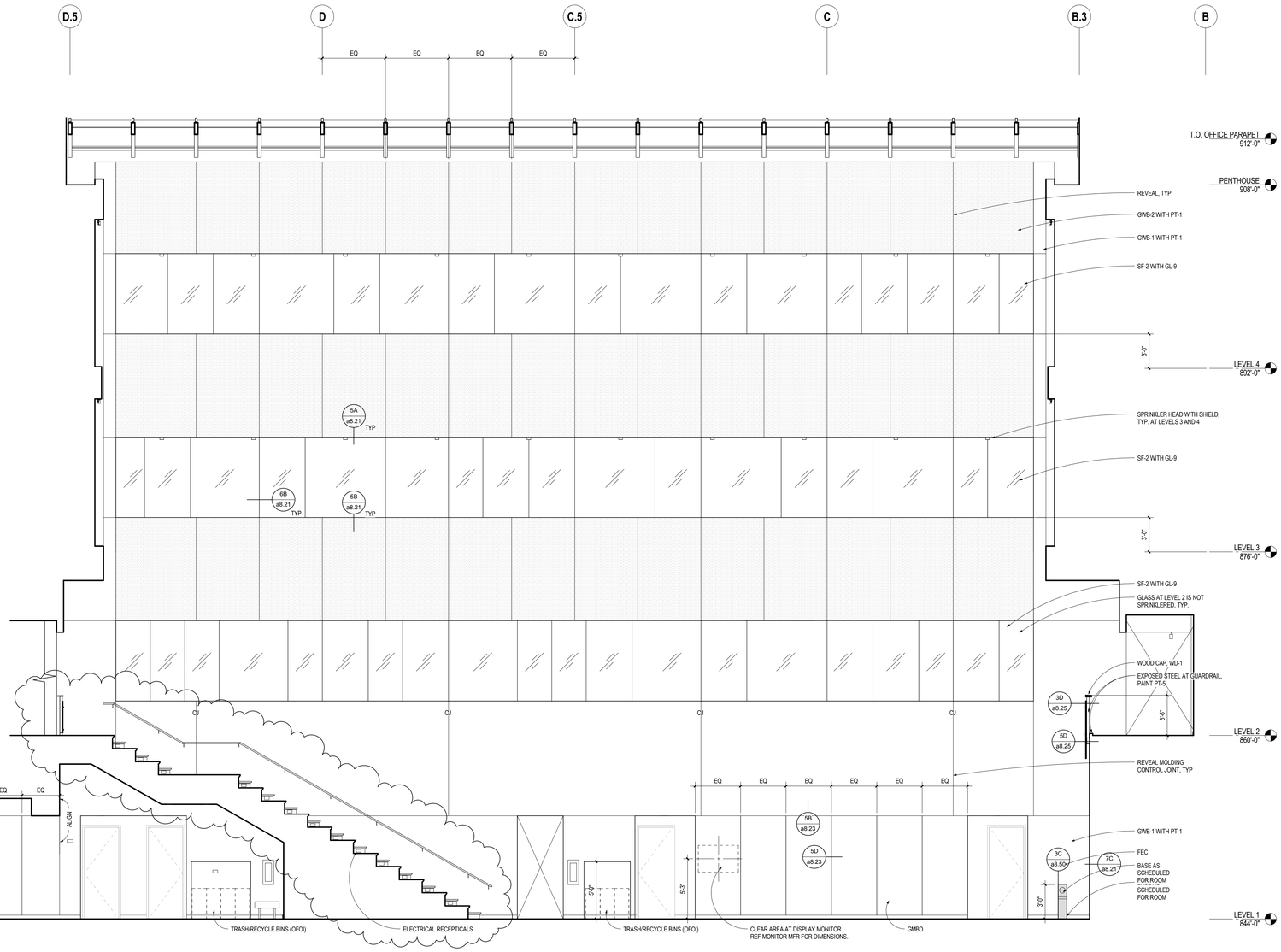
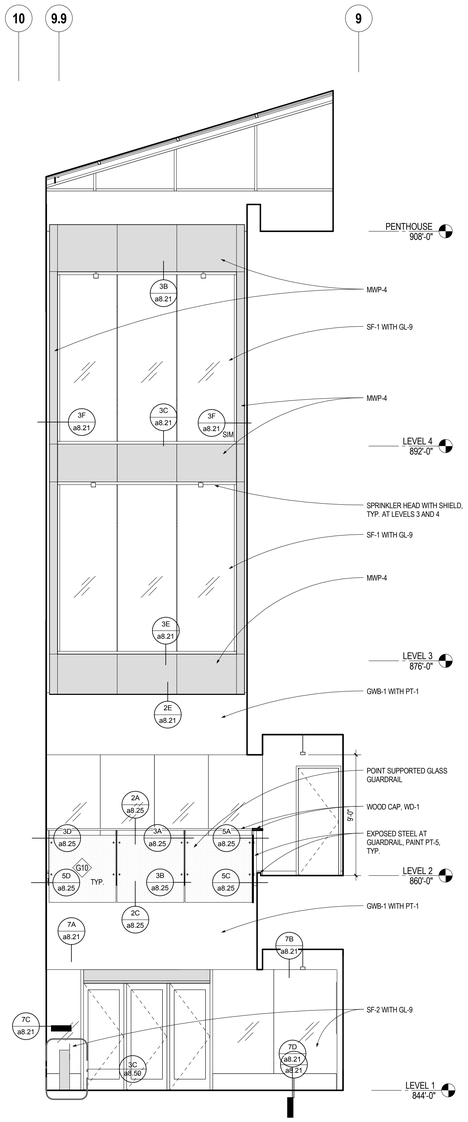
ENLARGED INTERIOR PLAN / ELEVATION - LOBBY

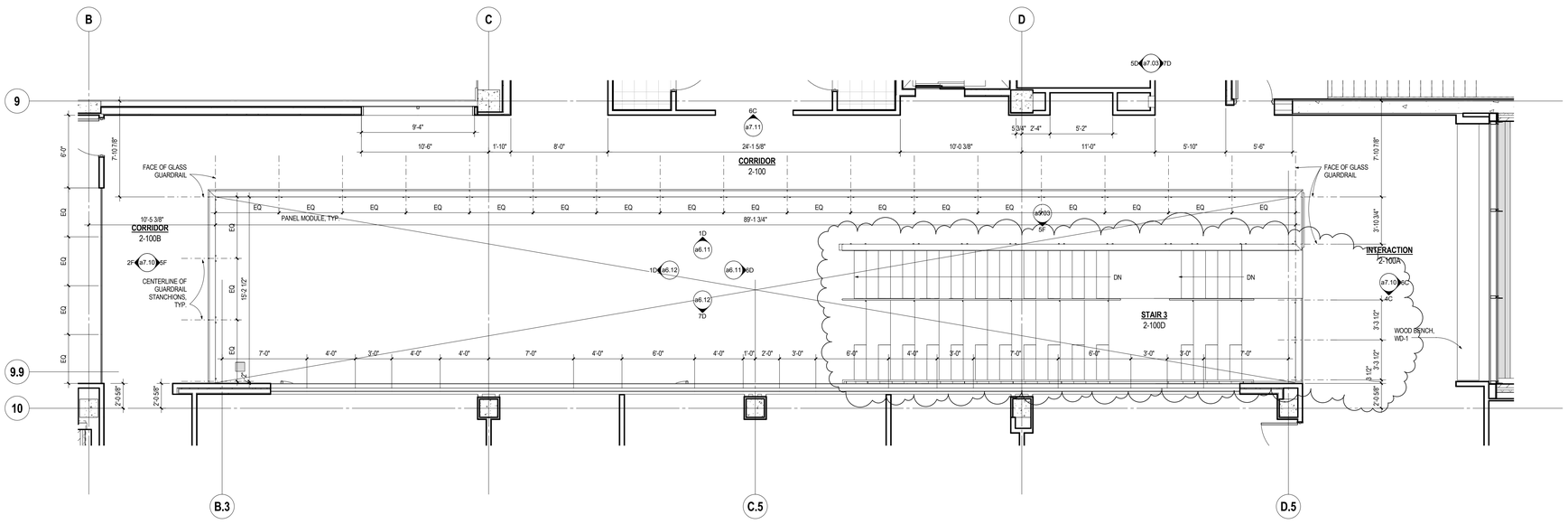
a6.11



7D a6.12 **ELEVATION - 1-100 LOBBY SOUTH**
SCALE: 1/4" = 1'-0"



1D a6.12 **ELEVATION - 1-100 LOBBY WEST**
SCALE: 1/4" = 1'-0"



7F a6.12 **ENLARGED FLOOR PLAN - LOBBY LEVEL 2**
SCALE: 1/4" = 1'-0"

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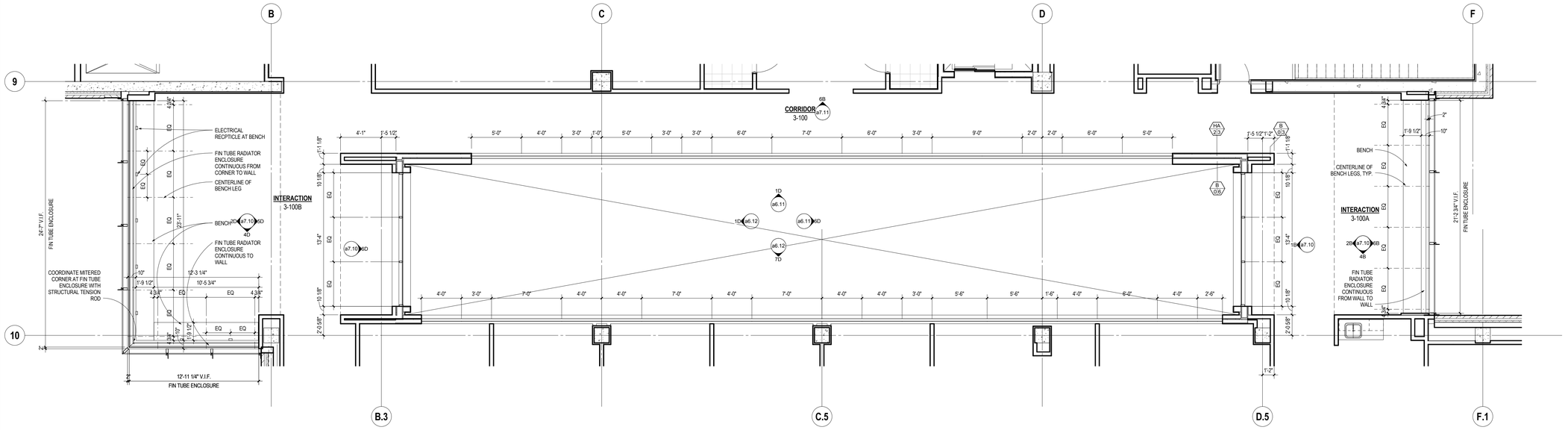
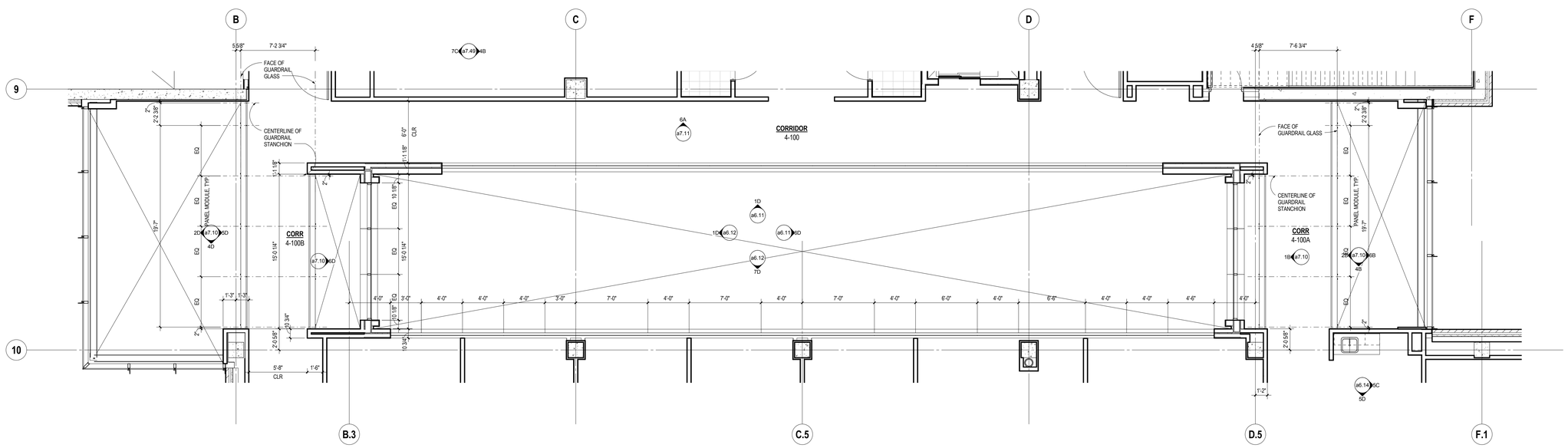
ENLARGED INTERIOR PLAN / ELEVATION - LOBBY

a6.12



1C a6.13 **ENLARGED FLOOR PLAN - LOBBY LEVEL 3**
SCALE: 1/4" = 1'-0"



1E a6.13 **ENLARGED FLOOR PLAN - LOBBY LEVEL 4**
SCALE: 1/4" = 1'-0"

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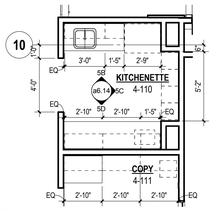
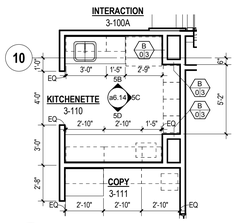
ENLARGED INTERIOR PLAN / ELEVATION - LOBBY

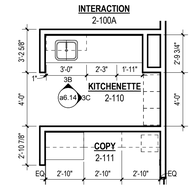
a6.13



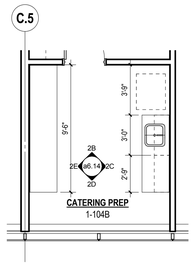
5A a6.14 **KITCHENETTE 4-110**
SCALE: 1/4" = 1'-0"



4A a6.14 **KITCHENETTE 3-110**
SCALE: 1/4" = 1'-0"



3A a6.14 **KITCHENETTE 2-110**
SCALE: 1/4" = 1'-0"



2A a6.14 **CATERING PREP 1-104B**
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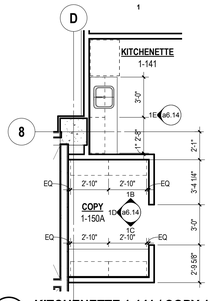
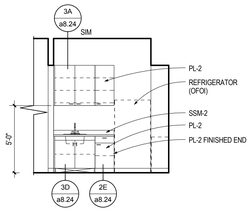
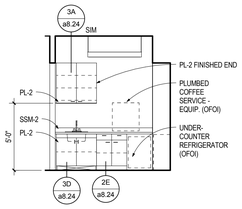


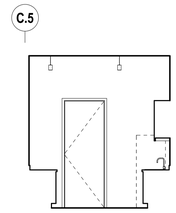
1A a6.14 **KITCHENETTE 1-141 / COPY 1-150A**
SCALE: 1/4" = 1'-0"



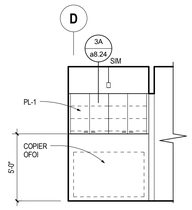
5B a6.14 **ELEV. - 3-110/4-110 NORTH**
SCALE: 1/4" = 1'-0"



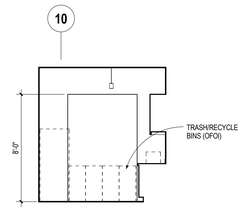
3B a6.14 **ELEVATION - 2-110 NORTH**
SCALE: 1/4" = 1'-0"



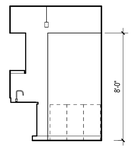
2B a6.14 **ELEVATION - 1-104B NORTH**
SCALE: 1/4" = 1'-0"



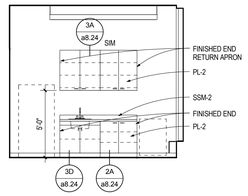
1B a6.14 **ELEVATION - 1-150A NORTH**
SCALE: 1/4" = 1'-0"



5C a6.14 **ELEV. - 3-110/4-110 EAST**
SCALE: 1/4" = 1'-0"



3C a6.14 **ELEVATION - 2-110 EAST**
SCALE: 1/4" = 1'-0"



2C a6.14 **ELEVATION - 1-104B EAST**
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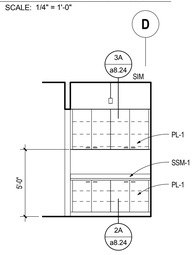
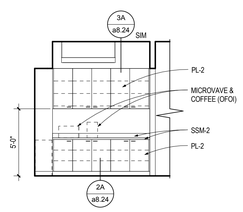
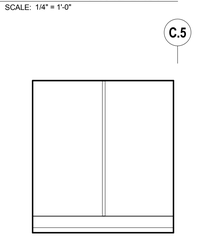


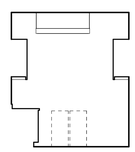
1C a6.14 **ELEVATION - 1-150A SOUTH**
SCALE: 1/4" = 1'-0"



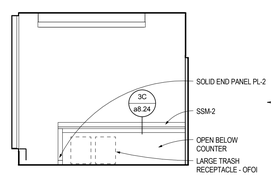
5D a6.14 **ELEV. - 3-110/4-110 SOUTH**
SCALE: 1/4" = 1'-0"



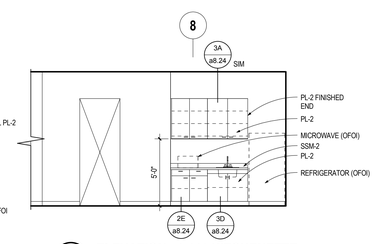
2D a6.14 **ELEVATION - 1-104B SOUTH**
SCALE: 1/4" = 1'-0"



1D a6.14 **ELEVATION - 1-150A WEST**
SCALE: 1/4" = 1'-0"



2E a6.14 **ELEVATION - 1-104B WEST**
SCALE: 1/4" = 1'-0"



1E a6.14 **ELEVATION - 1-141 KITCHENETTE**
SCALE: 1/4" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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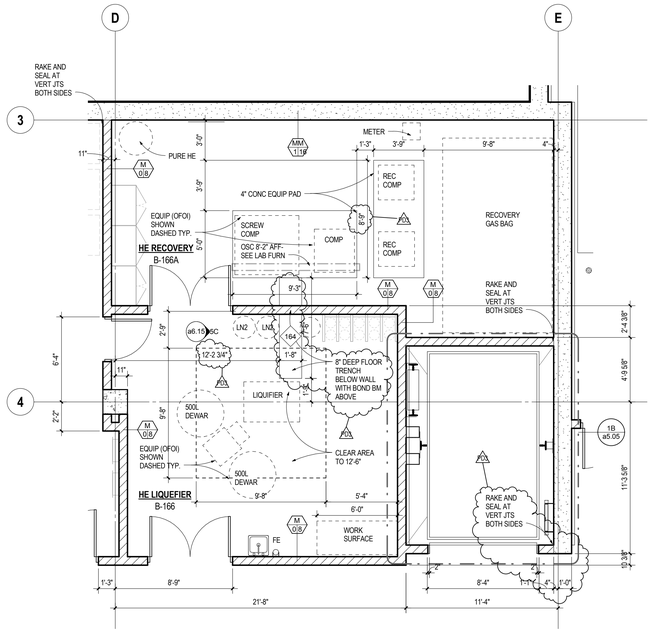
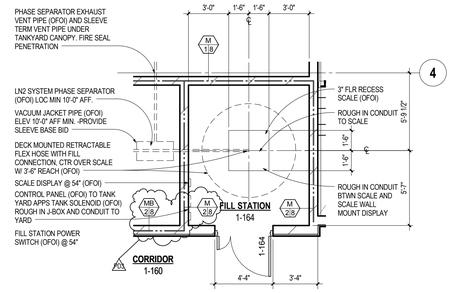
ENLARGED INTERIOR PLAN / ELEVATION - KITCHENETTE

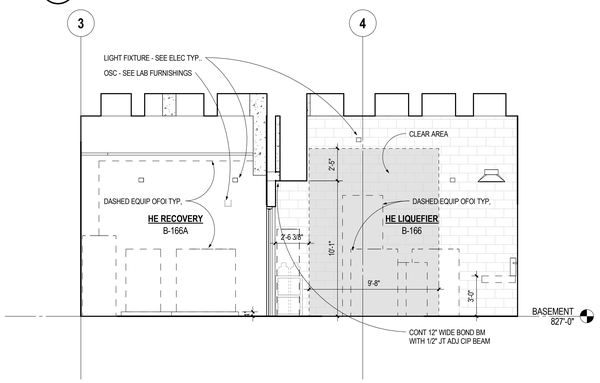
a6.14



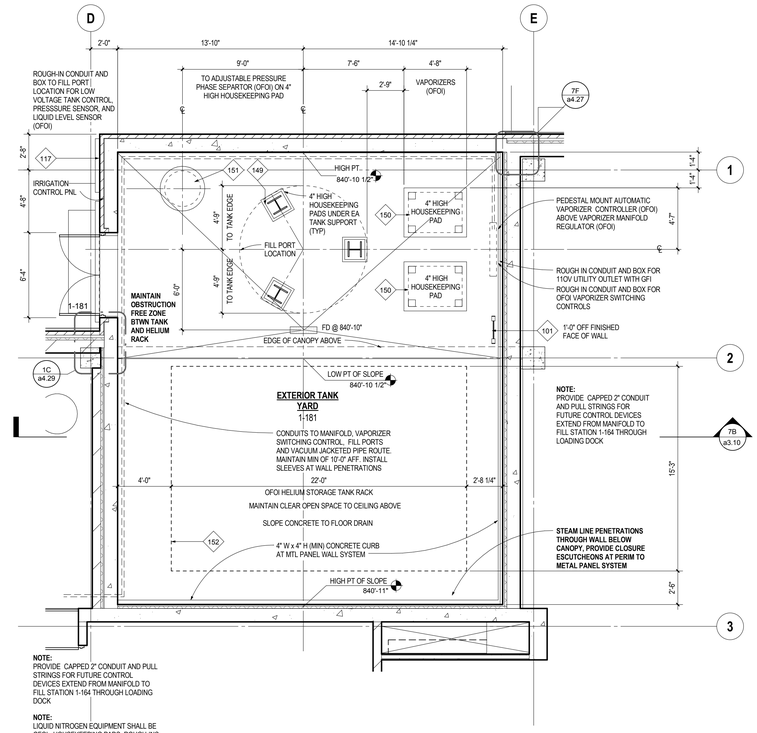
7B a6.15 **ENLARGED FLOOR PLAN - HE LIQUIFIER**
SCALE: 1/4" = 1'-0"



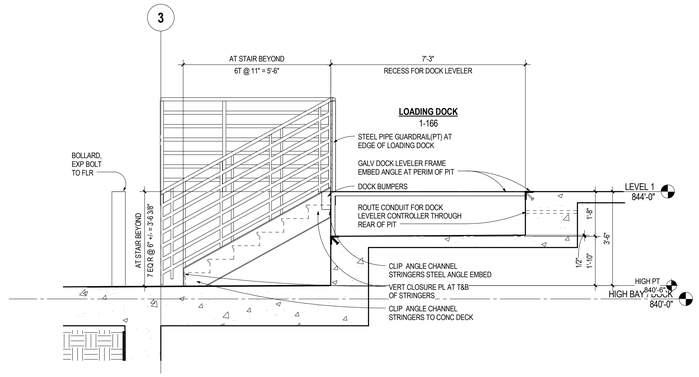
5A a6.15 **ENLARGED LN2 FILLER STATION PLAN**
SCALE: 1/4" = 1'-0"



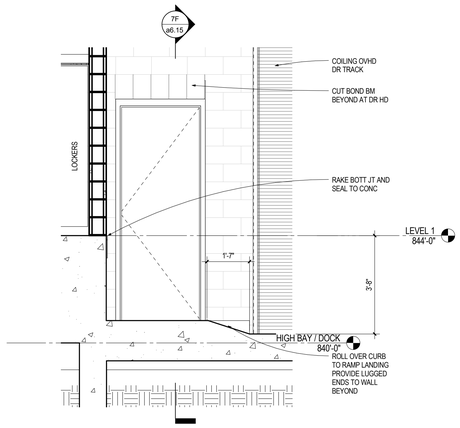
5C a6.15 **ELEVATION - HE LIQUEFIER**
SCALE: 1/4" = 1'-0"



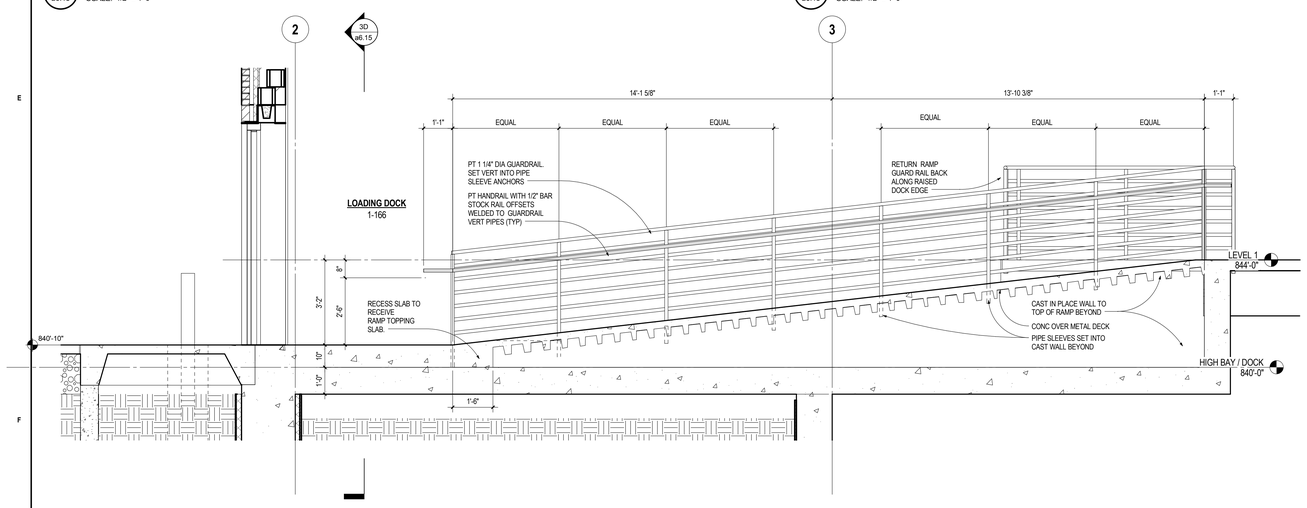
1B a6.15 **ENLARGED EXTERIOR GAS STORAGE FLOOR PLAN**
SCALE: 1/4" = 1'-0"



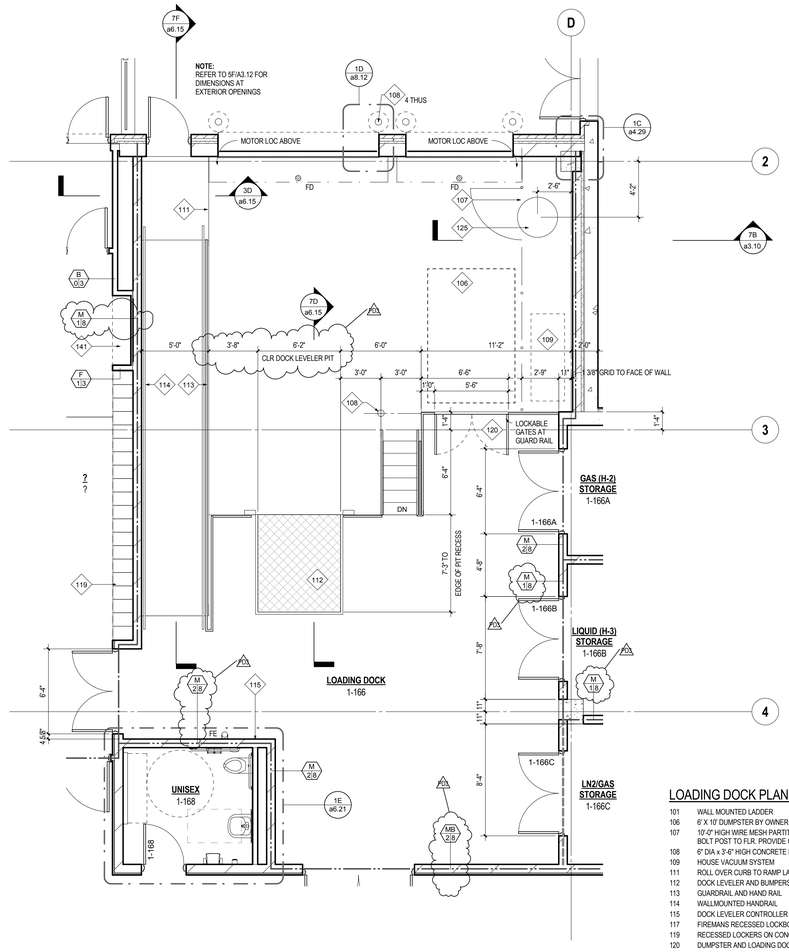
7D a6.15 **SECTION AT DOCK LEVELER**
SCALE: 1/2" = 1'-0"



3D a6.15 **PARTIAL SECTION THROUGH LOADING DOCK RAMP LANDING**
SCALE: 1/2" = 1'-0"



7F a6.15 **SECTION AT LOADING DOCK RAMP**
SCALE: 1/2" = 1'-0"



3F a6.15 **ENLARGED FLOOR PLAN - LOADING DOCK PLAN**
SCALE: 1/4" = 1'-0"

LOADING DOCK PLAN KEY NOTES

101	WALL MOUNTED LADDER
106	6' X 10' DUMPSTER BY OWNER
107	10'-0" HIGH WIRE MESH PARTITION WITH SWING GATES AND LOCKS. EXPANSION BOLT POST TO FLR. PROVIDE OVERHEAD GALV PIPE BRACING BACK TO WALL.
108	6" DIA x 3'-6" HIGH CONCRETE FILLED STEEL PIPE BOLLARDS (TYP)
109	HOUSE VACUUM SYSTEM
111	ROLL OVER CURB TO RAMP LANDING
112	DOCK LEVELER AND BUMPERS
113	GUARDRAIL AND HAND RAIL
114	WALLMOUNTED HANDRAIL
115	DOCK LEVELER CONTROLLER
117	FIREMANS RECESSED LOCKBOX
119	RECESSED LOCKERS ON CONCRETE BASE REFER TO DETAIL
120	DUMPSTER AND LOADING DOCK BUMPERS
125	FLAMMABLE WASTE TRAP
141	5'-2" CLEAR OPENING FOR OFOI RECYLING EQUIPMENT UNLESS NOTED OTHERWISE
142	COILING DOOR CONTROLLER MOUNT 5'-0" TO CENTERLINE OF PANEL AFF.
149	13000 GALLON LN2 TANK (OFOI)
150	LN2 VAPORIZERS (OFOI)
151	LN2 APPS TANK (OFOI)
152	HELIUM TANK RACK (OFOI)
164	PROVIDE FIBERGLASS MOLDED GRATEING ACROSS FLOOR TRENCH. PROVIDE CONTINUOUS 2'x 4"LLV EDGE ANGLE EXP BOLTED TO TRENCH WALLS @ PERIM

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For *Architectural Alliance*

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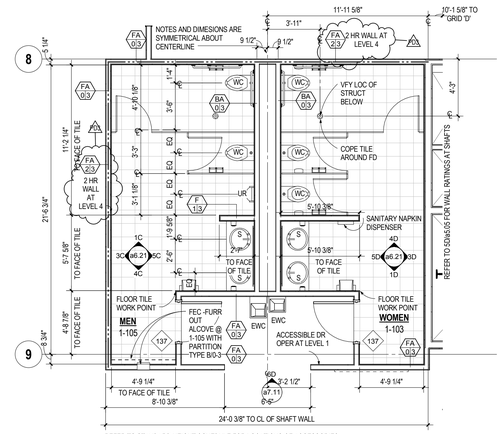
ENLARGED INTERIOR PLAN - LOADING DOCK, HE LIQUIFIER ROOM, EXTERIOR GAS STROAGE AND LN2 FILLING ROOM

a6.15

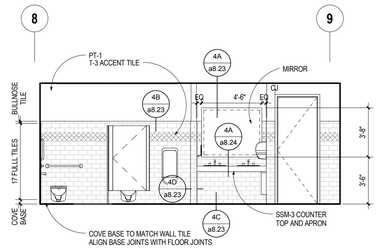


REFER TO STANDARD HEIGHT SCHEDULE FOR LOCATIONS OF ACCESSORIES

2B / a6.21 ENLARGED FLOOR PLAN - RESTROOMS

TYPICAL AT B-105, 2-105, 3-105 AND 4-105 TYPICAL AT B-103, 2-103, 3-103 AND 4-103

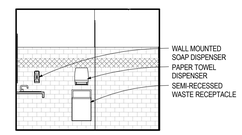
1/4" = 1'-0"



5C / a6.21 ELEVATION - 1-105 MEN EAST

TYPICAL AT B-105, 2-105, 3-105 AND 4-105

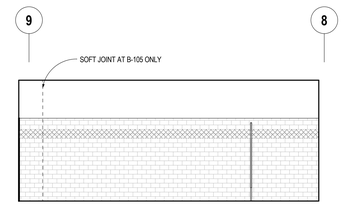
SCALE: 1/4" = 1'-0"



SEE 5C/a6.21 FOR TYPICAL NOTES, DETAILS, DIMENSIONS

4C / a6.21 ELEVATION - 1-105 MEN SOUTH

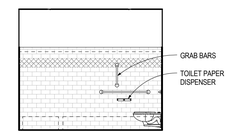
SCALE: 1/4" = 1'-0"



SEE 5C/a6.21 FOR TYPICAL NOTES, DETAILS, DIMENSIONS

3C / a6.21 ELEVATION - 1-105 MEN WEST

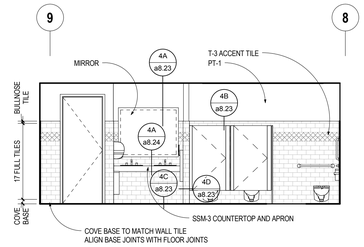
SCALE: 1/4" = 1'-0"



SEE 5C/a6.21 FOR TYPICAL NOTES, DETAILS, DIMENSIONS

1C / a6.21 ELEVATION - 1-105 MEN NORTH

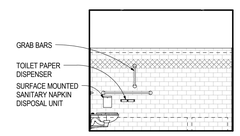
SCALE: 1/4" = 1'-0"



5D / a6.21 ELEVATION - 1-103 WOMEN WEST

TYPICAL AT B-103, 2-103, 3-103 AND 4-103

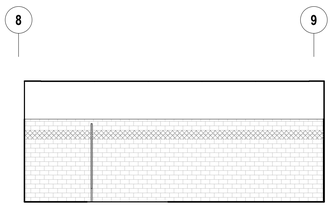
SCALE: 1/4" = 1'-0"



SEE 5D/a6.21 FOR TYPICAL NOTES, DETAILS, DIMENSIONS

4D / a6.21 ELEVATION - 1-103 WOMEN NORTH

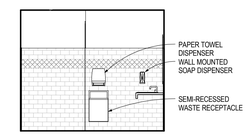
SCALE: 1/4" = 1'-0"



SEE 5D/a6.21 FOR TYPICAL NOTES, DETAILS, DIMENSIONS

3D / a6.21 ELEVATION - 1-103 WOMEN EAST

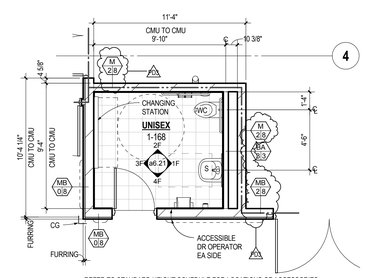
SCALE: 1/4" = 1'-0"



SEE 5D/a6.21 FOR TYPICAL NOTES, DETAILS, DIMENSIONS

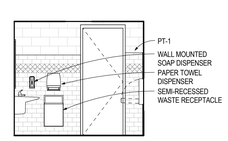
1D / a6.21 ELEVATION - 1-103 WOMEN SOUTH

SCALE: 1/4" = 1'-0"



1E / a6.21 ENLARGED FLOOR PLAN - UNISEX

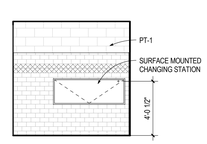
SCALE: 1/4" = 1'-0"



SEE 1F/a6.21 FOR TYPICAL NOTES, DETAILS, DIMENSIONS

4F / a6.21 ELEVATION - 1-168 UNISEX SOUTH

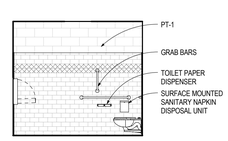
SCALE: 1/4" = 1'-0"



SEE 1F/a6.21 FOR TYPICAL NOTES, DETAILS, DIMENSIONS

3F / a6.21 ELEVATION - 1-168 UNISEX WEST

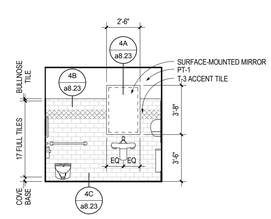
SCALE: 1/4" = 1'-0"



SEE 1F/a6.21 FOR TYPICAL NOTES, DETAILS, DIMENSIONS

2F / a6.21 ELEVATION - 1-168 UNISEX NORTH

SCALE: 1/4" = 1'-0"



1F / a6.21 ELEVATION - 1-168 UNISEX EAST

SCALE: 1/4" = 1'-0"

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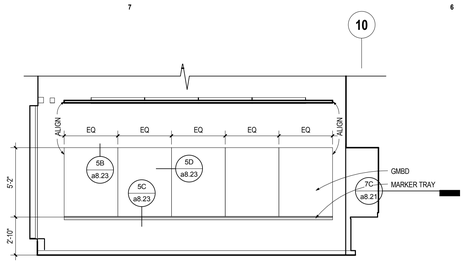
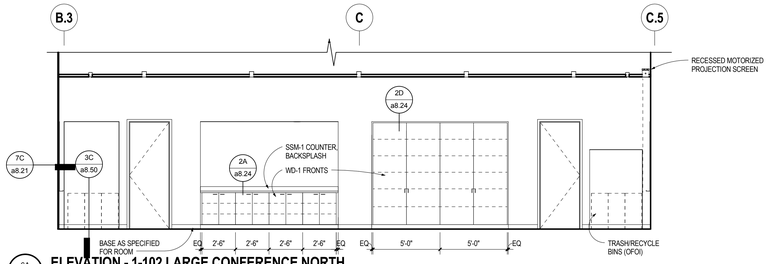
ENLARGED INTERIOR PLAN/ELEVATION - RESTROOMS

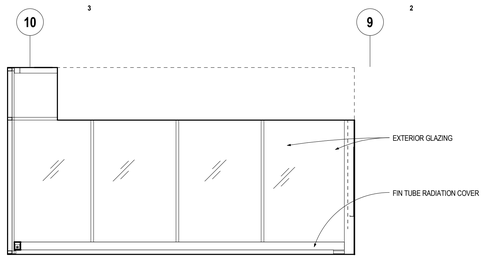
a6.21



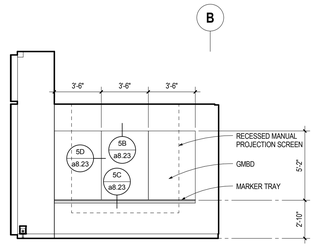
7A a7.01 **ELEVATION - 1-102 LARGE CONFERENCE WEST**
SCALE: 1/4" = 1'-0"



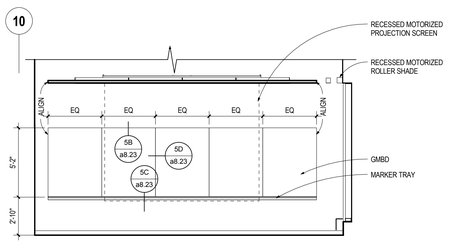
6A a7.01 **ELEVATION - 1-102 LARGE CONFERENCE NORTH**
SCALE: 1/4" = 1'-0"



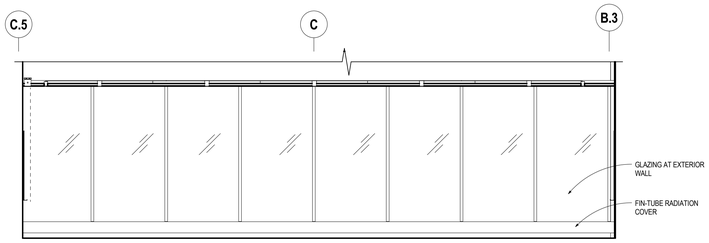
3A a7.01 **ELEVATION - MEDIUM CONF 2-107 WEST**
SCALE: 1/4" = 1'-0"



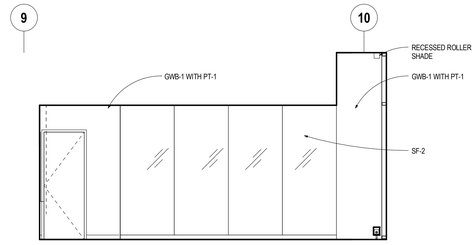
1A a7.01 **ELEVATION - MEDIUM CONF. 2-107 NORTH**
SCALE: 1/4" = 1'-0"



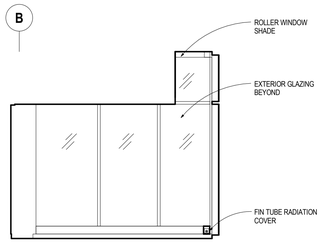
7B a7.01 **ELEVATION - 1-102 LARGE CONFERENCE EAST**
SCALE: 1/4" = 1'-0"



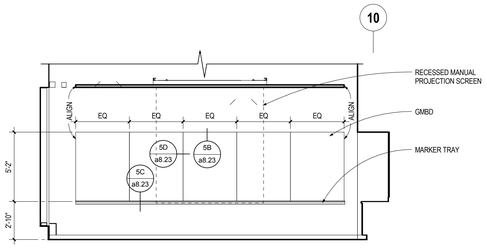
6B a7.01 **ELEVATION - 1-102 LARGE CONFERENCE SOUTH**
SCALE: 1/4" = 1'-0"



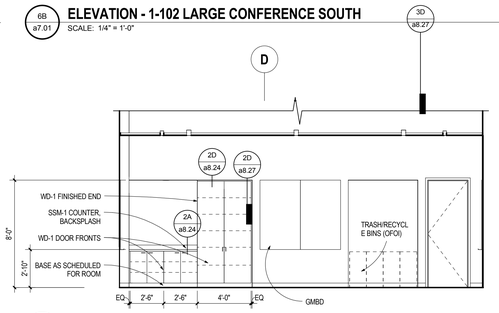
3B a7.01 **ELEVATION - MEDIUM CONFERENCE 2-107 EAST**
SCALE: 1/4" = 1'-0"



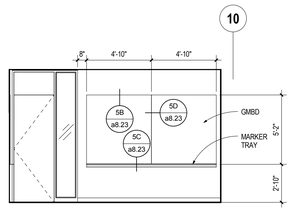
1B a7.01 **ELEVATION - MEDIUM CONF 2-107 SOUTH**
SCALE: 1/4" = 1'-0"



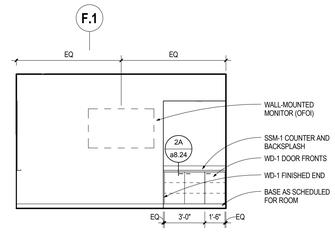
7C a7.01 **ELEVATION - 1-106 MEDIUM CONFERENCE WEST**
SCALE: 1/4" = 1'-0"



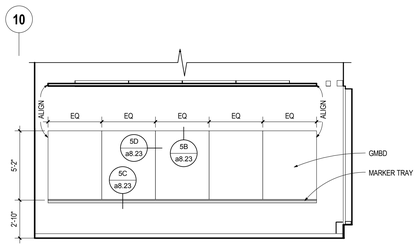
6C a7.01 **ELEVATION - 1-106 MEDIUM CONFERENCE NORTH**
SCALE: 1/4" = 1'-0"



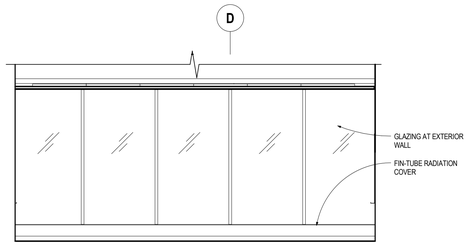
3C a7.01 **ELEVATION - 3-108 CONFERENCE WEST**
SCALE: 1/4" = 1'-0"
TYP AT 4-108



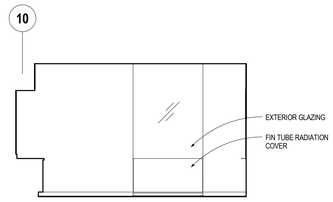
2C a7.01 **ELEVATION - 3-108 CONFERENCE NORTH**
SCALE: 1/4" = 1'-0"



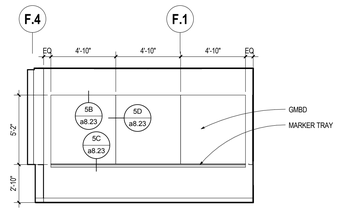
7D a7.01 **ELEVATION - 1-106 MEDIUM CONFERENCE EAST**
SCALE: 1/4" = 1'-0"



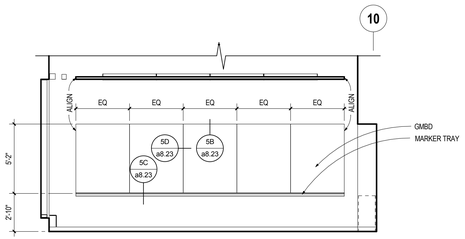
6D a7.01 **ELEVATION - 1-106 MEDIUM CONFERENCE SOUTH**
SCALE: 1/4" = 1'-0"



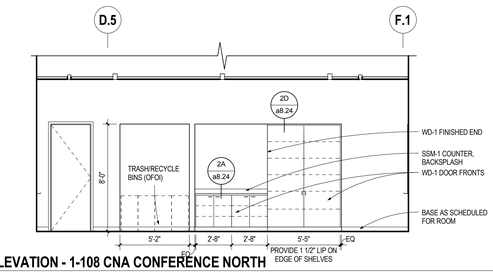
3D a7.01 **ELEVATION - 3-108 CONFERENCE EAST**
SCALE: 1/4" = 1'-0"



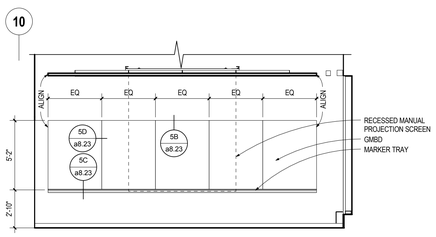
2D a7.01 **ELEVATION - 3-108 CONFERENCE SOUTH**
SCALE: 1/4" = 1'-0"



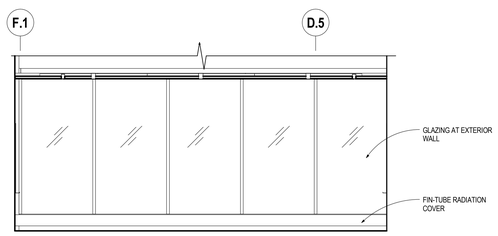
7E a7.01 **ELEVATION - 1-108 CNA CONFERENCE WEST**
SCALE: 1/4" = 1'-0"



6E a7.01 **ELEVATION - 1-108 CNA CONFERENCE NORTH**
SCALE: 1/4" = 1'-0"



7F a7.01 **ELEVATION - 1-108 CNA CONFERENCE EAST**
SCALE: 1/4" = 1'-0"



6F a7.01 **ELEVATION - 1-108 CNA CONFERENCE SOUTH**
SCALE: 1/4" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
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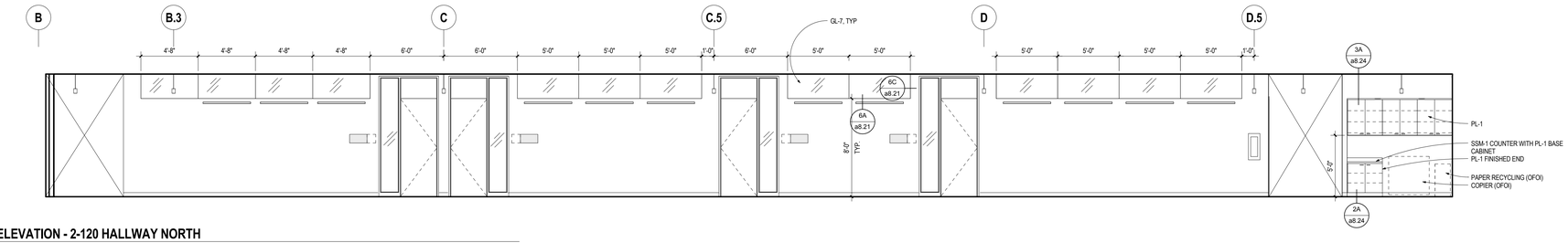
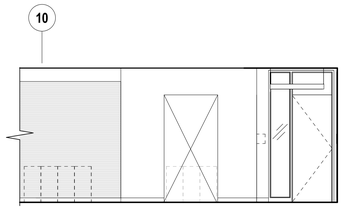
INTERIOR ELEVATIONS

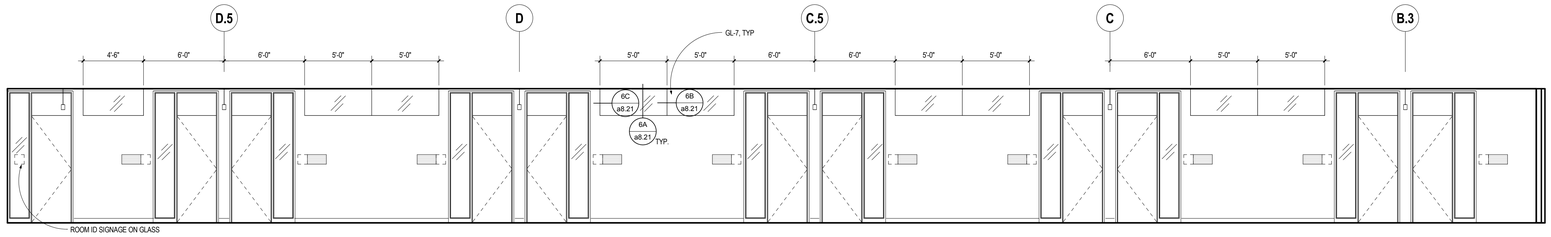
a7.01



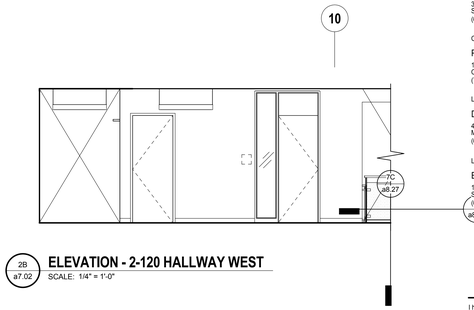
7A a7.02 **ELEVATION - 2-120 HALLWAY NORTH**
SCALE: 1/4" = 1'-0"



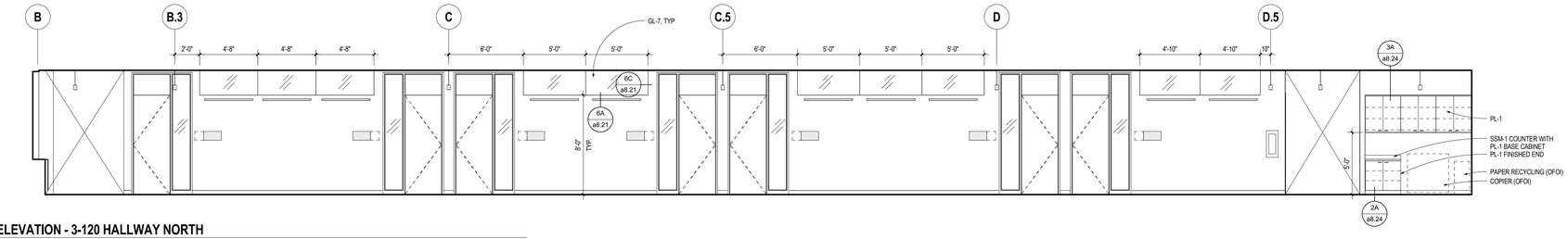
2A a7.02 **ELEVATION - 2-120 HALLWAY EAST**
SCALE: 1/4" = 1'-0"



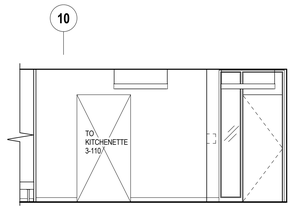
7B a7.02 **ELEVATION - 2-120 HALLWAY SOUTH**
SCALE: 1/4" = 1'-0"



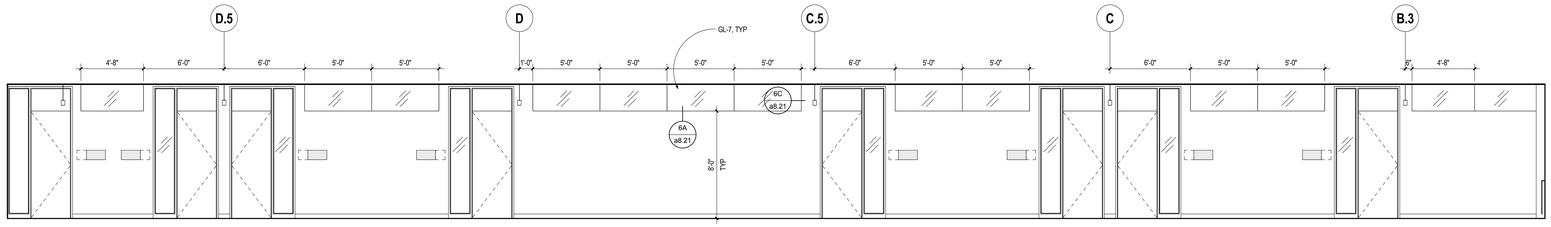
2B a7.02 **ELEVATION - 2-120 HALLWAY WEST**
SCALE: 1/4" = 1'-0"



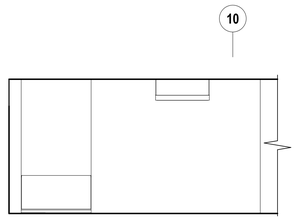
7C a7.02 **ELEVATION - 3-120 HALLWAY NORTH**
SCALE: 1/4" = 1'-0"



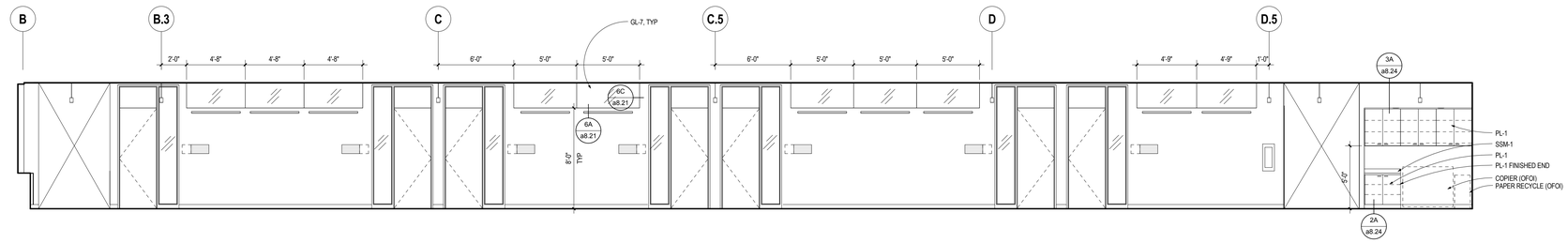
2C a7.02 **ELEVATION - 3-120/4-120 HALLWAY EAST**
SCALE: 1/4" = 1'-0"



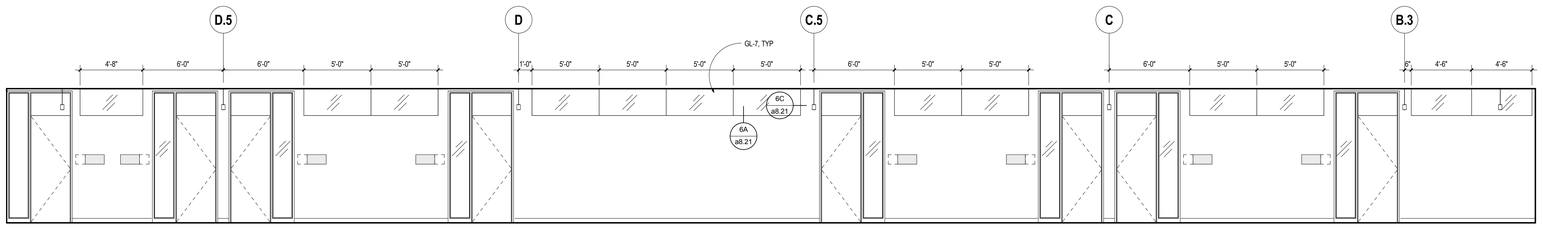
7D a7.02 **ELEVATION - 3-120 HALLWAY SOUTH**
SCALE: 1/4" = 1'-0"



2D a7.02 **ELEVATION - 3-120/4-120 HALLWAY WEST**
SCALE: 1/4" = 1'-0"



7E a7.02 **ELEVATION - 4-120 HALLWAY NORTH**
SCALE: 1/4" = 1'-0"



7F a7.02 **ELEVATION - 4-120 HALLWAY SOUTH**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. REFER TO DETAIL 5E/a8.23 FOR TYPICAL TBD AND SIGNAGE AT OFFICE ENTRY

B. REFER TO DETAIL 5A/a8.23 FOR TYPICAL TBD ASSEMBLY

C. REFER TO DETAIL 5B/a8.23 FOR TYPICAL GMBD ASSEMBLY

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For *Architectural Alliance*

By

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Date 02-24-2012 Reg. No. 14703

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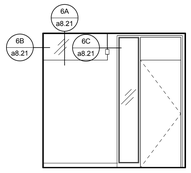
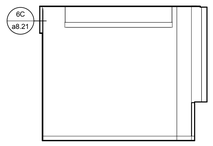
INTERIOR ELEVATIONS

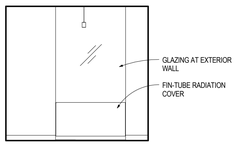
a7.02



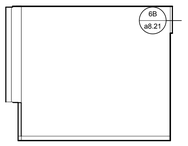
7A a7.03 **ELEVATION - TYPICAL OFFICE A**
SCALE: 1/4" = 1'-0"



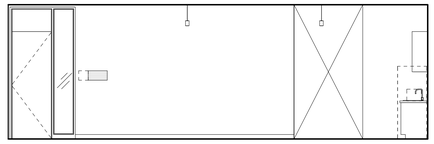
6A a7.03 **ELEVATION - TYPICAL OFFICE B**
SCALE: 1/4" = 1'-0"



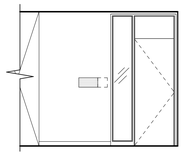
5A a7.03 **ELEVATION - TYPICAL OFFICE C**
SCALE: 1/4" = 1'-0"



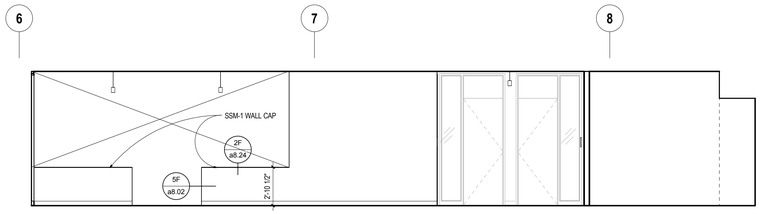
4A a7.03 **ELEVATION - TYPICAL OFFICE D**
SCALE: 1/4" = 1'-0"



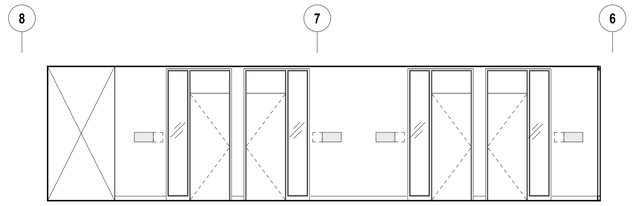
3A a7.03 **ELEVATION - 1-150 CORRIDOR SOUTH**
SCALE: 1/4" = 1'-0"



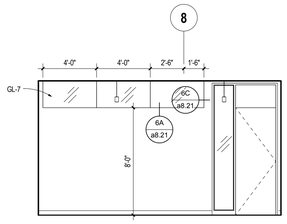
1A a7.03 **ELEVATION - 1-150 CORRIDOR NORTH**
SCALE: 1/4" = 1'-0"



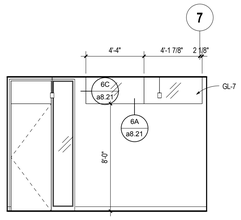
7B a7.03 **ELEVATION - 1-150 CORRIDOR EAST**
SCALE: 1/4" = 1'-0"



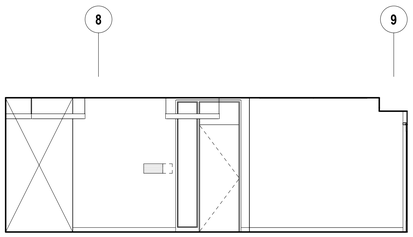
4B a7.03 **ELEVATION - 1-150 CORRIDOR WEST**
SCALE: 1/4" = 1'-0"



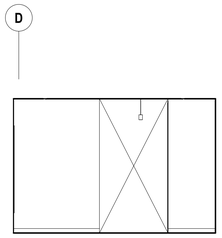
7C a7.03 **ELEVATION - 1-144 DIRECTOR WEST**
SCALE: 1/4" = 1'-0"



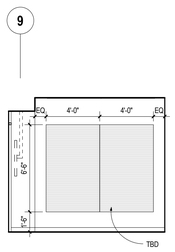
6C a7.03 **ELEVATION - 1-146 LAB MANAGER WEST**
SCALE: 1/4" = 1'-0"



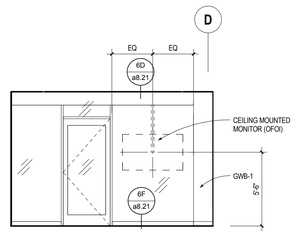
7D a7.03 **ELEVATION - 1-140 RECEPTION EAST**
SCALE: 1/4" = 1'-0"



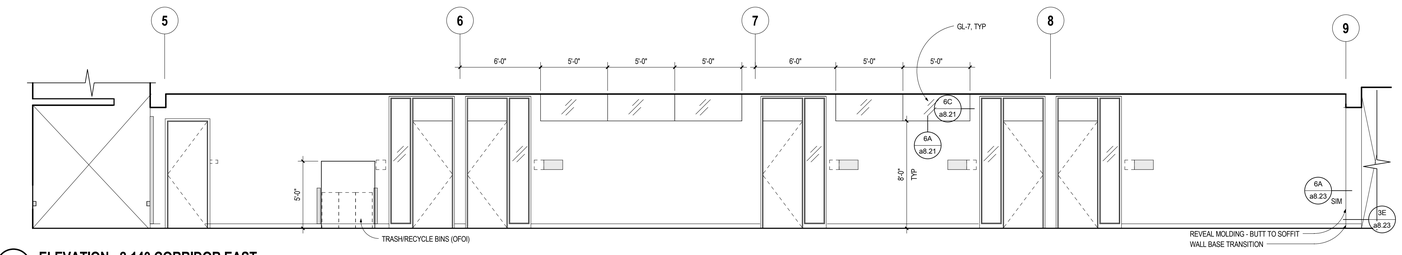
6D a7.03 **ELEVATION - 1-140 RECEPTION NORTH**
SCALE: 1/4" = 1'-0"



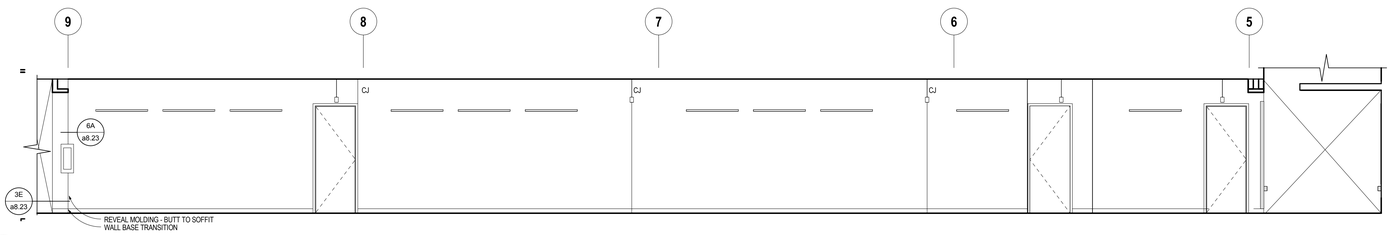
5D a7.03 **ELEVATION - 1-140 RECEPTION WEST**
SCALE: 1/4" = 1'-0"



3D a7.03 **ELEVATION - 1-140 RECEPTION SOUTH**
SCALE: 1/4" = 1'-0"



7E a7.03 **ELEVATION - 2-140 CORRIDOR EAST**
SCALE: 1/4" = 1'-0"



7F a7.03 **ELEVATION - 2-140 CORRIDOR WEST**
SCALE: 1/4" = 1'-0"

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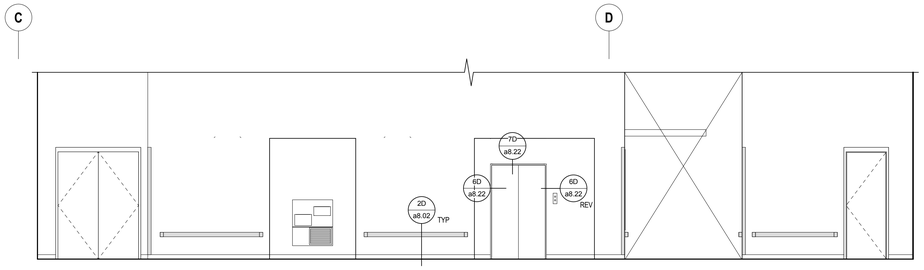
INTERIOR ELEVATIONS

a7.03



7A / a7.04 **ELEVATION - B-100 CORRIDOR NORTH**
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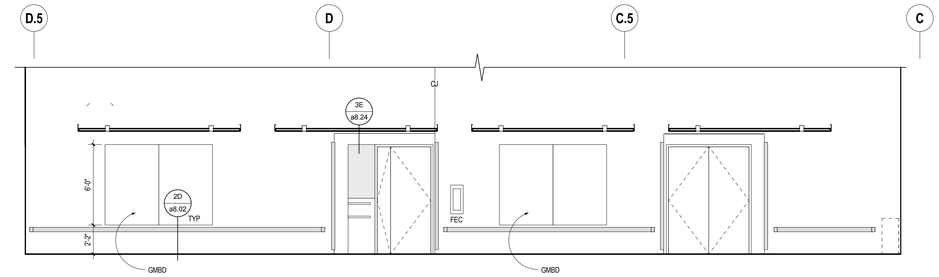
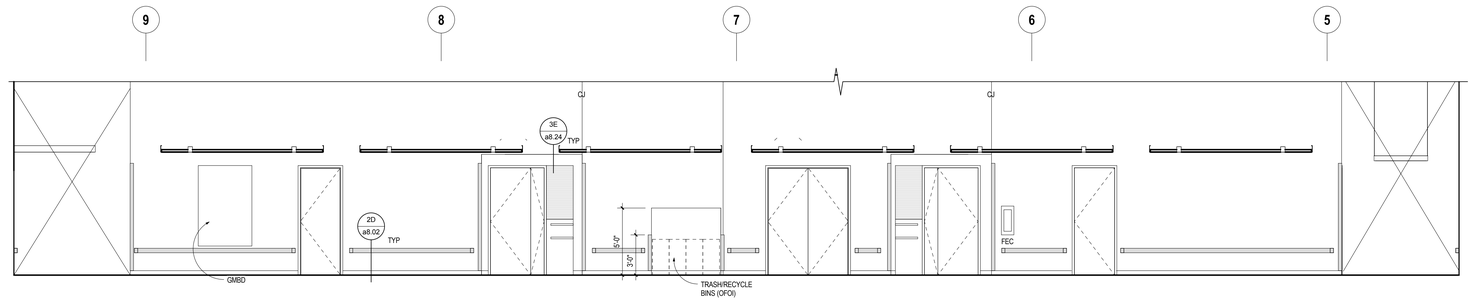
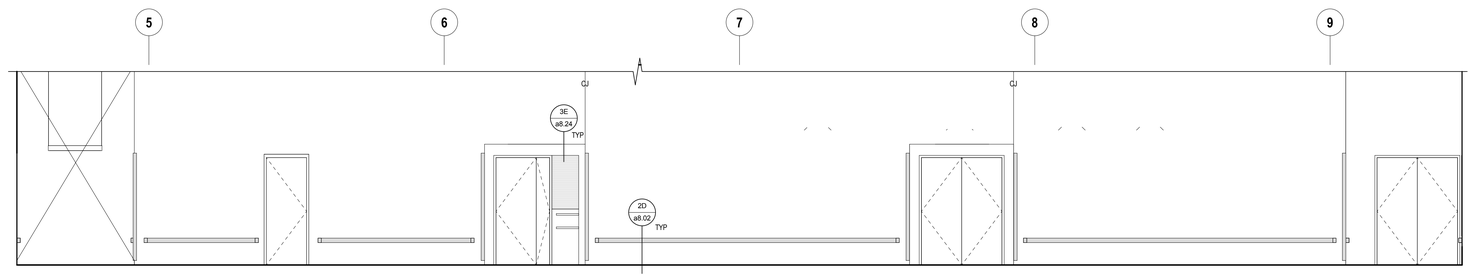


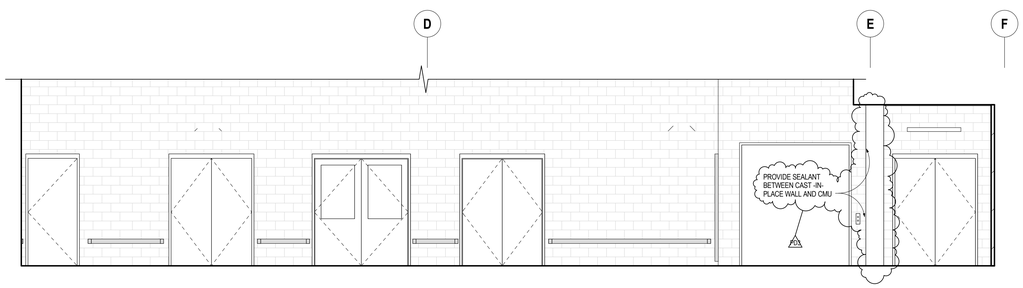
3A / a7.04 **ELEVATION - B-100 CORRIDOR SOUTH**
SCALE: 1/4" = 1'-0"



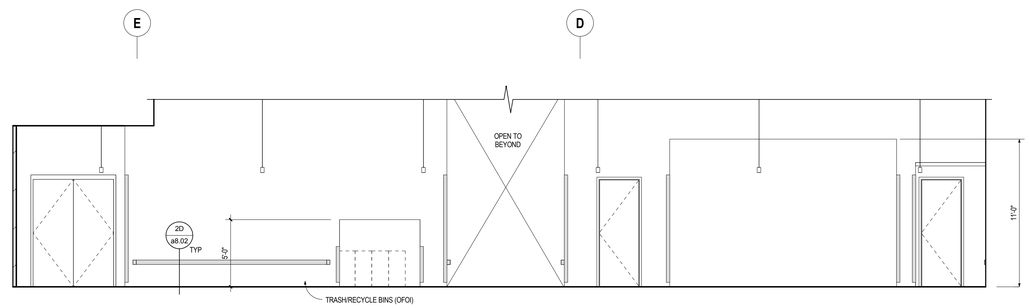
5B / a7.04 **ELEVATION - B-150 CORRIDOR WEST**
SCALE: 1/4" = 1'-0"



5D / a7.04 **ELEVATION - B-150 CORRIDOR EAST**
SCALE: 1/4" = 1'-0"



7E / a7.04 **ELEVATION - B-160 CORRIDOR NORTH**
SCALE: 1/4" = 1'-0"



4E / a7.04 **ELEVATION - B-160 CORRIDOR SOUTH**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. REFER TO DETAIL 5E/a8.23 FOR TYPICAL TBD AND SIGNAGE AT OFFICE ENTRY

B. REFER TO DETAIL 5A/a8.23 FOR TYPICAL TBD ASSEMBLY

C. REFER TO DETAIL 5B/a8.23 FOR TYPICAL GMBD ASSEMBLY

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
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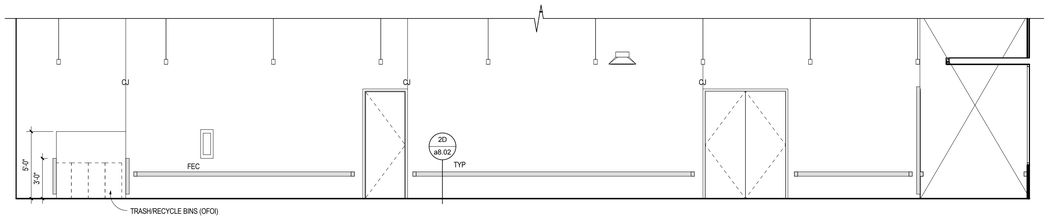
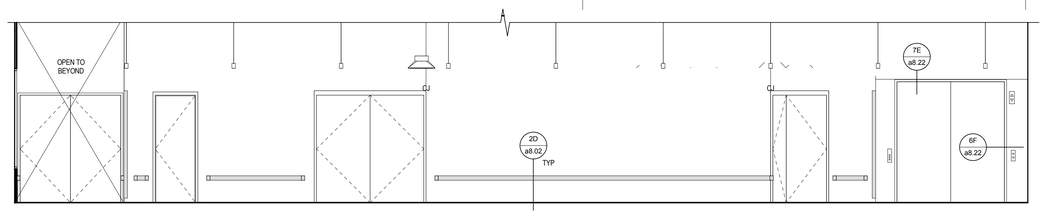
INTERIOR ELEVATIONS

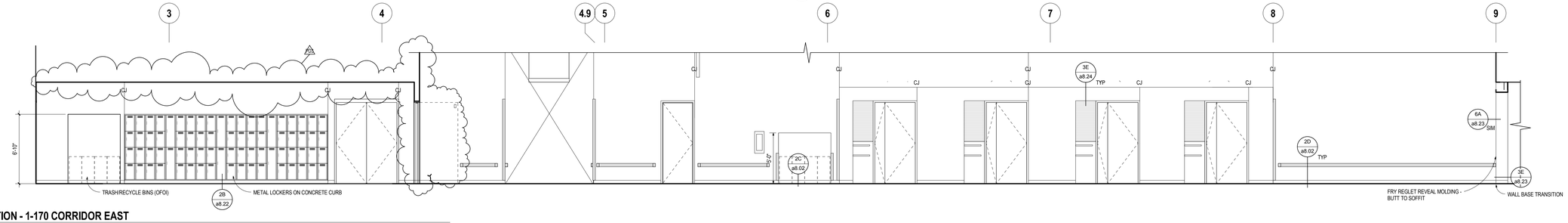
a7.04



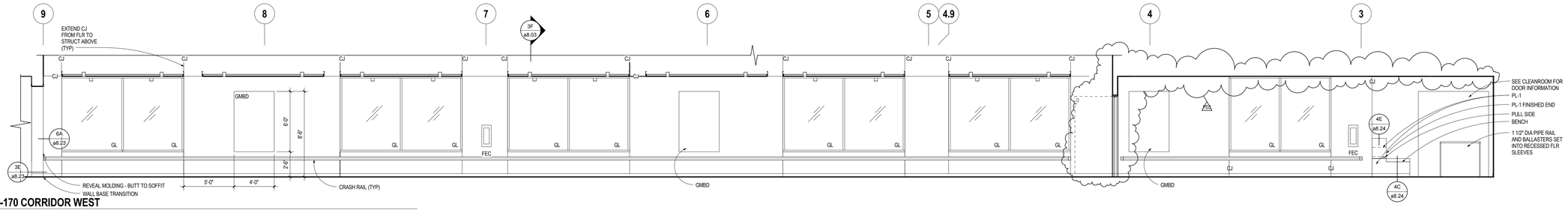
7A a7.05 **ELEVATION - 1-160 CORRIDOR SOUTH**
SCALE: 1/4" = 1'-0"



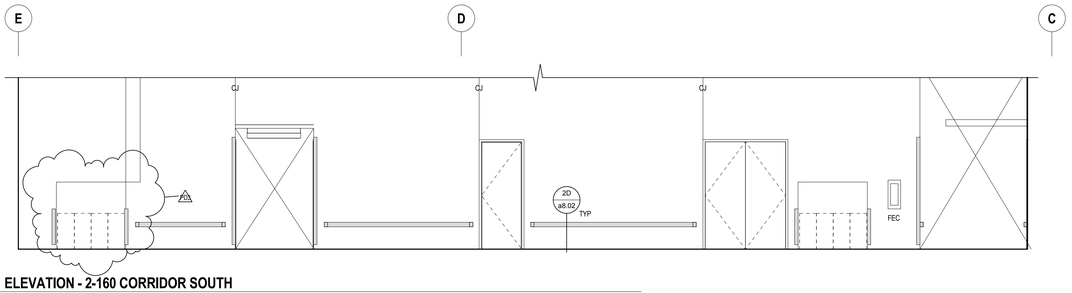
4A a7.05 **ELEVATION - 1-160 CORRIDOR NORTH**
SCALE: 1/4" = 1'-0"



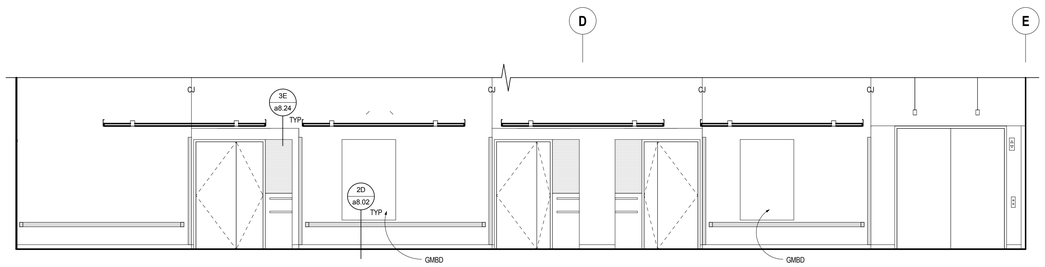
7B a7.05 **ELEVATION - 1-170 CORRIDOR EAST**
SCALE: 1/4" = 1'-0"



7C a7.05 **ELEVATION - 1-170 CORRIDOR WEST**
SCALE: 1/4" = 1'-0"



7D a7.05 **ELEVATION - 2-160 CORRIDOR SOUTH**
SCALE: 1/4" = 1'-0"



4D a7.05 **ELEVATION - 2-160 CORRIDOR NORTH**
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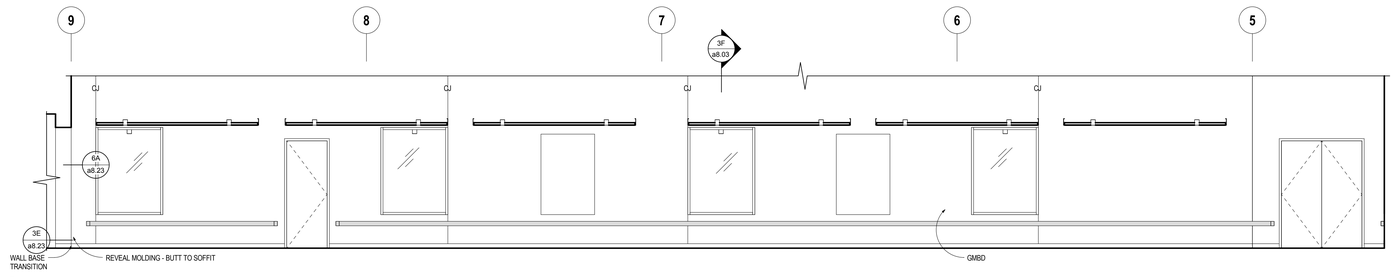
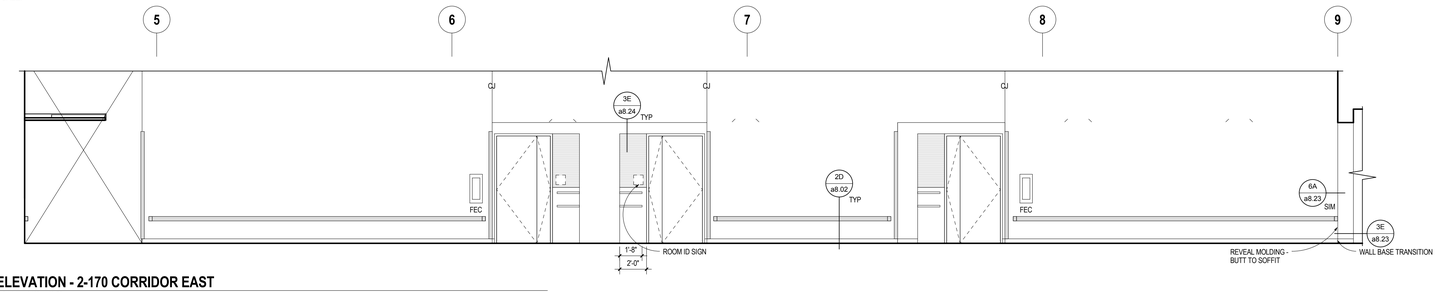


6E a7.05 **ELEVATION - 2-170 CORRIDOR WEST**
SCALE: 1/4" = 1'-0"



6F a7.05 **ELEVATION - 2-170 CORRIDOR EAST**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. REFER TO DETAIL 5E/a8.23 FOR TYPICAL TBD AND SIGNAGE AT OFFICE ENTRY

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For *Architectural Alliance*

By

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Date 02-24-2012 Reg. No. 14703

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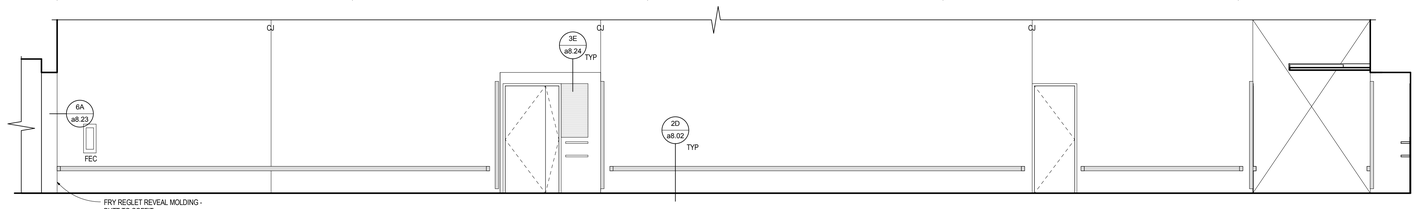
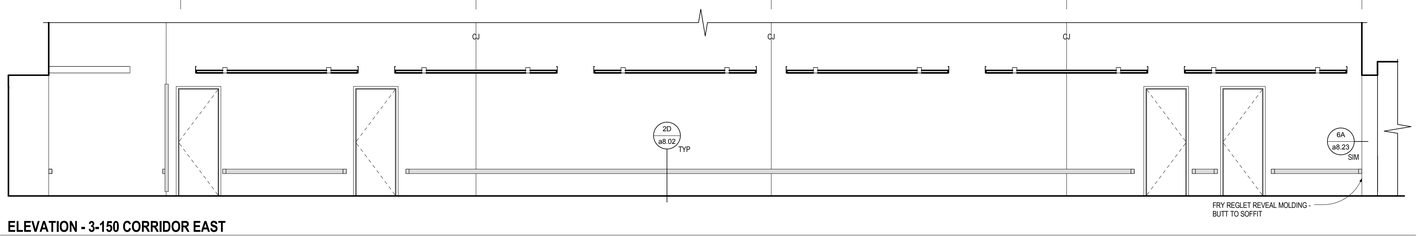
INTERIOR ELEVATIONS

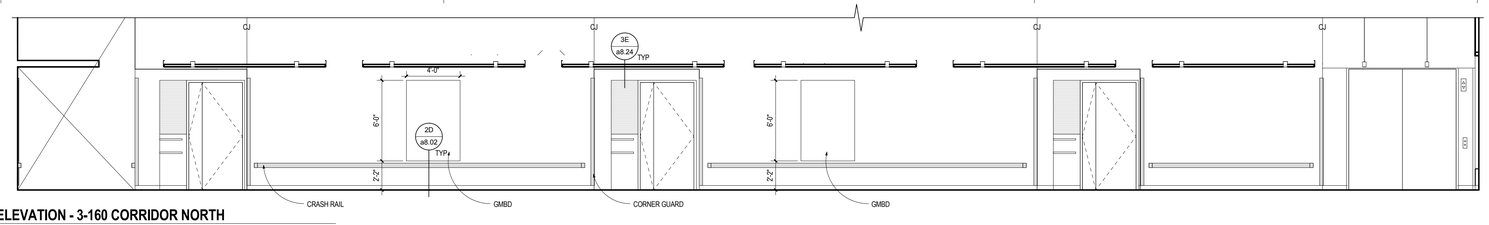
a7.05



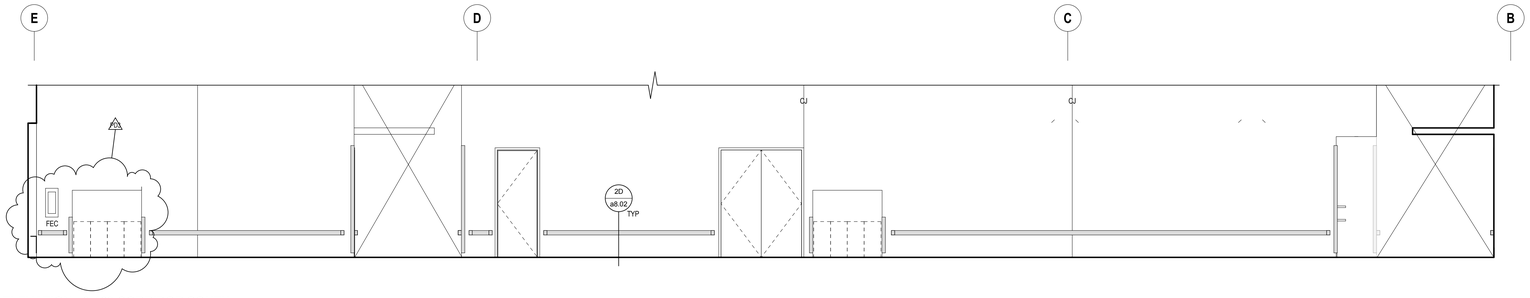
4A a7.06 **ELEVATION - 3-150 CORRIDOR WEST**
SCALE: 1/4" = 1'-0"



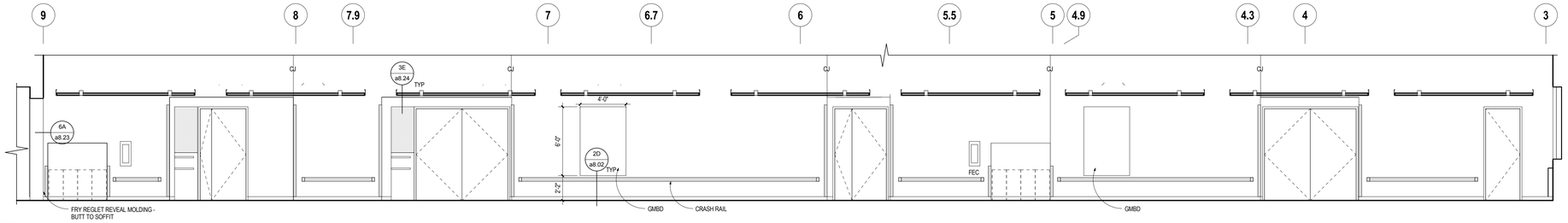
4B a7.06 **ELEVATION - 3-150 CORRIDOR EAST**
SCALE: 1/4" = 1'-0"



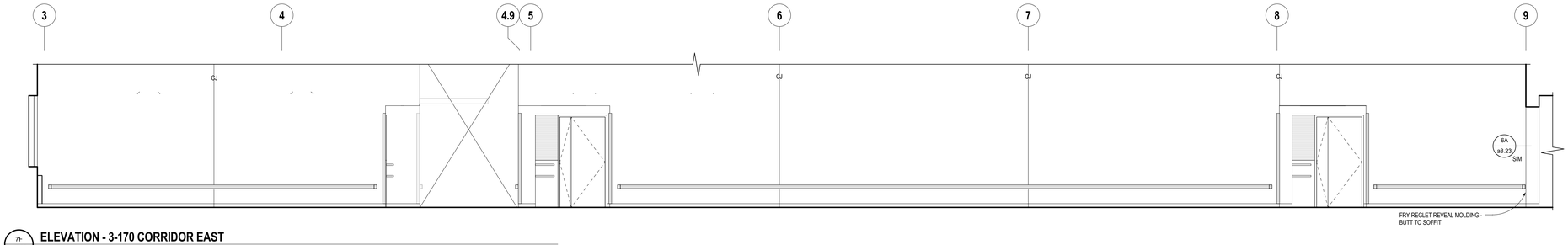
5C a7.06 **ELEVATION - 3-160 CORRIDOR NORTH**
SCALE: 1/4" = 1'-0"



5D a7.06 **ELEVATION - 3-160 CORRIDOR SOUTH**
SCALE: 1/4" = 1'-0"



7E a7.06 **ELEVATION - 3-170 CORRIDOR WEST**
SCALE: 1/4" = 1'-0"



7F a7.06 **ELEVATION - 3-170 CORRIDOR EAST**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

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For *Architectural Alliance*

By

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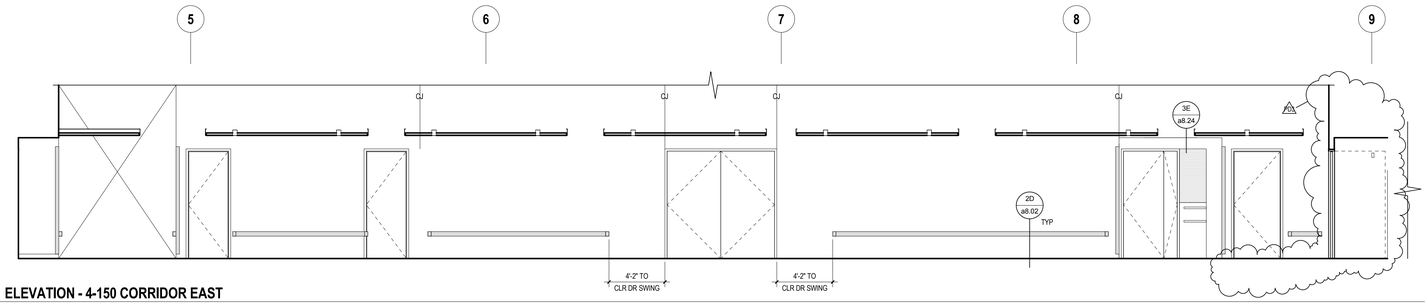
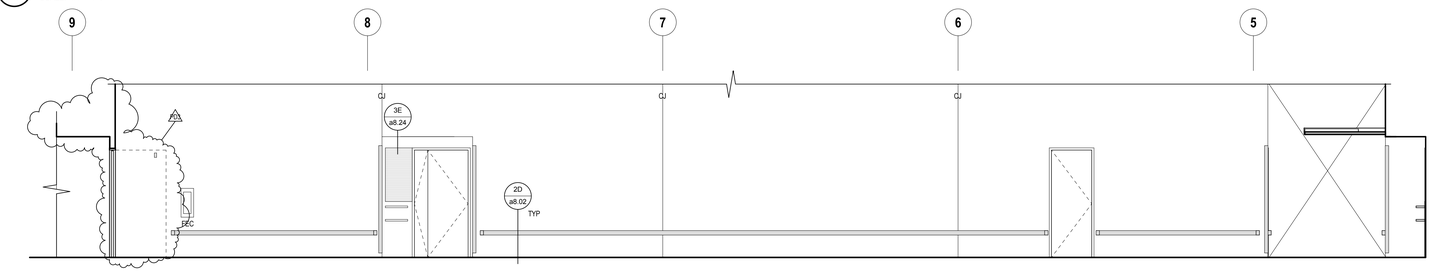
INTERIOR ELEVATIONS

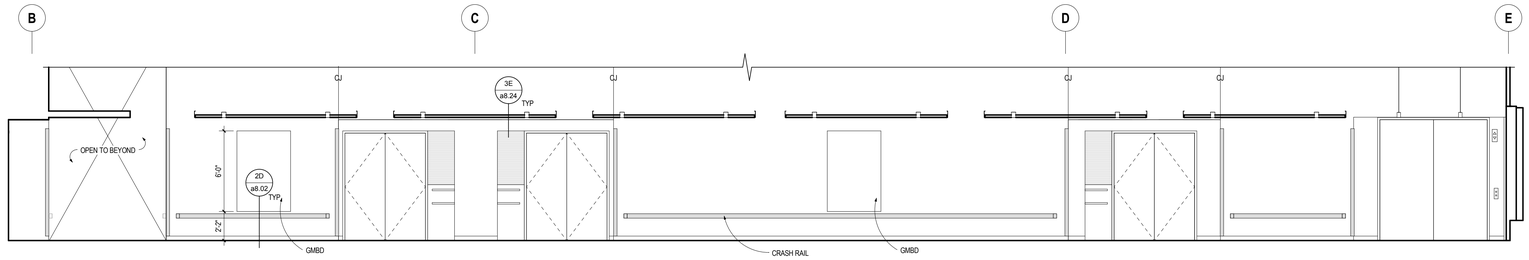
a7.06



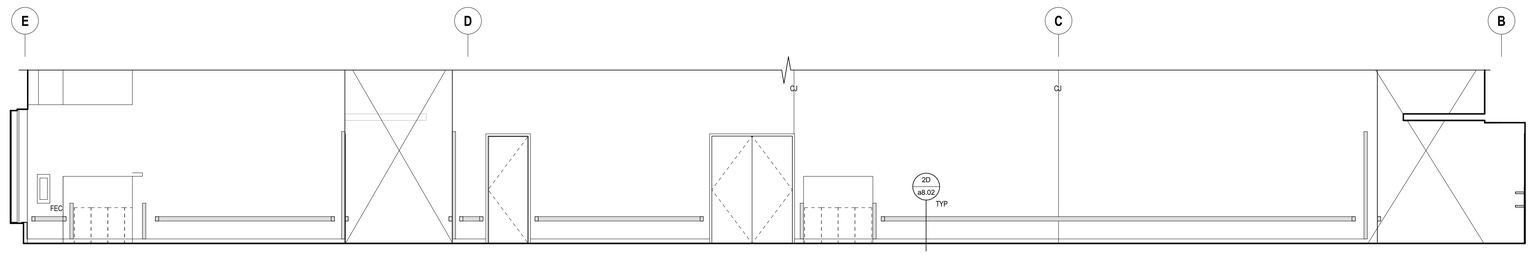
4A a7.07 **ELEVATION - 4-150 CORRIDOR EAST**
SCALE: 1/4" = 1'-0"



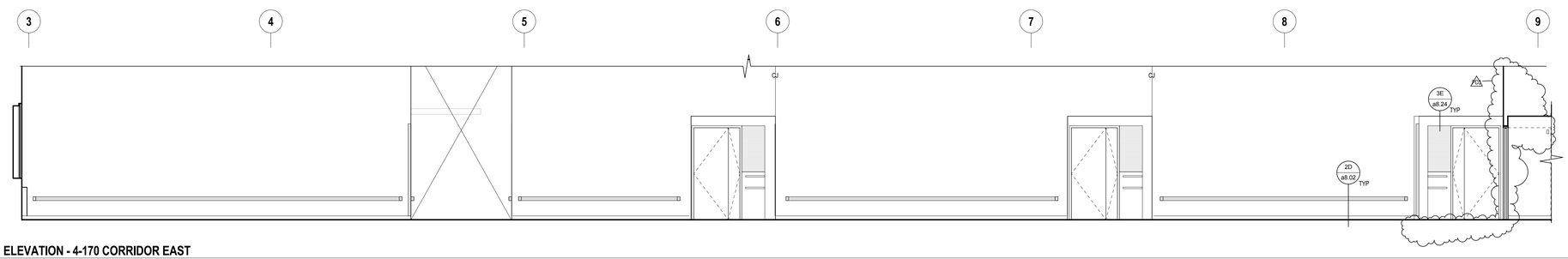
4B a7.07 **ELEVATION - 4-150 CORRIDOR WEST**
SCALE: 1/4" = 1'-0"



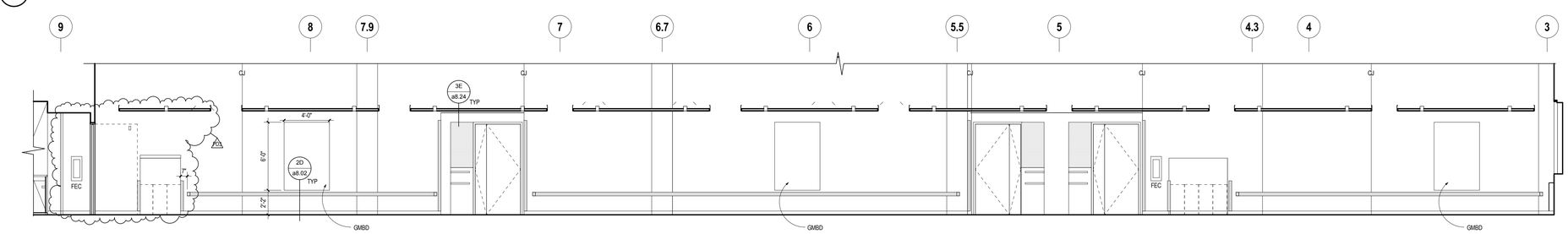
5C a7.07 **ELEVATION - 4-160 CORRIDOR NORTH**
SCALE: 1/4" = 1'-0"



5D a7.07 **ELEVATION - 4-160 CORRIDOR SOUTH**
SCALE: 1/4" = 1'-0"



7E a7.07 **ELEVATION - 4-170 CORRIDOR EAST**
SCALE: 1/4" = 1'-0"



7F a7.07 **ELEVATION - 4-170 CORRIDOR WEST**
SCALE: 1/4" = 1'-0"

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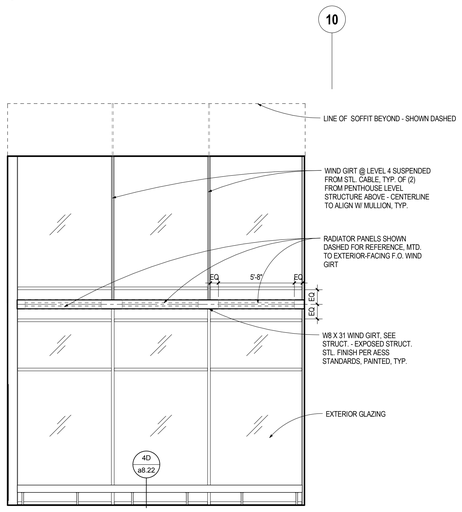
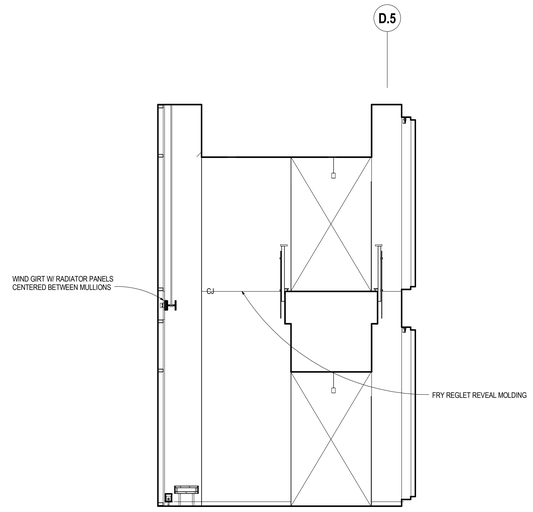
INTERIOR ELEVATIONS

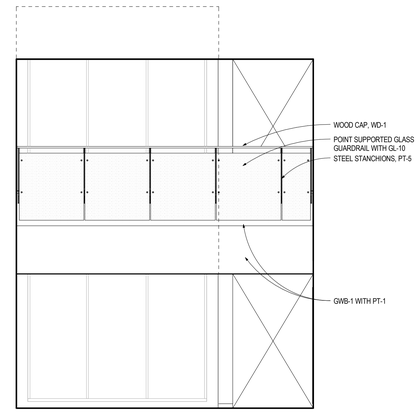
a7.07



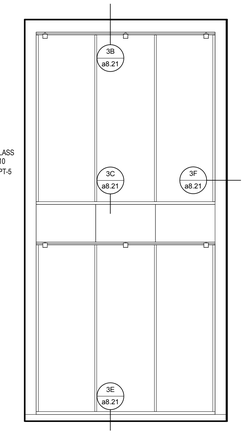
6B a7.10 **ELEVATION - 3-100A INTERACTION EAST**
SCALE: 1/4" = 1'-0"



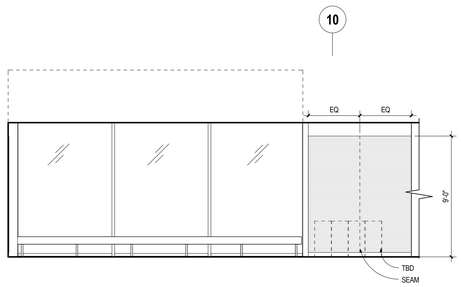
4B a7.10 **ELEVATION - 3-100A INTERACTION SOUTH**
SCALE: 1/4" = 1'-0"



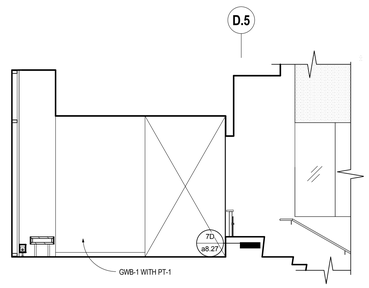
2B a7.10 **ELEVATION - 3-100A INTERACTION WEST**
SCALE: 1/4" = 1'-0"



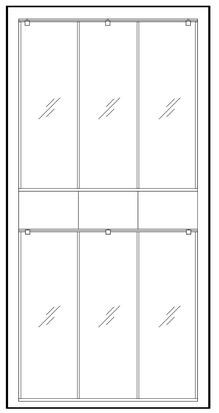
1B a7.10 **ELEVATION - 3-100A INTERACTION WEST**
SCALE: 1/4" = 1'-0"



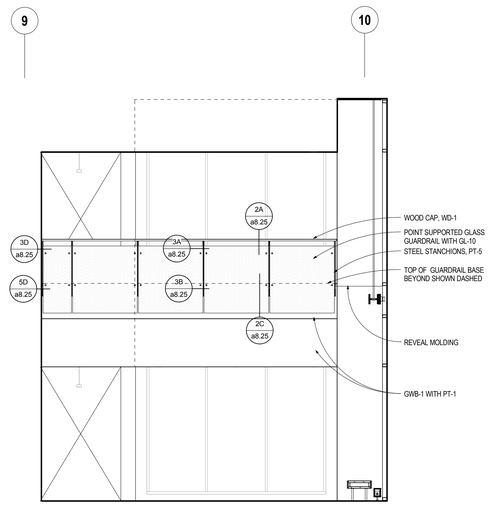
6C a7.10 **ELEVATION - 2-100A INTERACTION EAST**
SCALE: 1/4" = 1'-0"



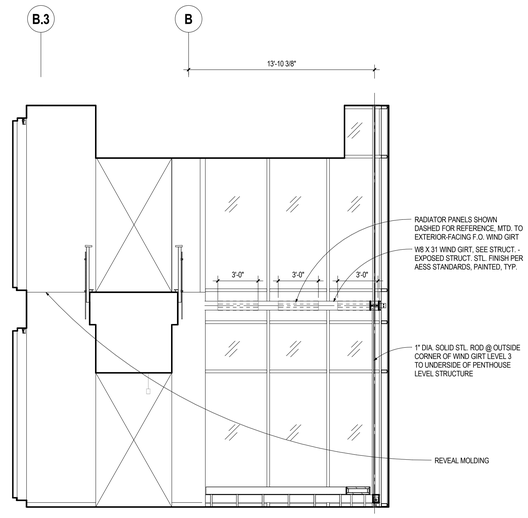
4C a7.10 **ELEVATION - 2-100A INTERACTION SOUTH**
SCALE: 1/4" = 1'-0"



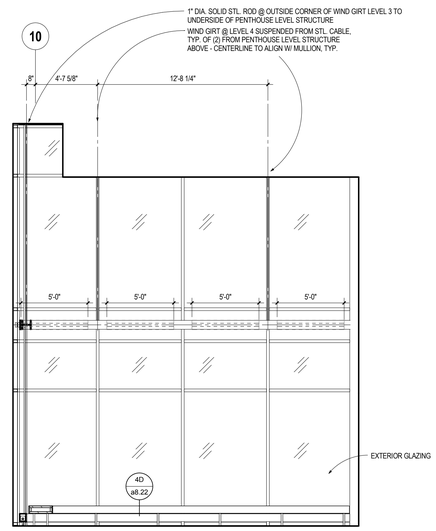
6D a7.10 **ELEVATION - 3-100B INTERACTION EAST**
SCALE: 1/4" = 1'-0"



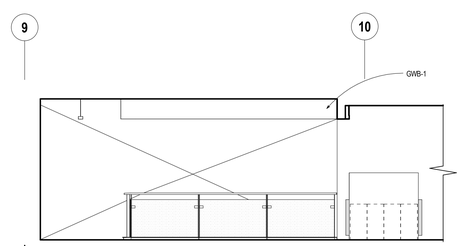
5D a7.10 **ELEVATION - 3-100B INTERACTION EAST**
SCALE: 1/4" = 1'-0"



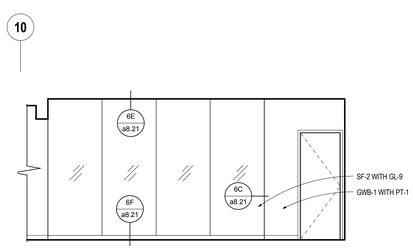
4D a7.10 **ELEVATION - 3-100B INTERACTION SOUTH**
SCALE: 1/4" = 1'-0"



2D a7.10 **ELEVATION - 3-100B INTERACTION WEST**
SCALE: 1/4" = 1'-0"



5F a7.10 **ELEVATION - 2-100B CORRIDOR EAST**
SCALE: 1/4" = 1'-0"



2F a7.10 **ELEVATION - 2-100B CORRIDOR WEST**
SCALE: 1/4" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

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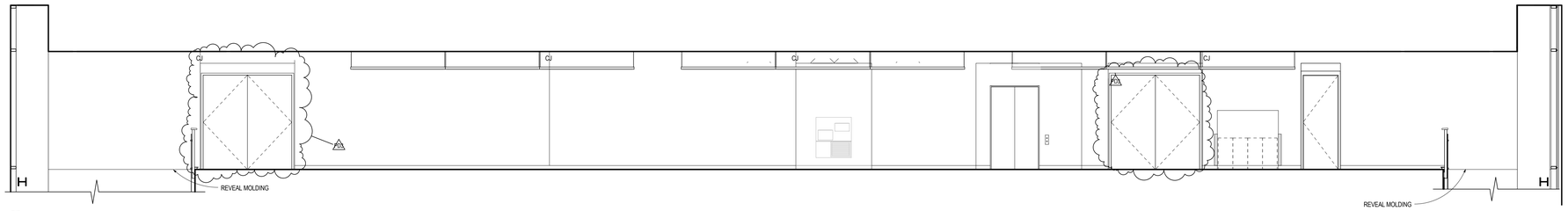
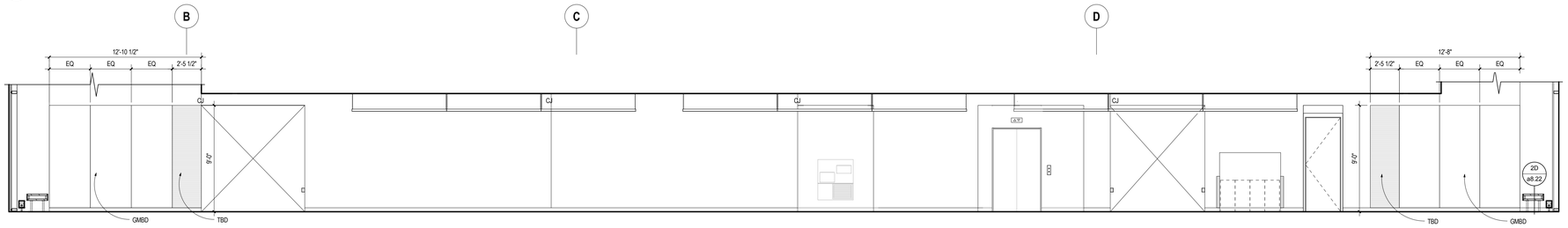
INTERIOR ELEVATIONS

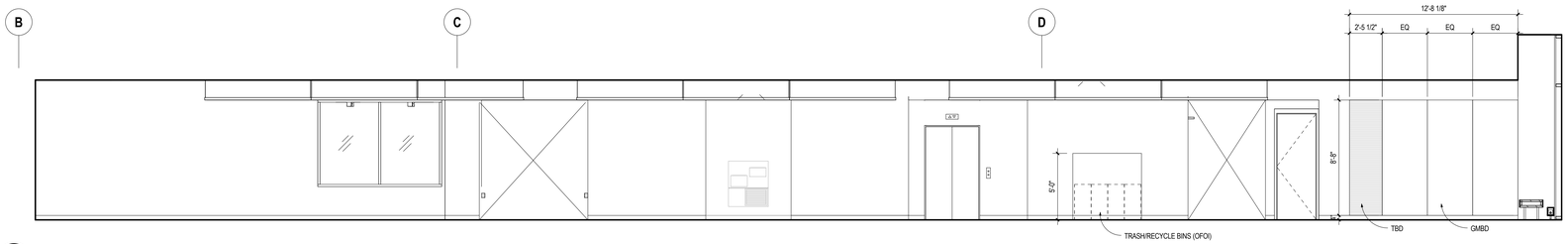
a7.10



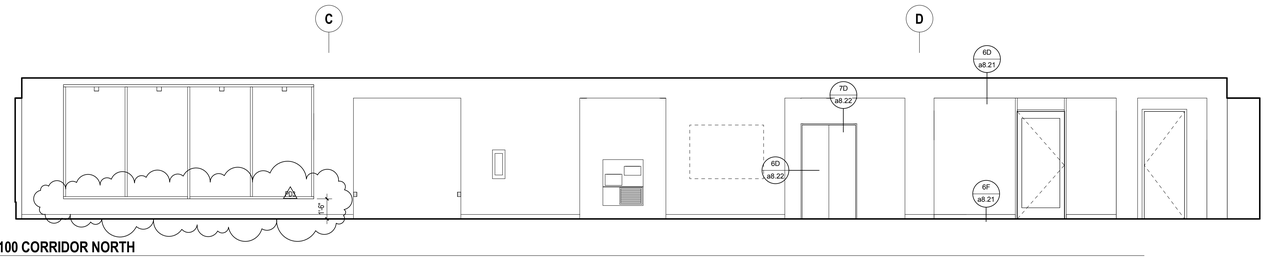
6A a7.11 **ELEVATION - 4-100 CORRIDOR NORTH**
SCALE: 1/4" = 1'-0"



6B a7.11 **ELEVATION - 3-100 CORRIDOR NORTH**
SCALE: 1/4" = 1'-0"



6C a7.11 **ELEVATION - 2-100 CORRIDOR NORTH**
SCALE: 1/4" = 1'-0"



6D a7.11 **ELEVATION - 1-100 CORRIDOR NORTH**
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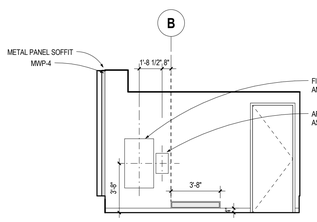
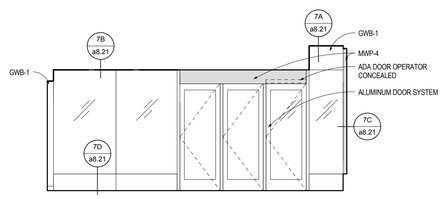
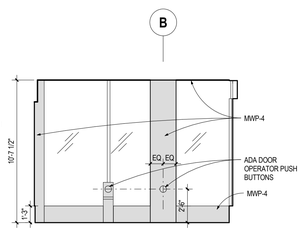


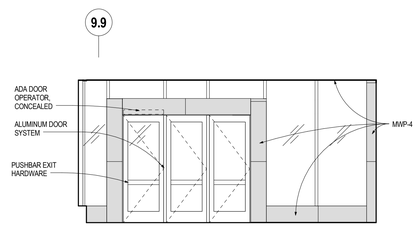
5E a7.11 **ELEVATION - 1-100A VESTIBULE NORTH**
SCALE: 1/4" = 1'-0"



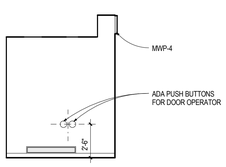
4E a7.11 **ELEVATION - 1-100A VESTIBULE EAST**
SCALE: 1/4" = 1'-0"



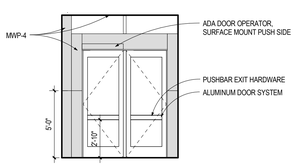
3E a7.11 **ELEVATION - 1-100A VESTIBULE SOUTH**
SCALE: 1/4" = 1'-0"



2E a7.11 **ELEVATION - 1-100A VESTIBULE WEST**
SCALE: 1/4" = 1'-0"



4F a7.11 **ELEVATION - 1-100B VEST. NORTH**
SCALE: 1/4" = 1'-0"



3F a7.11 **ELEVATION - 1-100B VEST. EAST**
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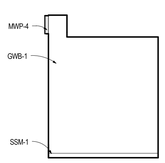
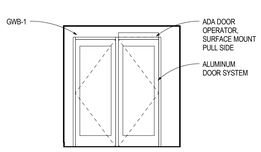


2F a7.11 **ELEVATION - 1-100B VEST. SOUTH**
SCALE: 1/4" = 1'-0"



1F a7.11 **ELEVATION - 1-100B VEST. WEST**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. REFER TO DETAIL 5E/a8.23 FOR TYPICAL TBD AND SIGNAGE AT OFFICE ENTRY

B. REFER TO DETAIL 5A/a8.23 FOR TYPICAL TBD ASSEMBLY

C. REFER TO DETAIL 5B/a8.23 FOR TYPICAL GMBD ASSEMBLY

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For *Architectural Alliance*

By

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Date 02-24-2012 Reg. No. 14703

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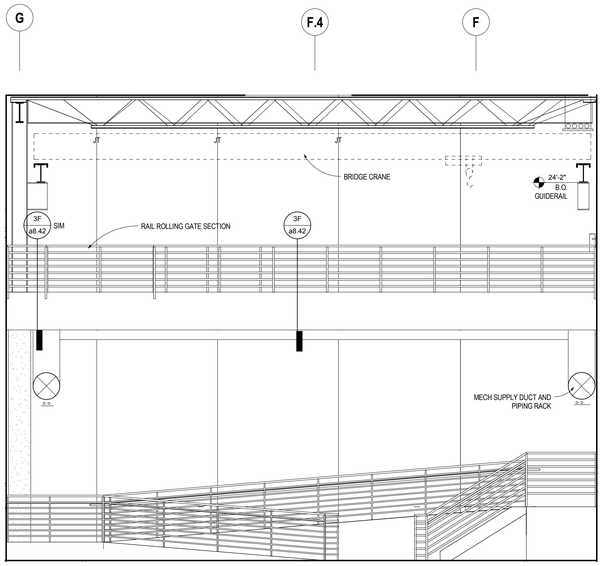
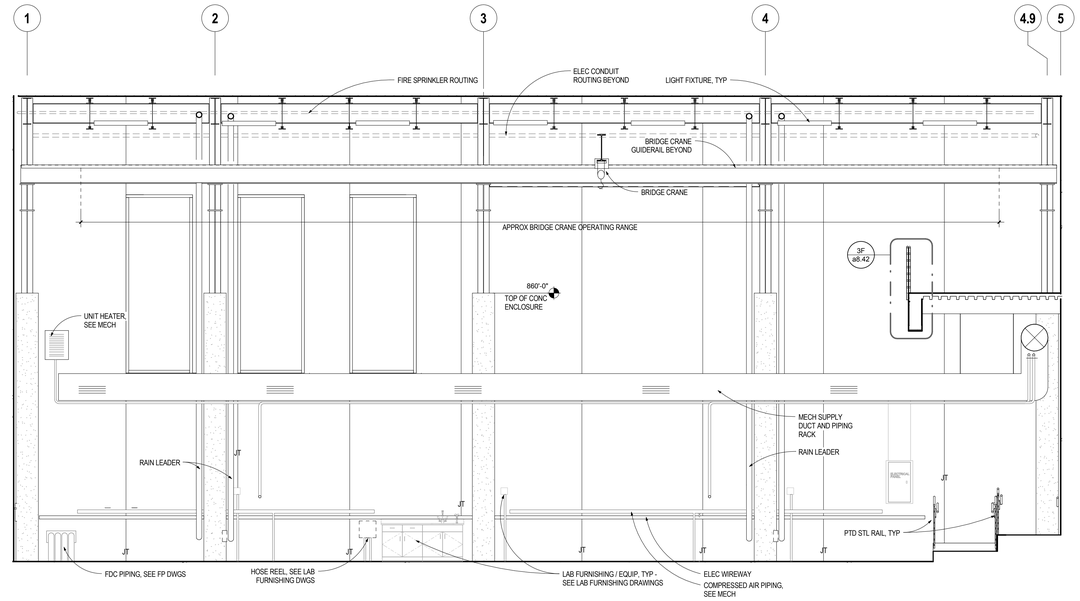
INTERIOR ELEVATIONS

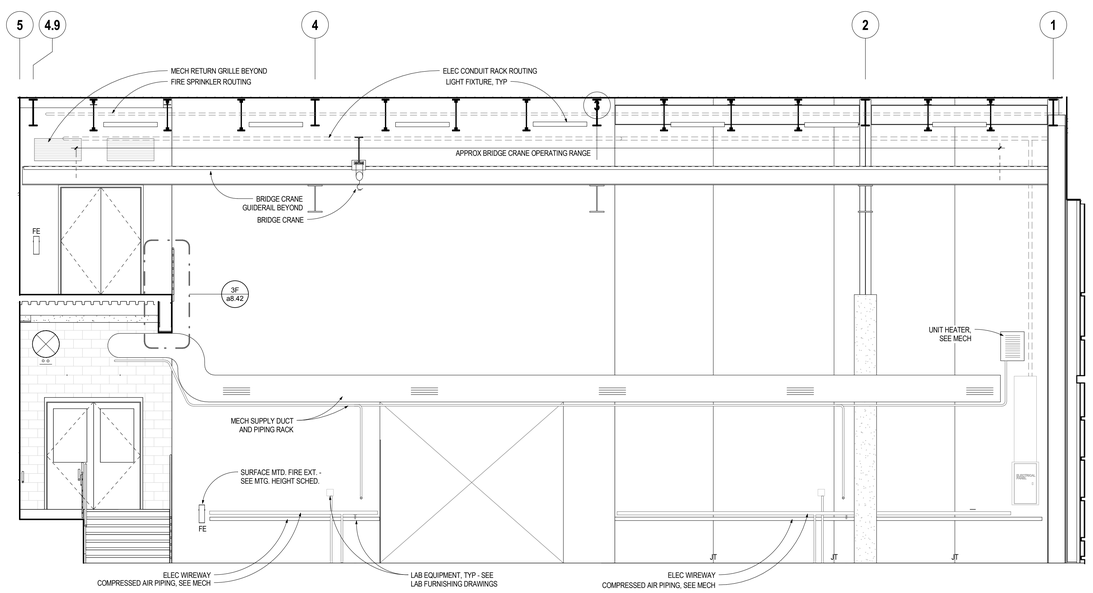
a7.11



7C a7.31 **ELEVATION - 1-162 HIGH BAY SOUTH**
SCALE: 1/4" = 1'-0"



4C a7.31 **ELEVATION - 1-162 HIGH BAY EAST**
SCALE: 1/4" = 1'-0"



4E a7.31 **ELEVATION - 1-162 HIGH BAY WEST**
SCALE: 1/4" = 1'-0"

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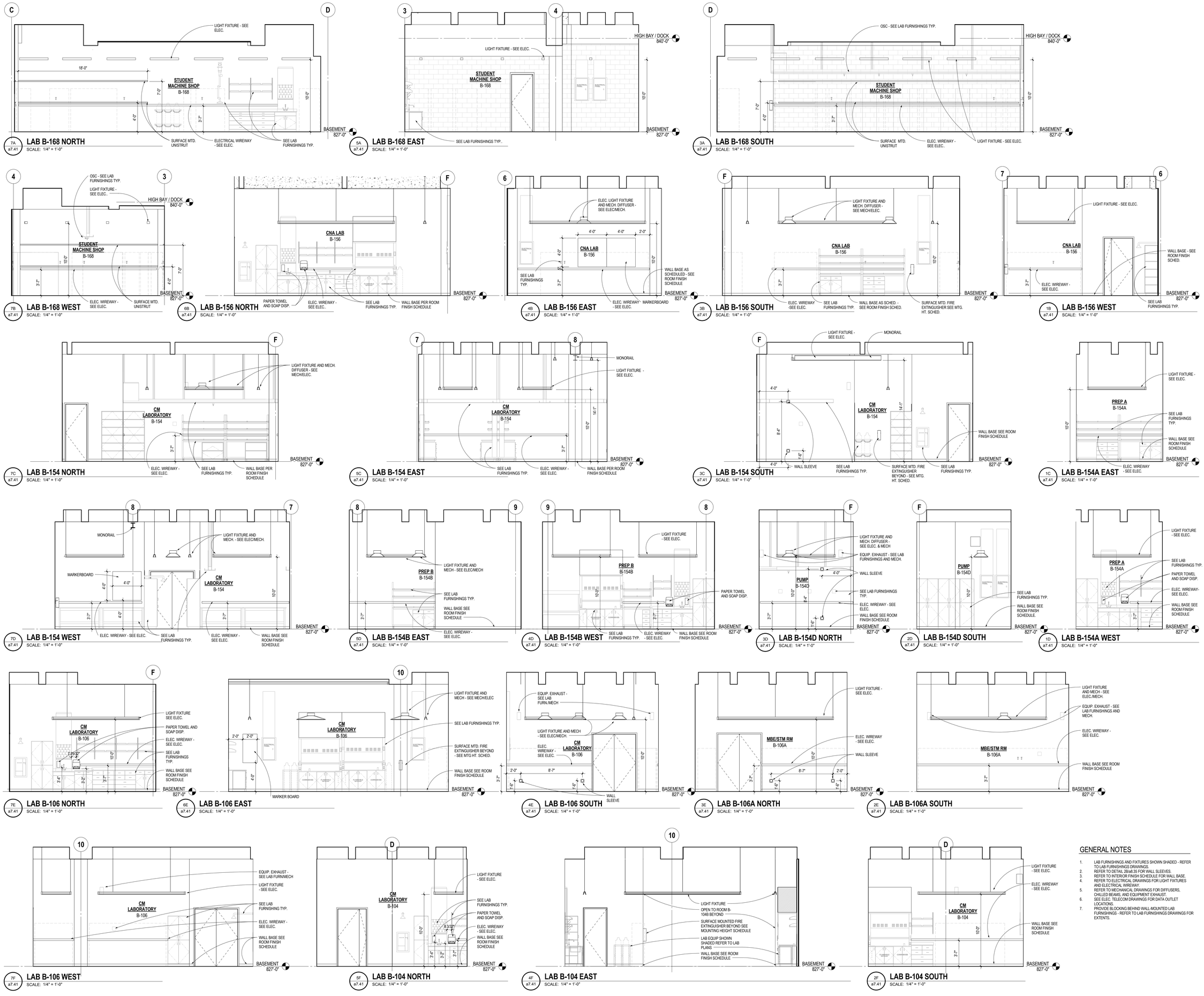
INTERIOR ELEVATIONS - HIGH BAY

a7.31



GENERAL NOTES

1. LAB FURNISHINGS AND FIXTURES SHOWN SHADED - REFER TO LAB FURNISHINGS DRAWINGS.
2. REFER TO DETAIL 2B/a8.35 FOR WALL SLEEVES.
3. REFER TO INTERIOR FINISH SCHEDULE FOR WALL BASE.
4. REFER TO ELECTRICAL DRAWINGS FOR LIGHT FIXTURES AND ELECTRICAL WIREWAY.
5. REFER TO MECHANICAL DRAWINGS FOR DIFFUSERS, CHILLED BEAMS, AND EQUIPMENT EXHAUST.
6. SEE ELEC. TELECOM DRAWINGS FOR DATA OUTLET LOCATIONS.
7. PROVIDE BLOCKING BEHIND WALL-MOUNTED LAB FURNISHINGS - REFER TO LAB FURNISHINGS DRAWINGS FOR EXTENTS.

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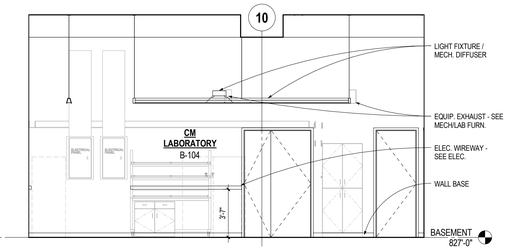
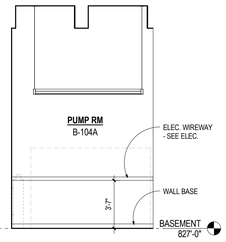
INTERIOR ELEVATIONS - LABS BASEMENT

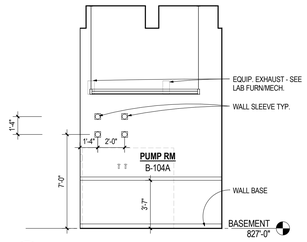
a7.41



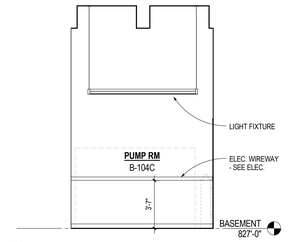
7A a7.42 **LAB B-104 WEST**
SCALE: 1/4" = 1'-0"



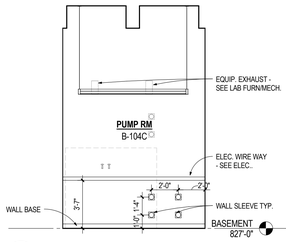
5A a7.42 **LAB B-104A NORTH**
SCALE: 1/4" = 1'-0"



4A a7.42 **LAB B-104A SOUTH**
SCALE: 1/4" = 1'-0"



3A a7.42 **LAB B-104C NORTH**
SCALE: 1/4" = 1'-0"



2A a7.42 **LAB B-104C SOUTH**
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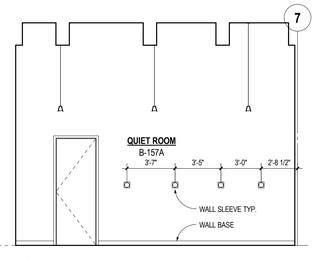
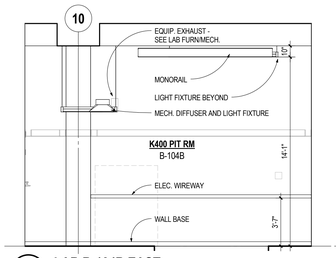


1A a7.42 **LAB B-157A EAST**
SCALE: 1/4" = 1'-0"



7B a7.42 **LAB B-104B EAST**
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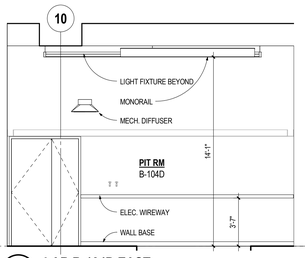

5B a7.42 **LAB B-104D EAST**
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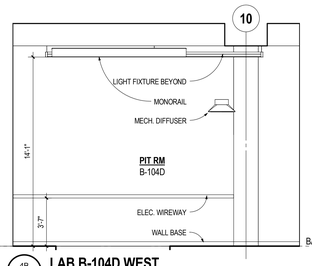

4B a7.42 **LAB B-104D WEST**
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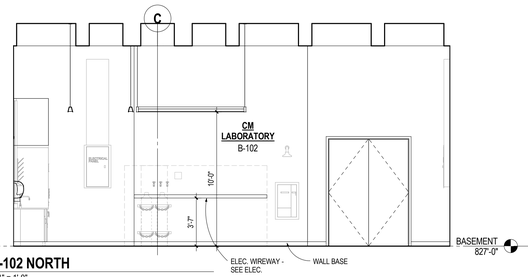

3B a7.42 **LAB B-102 NORTH**
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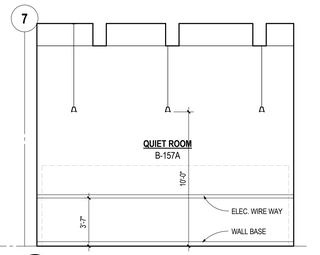
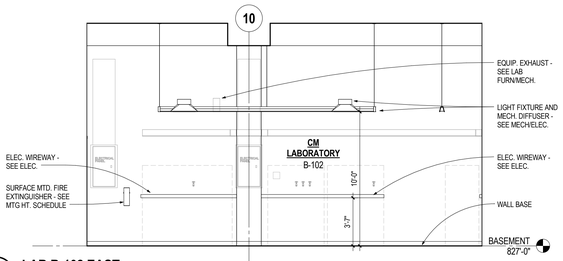
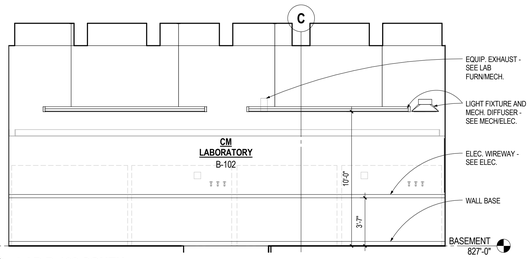


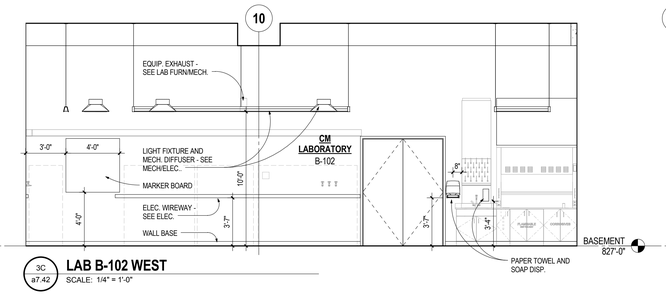
1B a7.42 **LAB B-157A WEST**
SCALE: 1/4" = 1'-0"



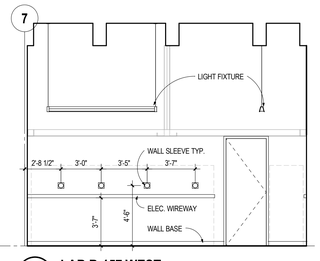
7C a7.42 **LAB B-102 EAST**
SCALE: 1/4" = 1'-0"



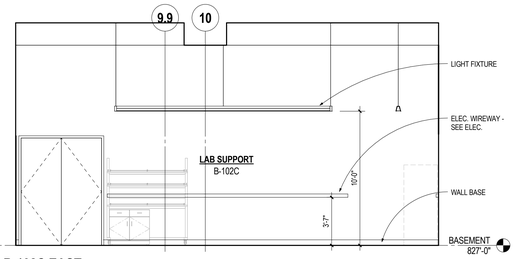
5C a7.42 **LAB B-102 SOUTH**
SCALE: 1/4" = 1'-0"



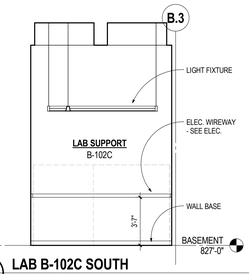
3C a7.42 **LAB B-102 WEST**
SCALE: 1/4" = 1'-0"



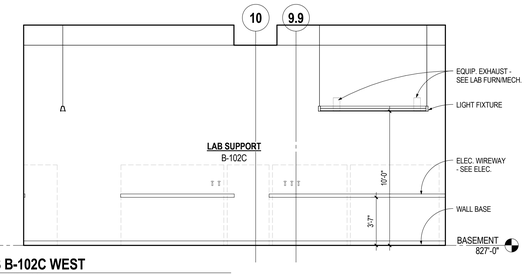
1C a7.42 **LAB B-157 WEST**
SCALE: 1/4" = 1'-0"



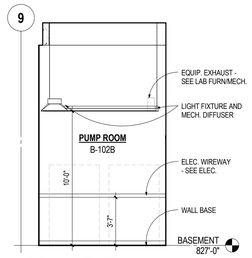
7D a7.42 **LAB B-102C EAST**
SCALE: 1/4" = 1'-0"



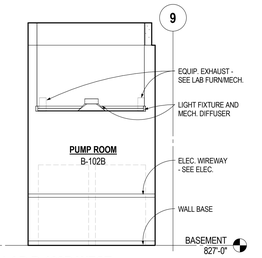
5D a7.42 **LAB B-102C SOUTH**
SCALE: 1/4" = 1'-0"



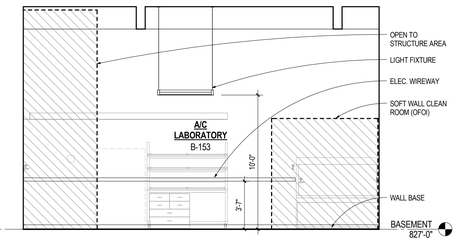
4D a7.42 **LAB B-102C WEST**
SCALE: 1/4" = 1'-0"



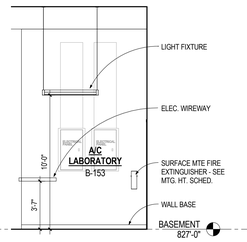
2D a7.42 **LAB B-102B EAST**
SCALE: 1/4" = 1'-0"



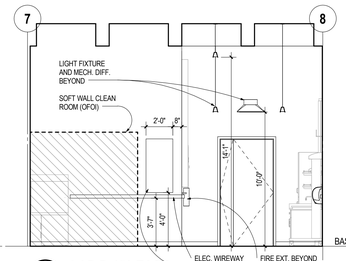
1D a7.42 **LAB B-102B WEST**
SCALE: 1/4" = 1'-0"



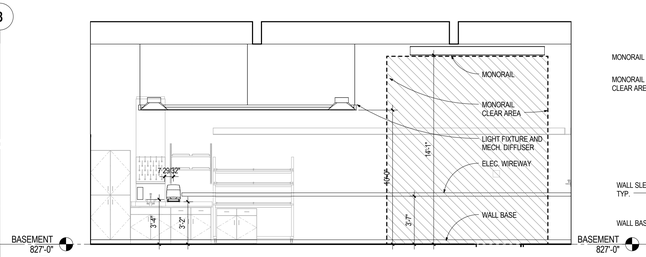
7E a7.42 **LAB B-153 NORTH A**
SCALE: 1/4" = 1'-0"



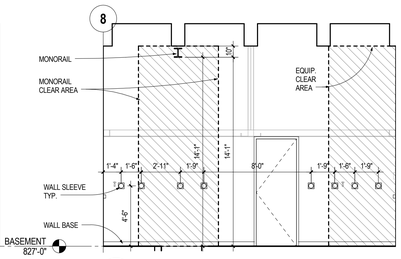
5E a7.42 **LAB B-153 NORTH B**
SCALE: 1/4" = 1'-0"



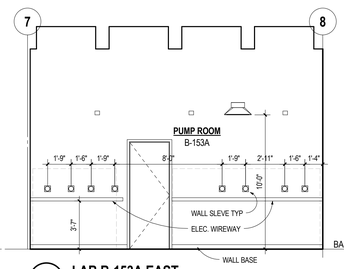
4E a7.42 **LAB B-153 EAST**
SCALE: 1/4" = 1'-0"



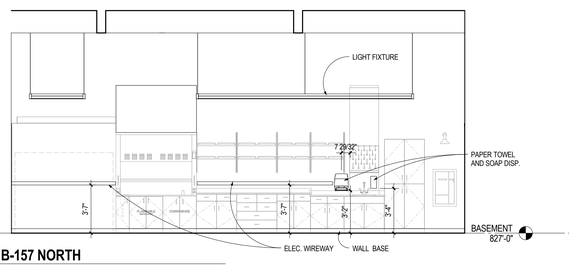
3E a7.42 **LAB B-153 SOUTH**
SCALE: 1/4" = 1'-0"



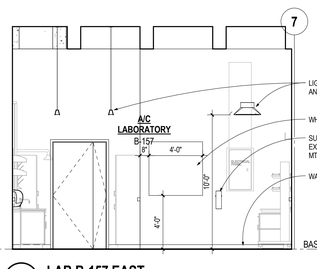
1E a7.42 **LAB B-153 WEST**
SCALE: 1/4" = 1'-0"



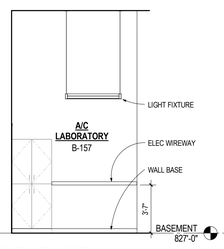
7F a7.42 **LAB B-153A EAST**
SCALE: 1/4" = 1'-0"



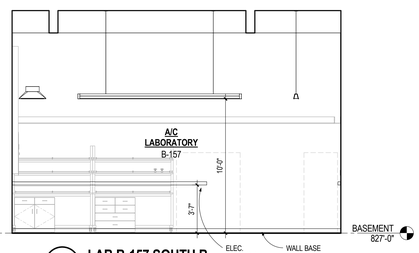
6F a7.42 **LAB B-157 NORTH**
SCALE: 1/4" = 1'-0"



4F a7.42 **LAB B-157 EAST**
SCALE: 1/4" = 1'-0"



3F a7.42 **LAB B-157 SOUTH A**
SCALE: 1/4" = 1'-0"



2F a7.42 **LAB B-157 SOUTH B**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. LAB FURNISHINGS AND FIXTURES SHOWN SHADED - REFER TO LAB FURNISHINGS DRAWINGS.
2. REFER TO DETAIL 2B/a8.35 FOR WALL SLEEVES.
3. REFER TO INTERIOR FINISH SCHEDULE FOR WALL BASE.
4. REFER TO ELECTRICAL DRAWINGS FOR LIGHT FIXTURES AND ELECTRICAL WIREWAY.
5. REFER TO MECHANICAL DRAWINGS FOR DIFFUSERS, CHILLED BEAMS, AND EQUIPMENT EXHAUST.
6. SEE ELEC. TELECOM DRAWINGS FOR DATA OUTLET LOCATIONS.
7. PROVIDE BLOCKING BEHIND WALL-MOUNTED LAB FURNISHINGS - REFER TO LAB FURNISHINGS DRAWINGS FOR EXTENTS.

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012

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Date

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
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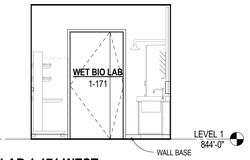
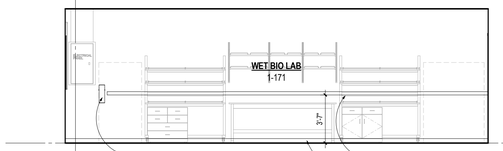
INTERIOR ELEVATIONS - LABS BASEMENT

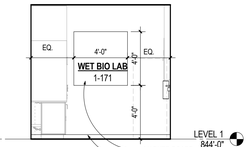
a7.42



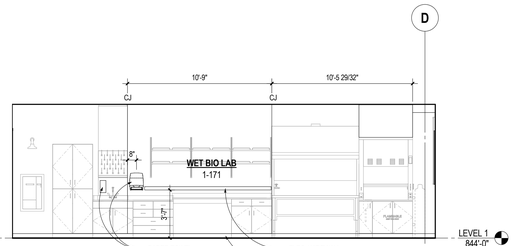
6A a7.43 **LAB 1-171 WEST**
SCALE: 1/4" = 1'-0"



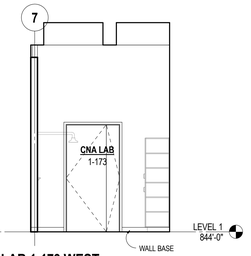
5A a7.43 **LAB 1-171 SOUTH**
SCALE: 1/4" = 1'-0"



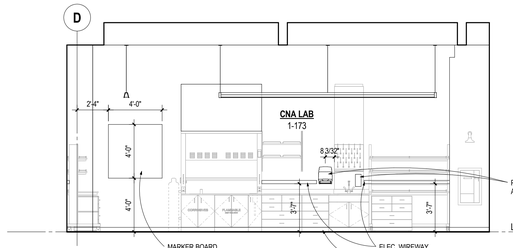
3A a7.43 **LAB 1-171 EAST**
SCALE: 1/4" = 1'-0"



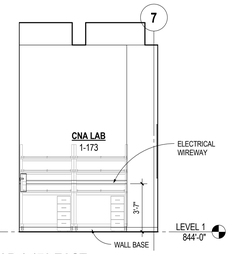
2A a7.43 **LAB 1-171 NORTH**
SCALE: 1/4" = 1'-0"



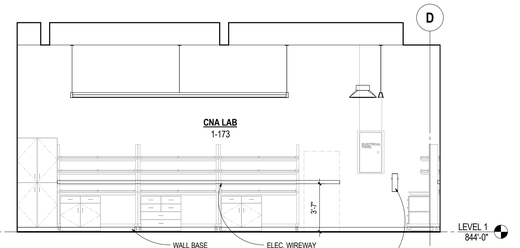
6B a7.43 **LAB 1-173 WEST**
SCALE: 1/4" = 1'-0"



5B a7.43 **LAB 1-173 SOUTH**
1/4" = 1'-0"



3B a7.43 **LAB 1-173 EAST**
SCALE: 1/4" = 1'-0"



2B a7.43 **LAB 1-173 NORTH**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. LAB FURNISHINGS AND FIXTURES SHOWN SHADED - REFER TO LAB FURNISHINGS DRAWINGS.
2. REFER TO DETAIL 28/a8.35 FOR WALL SLEEVES.
3. REFER TO INTERIOR FINISH SCHEDULE FOR WALL BASE.
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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

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100% CD set	12-16-2011
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Date

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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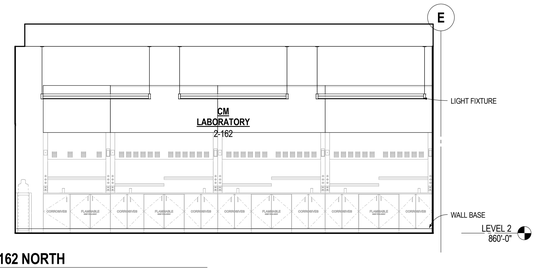
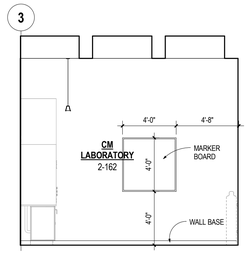
INTERIOR ELEVATIONS - LABS
LEVEL 1

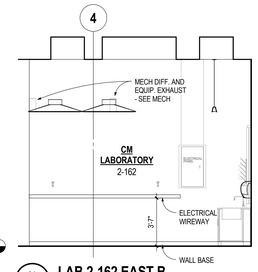
a7.43



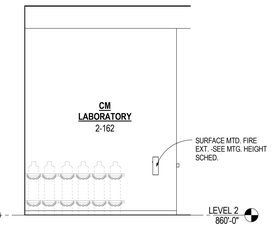
6A a7.44 **LAB 2-162 NORTH**
SCALE: 1/4" = 1'-0"



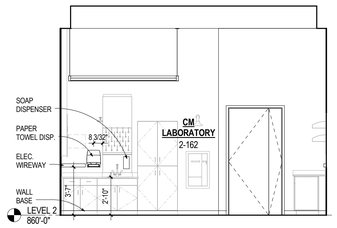
5A a7.44 **LAB 2-162 EAST A**
SCALE: 1/4" = 1'-0"



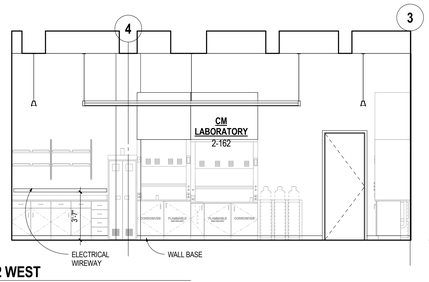
3A a7.44 **LAB 2-162 EAST B**
SCALE: 1/4" = 1'-0"



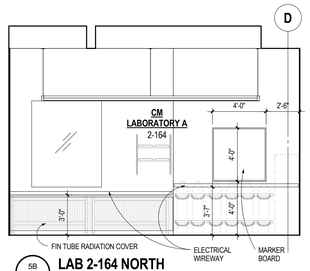
2A a7.44 **LAB 2-162 SOUTH A**
SCALE: 1/4" = 1'-0"



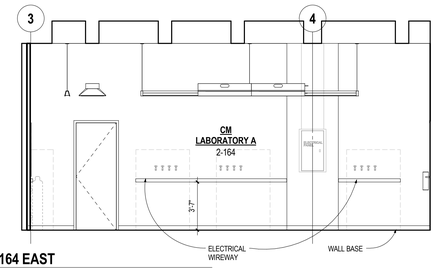
1A a7.44 **LAB 2-162 SOUTH B**
SCALE: 1/4" = 1'-0"



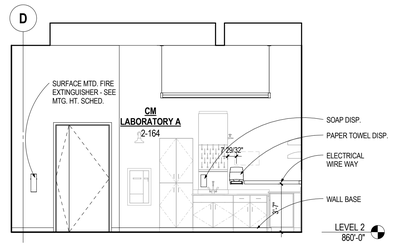
7B a7.44 **LAB 2-162 WEST**
SCALE: 1/4" = 1'-0"



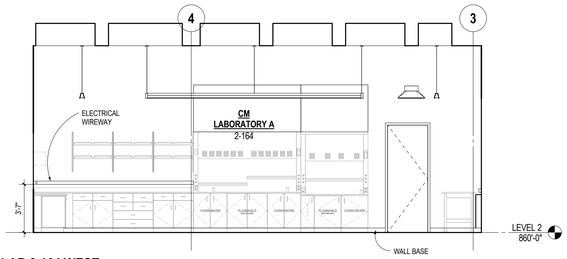
5B a7.44 **LAB 2-164 NORTH**
SCALE: 1/4" = 1'-0"



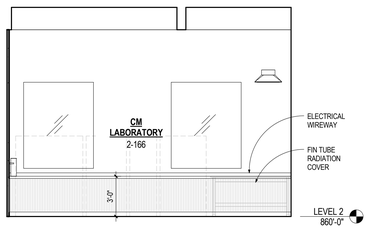
4B a7.44 **LAB 2-164 EAST**
SCALE: 1/4" = 1'-0"



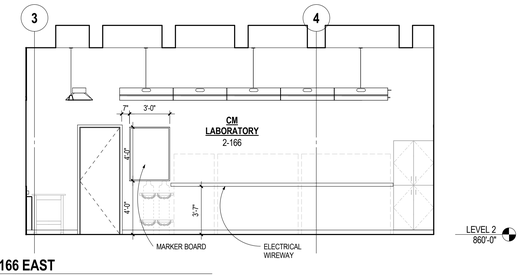
2B a7.44 **LAB 2-164 SOUTH**
SCALE: 1/4" = 1'-0"



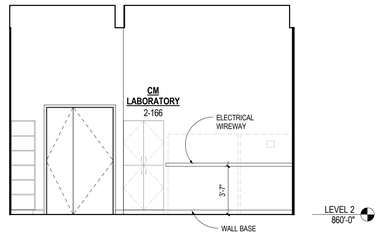
7C a7.44 **LAB 2-164 WEST**
SCALE: 1/4" = 1'-0"



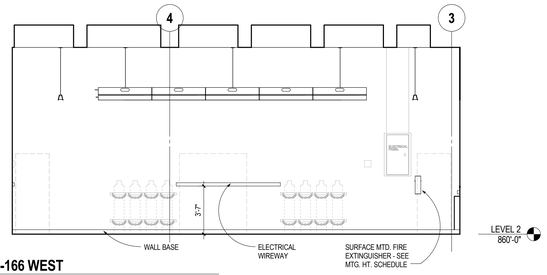
5C a7.44 **LAB 2-166 NORTH**
SCALE: 1/4" = 1'-0"



4C a7.44 **LAB 2-166 EAST**
SCALE: 1/4" = 1'-0"

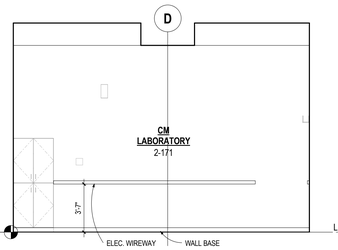


2C a7.44 **LAB 2-166 SOUTH**
SCALE: 1/4" = 1'-0"

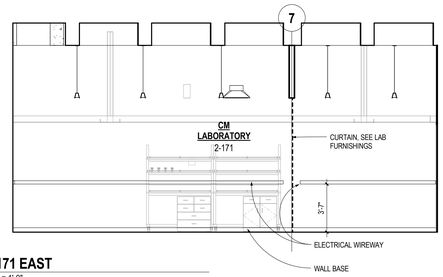


7D a7.44 **LAB 2-166 WEST**
SCALE: 1/4" = 1'-0"

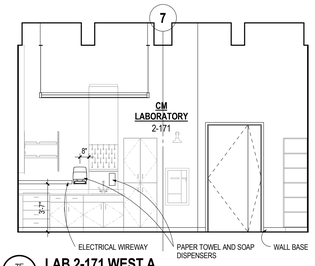
4D a7.44 **LAB 2-171 NORTH A**
SCALE: 1/4" = 1'-0"



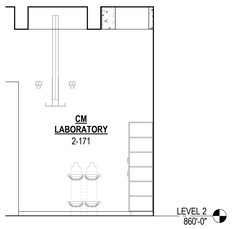
3D a7.44 **LAB 2-171 NORTH B**
SCALE: 1/4" = 1'-0"



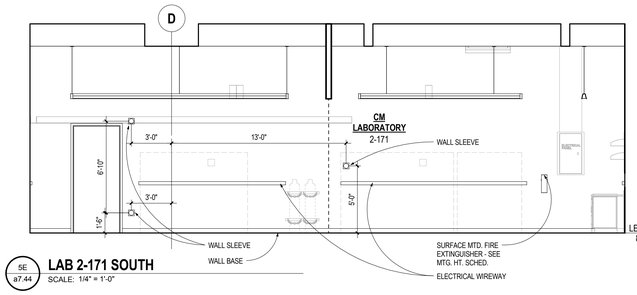
2D a7.44 **LAB 2-171 EAST**
SCALE: 1/4" = 1'-0"



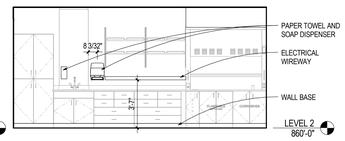
7E a7.44 **LAB 2-171 WEST A**
SCALE: 1/4" = 1'-0"



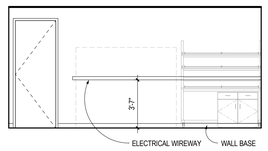
6E a7.44 **LAB 2-171 WEST B**
SCALE: 1/4" = 1'-0"



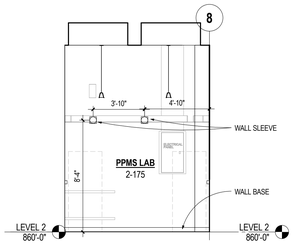
5E a7.44 **LAB 2-171 SOUTH**
SCALE: 1/4" = 1'-0"



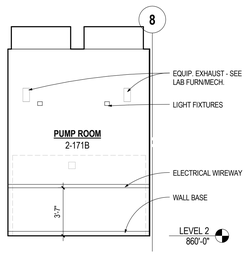
3E a7.44 **LAB 2-171A NORTH**
SCALE: 1/4" = 1'-0"



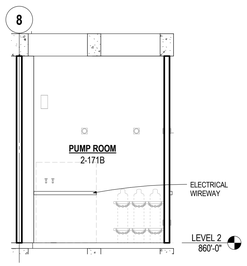
2E a7.44 **LAB 2-171A SOUTH**
SCALE: 1/4" = 1'-0"



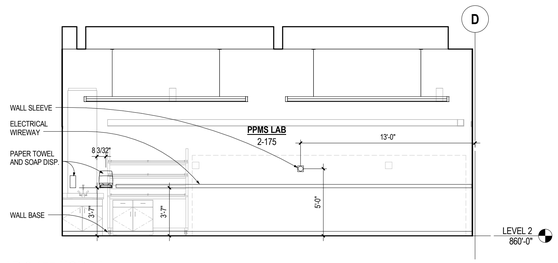
1E a7.44 **LAB 2-175 EAST**
SCALE: 1/4" = 1'-0"



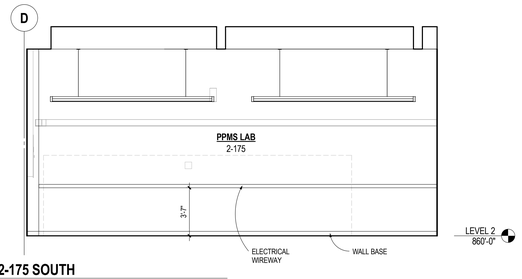
7F a7.44 **LAB 2-171B EAST**
SCALE: 1/4" = 1'-0"



6F a7.44 **LAB 2-171B WEST**
SCALE: 1/4" = 1'-0"



5F a7.44 **LAB 2-175 NORTH**
SCALE: 1/4" = 1'-0"



3F a7.44 **LAB 2-175 SOUTH**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. LAB FURNISHINGS AND FIXTURES SHOWN SHADED - REFER TO LAB FURNISHINGS DRAWINGS.
2. REFER TO DETAIL 2B/a8.35 FOR WALL SLEEVES.
3. REFER TO INTERIOR FINISH SCHEDULE FOR WALL BASE.
4. REFER TO ELECTRICAL DRAWINGS FOR LIGHT FIXTURES AND ELECTRICAL WIREWAY.
5. REFER TO MECHANICAL DRAWINGS FOR DIFFUSERS, CHILLED BEAMS, AND EQUIPMENT EXHAUST.
6. SEE ELEC. TELECOM DRAWINGS FOR DATA OUTLET LOCATIONS.
7. PROVIDE BLOCKING BEHIND WALL-MOUNTED LAB FURNISHINGS - REFER TO LAB FURNISHINGS DRAWINGS FOR EXTENTS.

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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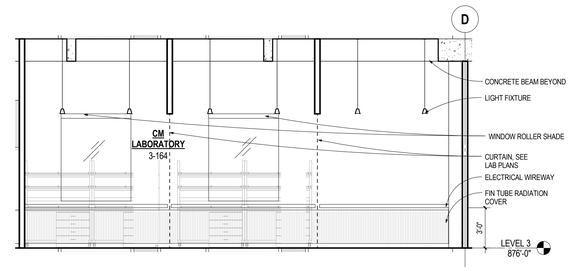
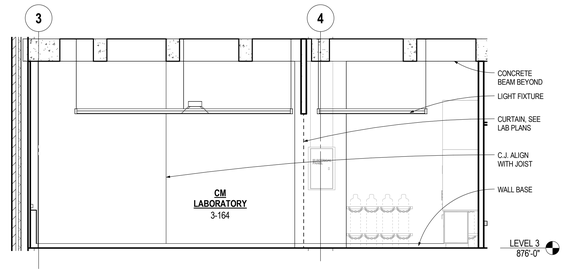
INTERIOR ELEVATIONS - LABS
LEVEL 2

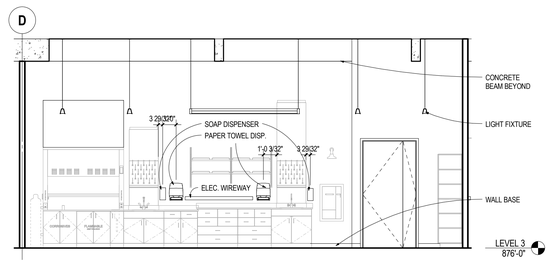
a7.44



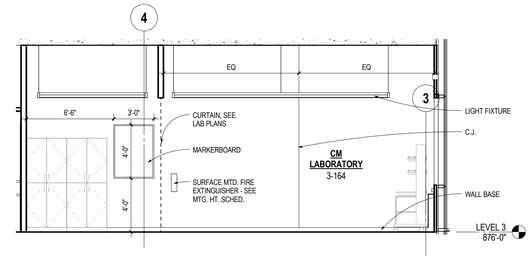
7A a7.45 **LAB 3-164 NORTH**
SCALE: 1/4" = 1'-0"



6A a7.45 **LAB 3-164 EAST**
SCALE: 1/4" = 1'-0"



4A a7.45 **LAB 3-164 SOUTH**
SCALE: 1/4" = 1'-0"



2A a7.45 **LAB 3-164 WEST**
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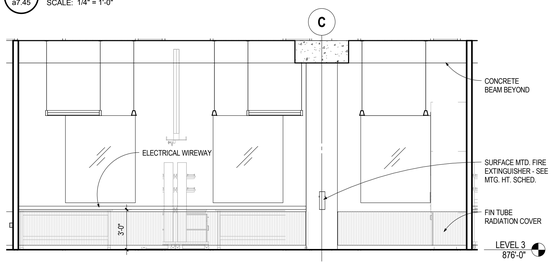
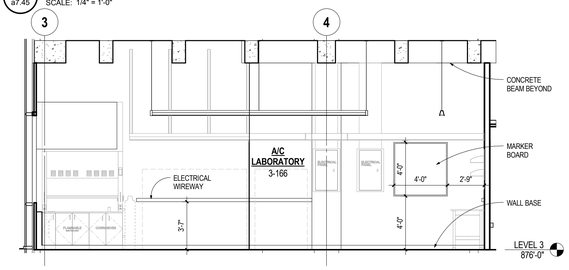


7B a7.45 **LAB 3-166 NORTH**
SCALE: 1/4" = 1'-0"



6B a7.45 **LAB 3-166 EAST**
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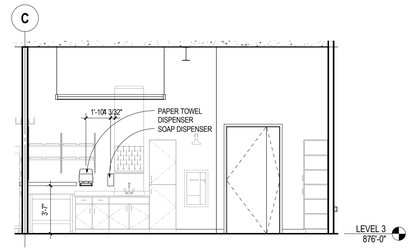
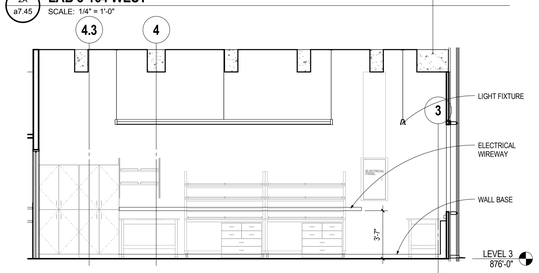


4B a7.45 **LAB 3-166 SOUTH**
SCALE: 1/4" = 1'-0"



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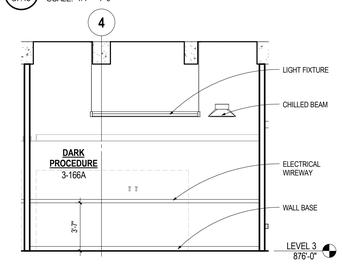
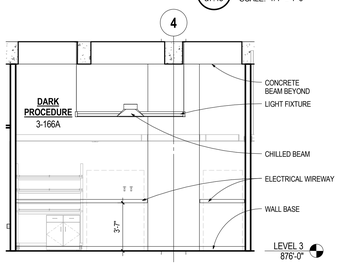


7C a7.45 **LAB 3-166A EAST**
SCALE: 1/4" = 1'-0"



6C a7.45 **LAB 3-166A WEST**
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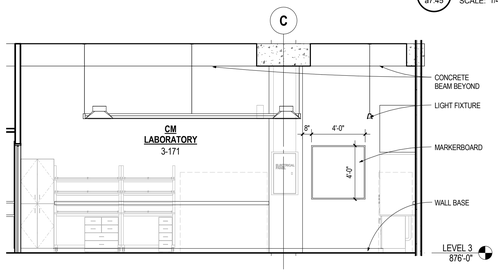

5C a7.45 **LAB 3-171 NORTH**
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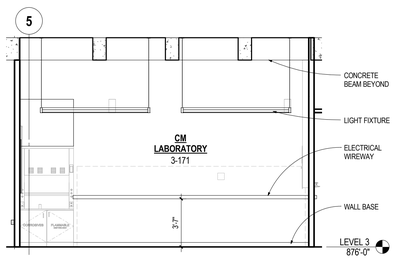

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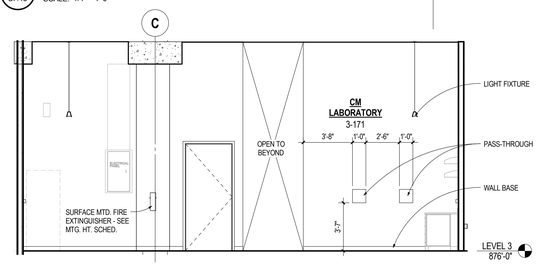

2C a7.45 **LAB 3-171 SOUTH**
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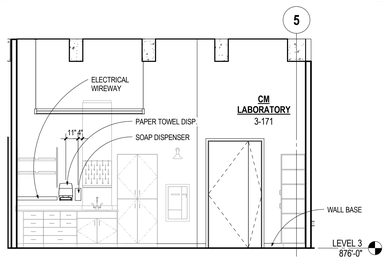

7D a7.45 **LAB 3-171 WEST**
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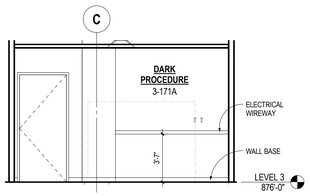
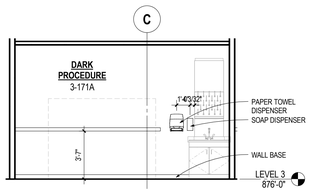


6D a7.45 **LAB 3-171A NORTH**
SCALE: 1/4" = 1'-0"



5D a7.45 **LAB 3-171A SOUTH**
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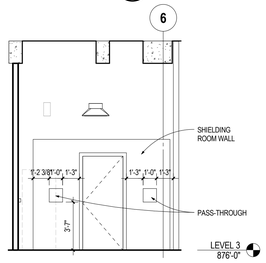

4D a7.45 **LAB 3-171B WEST**
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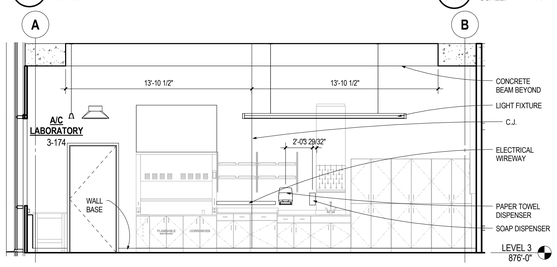

7E a7.45 **LAB 3-174 NORTH**
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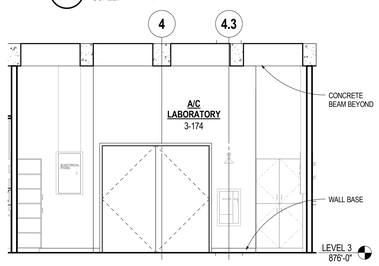

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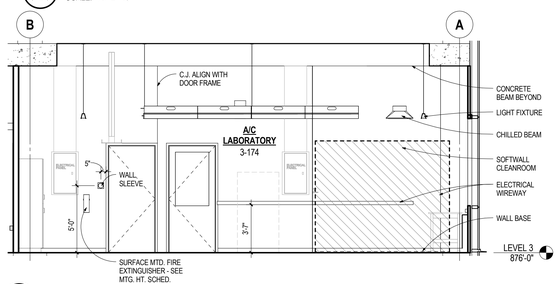

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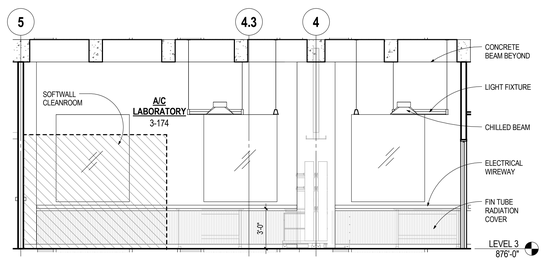

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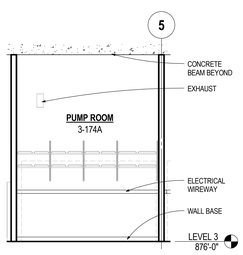

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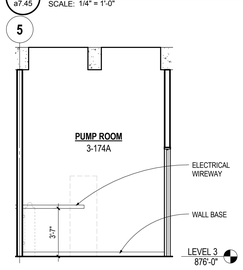

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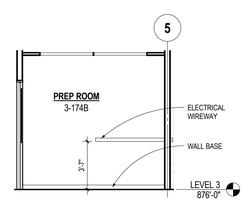

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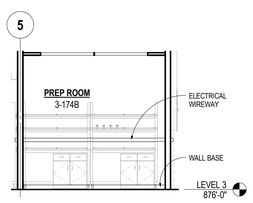

3F a7.45 **LAB 3-174B WEST**
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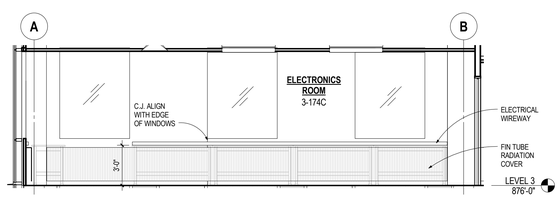

2F a7.45 **LAB 3-174C NORTH**
SCALE: 1/4" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

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U of M Project # 01-155-08-1718

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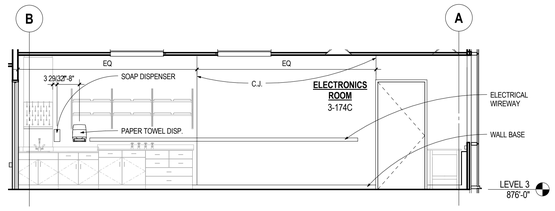
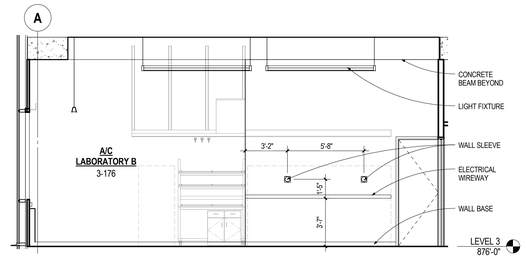
INTERIOR ELEVATIONS - LABS
LEVEL 3

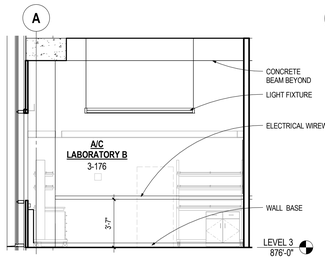
a7.45



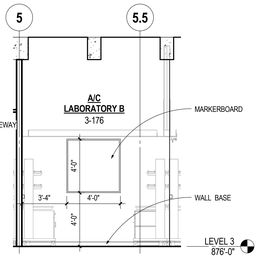
7A a7.46 **LAB 3-174C SOUTH**
SCALE: 1/4" = 1'-0"



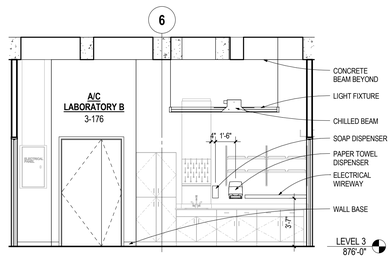
5A a7.46 **LAB 3-176 NORTH -1**
SCALE: 1/4" = 1'-0"



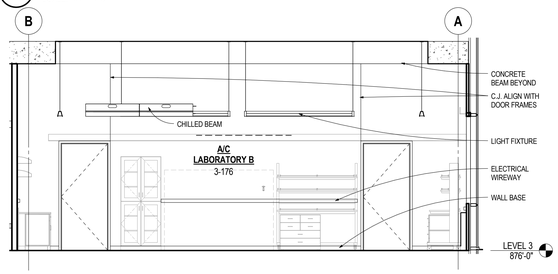
3A a7.46 **LAB 3-176 NORTH-2**
SCALE: 1/4" = 1'-0"



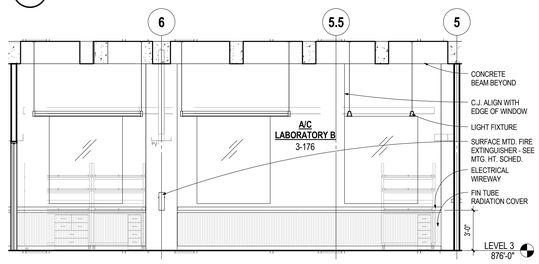
2A a7.46 **LAB 3-175 EAST-1**
SCALE: 1/4" = 1'-0"



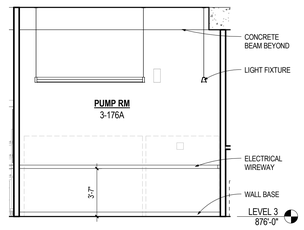
1A a7.46 **LAB 3-176 EAST-2**
SCALE: 1/4" = 1'-0"



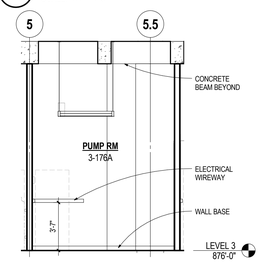
7B a7.46 **LAB 3-176 SOUTH**
SCALE: 1/4" = 1'-0"



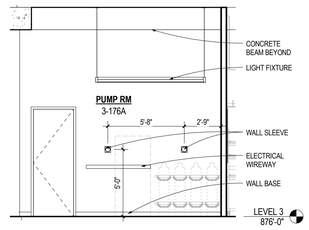
5B a7.46 **LAB 3-176 WEST**
SCALE: 1/4" = 1'-0"



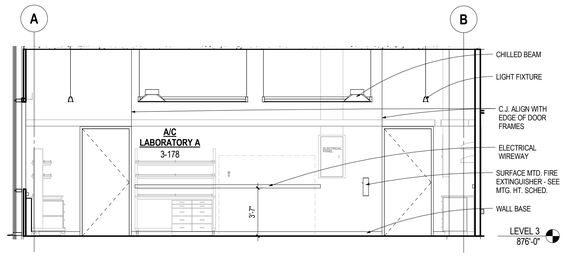
3B a7.46 **LAB 3-176A NORTH**
SCALE: 1/4" = 1'-0"



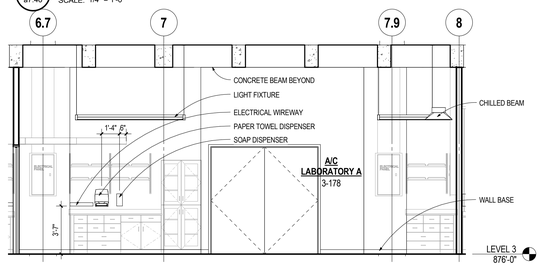
2B a7.46 **LAB 3-176A EAST**
SCALE: 1/4" = 1'-0"



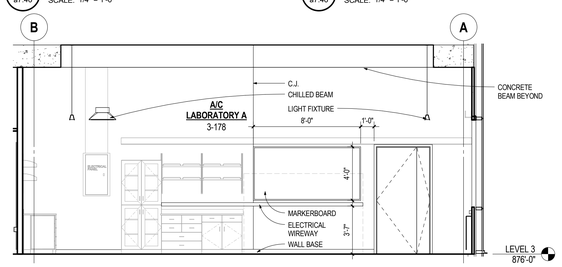
1B a7.46 **LAB 3-176A SOUTH**
SCALE: 1/4" = 1'-0"



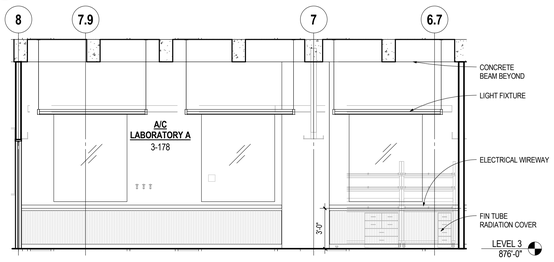
7C a7.46 **LAB 3-178 NORTH**
SCALE: 1/4" = 1'-0"



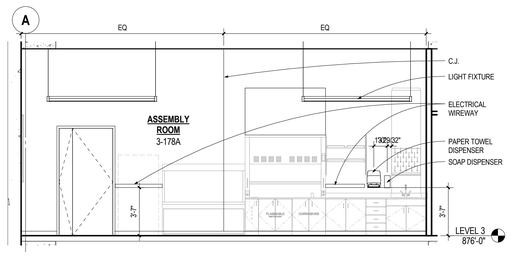
5C a7.46 **LAB 3-178 EAST**
SCALE: 1/4" = 1'-0"



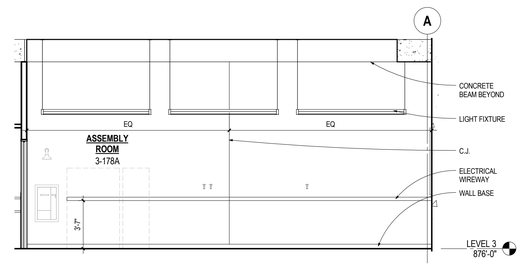
3C a7.46 **LAB 3-178 SOUTH**
SCALE: 1/4" = 1'-0"



7D a7.46 **LAB 3-178 WEST**
SCALE: 1/4" = 1'-0"



5D a7.46 **LAB 3-178A NORTH**
SCALE: 1/4" = 1'-0"



3D a7.46 **LAB 3-178A SOUTH**
SCALE: 1/4" = 1'-0"

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012

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Checked

Date

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
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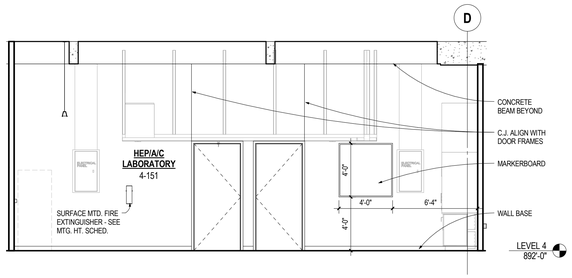
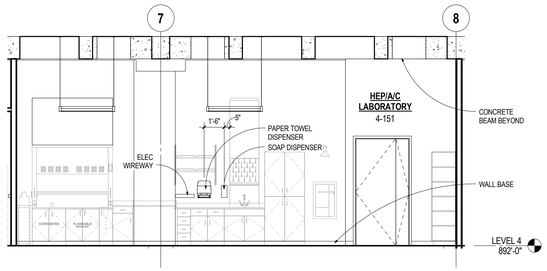
INTERIOR ELEVATIONS - LABS
LEVEL 3

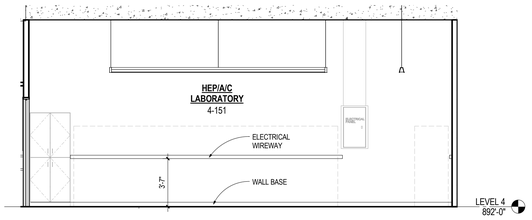
a7.46



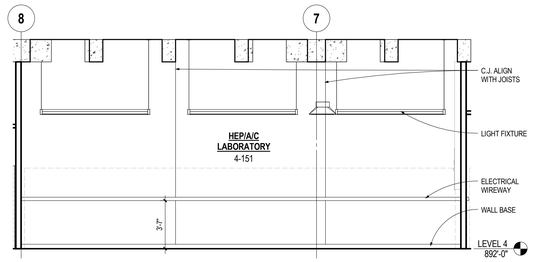
7A a7.47 **LAB 4-151 NORTH**
SCALE: 1/4" = 1'-0"



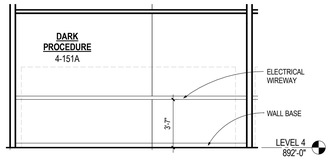
5A a7.47 **LAB 4-151 EAST**
SCALE: 1/4" = 1'-0"



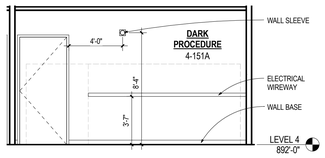
4A a7.47 **LAB 4-151 SOUTH**
SCALE: 1/4" = 1'-0"



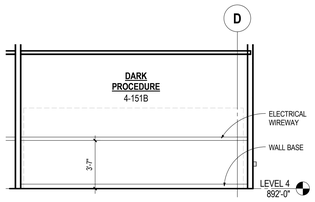
2A a7.47 **LAB 4-151 WEST**
SCALE: 1/4" = 1'-0"



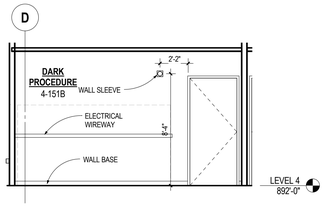
7B a7.47 **LAB 4-151A NORTH**
SCALE: 1/4" = 1'-0"



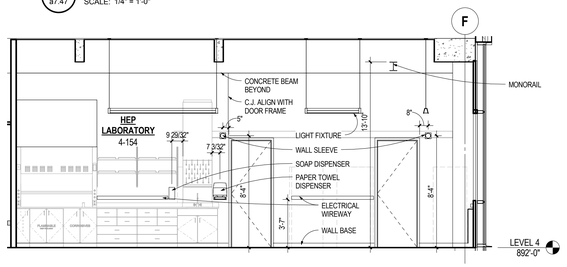
6B a7.47 **LAB 4-151A SOUTH**
SCALE: 1/4" = 1'-0"



5B a7.47 **LAB 4-151B NORTH**
SCALE: 1/4" = 1'-0"



4B a7.47 **LAB 4-151B SOUTH**
SCALE: 1/4" = 1'-0"



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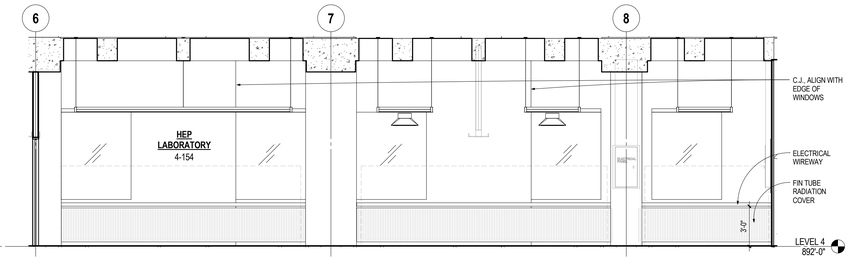
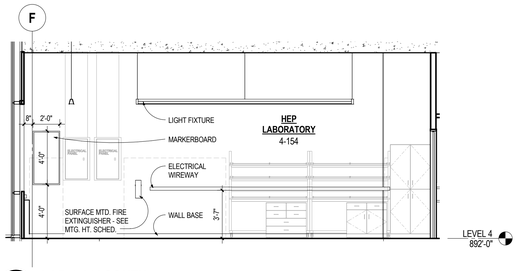
SCALE: 1/4" = 1'-0"



7C a7.47 **LAB 4-154 EAST**
SCALE: 1/4" = 1'-0"



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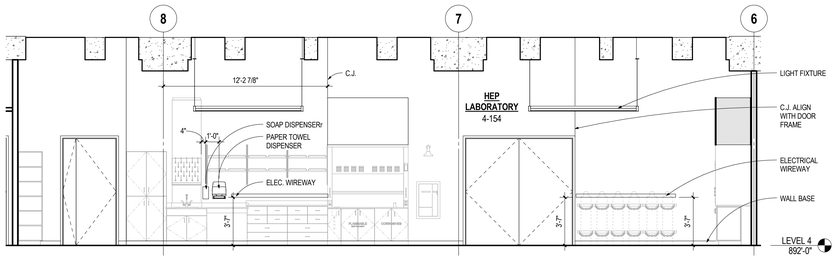
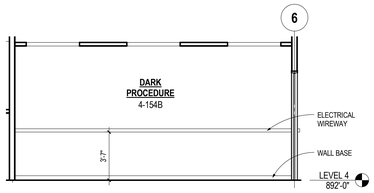
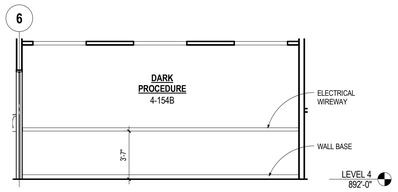


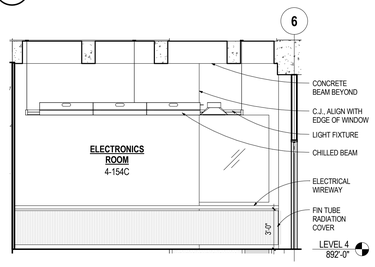
3C a7.47 **LAB 4-154 WEST**
SCALE: 1/4" = 1'-0"



7D a7.47 **LAB 4-154B EAST**
SCALE: 1/4" = 1'-0"



6D a7.47 **LAB 4-154B WEST**
SCALE: 1/4" = 1'-0"



5D a7.47 **LAB 4-154C EAST**
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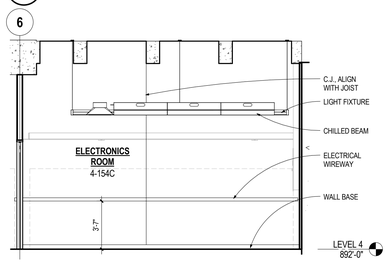
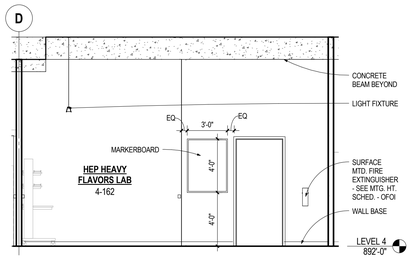


3D a7.47 **LAB 4-154C WEST**
1/4" = 1'-0"



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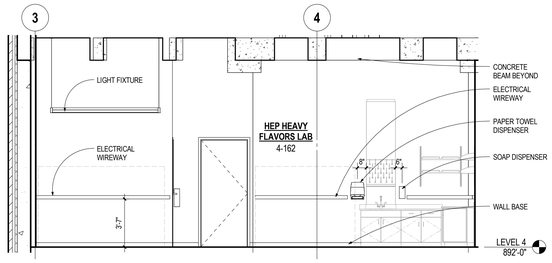
SCALE: 1/4" = 1'-0"



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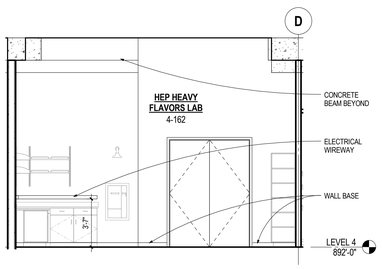
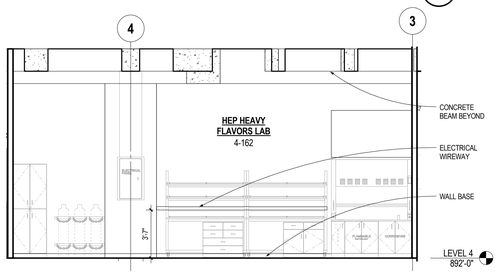
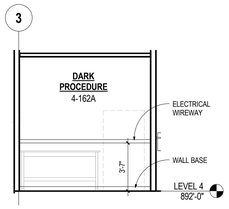


5E a7.47 **LAB 4-162 SOUTH**
SCALE: 1/4" = 1'-0"



4E a7.47 **LAB 4-162 WEST**
SCALE: 1/4" = 1'-0"



2E a7.47 **LAB 4-162A EAST**
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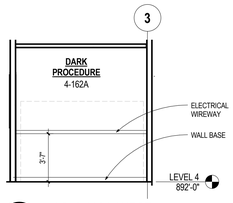
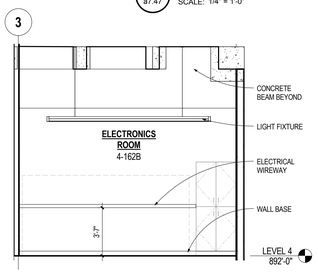
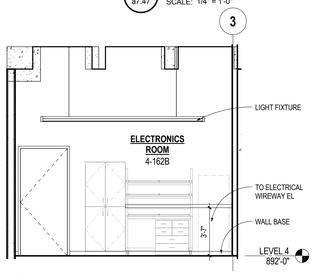


7F a7.47 **LAB 4-162A WEST**
SCALE: 1/4" = 1'-0"



6F a7.47 **LAB 4-162B EAST**
SCALE: 1/4" = 1'-0"



5F a7.47 **LAB 4-162B WEST**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. LAB FURNISHINGS AND FIXTURES SHOWN SHADED - REFER TO LAB FURNISHINGS DRAWINGS.
2. REFER TO DETAIL 28/a8.35 FOR WALL SLEEVES.
3. REFER TO INTERIOR FINISH SCHEDULE FOR WALL BASE.
4. REFER TO ELECTRICAL DRAWINGS FOR LIGHT FIXTURES AND ELECTRICAL WIREWAY.
5. REFER TO MECHANICAL DRAWINGS FOR DIFFUSERS, CHILLED BEAMS, AND EQUIPMENT EXHAUST.
6. SEE ELEC. TELECOM DRAWINGS FOR DATA OUTLET LOCATIONS.
7. PROVIDE BLOCKING BEHIND WALL-MOUNTED LAB FURNISHINGS - REFER TO LAB FURNISHINGS DRAWINGS FOR EXTENTS.

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
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Bid Package No. 2	02-24-2012

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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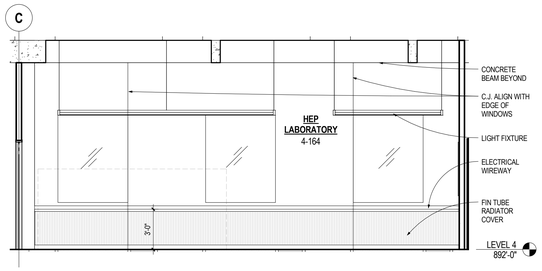
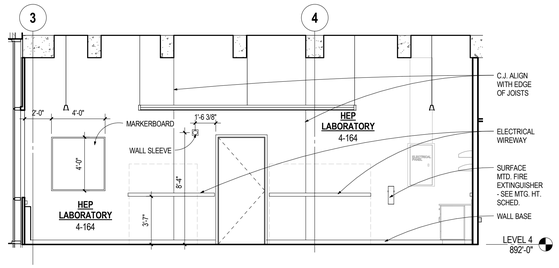
INTERIOR ELEVATIONS - LABS
LEVEL 4

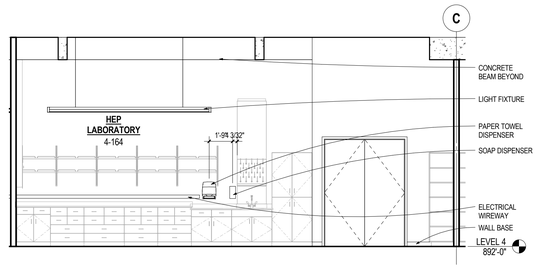
a7.47



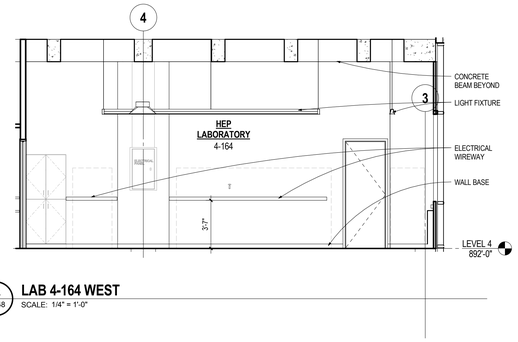
7A a7.48 **LAB 4-164 NORTH**
SCALE: 1/4" = 1'-0"



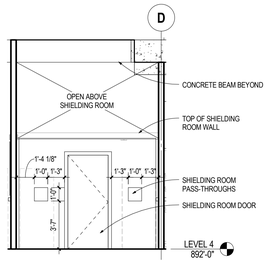
5A a7.48 **LAB 4-164 EAST**
SCALE: 1/4" = 1'-0"



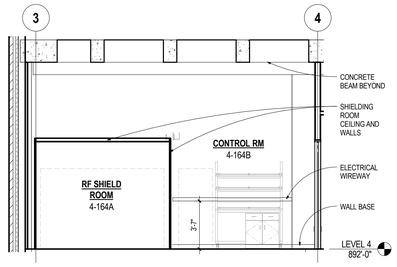
4A a7.48 **LAB 4-164 SOUTH**
SCALE: 1/4" = 1'-0"



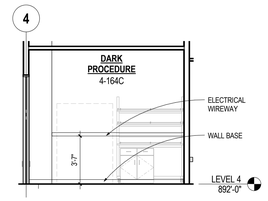
2A a7.48 **LAB 4-164 WEST**
SCALE: 1/4" = 1'-0"



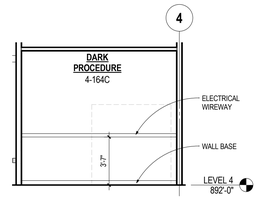
7B a7.48 **LAB 4-164B NORTH**
SCALE: 1/4" = 1'-0"



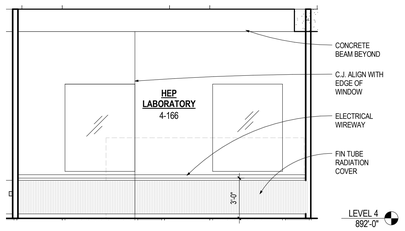
5B a7.48 **LAB 4-164B EAST**
SCALE: 1/4" = 1'-0"



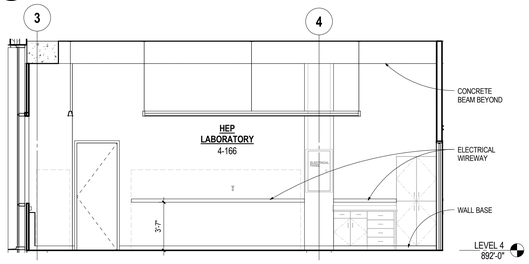
4B a7.48 **LAB 4-164C EAST**
SCALE: 1/4" = 1'-0"



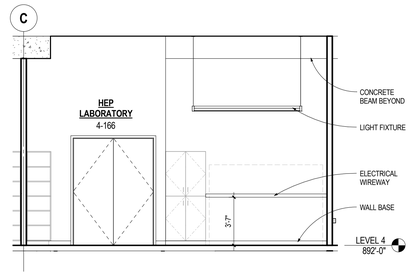
2B a7.48 **LAB 4-164C WEST**
SCALE: 1/4" = 1'-0"



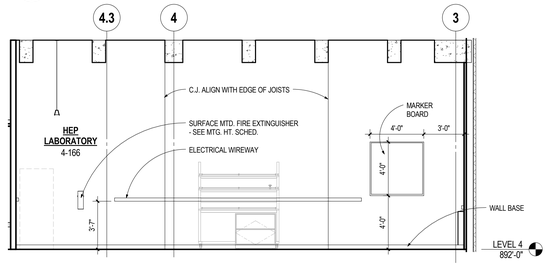
7C a7.48 **LAB 4-166 NORTH**
SCALE: 1/4" = 1'-0"



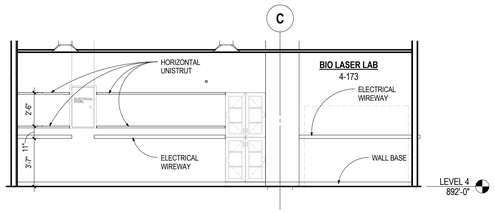
5C a7.48 **LAB 4-166 EAST**
SCALE: 1/4" = 1'-0"



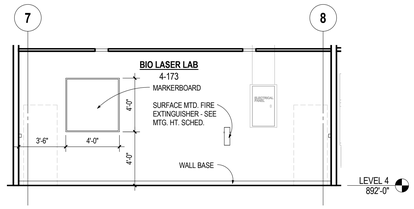
4C a7.48 **LAB 4-166 SOUTH**
SCALE: 1/4" = 1'-0"



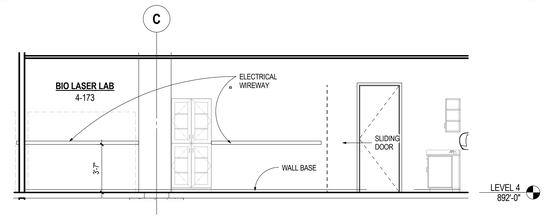
2C a7.48 **LAB 4-166 WEST**
SCALE: 1/4" = 1'-0"



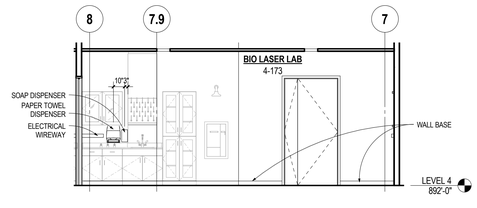
7D a7.48 **LAB 4-173 NORTH**
SCALE: 1/4" = 1'-0"



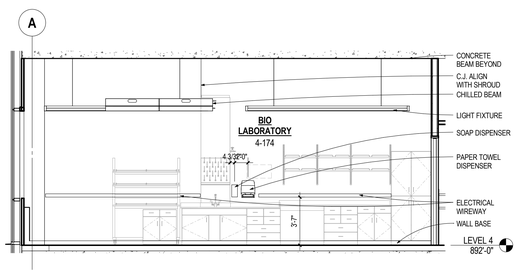
5D a7.48 **LAB 4-173 EAST**
SCALE: 1/4" = 1'-0"



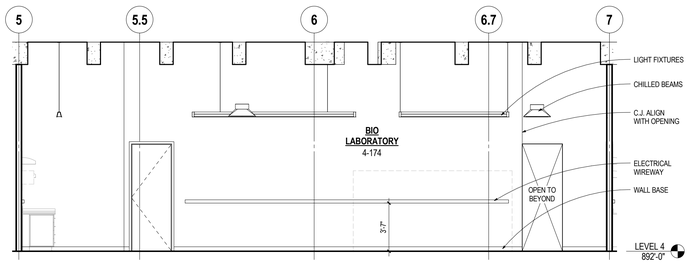
4D a7.48 **LAB 4-173 SOUTH**
SCALE: 1/4" = 1'-0"



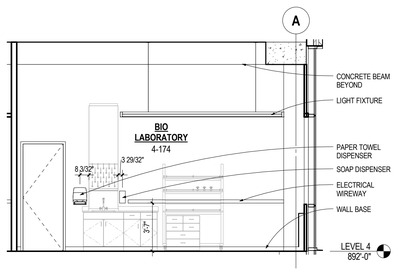
1D a7.48 **LAB 4-173 WEST**
SCALE: 1/4" = 1'-0"



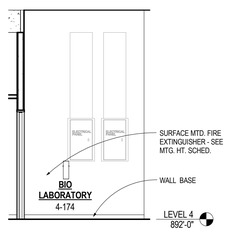
7E a7.48 **LAB 4-174 NORTH**
SCALE: 1/4" = 1'-0"



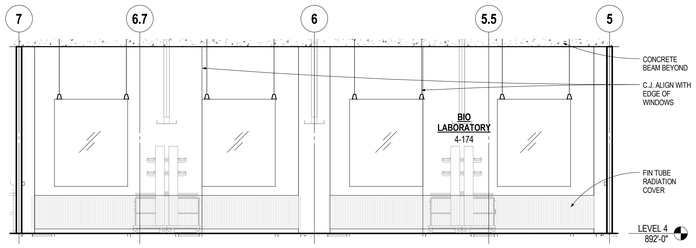
6E a7.48 **LAB 4-174 EAST**
SCALE: 1/4" = 1'-0"



3E a7.48 **LAB 4-174 SOUTH**
SCALE: 1/4" = 1'-0"



1E a7.48 **LAB 4-174 SOUTH PARTIAL 2**
SCALE: 1/4" = 1'-0"



7F a7.48 **LAB 4-174 WEST**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. LAB FURNISHINGS AND FIXTURES SHOWN SHADED - REFER TO LAB FURNISHINGS DRAWINGS.
2. REFER TO DETAIL 29/a6.35 FOR WALL SLEEVES.
3. REFER TO INTERIOR FINISH SCHEDULE FOR WALL BASE.
4. REFER TO ELECTRICAL DRAWINGS FOR LIGHT FIXTURES AND ELECTRICAL WIREWAY.
5. REFER TO MECHANICAL DRAWINGS FOR DIFFUSERS, CHILLED BEAMS, AND EQUIPMENT EXHAUST.
6. SEE ELEC. TELECOM DRAWINGS FOR DATA OUTLET LOCATIONS.
7. PROVIDE BLOCKING BEHIND WALL-MOUNTED LAB FURNISHINGS - REFER TO LAB FURNISHINGS DRAWINGS FOR EXTENTS.

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

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Bid Package No. 2	02-24-2012

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Date

Project

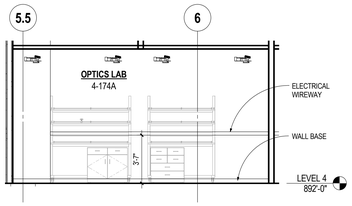
Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

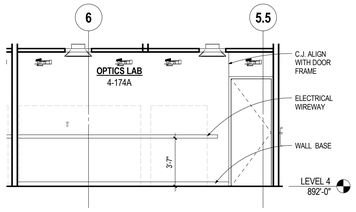
UNIVERSITY OF MINNESOTA
Driven to Discover℠

INTERIOR ELEVATIONS - LABS
LEVEL 4

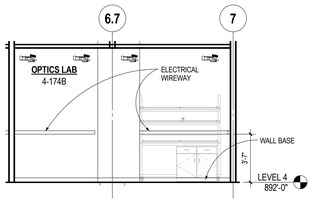
a7.48



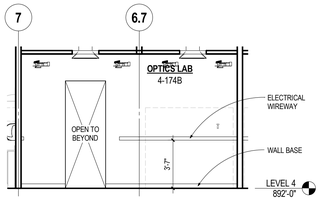
7A a7.49 **LAB 4-174A EAST**
SCALE: 1/4" = 1'-0"



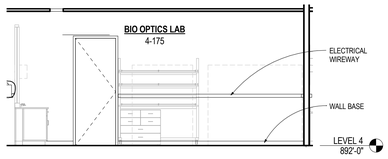
6A a7.49 **LAB 4-174A WEST**
SCALE: 1/4" = 1'-0"



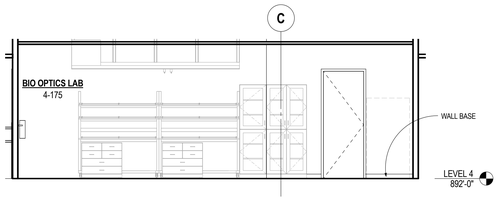
5A a7.49 **LAB 4-174B EAST**
SCALE: 1/4" = 1'-0"



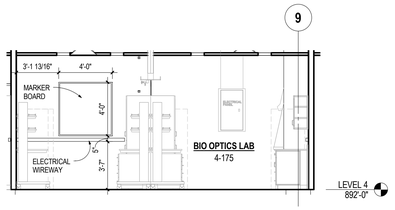
4A a7.49 **LAB 4-174B WEST**
SCALE: 1/4" = 1'-0"



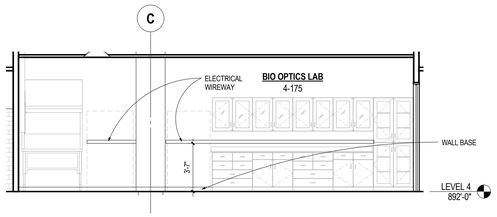
7B a7.49 **LAB 4-175 NORTH-1**
SCALE: 1/4" = 1'-0"



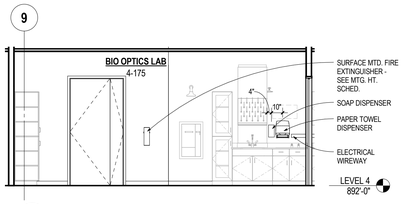
6B a7.49 **LAB 4-175 NORTH-2**
SCALE: 1/4" = 1'-0"



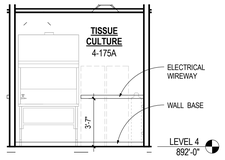
4B a7.49 **LAB 4-175 EAST**
SCALE: 1/4" = 1'-0"



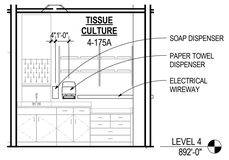
2B a7.49 **LAB 4-175 SOUTH**
SCALE: 1/4" = 1'-0"



7C a7.49 **LAB 4-175 WEST**
SCALE: 1/4" = 1'-0"



6C a7.49 **LAB 4-175A EAST**
SCALE: 1/4" = 1'-0"



5C a7.49 **LAB 4-175A WEST**
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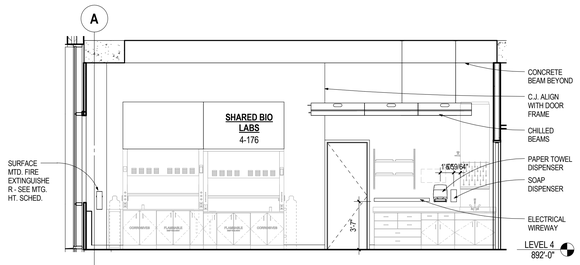
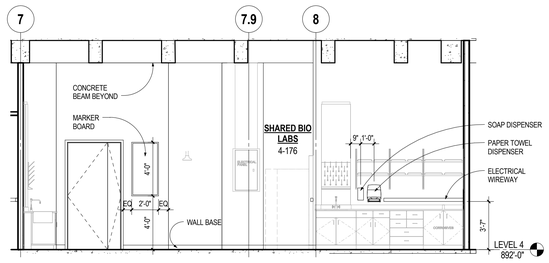
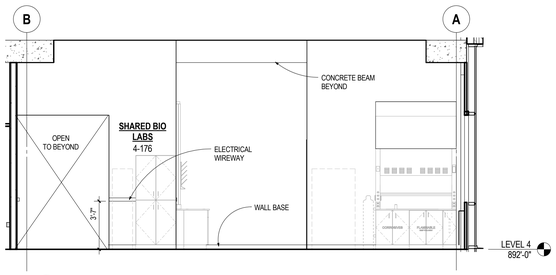


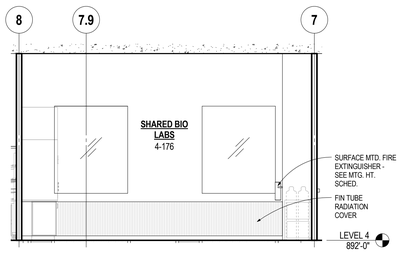
4C a7.49 **LAB 4-176 NORTH**
SCALE: 1/4" = 1'-0"



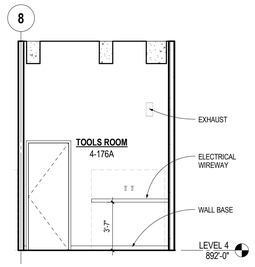
2C a7.49 **LAB 4-176 EAST**
SCALE: 1/4" = 1'-0"



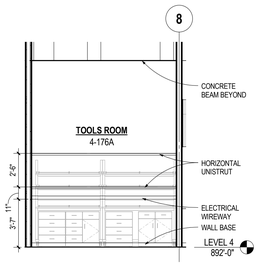
7D a7.49 **LAB 4-176 SOUTH**
SCALE: 1/4" = 1'-0"



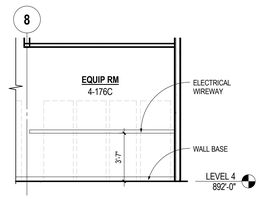
6D a7.49 **LAB 4-176 WEST**
SCALE: 1/4" = 1'-0"



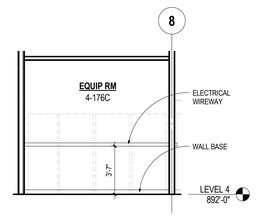
4D a7.49 **LAB 4-176A EAST**
SCALE: 1/4" = 1'-0"



3D a7.49 **LAB 4-176A WEST**
SCALE: 1/4" = 1'-0"



2D a7.49 **LAB 4-176C EAST**
SCALE: 1/4" = 1'-0"



1D a7.49 **LAB 4-176C WEST**
SCALE: 1/4" = 1'-0"

GENERAL NOTES

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For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012

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Comm. No. 2009037

Drawn

Checked

Date

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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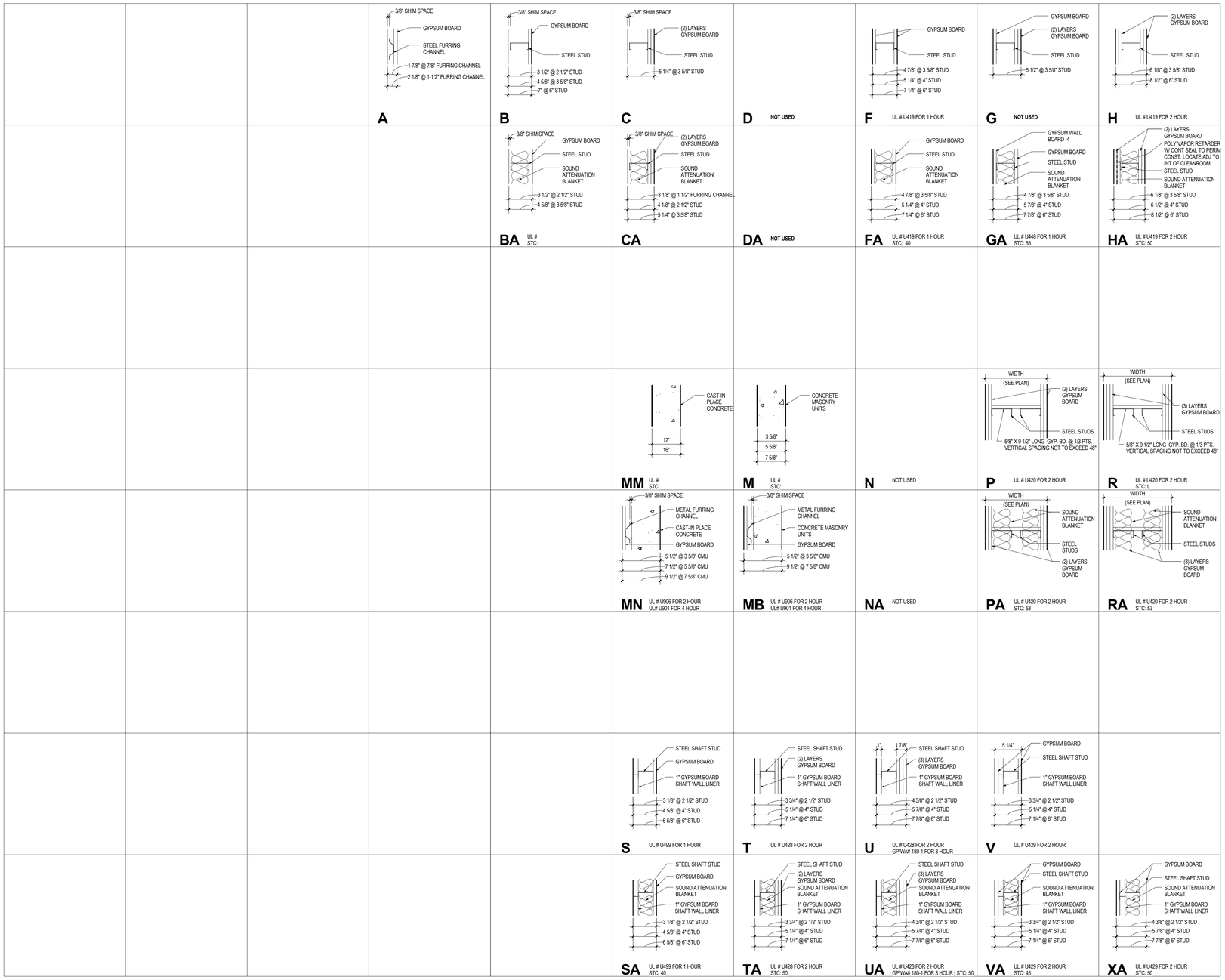
INTERIOR ELEVATIONS - LABS
LEVEL 4

a7.49

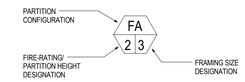
PARTITION TYPES



GENERAL NOTES

1. 5/8" GYPSUM BOARD ON METAL STUDS @ 16" O.C. TYPICAL UNLESS OTHERWISE NOTED.
2. MOISTURE RESISTANT GYPSUM BOARD TYPICAL AT INTERIOR TILE FINISH- SEE INTERIOR ELEVATIONS FOR TILE LOCATION
3. SOUND ATTENUATION BLANKET TO BE 3 1/2" UNLESS OTHERWISE NOTED.
4. PROVIDE ACOUSTIC SEAL AT PERIMETER AND PENETRATIONS OF SOUND RATED PARTITIONS AND OTHER CONSTRUCTION AS REQUIRED TO ACHIEVE STC OF WALL SYSTEM.
5. PROVIDE LABELED GYPSUM WALL BOARD AT FIRE RATED
6. FIRE RATED AND SMOKE ASSEMBLY PARTITIONS TO EXTEND TO STRUCTURE UNLESS OTHERWISE NOTED (5E/a8.02) (2E/a8.02) (2F/a8.02)
7. MAINTAIN FIRE RATING OF WALLS AROUND FIRE EXTINGUISHER CABINETS, AND OTHER RECESSED ITEMS FOR TYPICAL CONDITIONS SEE (5C/a8.02) SIM
8. FRAME AROUND BEAMS AND OTHER STRUCTURAL ELEMENTS WHEN THEY OCCUR WITHIN THE SPACE OF A FIRE RATED OR ACOUSTICAL PARTITION (6F/a8.02) (5B/a8.41)
9. NOT USED
10. AT HORIZONTAL RATED DUCT ENCLOSURES, PROVIDE PER MECH DETAILS AND DETAIL (4D/a8.02)
11. WHEN METAL FRAMING CONTINUES PAST INTERMEDIATE STRUCTURE- AS IN MULTI-STORY STAIR ENCLOSURES AND SIMILAR CONDITIONS. ATTACHMENT TO INTERMEDIATE STRUCTURE SHALL BE WITH A SLOTTED CONNECTION OR OTHER MEAN SO THAT STRUCTURAL DEFLECTION WILL NOT TRANSFER LOADS TO METAL FRAMING.
12. SEE SHEET A8.2 FOR TYPICAL PARTITION DETAILS
13. SEE LIFE SAFETY DRAWINGS FOR LOACTIONS OF RATED PARTITIONS
14. AT LOCATION WITH EXPOSED CEILING EXTEND FURRING TO UNDERSIDE OF STRUCTURE, WHERE CEILING OCCURS EXTEND FURRING AND GYPSUM BOARD 4" ABOVE CEILING
15. ALL CORRIDOR WALL TYPES ADJACENT TO AND NORTH OF GRIDLINE 9 SHALL RECIEVE AN ABUSE RESISTANT GWB-3 WAINSCOT TO AN ELEVATION OF 2'-0" ABOVE FINISHED FLOOR ELEVATION.
16. COPE AND SEAL TOP OF WALLS AROUND STRUCTURAL JOISTS AND BEAMS AT ALL WALLS DESIGNATED TO EXTEND TO DECK. REFER TO STRUCTURAL DETAILS FOR BRACING REQUIREMENTS.

PARTITION TYPE PLAN SYMBOL



FRAMING SIZE DESIGNATION

0 = 7/8"
1 = 1 1/2"
2 = 2 1/2"
3 = 3 5/8"
4 = 4"
6 = 6"
8 = 8"

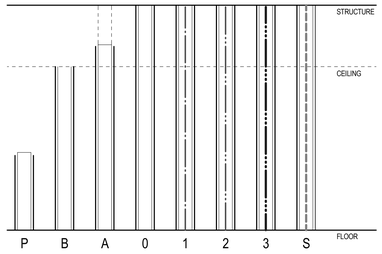
CONCRETE MASONRY SIZE DESIGNATION

4 = 3 5/8" C.M.U.
6 = 5 5/8" C.M.U.
8 = 7 5/8" C.M.U.

SEE A8.02 FOR TOP OF WALL TERMINATION

FIRE RATING/PARTITION HEIGHT DESIGNATION

P = PARTIAL HEIGHT PARTITION (SEE PLAN & ELEVATIONS FOR PARTITION HEIGHT)
B = NON-RATED TO UNDERSIDE OF CEILING (X/X)
A = NON-RATED-EXTEND STUDS TO UNDERSIDE OF STRUCTURE ABOVE, EXTEND GYPSUM BOARD TO 4" ABOVE CEILING
0 = NON-RATED TO UNDERSIDE OF STRUCTURE ABOVE
1 = (1) HOUR FIRE-RATED
2 = (2) HOUR FIRE-RATED
3 = (3) HOUR FIRE-RATED
4 = (4) HOUR FIRE-RATED
S = SMOKE PARTITION



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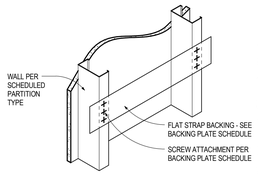
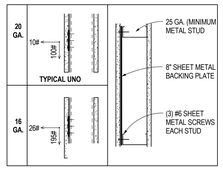
PARTITION TYPES

a8.01

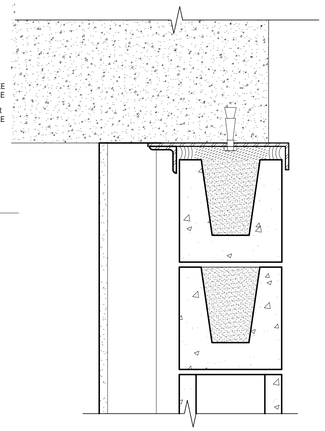


6A a8.02 BACKING PLATE - SHEET METAL
SCALE: 1 1/2" = 1'-0"

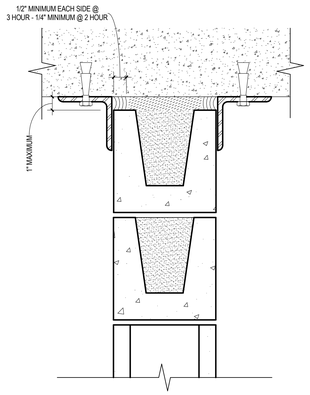


NOTES:
1. PROVIDE BACKING PLATE AT ALL TOILET ACCESSORIES AND WALL MOUNTED EQUIPMENT. GRAB BARS SHALL BE ANCHORED INTO FIRE TREATED WD BLOCKING.
2. EXTEND BACKING PLATE TO NEXT STUD BEYOND SIDE OF FIXTURE OR ACCESSORY.
3. WALL MOUNTED HAND RAILS SHALL BE ANCHORED INTO FIRE TREATED WOOD BLOCKING
3. PROVIDE METAL SLEEVES THROUGH WALL FINISH AT FIXTURE AND EQUIP FASTENING.
4. SEE LAB, CLEANROOM, MECH AND ELEC DRAWINGS FOR ADDITIONAL BACKING REQUIREMENTS.
5. MAX LOADS SHOWN ARE MAX ALLOWABLE LOADS FOR THE DIRECTION SHOWN. VERT AND HORIZ LOADS ARE NOT ADDITIVE, BUT MAY ACT TOGETHER - I.E. MAX ALLOWABLE LOADS ARE FOR SHEAR-TENSION INTERACTION CALCULATION.
6. FOR ADDITIONAL INFORMATION ON BACKING PLATE INSTALLATION, SEE DETAIL
7. SEE a0.01 FOR TYP FIXTURE AND EQUIPMENT MOUNTING HEIGHTS

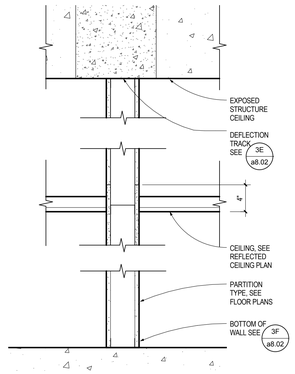
6B a8.02 BACKING PLATE SCHEDULE
SCALE: 1 1/2" = 1'-0"



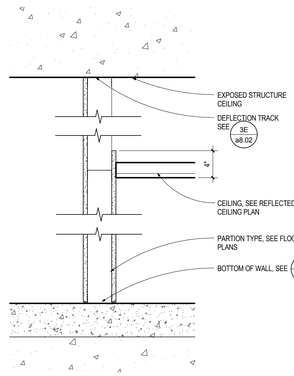
5B a8.02 CMU DEFLECTION HEAD @ BEAM
SCALE: 3" = 1'-0"



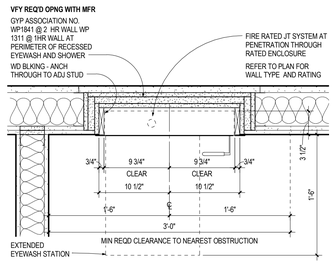
4B a8.02 CMU DEFLECTION HEAD @ STRUCTURE
SCALE: 3" = 1'-0"



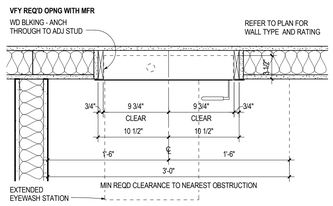
3B a8.02 SECTION - NON RATED @ LAYIN CLG
SCALE: 1 1/2" = 1'-0"



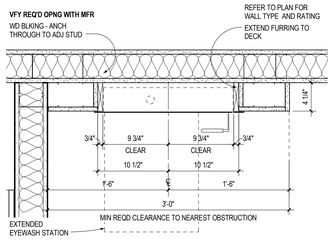
1B a8.02 WALL SECTION - NON RATED @ DROPPED/EXPOSED
SCALE: 1 1/2" = 1'-0"



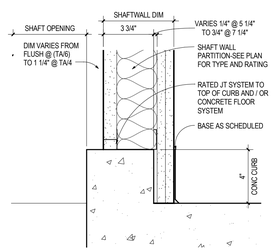
6C a8.02 EYE WASH / SHWR RECESS @ RATED WALL
SCALE: 1 1/2" = 1'-0"



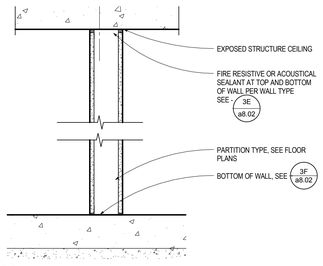
5C a8.02 EYE WASH / SHWR RECESS @ NON-RATED
SCALE: 1 1/2" = 1'-0"



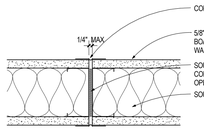
4C a8.02 EYE WASH / SHWR RECESS @ FURRING
SCALE: 1 1/2" = 1'-0"



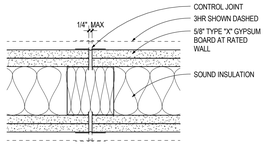
2C a8.02 CURB PERIMETER @ SHAFT
SCALE: 3" = 1'-0"



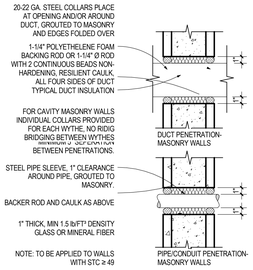
1C a8.02 WALL SECTION - WALL @ EXPOSED CEILINGS
SCALE: 1 1/2" = 1'-0"



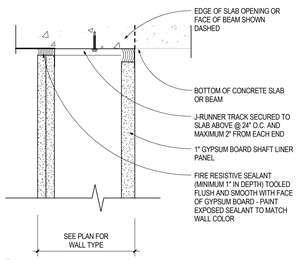
6D a8.02 TYPICAL UNRATED CONTROL JOINT
SCALE: 3" = 1'-0"



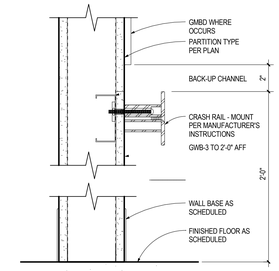
5D a8.02 TYPICAL 2 HOUR RATED CONTROL JOINT
SCALE: 3" = 1'-0"



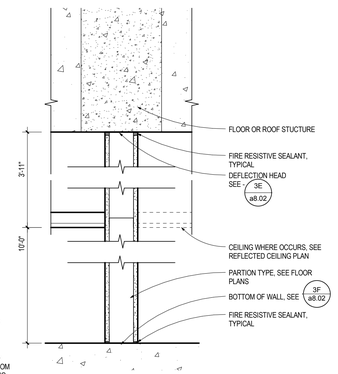
4D a8.02 PENETRATIONS-MASONRY CONSTRUCTION
SCALE: 1 1/2" = 1'-0"



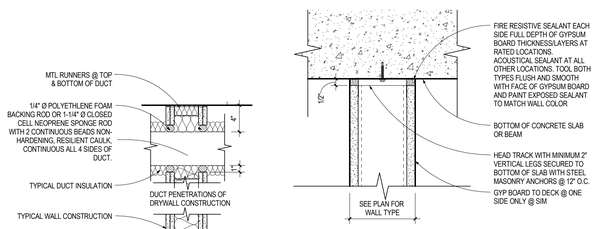
3D a8.02 SHAFT WALL DEFLECTION HD @ CONC DECK
SCALE: 3" = 1'-0"



2D a8.02 TYPICAL COORIDOR WALL
SCALE: 3" = 1'-0"

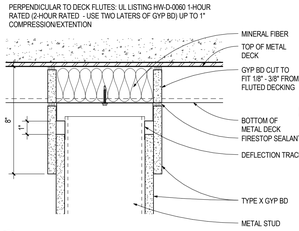


1E a8.02 WALL SECTION - RATED AND SMOKE PARTITION
SCALE: 1 1/2" = 1'-0"

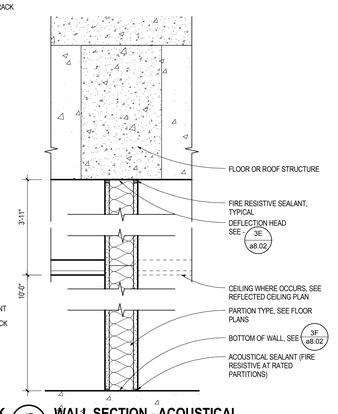


4F a8.02 PENETRATIONS-DRYWALL CONSTRUCTION
SCALE: 1 1/2" = 1'-0"

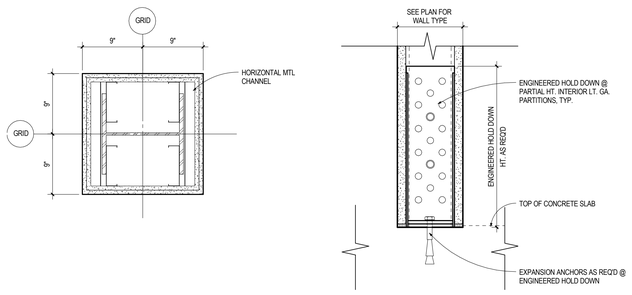
3E a8.02 GYP DEFLECTION HD @ CONC DECK
SCALE: 3" = 1'-0"



2E a8.02 PARTITION HEAD PERP TO MTL DECK
SCALE: 3" = 1'-0"

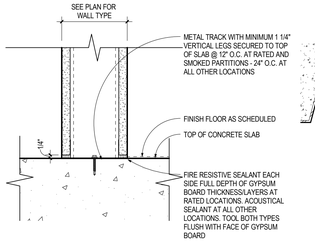


1F a8.02 WALL SECTION - ACOUSTICAL
SCALE: 1 1/2" = 1'-0"

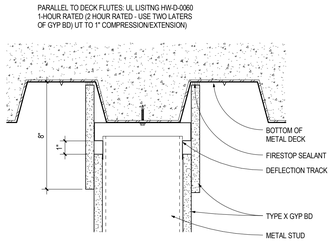


6F a8.02 TYPICAL RATED COLUMN DETAIL
SCALE: 1 1/2" = 1'-0"

5F a8.02 BOTTOM OF PARTIAL HT. WALL
SCALE: 3" = 1'-0"



3F a8.02 BOTTOM OF WALL
SCALE: 3" = 1'-0"



2F a8.02 PARTITION HEAD PARALLEL TO MTL DECK
SCALE: 3" = 1'-0"

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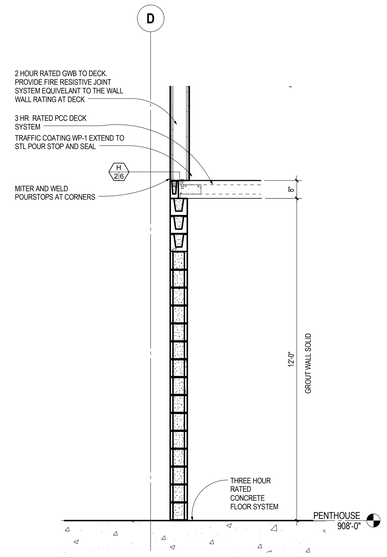
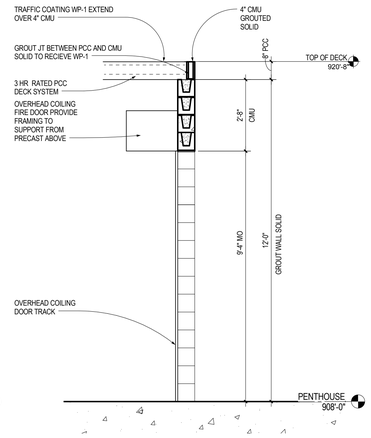
PARTITION DETAILS

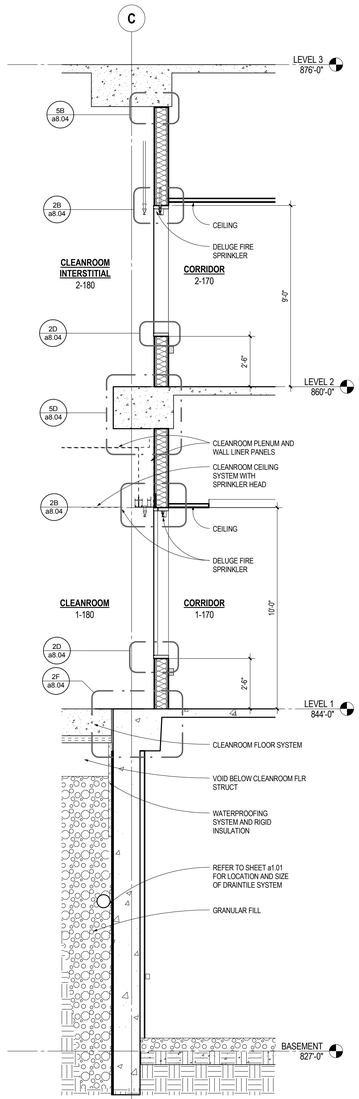
a8.02



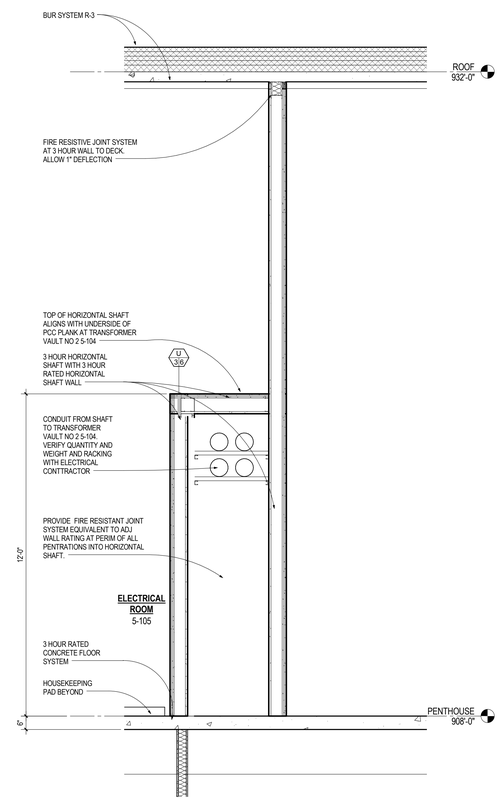
2B a8.03 **3 HR RATED WALL AT ELECTRICAL VAULT**
SCALE: 1/2" = 1'-0"



1B a8.03 **3 HR RATED WALL AT ELECTRICAL VAULT**
SCALE: 1/2" = 1'-0"



3F a8.03 **WALL SECTION AT CLEANROOM GLAZING**
SCALE: 3/8" = 1'-0"



1F a8.03 **WALL SECTION AT PENTHOUSE ELECTRICAL ROOM**
SCALE: 1/2" = 1'-0"

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For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
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Comm. No. 2009037

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
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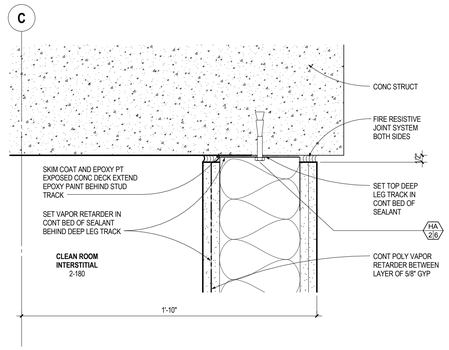
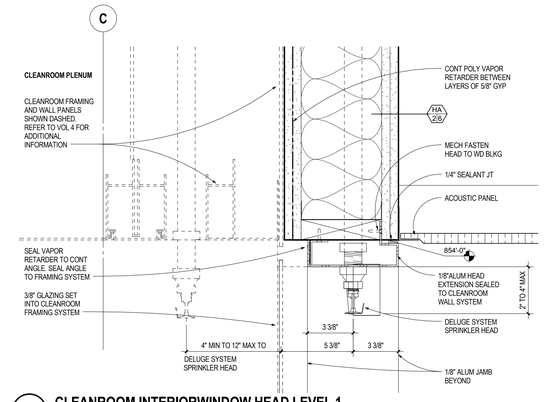
INTERIOR WALL SECTIONS

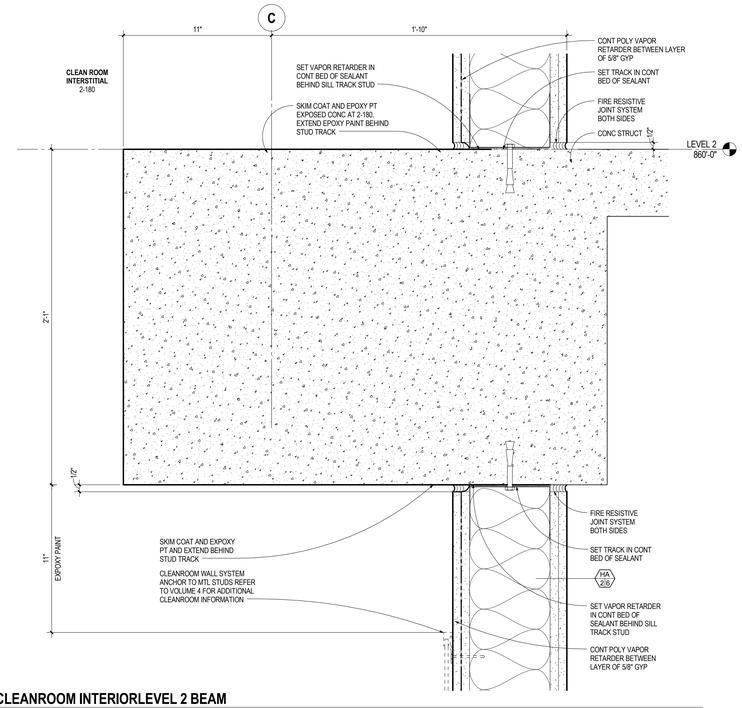
a8.03



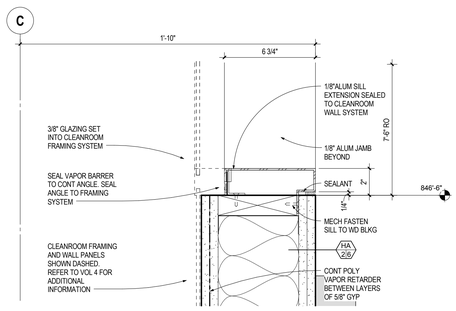
5B a8.04 **CLEANROOM INTERIORLEVEL 2 PARTITION HEAD**
SCALE: 3" = 1'-0"



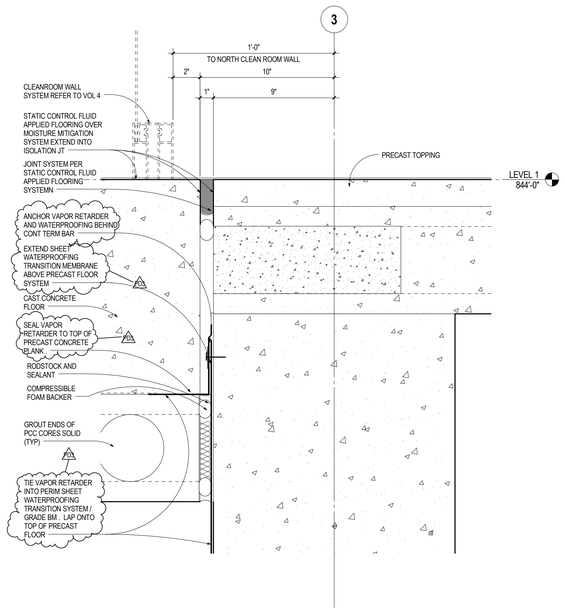
2B a8.04 **CLEANROOM INTERIORWINDOW HEAD LEVEL 1**
SCALE: 3" = 1'-0"



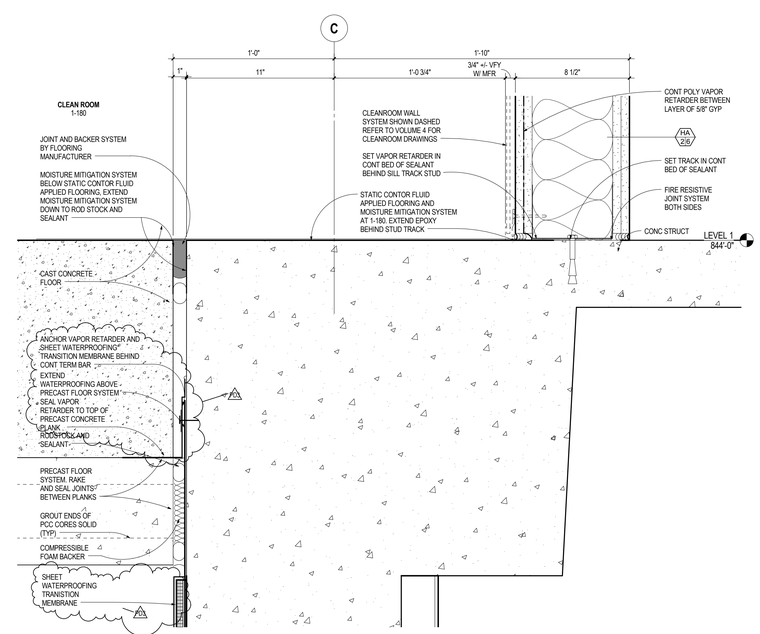
5D a8.04 **CLEANROOM INTERIORLEVEL 2 BEAM**
SCALE: 3" = 1'-0"



2D a8.04 **CLEANROOM WINDOW SILL - JAMB SIM**
SCALE: 3" = 1'-0"



5F a8.04 **CLEANROOM FLOOR ISOLATION JT**
SCALE: 3" = 1'-0"



2F a8.04 **CLEAN ROOM LEVEL 1 SILL**
SCALE: 3" = 1'-0"

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

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Project Directive No. 3	05-11-2012

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
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CLEANROOM INTERIOR DETAILS

a8.04

Rev. Door Schedule

DOOR NO.	PANEL						FRAME					FIRE RATING (MIN.)	HARDWARE GROUP	NOTES
	WIDTH	THICKNESS	HEIGHT	TYPE	MATERIAL	GLAZING	TYPE	MATERIAL	DETAILS HEAD	DETAILS JAMB	DETAILS SILL			
BASEMENT														
B-101	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3B/a8.11	3B/a8.11		90	23	
B-101A	4'-8"	1 3/4"	9'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	8	
B-102	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		45	15F	13
B-102B	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4C	3
B-102C	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	7A	
B-103	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30	
B-104	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		45	15D	13
B-104A	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4C	3
B-104C	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4C	3
B-104D	5'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	7A	
B-105	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30	
B-106	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		45	15E	13
B-106A	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	7	
B-107	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5C/a8.11	1F/a8.12		-	16C	
B-151	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	12	
B-153	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15G	13
B-153A	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4C	13
B-154	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15F	13
B-154A	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
B-154B	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
B-154D	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4B	3
B-155	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	18	
B-156	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15G	13
B-157	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15G	13
B-157A	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	3
B-158	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5C/a8.11	4C/a8.11		180	25	
B-158-1	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5C/a8.11	4C/a8.11		180	28	
B-159	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		45	24	
B-161	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	23A	
B-162A	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5D/A8.11	4D/a8.11		-	12A	
B-162B	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5D/A8.11	4D/a8.11		-	12E	
B-163	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	13	
B-164	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5D/A8.11	4D/a8.11		-	16	
B-164A	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		60	17	
B-165	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5D/a8.11	4D/a8.11		45	16A	9, 5
B-166	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5D/a8.11	4D/a8.11		45	19A	
B-166-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5D/A8.11	4D/a8.11		-	12B	
B-166A	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5D/a8.11	4D/a8.11		-	14A	
B-167	3'-8"	1 3/4"	8'-0"	1	HM	-	A	HM	5D/a8.11	4D/a8.11		45	24	
B-168	7'-0"	1 3/4"	8'-0"	8	HM	GL-7	A-1	HM	5D/a8.11	4D/a8.11		-	19B	9, 5
B-169	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	13	
LEVEL 1														
1-100A-0	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	33	2, 5
1-100A-1	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	33	2, 5
1-100A-2	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	35B	2, 5
1-100A-3	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	31	2, 5
1-100A-4	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	31	2, 5
1-100A-5	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	31B	2, 5
1-100A.6	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	21A	
1-100B-1	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	35B	2, 5, 7
1-100B-2	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	33	
1-100B-3	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	31B	
1-100B-4	3'-0"	2"	8'-0"	4	AL	GL-1	-	AL				-	31	
1-101	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	23	5
1-101A	4'-8"	1 3/4"	9'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	8	
1-102	3'-0"	1 3/4"	8'-0"	1	WD-1	-	A	HM	2A/a8.11	2A/a8.11		-	26	3
1-102-1	3'-0"	1 3/4"	8'-0"	1	WD-1	-	A	HM	2A/a8.11	2A/a8.11		-	26A	3
1-103	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30A	
1-104A	2'-10"	1 3/4"	8'-0"	7	WD-1	-	-	-	6C/a8.11				2	
1-104B	3'-0"	1 3/4"	8'-0"	1	WD-1	-	A	HM	3A/a8.11	3A/a8.11		-	13E	
1-105	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30A	
1-106	3'-0"	1 3/4"	8'-0"	1	WD-1	-	A	HM	3A/a8.11	3A/a8.11		-	13	3
1-108	3'-0"	1 3/4"	8'-0"	1	WD-1	-	A	HM	2A/a8.11	2A/a8.11		-	13	3
1-140	3'-6"	2"	8'-0"	4	AL	GL-7	-	AL				-	34	2, 5
1-142	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-143	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-144	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-145	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-146	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-147	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-148	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-151	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-153	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-154	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	11	1
1-156	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
1-157-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	13A	
1-157-2	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	6A/a8.11	6A/a8.11		90	23A	
1-157-3	3'-4"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5F/a8.11	4F/a8.11		-	22	7,9
1-158	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	13	
1-159	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		45	24	
1-160A	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	8	1
1-161	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	21	
1-162	7'-0"	1 3/4"	8'-0"	8	HM	GL-7	A-1	HM	5C/a8.11	4C/a8.11		-	19	5
1-162-1	3'-0"	1 3/4"	7'-6"	2	AL	GL-1	-	AL	4D/a4.26	3F/A4.26		-	26B	2, 5
1-163	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	12	
1-164	4'-0"	1 3/4"	8'-0"	6	HM	-	A-1	HM	5C/a8.11	4C/a8.11		-	19C	
1-166	8'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5C/a8.11	4C/a8.11		90	29A	7, 9
1-166-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	6E/a8.11	6F/a8.11		-	13G	7, 9
1-166-2	12'-0"	1"	13'-8"	10	STL	-	G	-	-	-		-	1	
1-166-3	8'-0"	1"	13'-8"	10	STL	-	G	-	-	-		-	1	
1-166A	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5D/a8.11	4D/a8.11		90	29B	
1-166B	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5D/a8.11	4D/a8.11		45	29B	
1-166C	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5D/a8.11	4D/a8.11		-	29B	
1-168	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5C/a8.11	4C/a8.11		-	10	
1-170	6'-0"	1 3/4"	8'-0"	5	HM	-	A-1	HM	5C/a8.11	4C/a8.11		45	29	9
1-170A	3'-0"	2"	8'-0"	4	AL	GL-1	E	AL	3D/a8.11	1D&2D/a8.11		-	35	5
1-170A-1	3'-0"	2"	8'-0"	4	AL	GL-1	D	AL	1A/a8.11SIM	1C/a8.11		-	31A	5
1-170B	7'-6"	1 3/4"	8'-0"	5	HM	-	A	HM	4A/a8.11	4A/a8.11		90	36	15
1-171	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19C	
1-173	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19C	
1-175	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19C	
1-177	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19C	
1-181	6'-0"	1 3/4"	8'-0"	4	HM	-	B	HM	5B/a8.11	4B/a8.11		-	9	6,10,11
LEVEL 2														
2-101	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3B/a8.11	3B/a8.11		90	23	
2-101A	4'-8"	1 3/4"	9'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11			8	
2-103	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30	
2-104	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3B/a8.11	3B/a8.11			6	
2-105	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30	

Rev. Door Schedule

DOOR NO.	PANEL						FRAME					FIRE RATING (MIN.)	HARDWARE GROUP	NOTES
	WIDTH	THICKNESS	HEIGHT	TYPE	MATERIAL	GLAZING	TYPE	MATERIAL	DETAILS HEAD	DETAILS JAMB	DETAILS SILL			
2-107	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3C/a8.11	3A/a8.11			5	
2-108	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-112	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	14
2-113	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-114	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	14
2-116	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-117	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5A	
2-118	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-121	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-122	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-124	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-125	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5A	14
2-126	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-128	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-131	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-132	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-134	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-136	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-140	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	14
2-141	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3C/a8.11	3A&6D/a8.11		-	12A	
2-142	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	14
2-144	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	14
2-146	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-146A	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-146B	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
2-147	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	23A	
2-151	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	12	
2-152	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	14
2-157	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	13	
2-158	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	12	
2-159	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		45	24	
2-160A	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	8	
2-162	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19B	
2-162-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
2-164	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19B	
2-166	5'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19B	
2-166-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
2-171	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19B	
2-171A	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4	
2-171A-1	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19B	
2-171B	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4C	3
2-175	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	19B	
2-180	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	4A/a8.11	4A/a8.11		90	17A	
2-180-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	12D	
2-181	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11			16B	
LEVEL 3														
3-101	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3B/a8.11	3B/a8.11		90	23	
3-101A	4'-8"	1 3/4"	9'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	8	
3-103	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30	
3-104	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	6	
3-105	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30	
3-108	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-112	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	14
3-114	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-116	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-117	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-118	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5A	14
3-121	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-123	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-124	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5A	14
3-127	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-128	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-131	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-132	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-133	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-135	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
3-136	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5A	14
3-151	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15C	
3-152	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	12E	
3-154	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	11	
3-156	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	12	
3-158	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	13	
3-159	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		45	24	
3-160A	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	8	
3-161	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	23A	
3-162	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15C	13
3-164	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15C	13
3-166	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15C	13
3-166A	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4D	4
3-171	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15C	13
3-171A	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4B	4
3-171B	3'-0"	2"	7'-0"	-	-	-	-	-	-	-		-	1	12
3-173	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15C	13
3-174	8'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		45	14A	13
3-174A	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4B	3
3-174B	3'-6"	1 3/4"	8'-0"	3	HM	GL-7	A	HM	3A/a8.11	3A/a8.11		-	4	5
3-174C	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	12B	
3-174C-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		45	12C	
3-176	4'-6"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		45	15D	13
3-176A	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4B	3
3-178	8'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		45	15	13
3-178-1	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
3-178-2	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
3-178A	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		45	15B	
3-178A-1	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	14B	
LEVEL 4														
4-101	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3B/a8.11	3B/a8.11		90	23	
4-101A	4'-8"	1 3/4"	9'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	8	
4-103	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30	
4-104	3'-0"	1 3/4"	8'-0"	1	WD-1	-	A	HM	3A/a8.11	3A/a8.11		-	6	
4-105	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	30	
4-108	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	7A/a8.02	6A&6B/a8.02		-	5	
4-112	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	14
4-114	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-116	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	

Rev. Door Schedule

DOOR NO.	PANEL						FRAME					FIRE RATING (MIN.)	HARDWARE GROUP	NOTES
	WIDTH	THICKNESS	HEIGHT	TYPE	MATERIAL	GLAZING	TYPE	MATERIAL	DETAILS HEAD	DETAILS JAMB	DETAILS SILL			
4-117	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-118	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5A	14
4-121	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-123	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-124	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5A	14
4-127	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-128	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-131	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-132	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-133	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-135	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5	
4-136	3'-0"	1 3/4"	8'-0"	9	WD-1	-	C	HM	3C/a8.11	3A&6D/a8.11		-	5A	14
4-150	7'-6"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		90	37	16
4-151	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15G	13
4-151A	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4E	4
4-151B	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4E	4
4-152	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	13B	
4-154	8'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	20	1
4-154-1	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15G	13
4-154B	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4B	4
4-154C	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
4-156	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	12E	
4-158	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	13	
4-159	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		45	24	
4-160A	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	8	
4-161	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	4A/a8.11	4A/a8.11		90	23A	
4-162	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15	13
4-162A	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4D	4
4-162B	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4	
4-164	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15A	13
4-164A	3'-0"	2"	7'-0"	-	-	-	-	-	-	-		-	1	12
4-164B	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
4-164C	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4D	4
4-166	6'-0"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15A	13
4-166-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
4-170	7'-6"	1 3/4"	8'-0"	5	HM	-	A	HM	3A/a8.11	3A/a8.11		90	37	16
4-171	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15C	
4-172	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		90	15D	13
4-173	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15C	13
4-173-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4A	
4-174	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		90	15D	13
4-174A	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4B	4
4-175	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		-	15C	
4-175A	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	13B	
4-176	4'-0"	1 3/4"	8'-0"	6	HM	-	A	HM	3A/a8.11	3A/a8.11		90	15D	13
4-176-1	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4	
4-176A	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		-	4	
PENTHOUSE														
5-101	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	3A/a8.11	3A/a8.11		90	13	
5-104	8'-0"	1"	9'-4"	10	STL	-	G	-	5D/a8.11	4D/a8.11		180	1	
5-104-1	8'-0"	1"	9'-4"	10	STL	-	G	-	5D/a8.11	4D/a8.11		180	1	
5-104-2	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5D/a8.11	4D/a8.11		180	25	
5-104.3	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5D/a8.11	4D/a8.11		180	24B	
5-105	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	6A/a8.11	6A/a8.11		90	24B	
5-107	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5D/a8.11	4D/a8.11		90	13A	
5-108	6'-0"	1 3/4"	9'-0"	5	HM	-	A	HM	6A/a8.11	3A/a8.11		90	27A	
5-109	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5F/a8.11	6F&4F/a8.11		-	13G	7,9
5-110	6'-0"	1 3/4"	9'-0"	5	HM	-	A	HM	6A/a8.11	6A/a8.11		90	27A	
5-110-1	3'-6"	1 3/4"	8'-0"	1	HM	-	A	HM	6A/a8.11	6A/a8.11		90	24	
5-111	3'-0"	1 3/4"	8'-0"	1	HM	-	A-1	HM	5D/a8.11	4D/a8.11		90	13C	
5-161	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	6A/a8.11	6A/a8.11		90	13D	
ROOF														
6-170	3'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	5E/a8.11	4E/a8.11		-	13G	7,9
6-170-1	4'-0"	1 3/4"	8'-0"	1	HM	-	A	HM	5E/a8.11	4E/a8.11		-	6A	7,9

DOOR SCHEDULE NOTES

1. 180 DEGREE SWING - BOTH PANELS
2. DOOR IN CURTAINWALL SYSTEM - SEE ELEVATION
3. ACOUSTIC DOOR AND HARDWARE
4. LIGHT TIGHT DOOR FRAME AND HARDWARE
5. REFER TO GLAZING SCHEDULE IN SPEC SECTION 08 8000 FOR GLASS TYPES
6. PROVIDE LOUVERED PANEL WITHIN DOOR PT TO MATCH PT5
7. INSULATED HOLLOW METAL DOOR
8. FRAME SPECIFIED IN BID PACKAGE #1
9. EXTRA HEAVY DUTY DOORS
10. PROVIDE LOUVERED TRANSOM PANEL, PT TO MATCH PT5
11. 3/4" UNDERCUT ON DOOR
12. DOOR BY SHIELDED ROOM SUPPLIER
13. PROVIDE ROUGH-IN FOR CARD READER PER ALTERNATE T-1
14. ~~PROVIDE ROUGH-IN FOR CARD READER PER ALTERNATE T-2~~
15. DOORS ON MAG HOLD OPEN TIED TO FIRE ALARM SYSTEM & MANUAL PULL STATION
16. DOORS ON MAG HOLD OPEN TIED TO FIRE ALARM SYSTEM

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For Architectural Alliance

By [signature]

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

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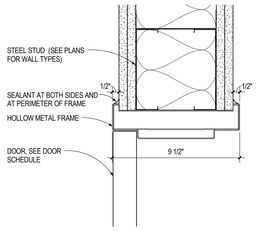
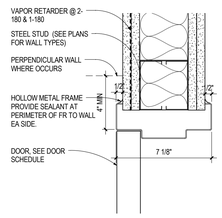
DOOR SCHEDULE

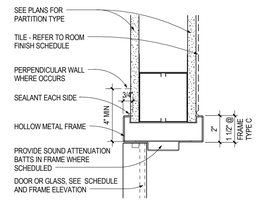
a8.10



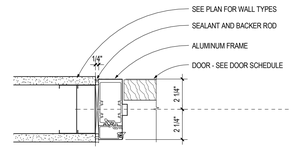
6A a8.11 **HM FRAME JAMB / HEAD DETAIL**
SCALE: 3" = 1'-0"



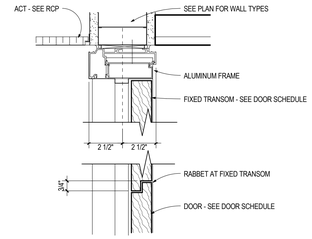
4A a8.11 **HM FRAME JAMB/HEAD DETAIL**
SCALE: 3" = 1'-0"



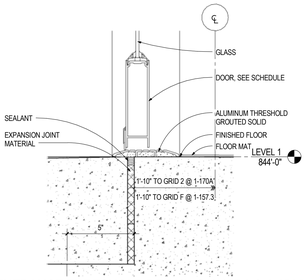
3A a8.11 **HM FRAME HEAD/JAMB DETAIL, TYP. AT GYP WALL**
SCALE: 3" = 1'-0"



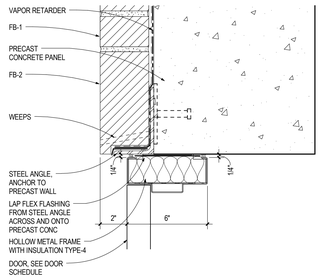
2A a8.11 **ALUM. FRAME DOOR JAMB DETAIL**
SCALE: 3" = 1'-0"



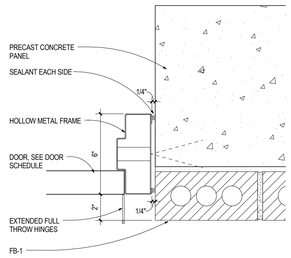
1A a8.11 **ALUM. FRAME DOOR TRANSOM DETAIL**
SCALE: 3" = 1'-0"



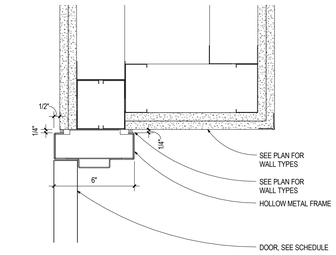
6B a8.11 **ENTRANCE THRESHOLD DETAIL @ 1-157.3 & 1-170A**
SCALE: 3" = 1'-0"



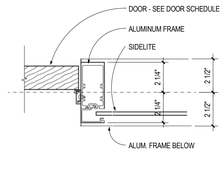
5B a8.11 **HM FRAME HEAD DETAIL, AT TANK YARD PRECAST**
SCALE: 3" = 1'-0"



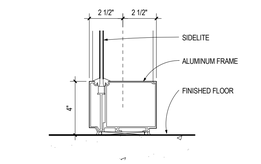
4B a8.11 **HM FRAME JAMB DETAIL, AT TANK YARD PRECAST**
3" = 1'-0"



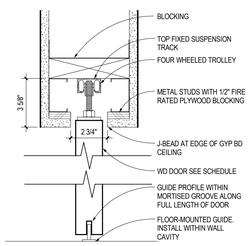
3B a8.11 **HM FRAME HEAD/JAMB DETAIL, TYP. AT STAIR**
SCALE: 3" = 1'-0"



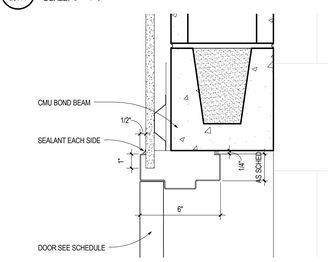
2B a8.11 **ALUM. FRAME DOOR JAMB AT SIDELITE**
SCALE: 3" = 1'-0"



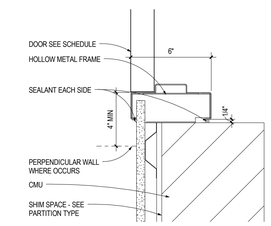
1B a8.11 **ALUM. FRAME SIDELITE BASE DETAIL**
SCALE: 3" = 1'-0"



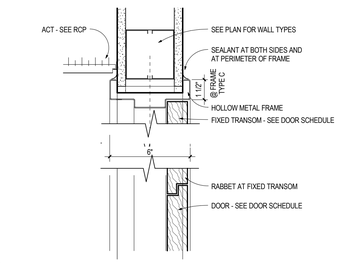
6C a8.11 **SLIDING FRAME HEAD DETAIL**
SCALE: 3" = 1'-0"



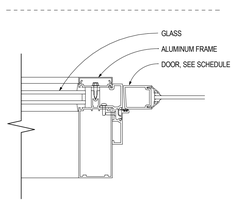
5C a8.11 **TYP. HM HEAD AT CMU FURRED WALL**
SCALE: 3" = 1'-0"



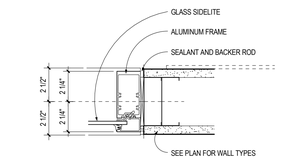
4C a8.11 **TYP. HM JAMB AT FURRED CMU WALL**
SCALE: 3" = 1'-0"



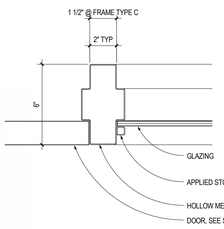
3C a8.11 **HM FRAME DOOR TRANSOM DETAIL**
SCALE: 3" = 1'-0"



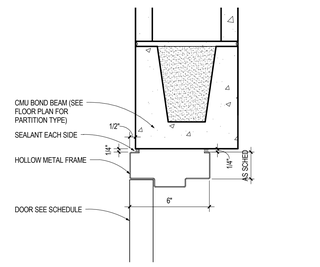
2C a8.11 **ALUM. FRAME JAMB DETAIL**
3" = 1'-0"



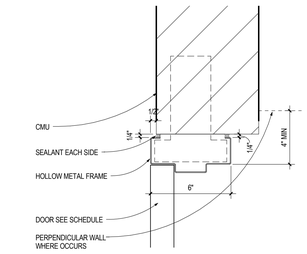
1C a8.11 **ALUM. FRAME SIDELITE JAMB DETAIL**
SCALE: 3" = 1'-0"



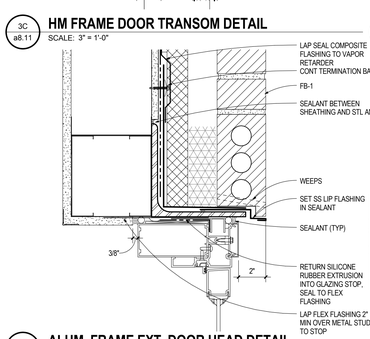
6D a8.11 **HM FRAME JAMB DETAIL AT SIDELIGHT**
SCALE: 3" = 1'-0"



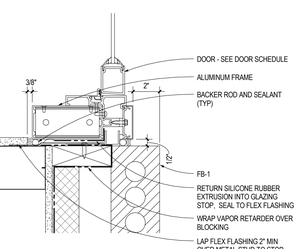
5D a8.11 **HM FRAME HEAD DETAIL, TYP. AT CMU**
SCALE: 3" = 1'-0"



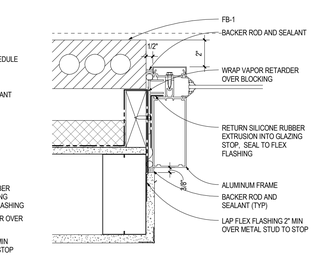
4D a8.11 **HM FRAME JAMB DETAIL, TYP. AT CMU**
SCALE: 3" = 1'-0"



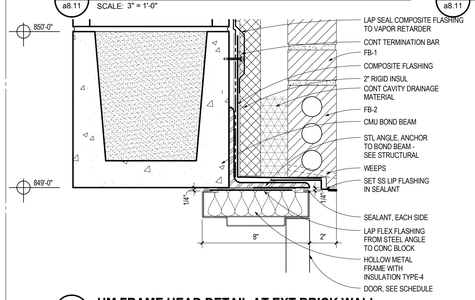
3D a8.11 **ALUM. FRAME EXT. DOOR HEAD DETAIL**
SCALE: 3" = 1'-0"



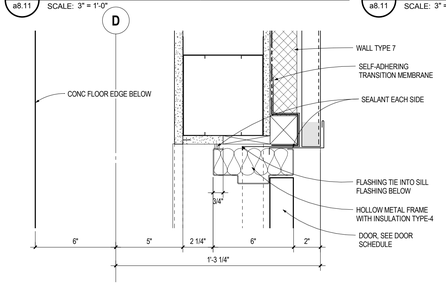
2D a8.11 **ALUM. FRAME EXT. DOOR JAMB DETAIL**
SCALE: 3" = 1'-0"



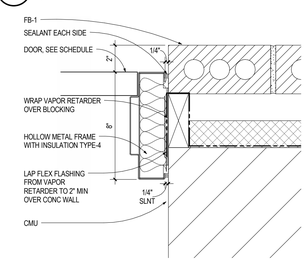
1D a8.11 **ALUM. FRAME JAMB SIDELITE DETAIL AT EXT**
SCALE: 3" = 1'-0"



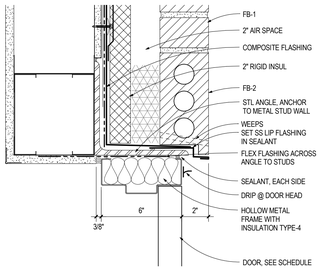
6E a8.11 **HM FRAME HEAD DETAIL AT EXT BRICK WALL**
SCALE: 3" = 1'-0"



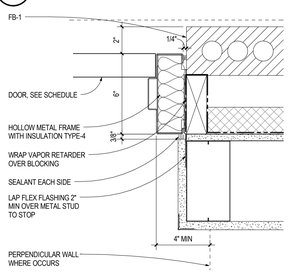
4E a8.11 **HM FRAME JAMB DETAIL, AT EXT METAL PANEL**
SCALE: 3" = 1'-0"



6F a8.11 **HM FRAME JAMB DETAIL, TYP. AT EXT BRICK WALL**
3" = 1'-0"

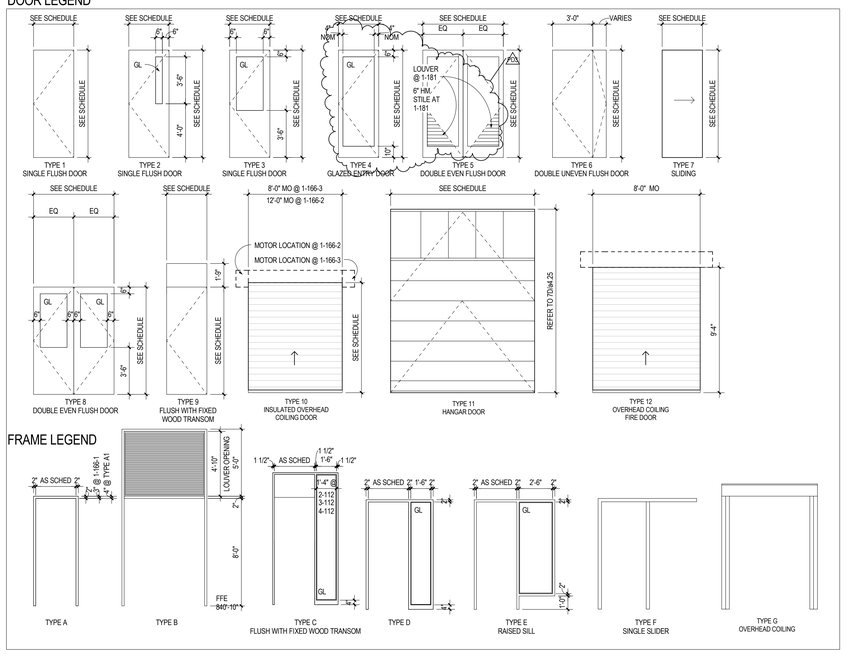


5F a8.11 **HM FRAME HEAD DETAIL AT EXT**
SCALE: 3" = 1'-0"



4F a8.11 **HM FRAME JAMB DETAIL AT EXT**
SCALE: 3" = 1'-0"

DOOR LEGEND



FRAME LEGEND

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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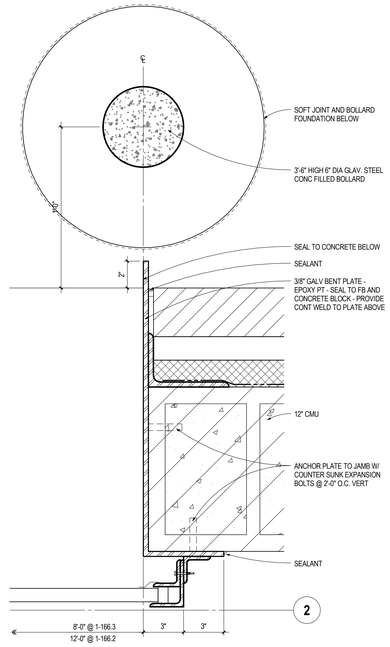
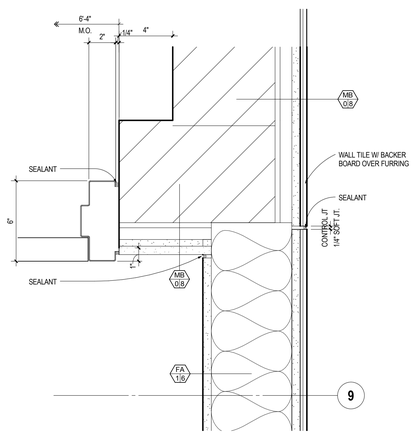
DOOR AND FRAME TYPES

a8.11



1D a8.12 **COILING DOOR JAMBS**
SCALE: 3" = 1'-0"



1F a8.12 **DOOR JAMB @ B-107**
SCALE: 3" = 1'-0"

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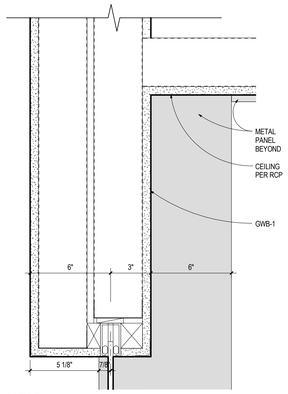
DOOR DETAILS

a8.12



7A a8.21 **HEAD**
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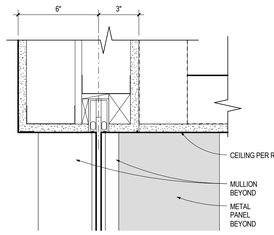

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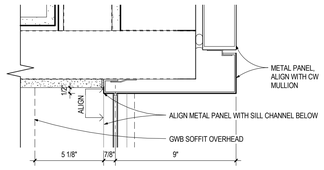

7C a8.21 **JAMB**
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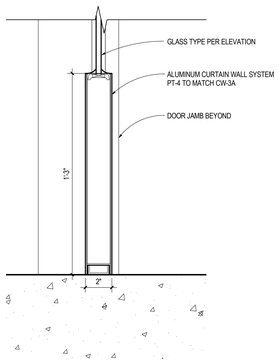

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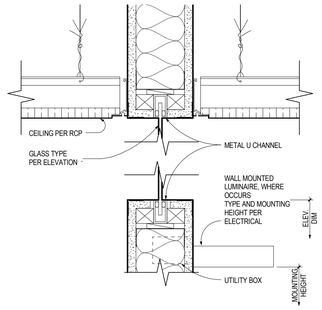
SCALE: 3" = 1'-0"



6A a8.21 **HEAD / SILL**
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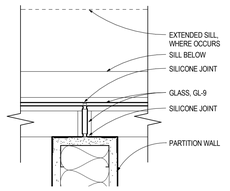

6B a8.21 **VERTICAL JOINT @ PARTITION**
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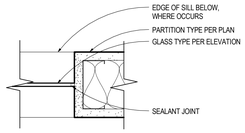

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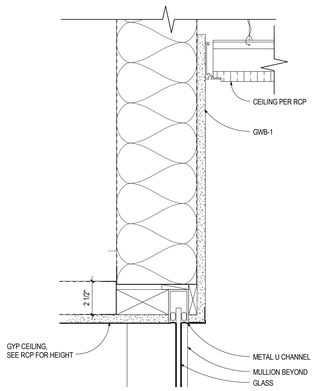

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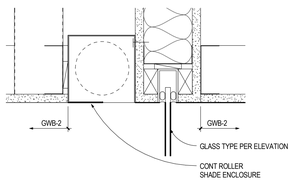

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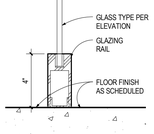

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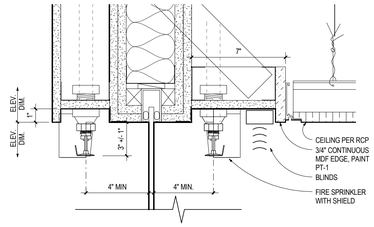

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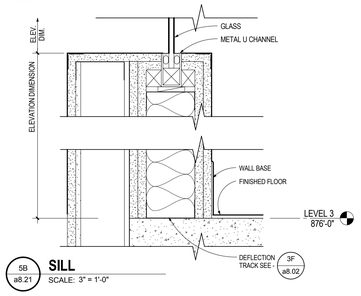

5B a8.21 **SILL**
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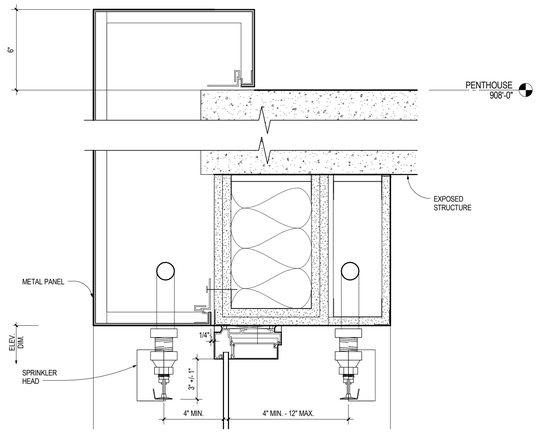

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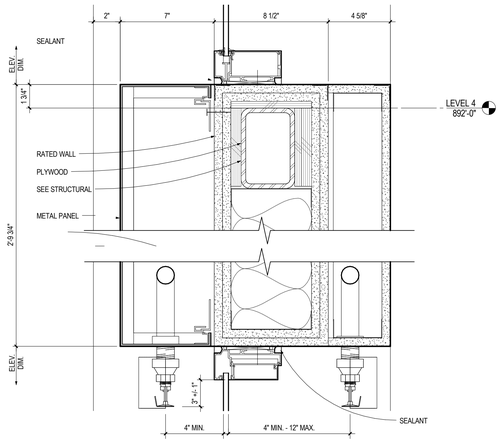

3C a8.21 **HEAD/SILL**
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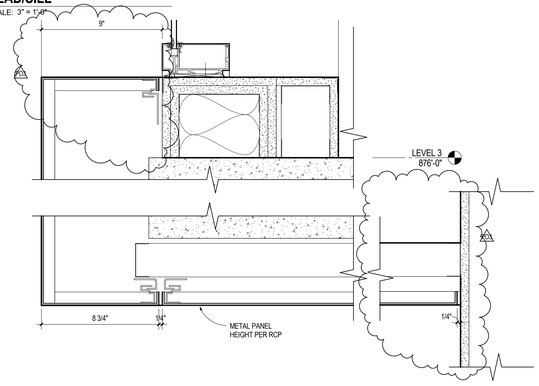
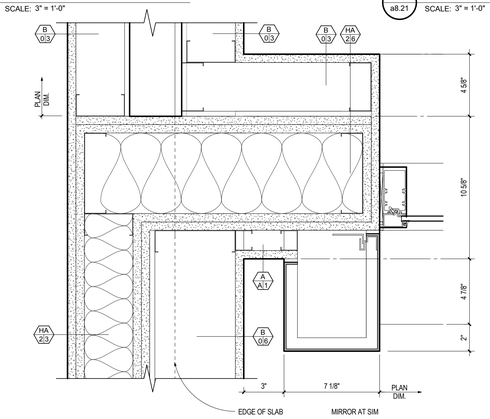


3E a8.21 **SILL/SOFFIT**
SCALE: 3" = 1'-0"

2E a8.21 **SOFFIT**
SCALE: 3" = 1'-0"



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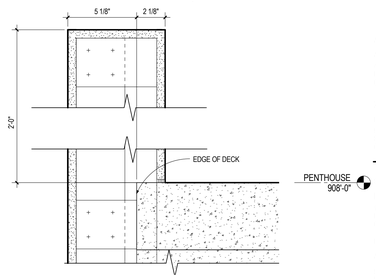

1A a8.21 **TOP OF WALL**
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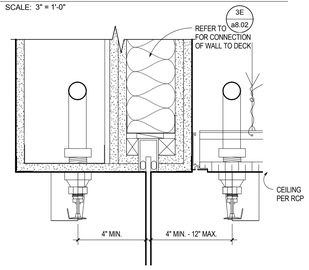

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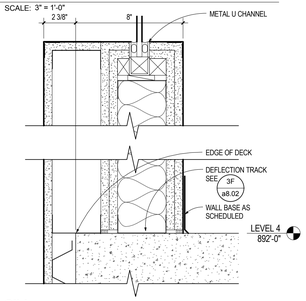

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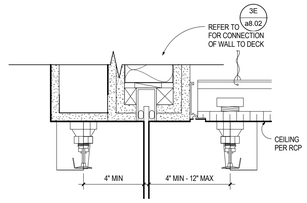

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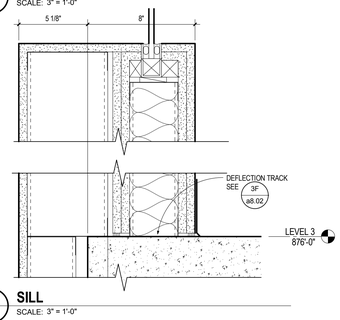

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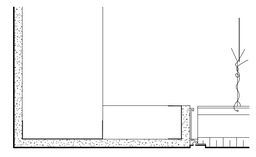

1F a8.21 **SOFFIT**
SCALE: 3" = 1'-0"

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Drawn

Checked

Date

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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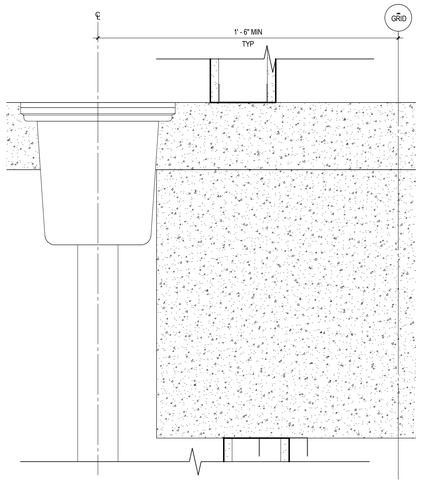
INTERIOR DETAILS - ATRIUM

a8.21



7B / a8.22 **FLOOR SINK DETAIL**
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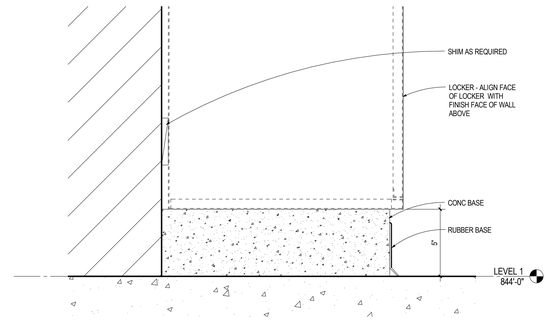

2B / a8.22 **LOCKER BASE DETAIL**
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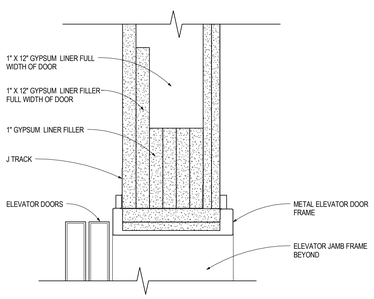

7D / a8.22 **ELEVATOR DOOR HEAD DETAIL**
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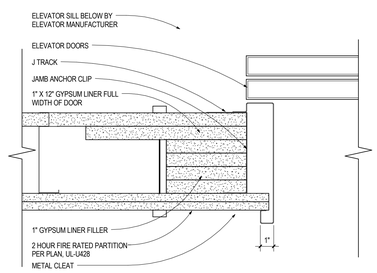

6D / a8.22 **ELEVATOR DOOR JAMB DETAIL**
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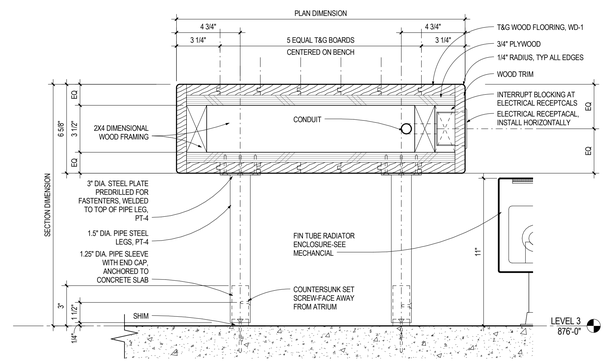

4D / a8.22 **BENCH - CROSS SECTION TYPICAL**
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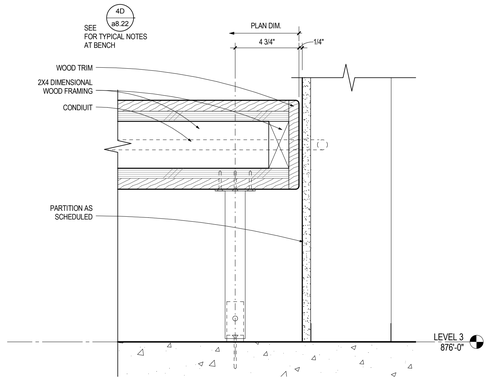

2D / a8.22 **BENCH - DETAIL AT WALL**
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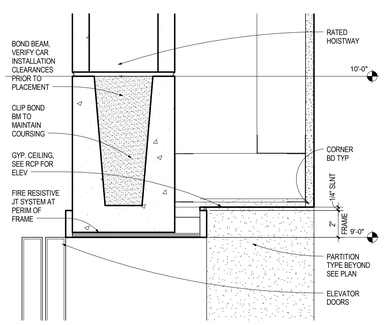
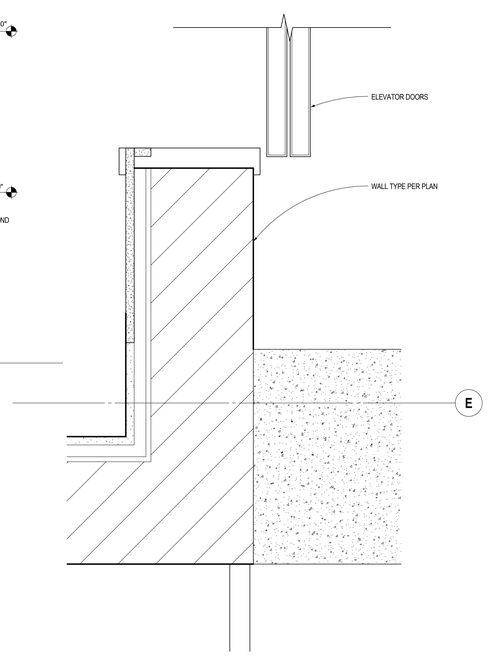


7E / a8.22 **FREIGHT ELEVATOR DOOR HEAD DETAIL**
SCALE: 3" = 1'-0"



6E / a8.22 **FREIGHT ELEVATOR DOOR JAMB DETAIL**
SCALE: 3" = 1'-0"

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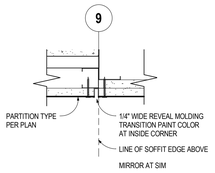
INTERIOR DETAILS

a8.22



6A a8.23 **GWB REVEAL PLAN**
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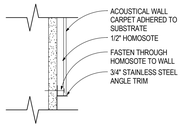

5A a8.23 **TBD ASSEMBLY**
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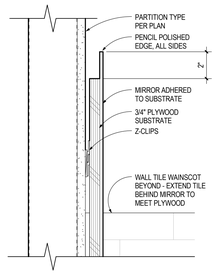

4A a8.23 **MIRROR AT TILE**
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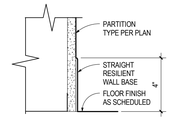

3A a8.23 **STRAIGHT WALL BASE**
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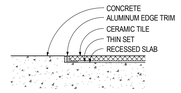

2A a8.23 **CONCRETE TO CERAMIC TILE**
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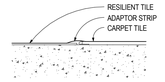

1A a8.23 **CARPET TO RESILIENT TILE**
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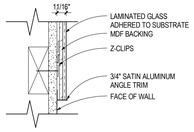

5B a8.23 **GMBD ASSEMBLY**
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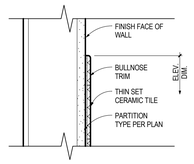

4B a8.23 **WALL TILE**
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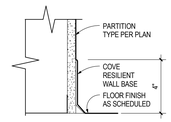

3B a8.23 **COVE WALL BASE**
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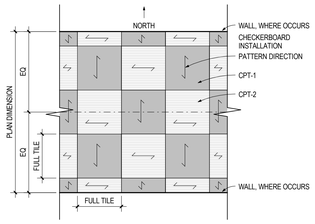

2B a8.23 **CARPET PATTERN**
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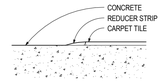

1B a8.23 **CONCRETE TO CARPET**
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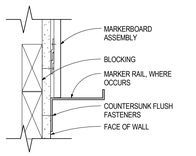
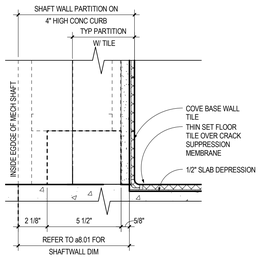
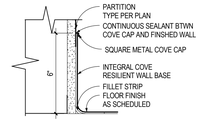


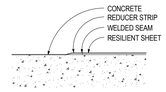
5C a8.23 **MARKERBOARD AT MARKER RAIL**
SCALE: 3" = 1'-0"



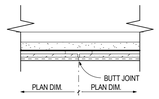
4C a8.23 **TILE COVE BASE**
SCALE: 3" = 1'-0"



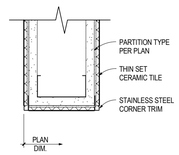
3C a8.23 **INTEGRAL COVE WALL BASE**
SCALE: 3" = 1'-0"



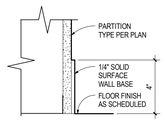
1C a8.23 **CONCRETE TO RESILIENT SHEET**
SCALE: 3" = 1'-0"



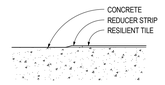
5D a8.23 **MARKERBOARD VERTICAL JOINT**
SCALE: 3" = 1'-0"



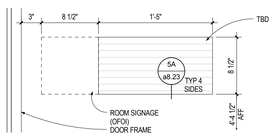
4D a8.23 **WALL TILE OUTSIDE CORNER**
SCALE: 3" = 1'-0"



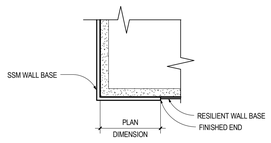
3D a8.23 **SSM WALL BASE**
SCALE: 3" = 1'-0"



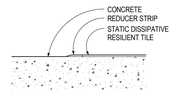
1D a8.23 **CONCRETE TO RESILIENT TILE**
SCALE: 3" = 1'-0"



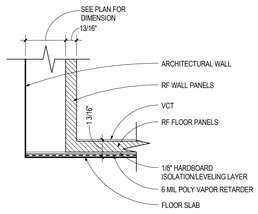
5E a8.23 **TACKBOARD AT OFFICE**
SCALE: 1 1/2" = 1'-0"



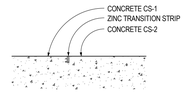
3E a8.23 **WALL BASE TRANSITION**
SCALE: 3" = 1'-0"



1E a8.23 **CONCRETE TO SDRT**
SCALE: 3" = 1'-0"



4F a8.23 **RF SHIELD PANEL DETAIL**
SCALE: 3" = 1'-0"



1F a8.23 **CONCRETE CS-1 TO CONCRETE CS-2**
SCALE: 3" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
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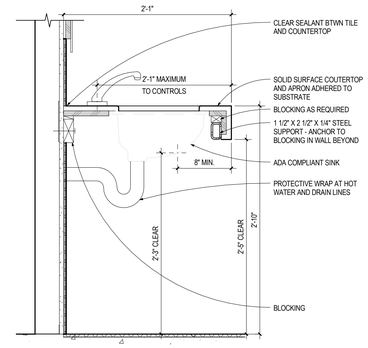
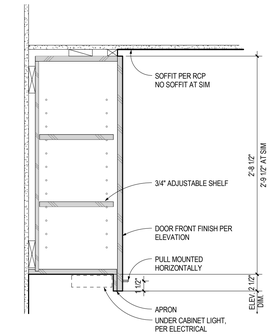
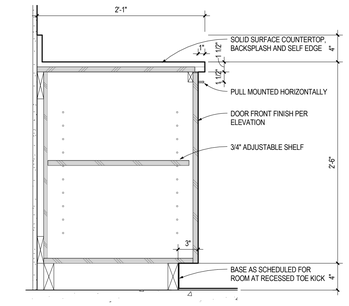


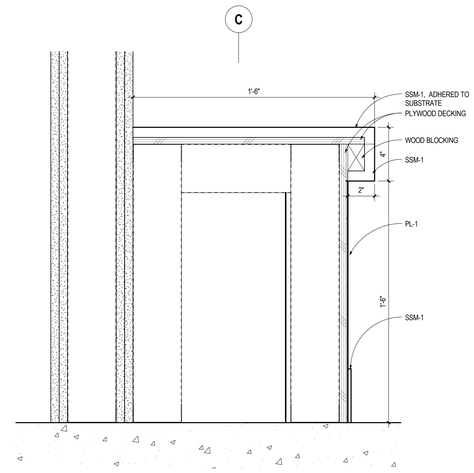
4A a8.24 **LAVATORY / COUNTER**
SCALE: 1 1/2" = 1'-0"



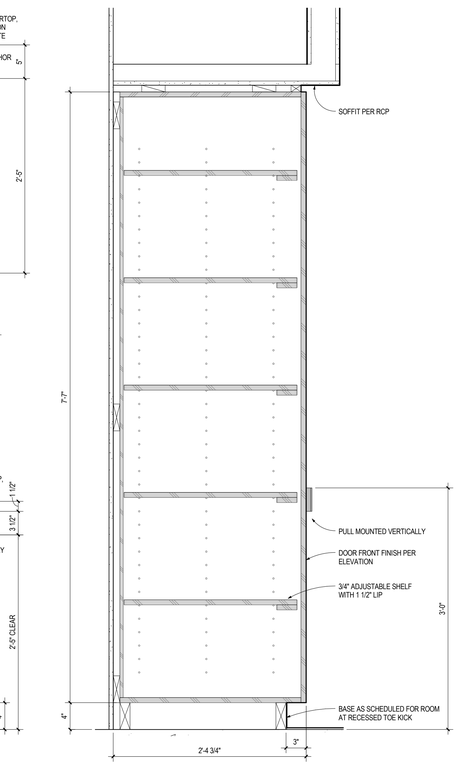
3A a8.24 **UPPER CABINET AT SOFFIT**
SCALE: 1 1/2" = 1'-0"



2A a8.24 **BASE CABINET**
SCALE: 1 1/2" = 1'-0"

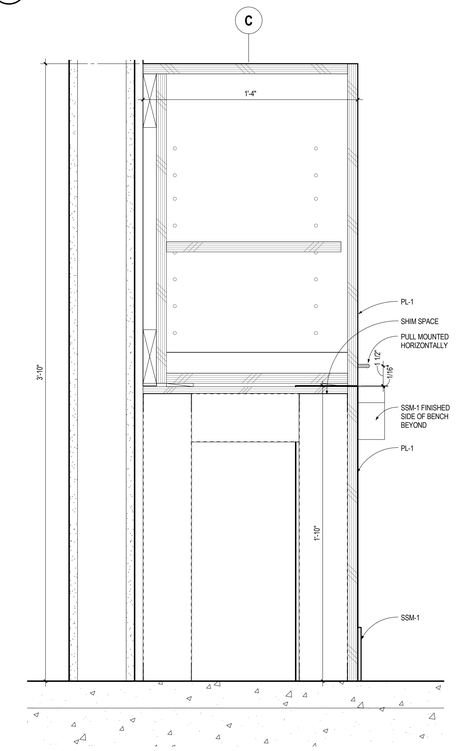


4C a8.24 **BENCH - DETAIL AT CLEAN ROOM**
SCALE: 3" = 1'-0"

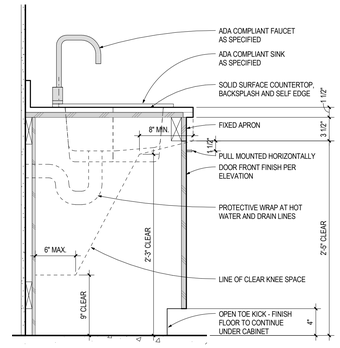


3C a8.24 **OPEN COUNTERTOP**
SCALE: 1 1/2" = 1'-0"

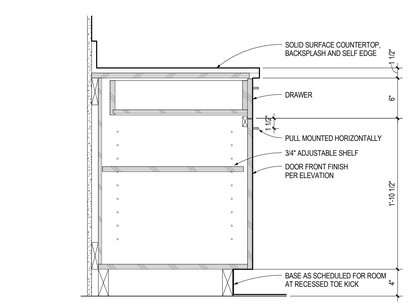
2D a8.24 **TALL CABINET**
SCALE: 1 1/2" = 1'-0"



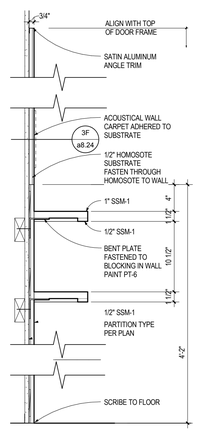
4E a8.24 **CASEWORK CLEAN ROOM CABINET**
SCALE: 3" = 1'-0"



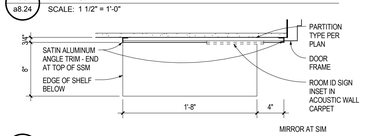
3D a8.24 **CASEWORK BASE SINK**
SCALE: 1 1/2" = 1'-0"



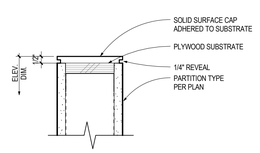
2E a8.24 **BASE CABINET WITH DRAWER**
SCALE: 1 1/2" = 1'-0"



3E a8.24 **LAB CADDY**
SCALE: 1 1/2" = 1'-0"



3F a8.24 **LAB CADDY PLAN**
SCALE: 1 1/2" = 1'-0"



2F a8.24 **WALL CAP**
SCALE: 3" = 1'-0"

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For *Architectural Alliance*

By

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Date 02-24-2012 Reg. No. 14703

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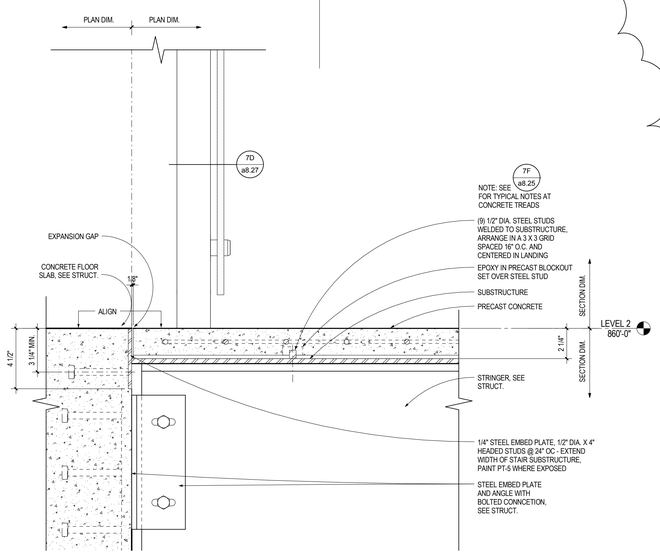
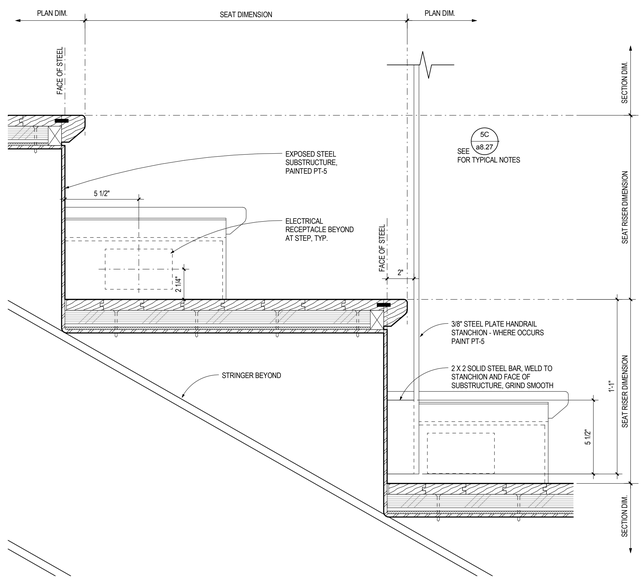
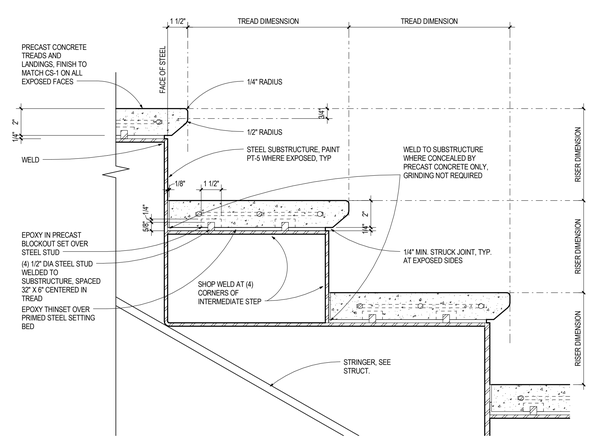


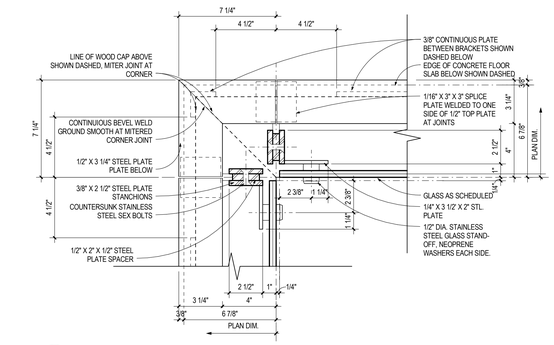
7B a8.25 **STAIR 3 - AT LEVEL 2 LANDING**
SCALE: 3" = 1'-0"



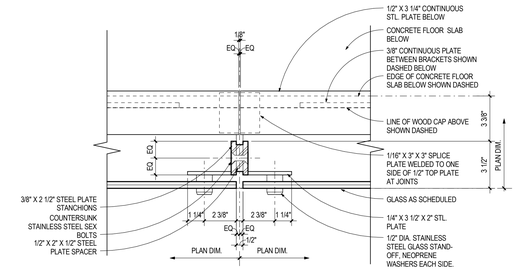
7D a8.25 **STAIR 3 - DETAIL AT SEATING RISERS**
SCALE: 3" = 1'-0"



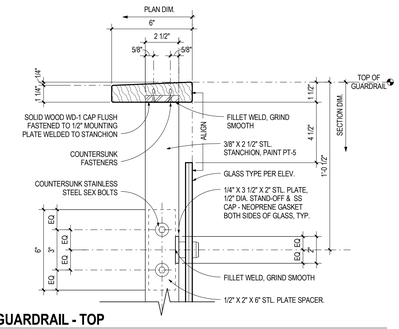
7F a8.25 **STAIR 3 - DETAIL AT TYPICAL CONCRETE TREAD/RISER**
SCALE: 3" = 1'-0"



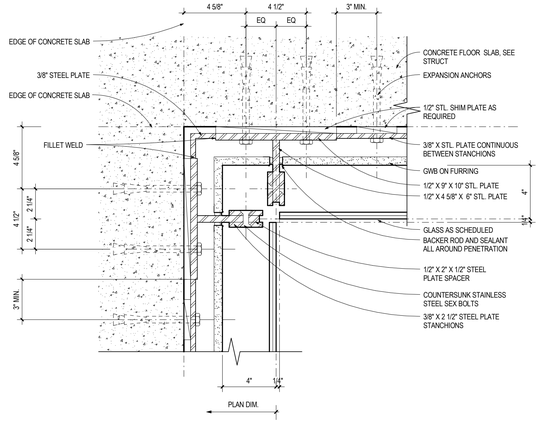
5A a8.25 **GUARDRAIL - PLAN DETAIL AT UPPER SPACER AT CORNER**
SCALE: 3" = 1'-0"



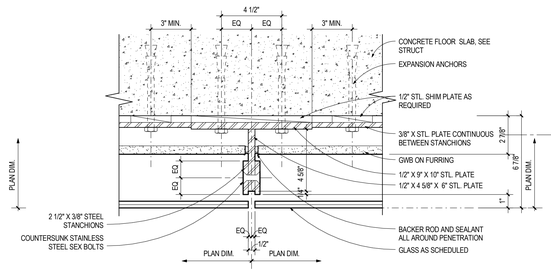
3A a8.25 **GUARDRAIL - PLAN DETAIL AT UPPER SPACER**
SCALE: 3" = 1'-0"



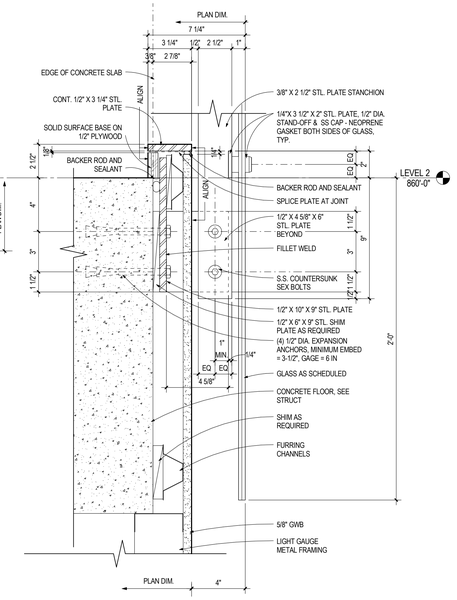
2A a8.25 **GUARDRAIL - TOP**
SCALE: 3" = 1'-0"



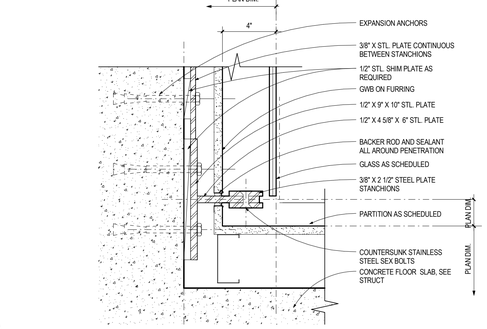
5C a8.25 **GUARDRAIL - PLAN AT FLOOR SLAB CONNECTION AT CORNER**
SCALE: 3" = 1'-0"



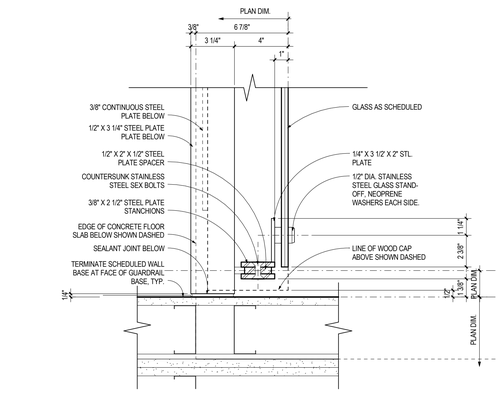
3B a8.25 **GUARDRAIL - PLAN DETAIL AT FLOOR SLAB CONNECTION**
SCALE: 3" = 1'-0"



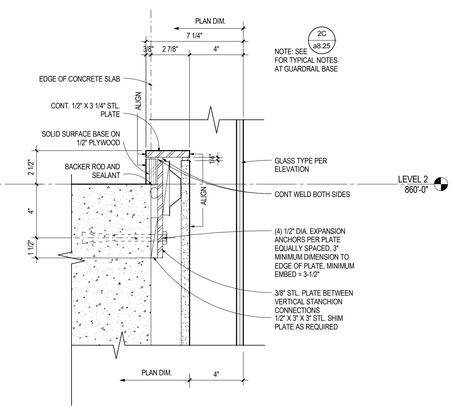
2C a8.25 **GUARDRAIL - BASE AT STANCHION**
SCALE: 3" = 1'-0"



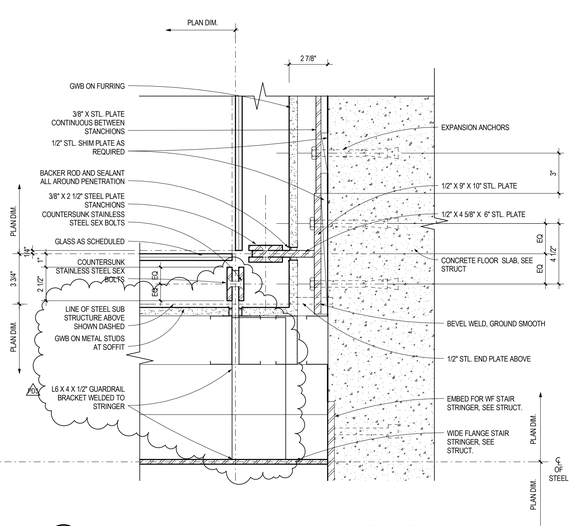
5D a8.25 **GUARDRAIL - PLAN AT FLOOR SLAB CONNECTION AT WALL**
SCALE: 3" = 1'-0"



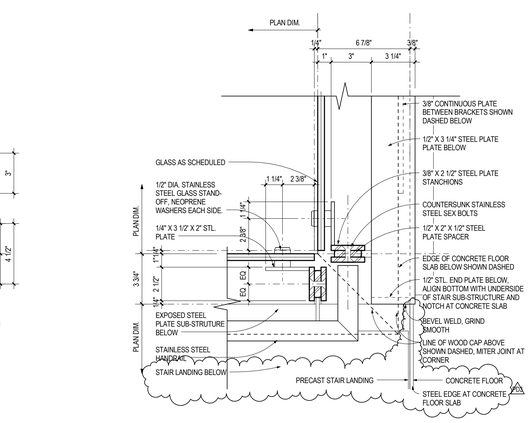
3D a8.25 **GUARDRAIL - PLAN DETAIL AT UPPER AT WALL**
SCALE: 3" = 1'-0"



2E a8.25 **GUARDRAIL - BASE BETWEEN STANCHIONS**
SCALE: 3" = 1'-0"



5F a8.25 **GUARDRAIL - PLAN AT FLOOR SLAB CONNECTION AT TOP OF STAIR**
SCALE: 3" = 1'-0"



3F a8.25 **GUARDRAIL - PLAN DETAIL AT UPPER SPACER AT TOP OF STAIR**
SCALE: 3" = 1'-0"

GENERAL NOTES

A. ALL EXPOSED STEEL PLATE WORK TO BE SHOP FABRICATED AND SHOP FINISHED PRIOR TO FINAL INSTALLATION.
B. NO VISIBLE FIELD CUTS OR WELDS AT EXPOSED STEEL PLATE WORK.

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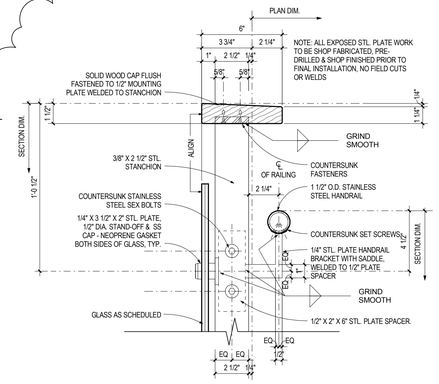
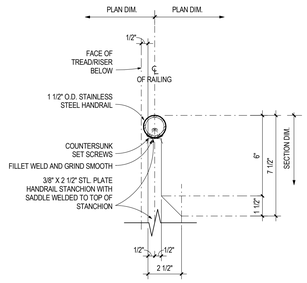
INTERIOR DETAILS - GUARDRAIL AND FEATURE STAIR

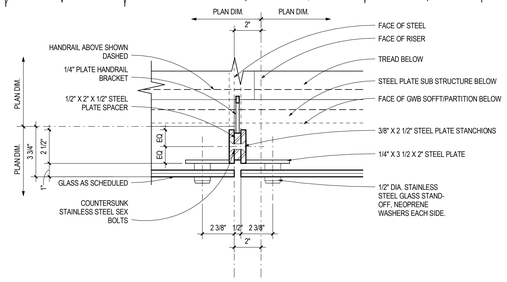
a8.25



1A a8.26 **STAIR 3 - DETAIL AT TOP OF GUARDRAIL**
SCALE: 3" = 1'-0"



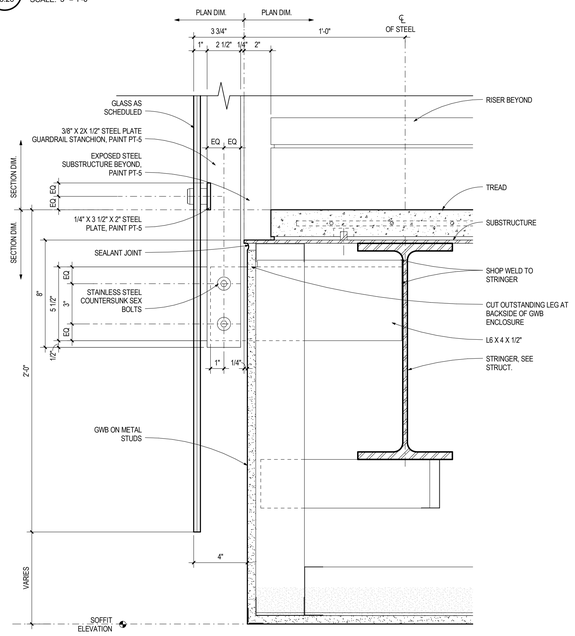
4A a8.26 **STAIR 3 - DETAIL TOP OF HANDRAIL**
SCALE: 3" = 1'-0"



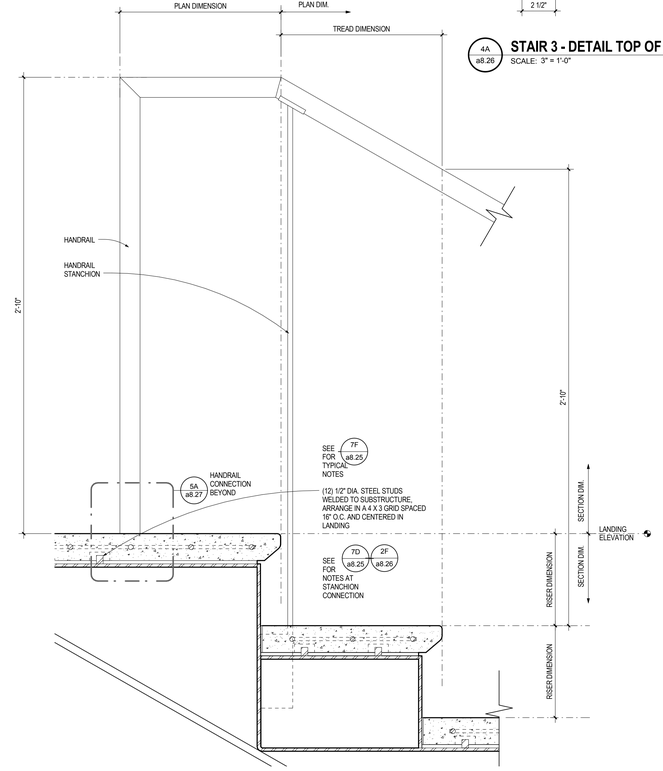
6A a8.26 **STAIR 3 - PLAN DETAIL AT STANCHION AT RISER**
SCALE: 3" = 1'-0"

GENERAL NOTES

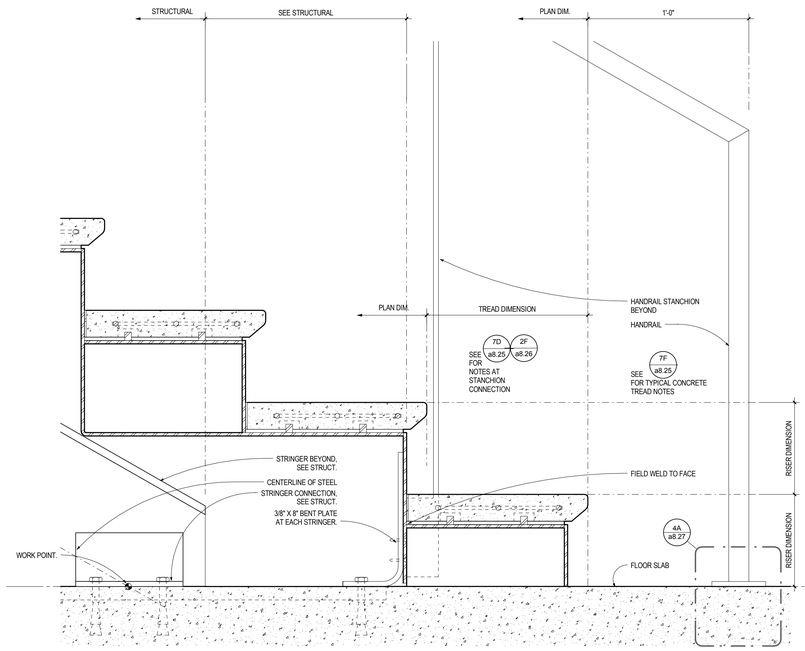
A. ALL EXPOSED STEEL PLATE WORK TO BE SHOP FABRICATED AND SHOP FINISHED PRIOR TO FINAL INSTALLATION.
B. NO VISIBLE FIELD CUTS OR WELDS AT EXPOSED STEEL PLATE WORK.



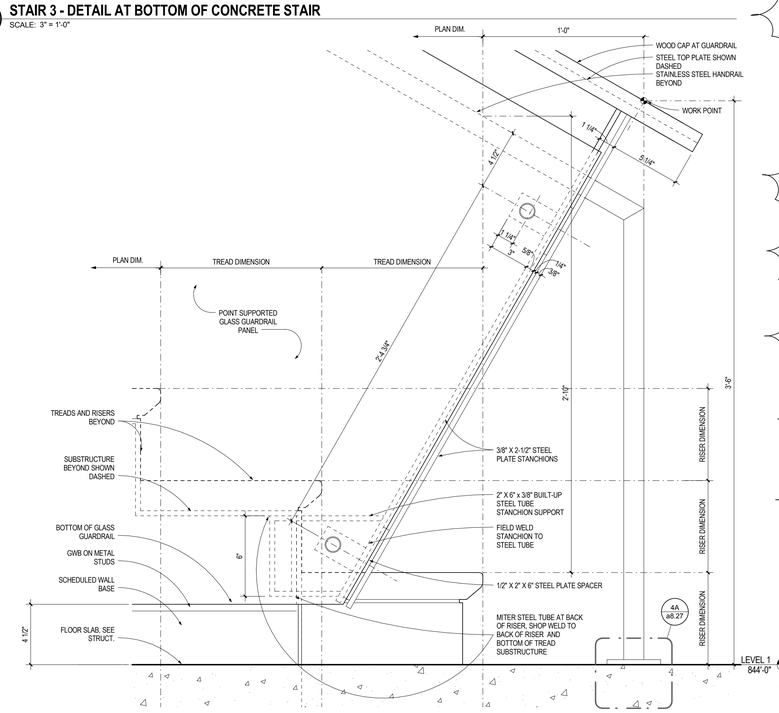
1D a8.26 **STAIR 3 - DETAIL AT LANDING AT GUARDRAIL**
SCALE: 3" = 1'-0"



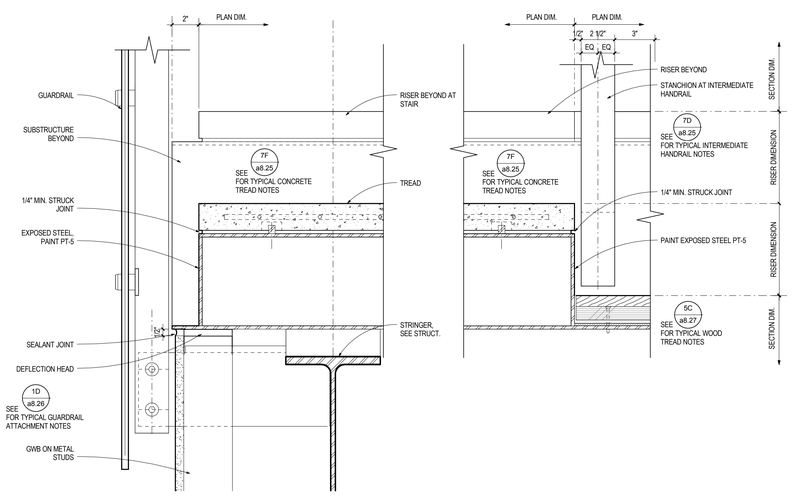
3D a8.26 **STAIR 3 - DETAIL AT TOP OF STAIR**
SCALE: 3" = 1'-0"



5D a8.26 **STAIR 3 - DETAIL AT BOTTOM OF CONCRETE STAIR**
SCALE: 3" = 1'-0"

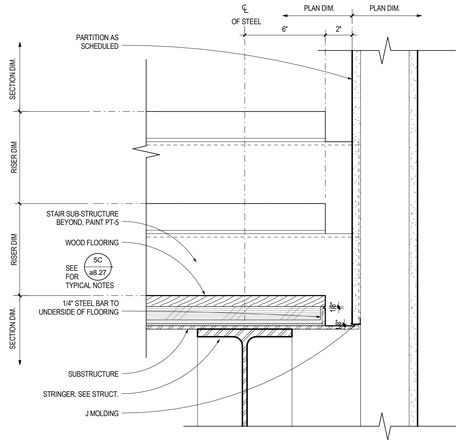


5F a8.26 **STAIR 3 - DETAIL AT GUARDRAIL AT BOTTOM OF STAIR**
SCALE: 3" = 1'-0"



1F a8.26 **STAIR 3 - DETAIL AT INTERMEDIATE RISER AT GUARDRAIL**
SCALE: 3" = 1'-0"

2F a8.26 **STAIR 3 - DETAIL AT INTERMEDIATE RISER AT HANDRAIL**
SCALE: 3" = 1'-0"



4F a8.26 **STAIR 3 - DETAIL AT SEATING TERMINATION AT SOUTH WALL**
SCALE: 3" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
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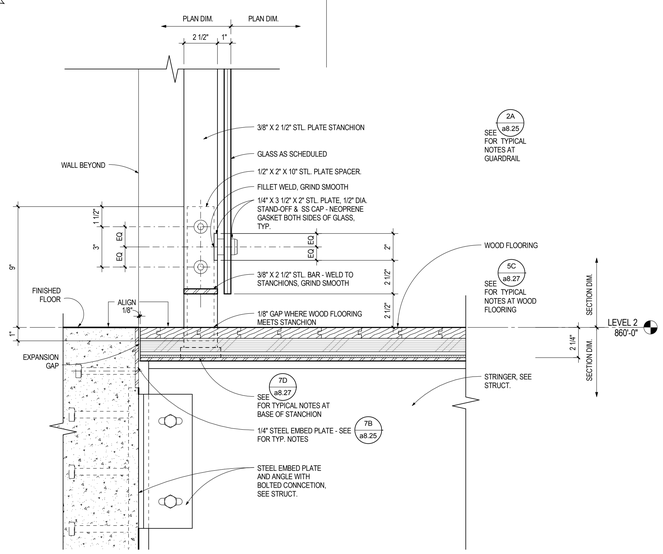
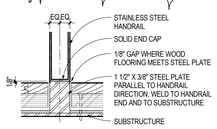
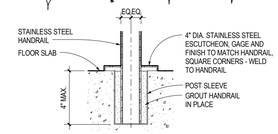
INTERIOR DETAILS - FEATURE STAIR



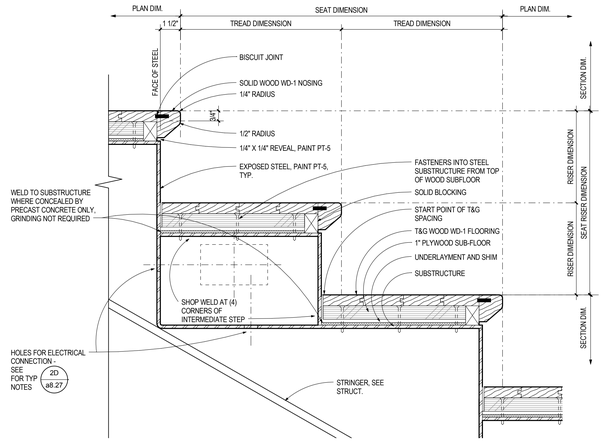
7C a8.27 **STAIR 3 - AT LEVEL 2 LANDING GUARDRAIL**
SCALE: 3" = 1'-0"



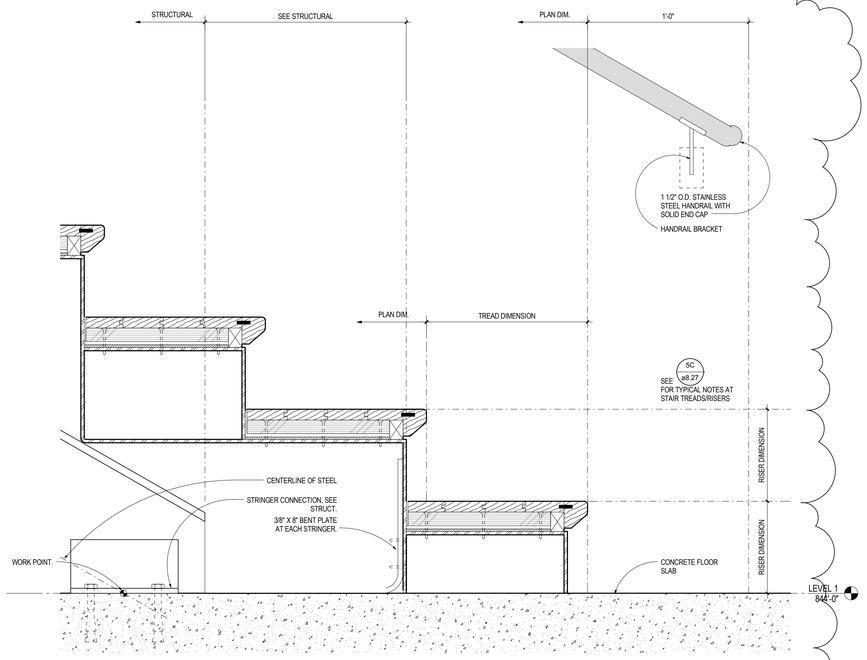
5A a8.27 **STAIR 3 - HANDRAIL AT FLOOR**
SCALE: 3" = 1'-0"



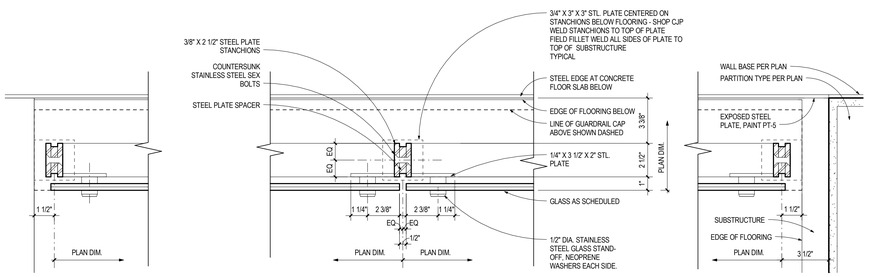
4A a8.27 **STAIR 3 - HANDRAIL AT CONCRETE**
SCALE: 3" = 1'-0"



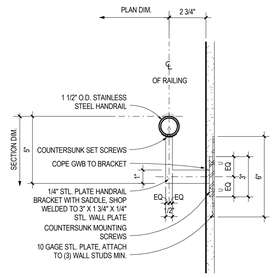
5C a8.27 **STAIR 3 - DETAIL AT TYPICAL WOOD TREAD/RISER**
SCALE: 3" = 1'-0"



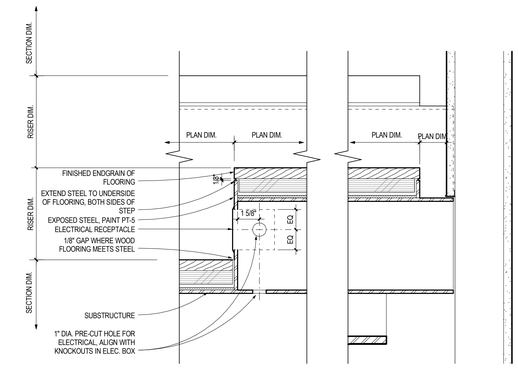
3C a8.27 **STAIR 3 - DETAIL AT BOTTOM OF WOOD STAIR**
SCALE: 3" = 1'-0"



7D a8.27 **GUARDRAIL - PLAN DETAIL AT LEVEL 2**
SCALE: 3" = 1'-0"



3D a8.27 **STAIR 3 - HANDRAIL AT WALL**
SCALE: 3" = 1'-0"



2D a8.27 **STAIR 3 - DETAIL AT INTERMEDIATE WOOD RISER**
SCALE: 3" = 1'-0"

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For *Architectural Alliance*

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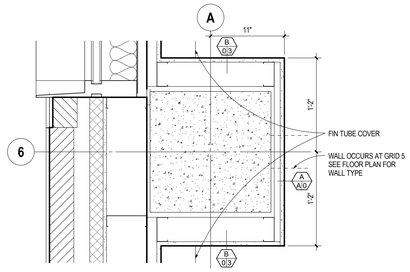
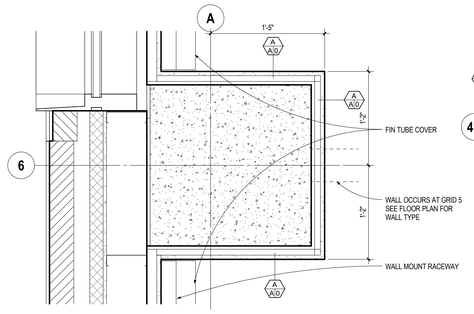
INTERIOR DETAILS

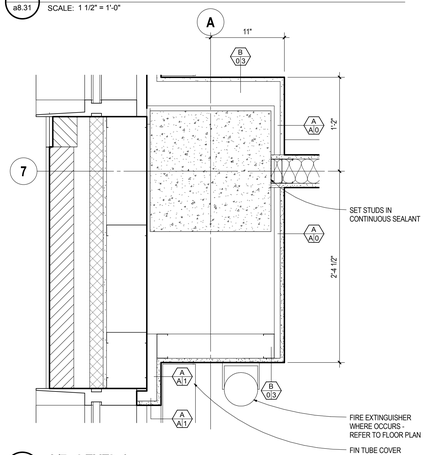
a8.27



7B a8.31 **A/6 - LEVEL 4**
SCALE: 1 1/2" = 1'-0"



7C a8.31 **A/6 - LEVEL 3**
SCALE: 1 1/2" = 1'-0"



7E a8.31 **A/7 - LEVEL 4**
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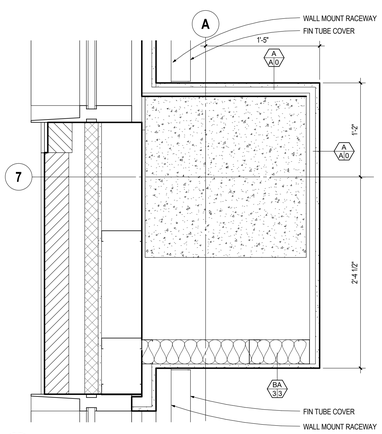

7F a8.31 **A/7 - LEVEL 3**
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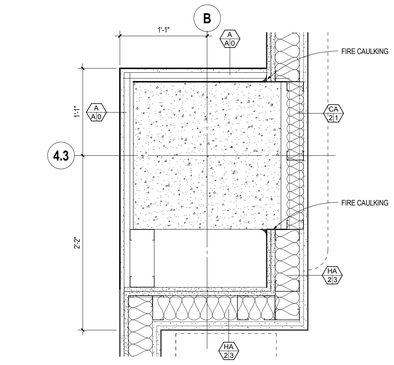

6B a8.31 **B/4.3 - LEVEL 4**
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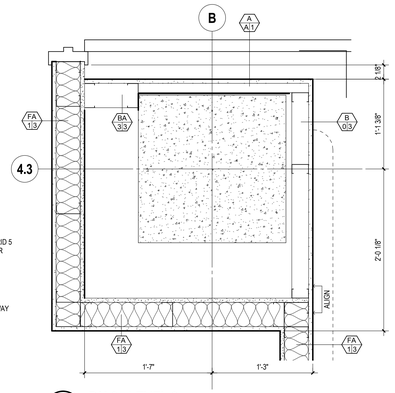

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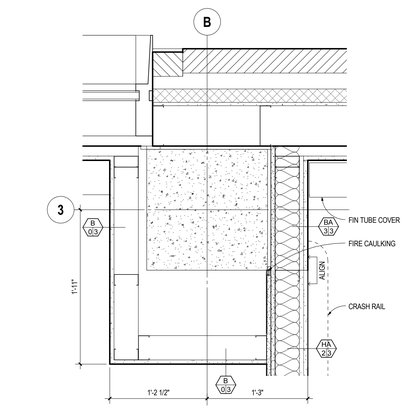

6E a8.31 **B/3 - LEVEL 4**
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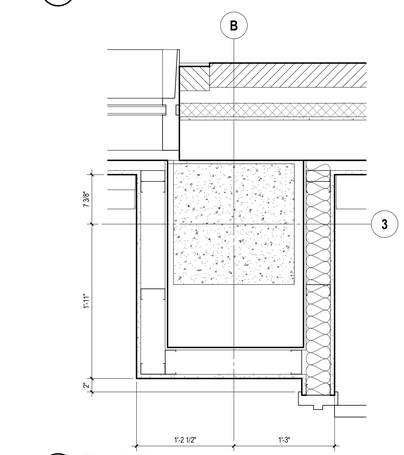

5F a8.31 **B/3 - LEVEL 3**
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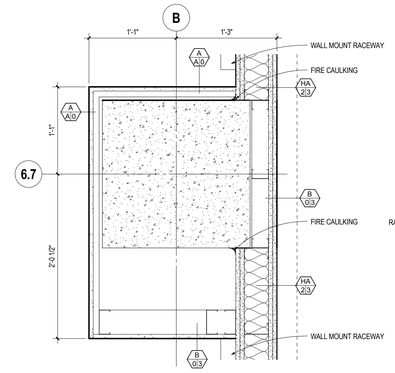

4B a8.31 **B/6.7 - LEVEL 4**
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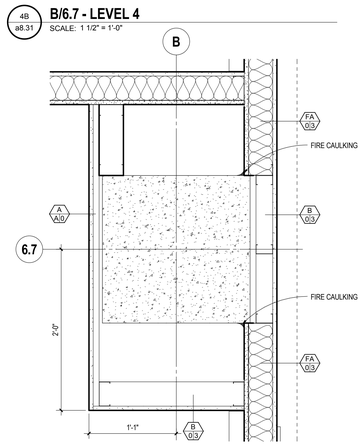

4C a8.31 **B/6.7 - LEVEL 3**
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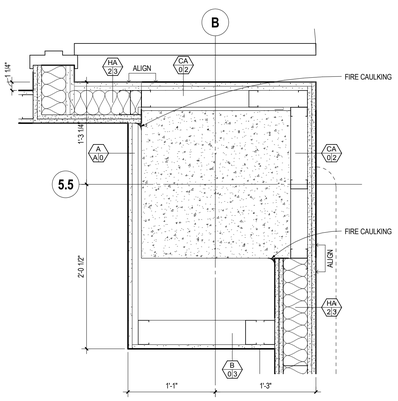

4E a8.31 **B/5.5 - LEVEL 4**
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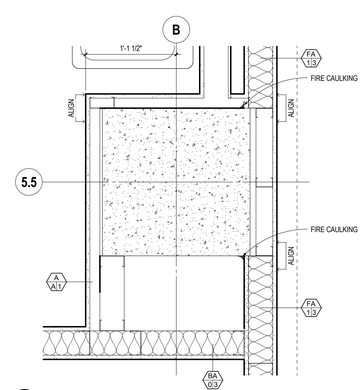

4F a8.31 **B/5.5 - LEVEL 3**
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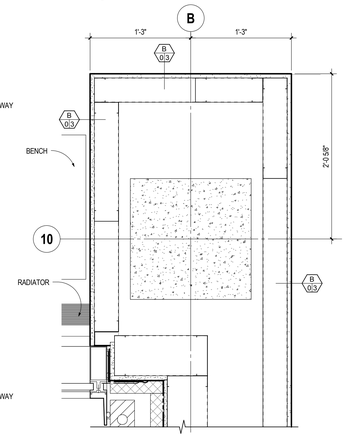

3B a8.31 **B/10 - LEVEL 3**
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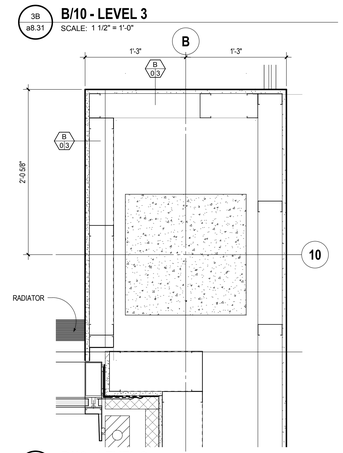

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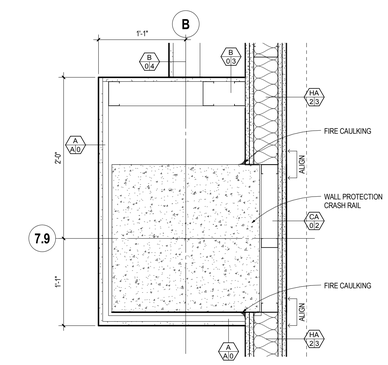
SCALE: 1 1/2" = 1'-0"



3E a8.31 **B/7.9 - LEVEL 4**
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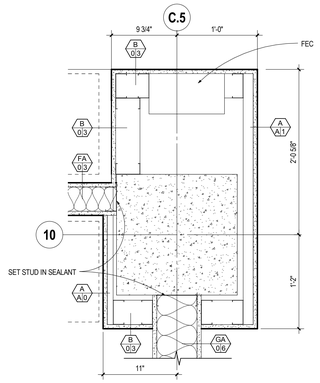

2B a8.31 **C.5/10 LEVEL 1**
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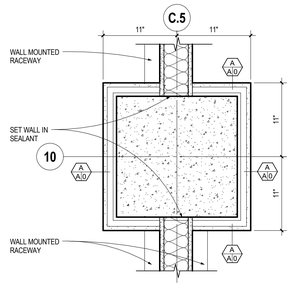

2C a8.31 **C.5/10 - BASEMENT**
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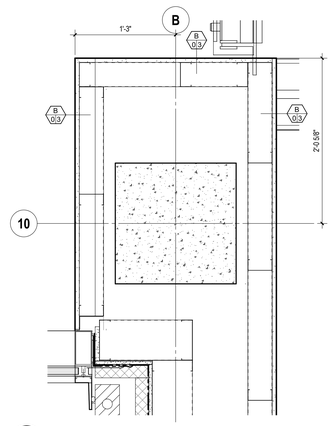
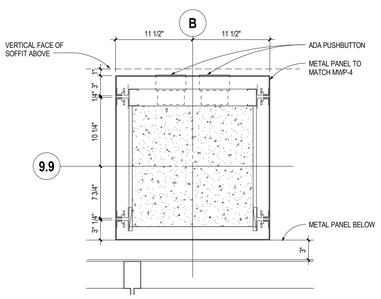


2E a8.31 **B/10 - LEVEL 4**
SCALE: 1 1/2" = 1'-0"



2F a8.31 **B/9.9 - LEVEL 1**
SCALE: 1 1/2" = 1'-0"

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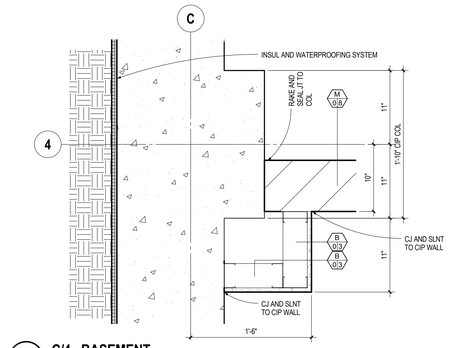
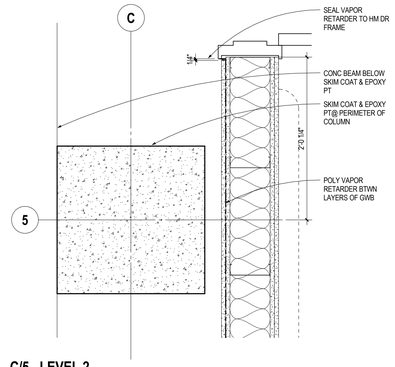
INTERIOR DETAILS

a8.31



7B a8.32 **C/4 - BASEMENT**
SCALE: 1 1/2" = 1'-0"



6B a8.32 **C/5 - LEVEL 2**
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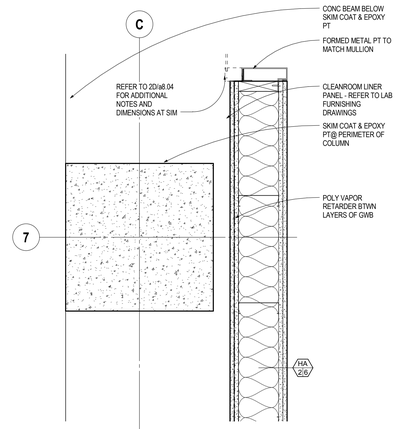
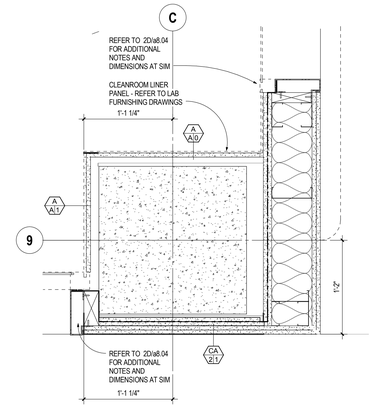


4B a8.32 **TYP COLUMN DTL AT COLUMN LINE C - LEVEL 2**
SCALE: 1 1/2" = 1'-0"



3B a8.32 **C/9 - LEVEL 1**
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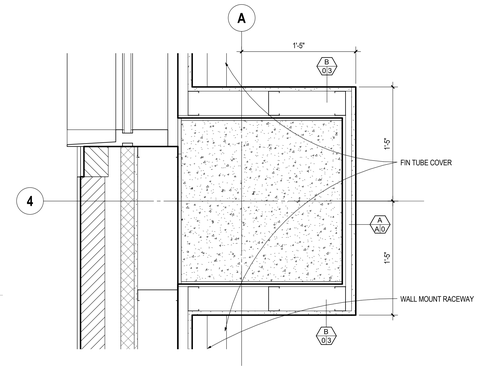

2B a8.32 **A/4 - LEVEL 3**
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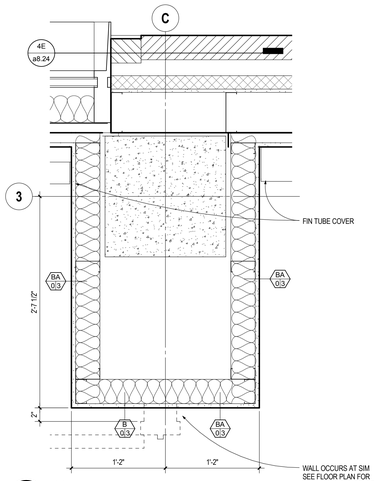

7C a8.32 **C/3 - LEVEL 3**
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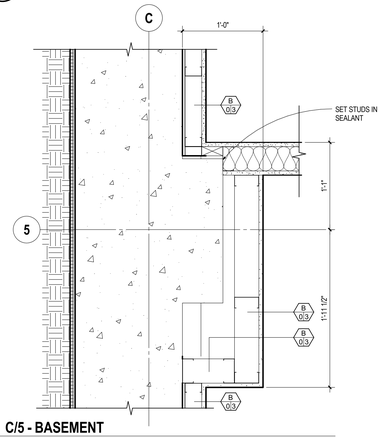

6C a8.32 **C/5 - BASEMENT**
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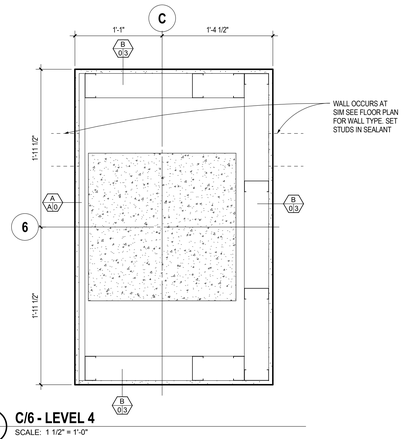
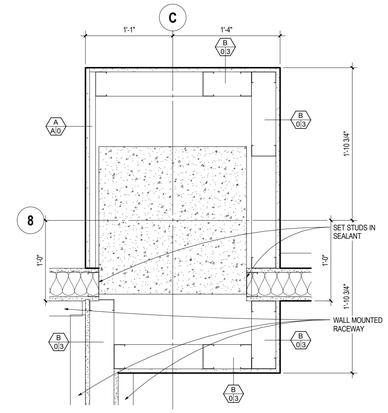
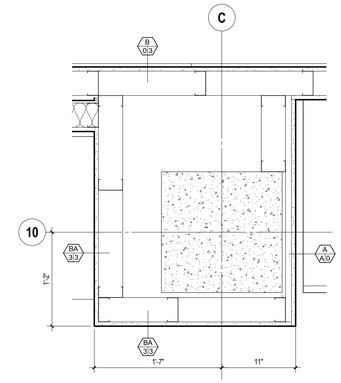


4C a8.32 **C/6 - LEVEL 4**
SCALE: 1 1/2" = 1'-0"



3C a8.32 **C/8 - LEVEL 4**
SCALE: 1 1/2" = 1'-0"



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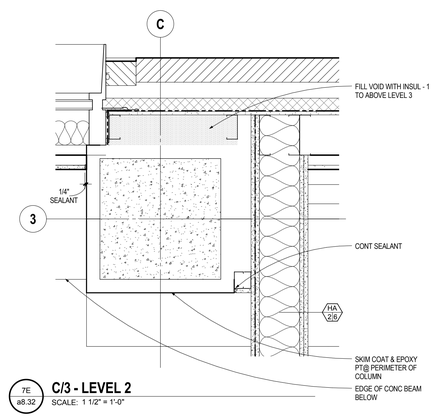

7E a8.32 **C/3 - LEVEL 2**
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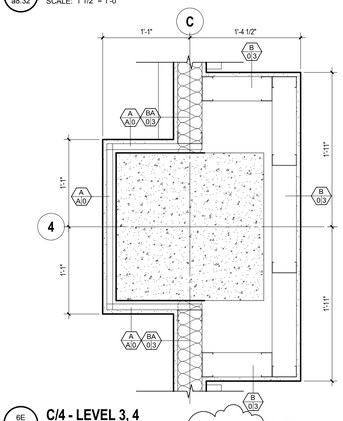

6E a8.32 **C/4 - LEVEL 3, 4**
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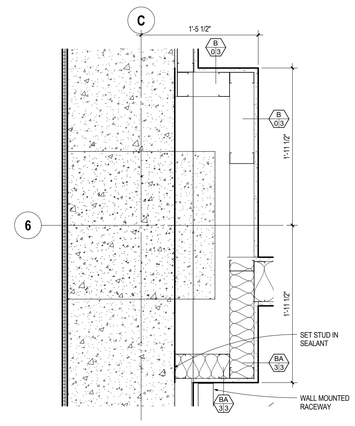

4E a8.32 **C/6 - BASEMENT**
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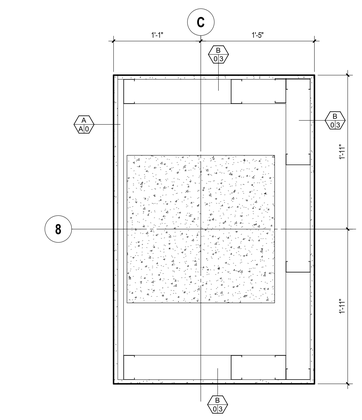

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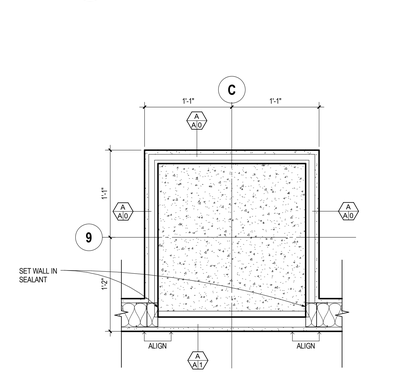
SCALE: 1 1/2" = 1'-0"



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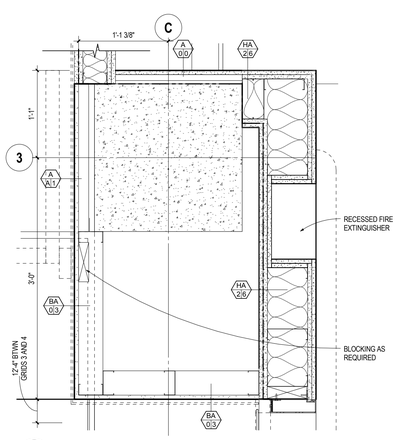
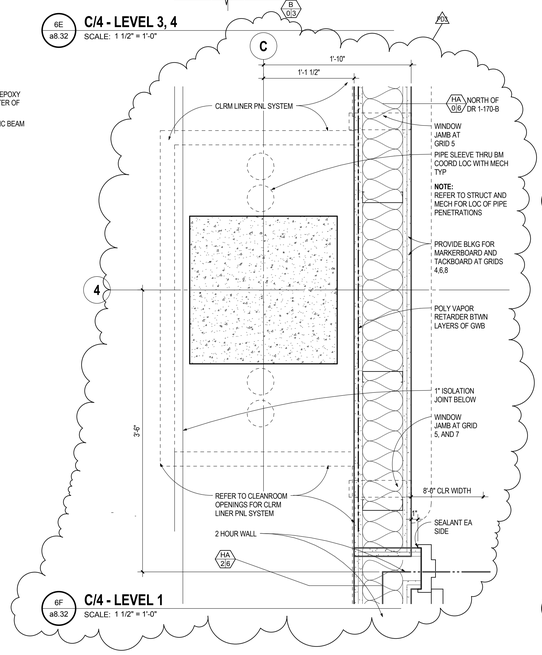


7F a8.32 **C/3 - LEVEL 1**
SCALE: 1 1/2" = 1'-0"



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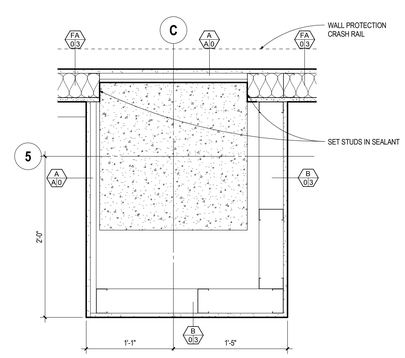

4F a8.32 **C/5 - LEVEL 3, 4**
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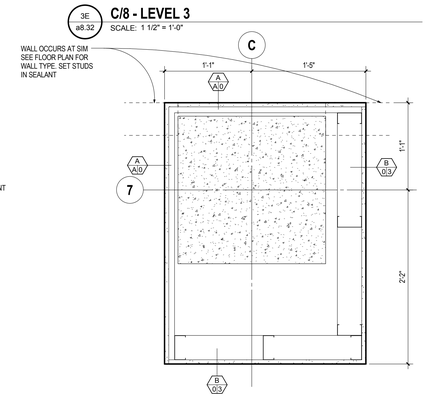

3F a8.32 **C/7 - LEVEL 3**
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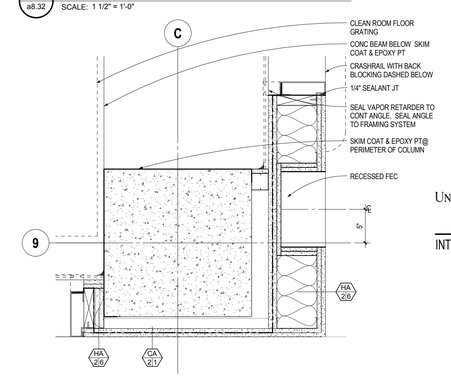

2F a8.32 **C/9 - LEVEL 2**
SCALE: 1 1/2" = 1'-0"

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Stillwater, MN 55082
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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For Architectural Alliance

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Drawn

Checked

Date

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
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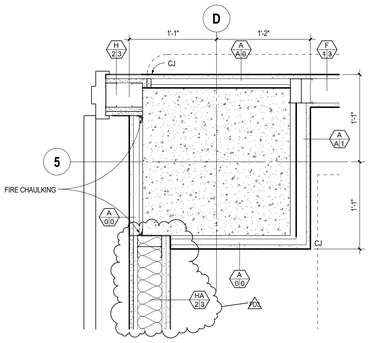
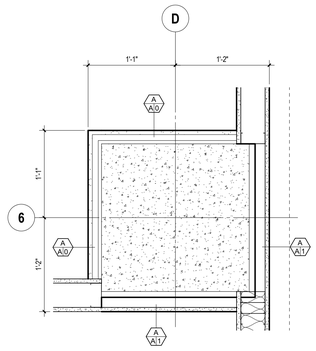
INTERIOR DETAILS

a8.32



6B a8.33 **D/5 - LEVEL 2, 3, 4**
SCALE: 1 1/2" = 1'-0"



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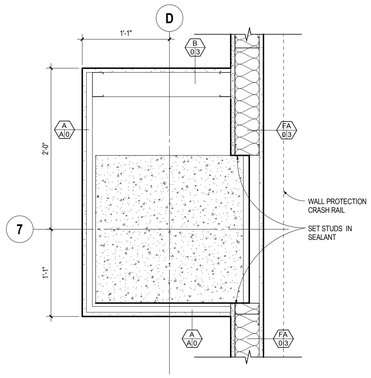

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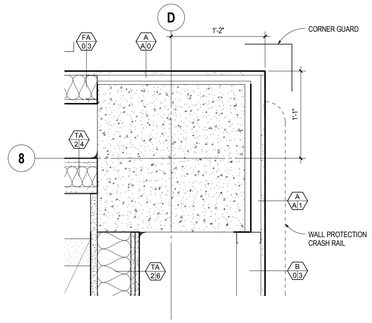

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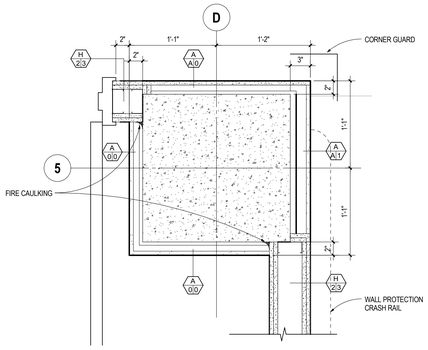

6C a8.33 **D/5 - BASEMENT**
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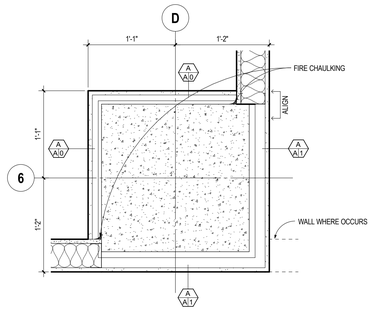

5C a8.33 **D/6 - LEVEL 2, 3, 4**
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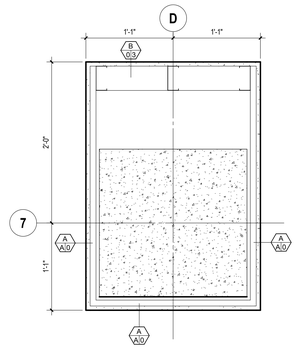

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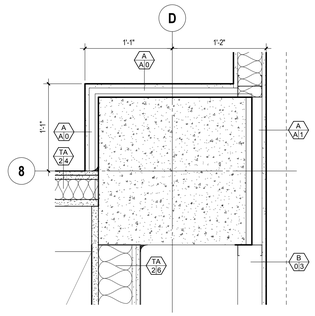

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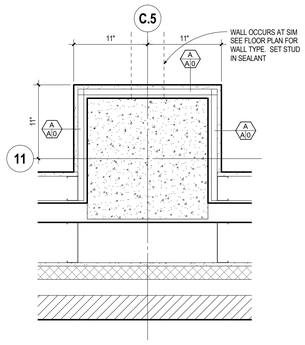

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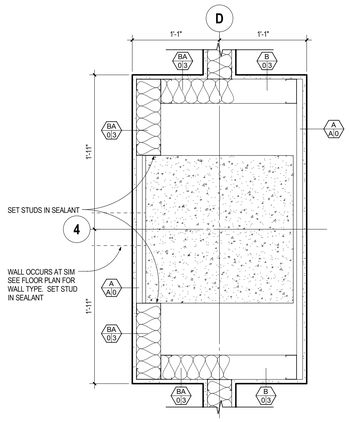

6E a8.33 **D/4 - LEVELS 3, 4**
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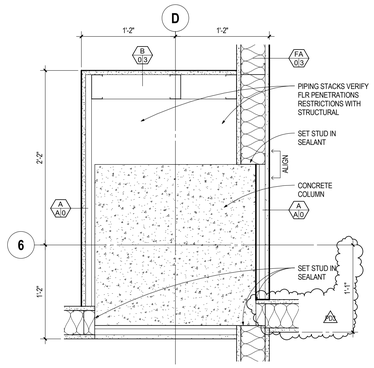

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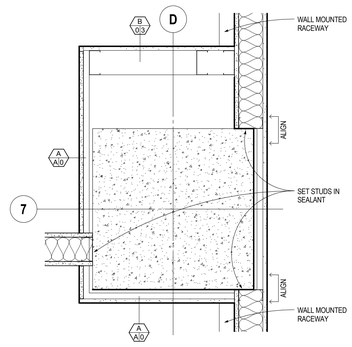

3E a8.33 **D/7 - LEVEL 1**
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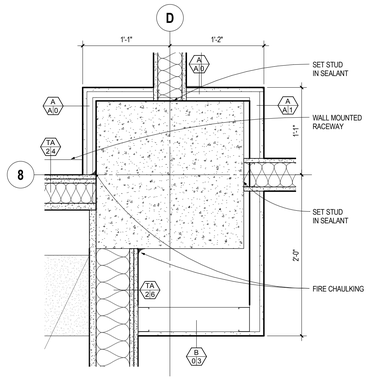

2E a8.33 **D/8 - LEVEL 2**
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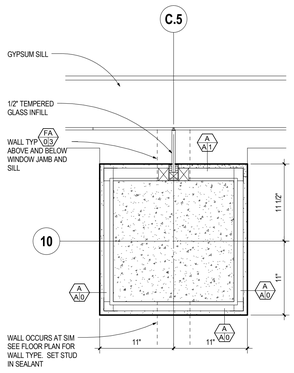

7F a8.33 **TYP COL AT GRIDLINE 10**
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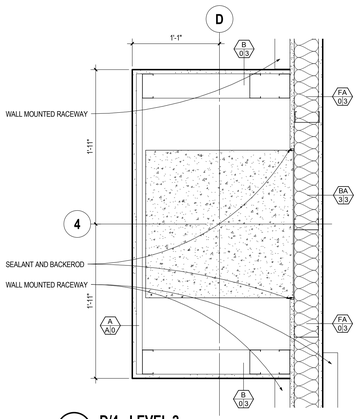

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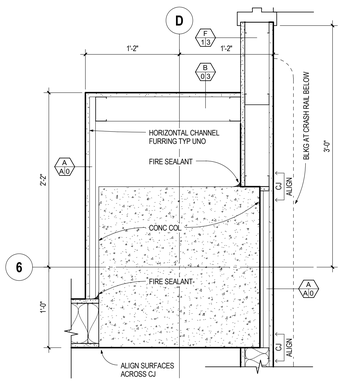

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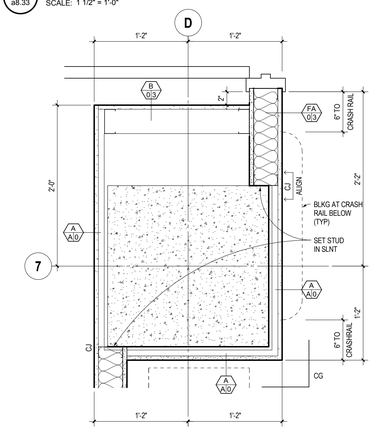

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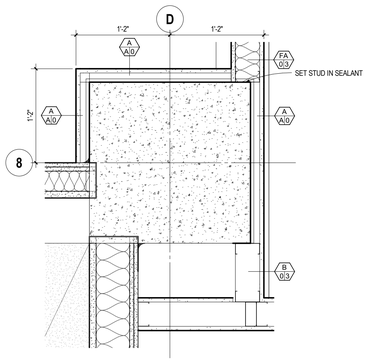

2F a8.33 **D/8 - LEVEL 1**
SCALE: 1 1/2" = 1'-0"

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Date

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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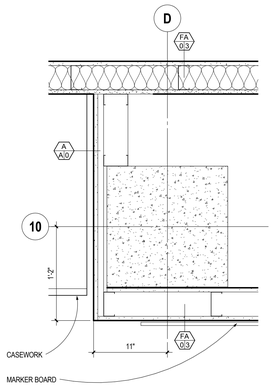
INTERIOR DETAILS

a8.33



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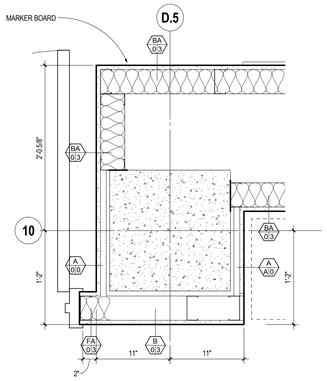

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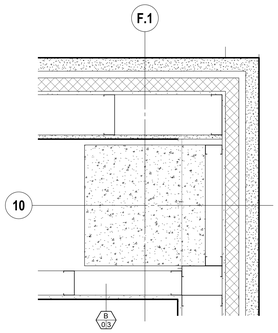
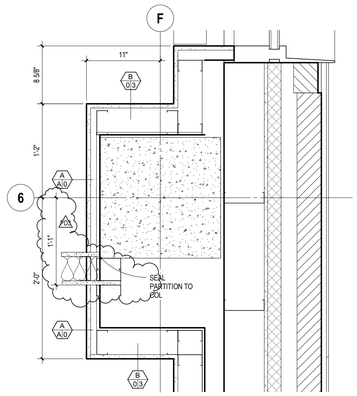
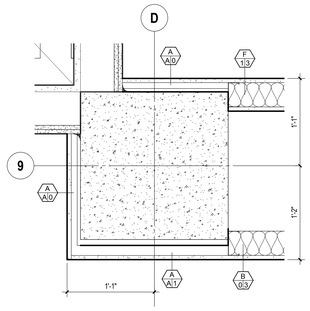


5B a8.34 **F.1/10 - LEVEL 1**
SCALE: 1 1/2" = 1'-0"



3B a8.34 **F/6 LEVEL 1**
SCALE: 1 1/2" = 1'-0"



7C a8.34 **D/9 - LEVEL 2**
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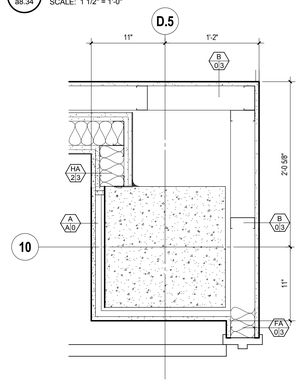

6C a8.34 **D.5/10 - LEVEL 2**
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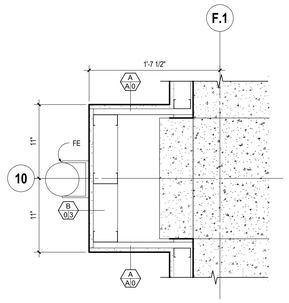
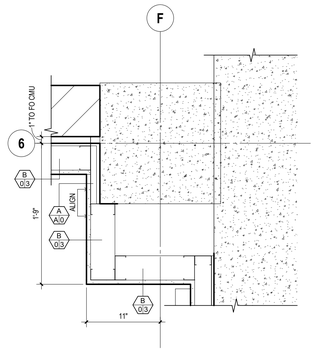
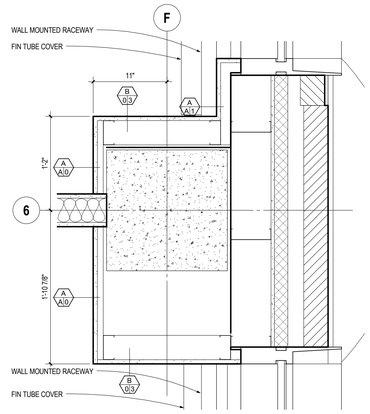


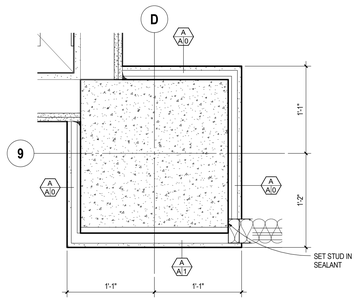
5C a8.34 **F.1/10 - BASEMENT**
SCALE: 1 1/2" = 1'-0"



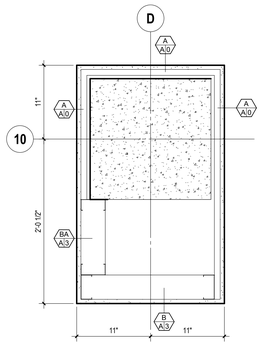
3C a8.34 **F/6 BASEMENT**
SCALE: 1 1/2" = 1'-0"



2C a8.34 **F/6 - LEVEL 4**
SCALE: 1 1/2" = 1'-0"



7E a8.34 **D/9 - LEVEL 1**
SCALE: 1 1/2" = 1'-0"



6E a8.34 **D/10 - LEVEL 3,4**
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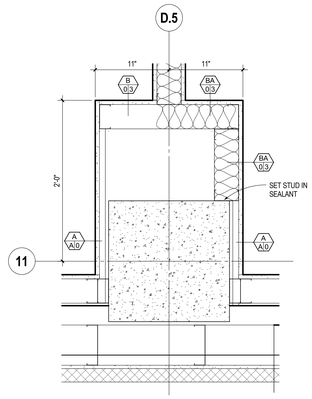
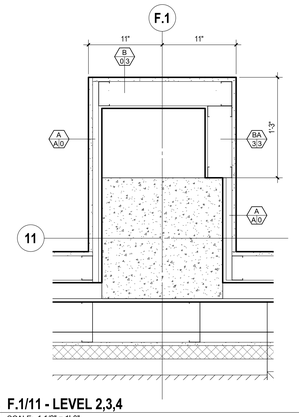
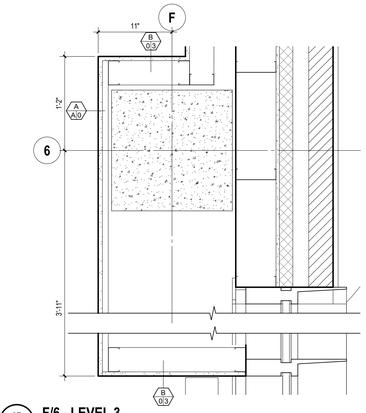


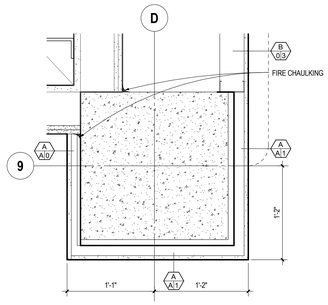
5E a8.34 **D.5/11 - LEVEL 2,3,4**
SCALE: 1 1/2" = 1'-0"



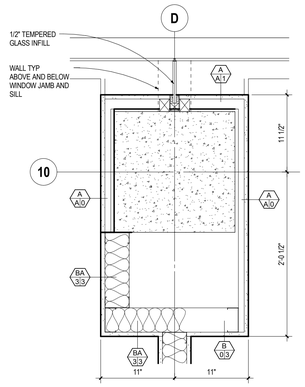
3E a8.34 **F.1/11 - LEVEL 2,3,4**
SCALE: 1 1/2" = 1'-0"



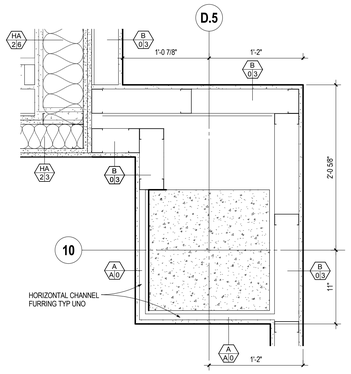
2E a8.34 **F/6 - LEVEL 3**
SCALE: 1 1/2" = 1'-0"



7F a8.34 **D/9 - LEVEL BASEMENT 3,4**
SCALE: 1 1/2" = 1'-0"



6F a8.34 **D/10 - LEVEL 2**
SCALE: 1 1/2" = 1'-0"



5F a8.34 **D.5/10 - LEVEL 3,4**
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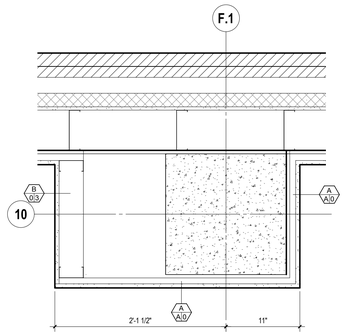
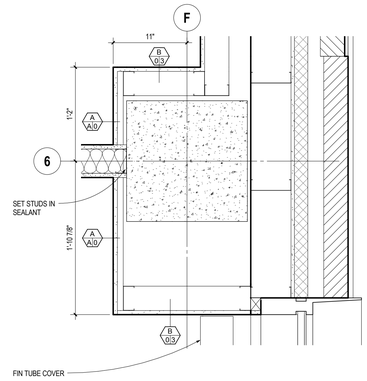


3F a8.34 **F.1/10 - LEVEL 2**
SCALE: 1 1/2" = 1'-0"



2F a8.34 **F/6 - LEVEL 2**
SCALE: 1 1/2" = 1'-0"

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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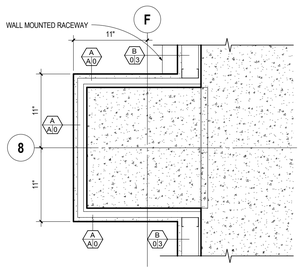
INTERIOR DETAILS

a8.34



3B a8.35 **F/8 - BASEMENT**
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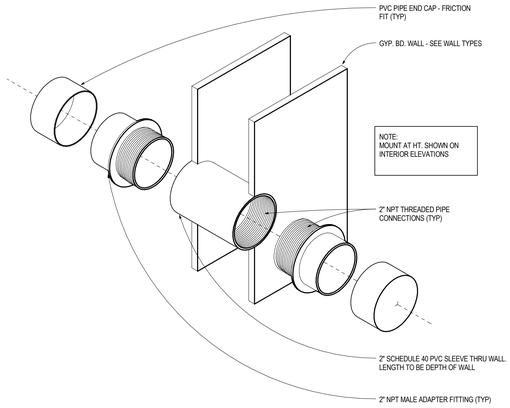
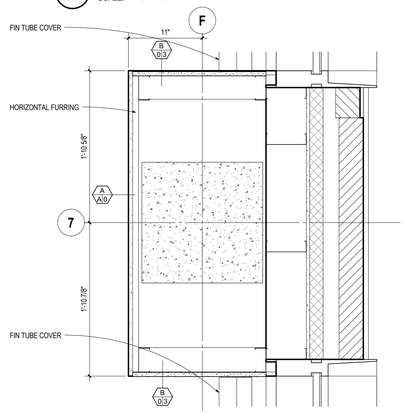
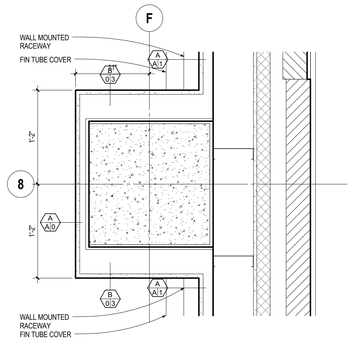


2B a8.35 **FUME HOOD - PVC SLEEVE**
SCALE: 3" = 1'-0"



3C a8.35 **F/7 - LEVEL 4**
SCALE: 1 1/2" = 1'-0"



2C a8.35 **F/8 - LEVEL 4**
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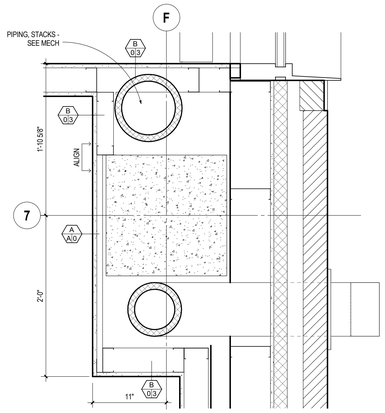
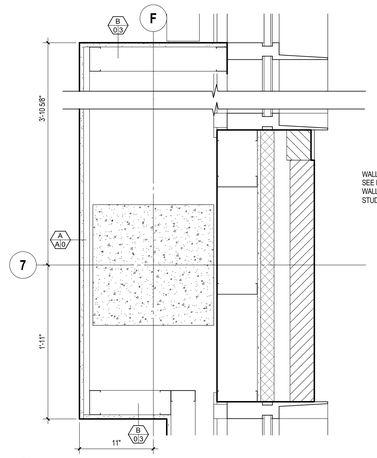
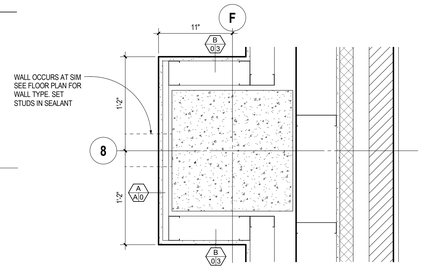


4E a8.35 **F/7 - LEVEL 1**
SCALE: 1 1/2" = 1'-0"



3E a8.35 **F/7 - LEVEL 3**
SCALE: 1 1/2" = 1'-0"



2E a8.35 **F/8 - LEVEL 3**
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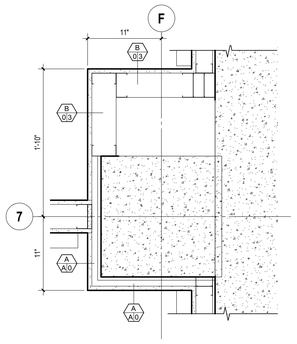

4F a8.35 **F/7 - BASEMENT**
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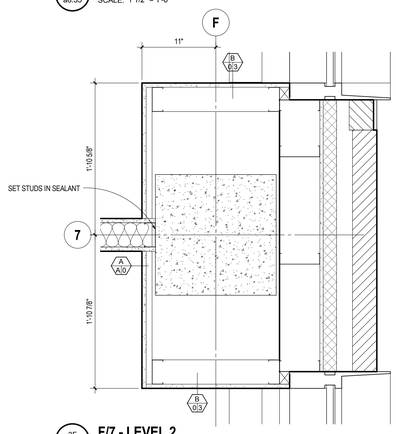

3F a8.35 **F/7 - LEVEL 2**
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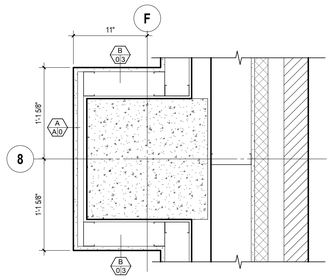

2F a8.35 **F/8 - LEVEL 1**
SCALE: 1 1/2" = 1'-0"

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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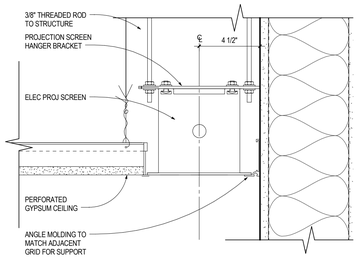
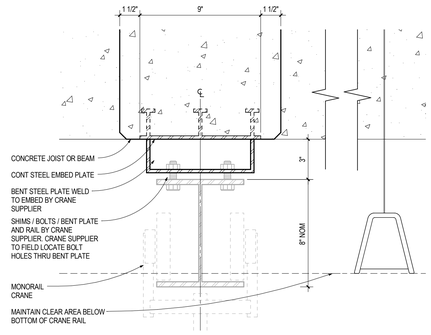
INTERIOR DETAILS

a8.35



7B a8.41 **RECESSED PROJECTOR SCREEN DETAIL**
SCALE: 3" = 1'-0"



5B a8.41 **TYPICAL MONORAIL CRANE ATTACHMENT**
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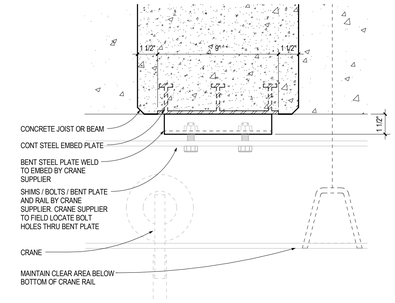

4B a8.41 **MONORAIL CRANE ATTACHMENT-PERP TO STRUCT**
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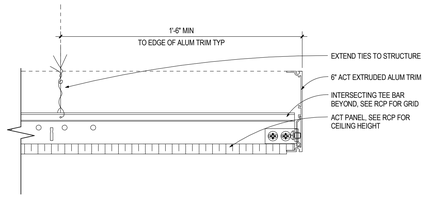

2B a8.41 **ACT-1 FINISH EDGE**
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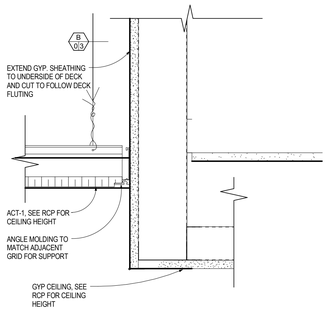
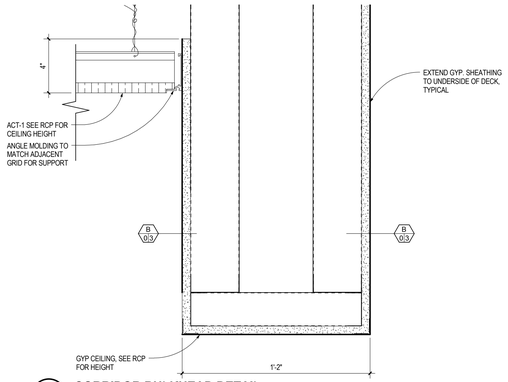
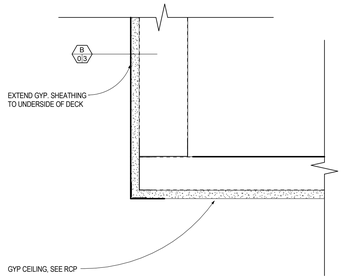


7C a8.41 **ACT-1 CEILING CLOUD TO GYP SOFFIT**
SCALE: 3" = 1'-0"

9



5C a8.41 **CORRIDOR BULKHEAD DETAIL**
SCALE: 3" = 1'-0"



4C a8.41 **SOFFIT DETAIL**
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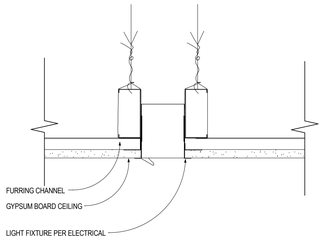

2C a8.41 **RESTROOM RECESSED LIGHT FIXTURE DETAIL**
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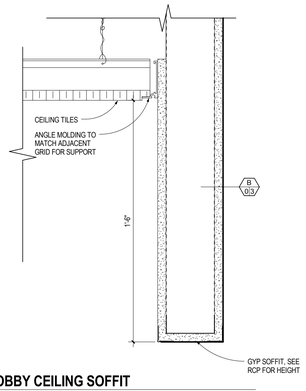
9



7D a8.41 **LOBBY CEILING SOFFIT**
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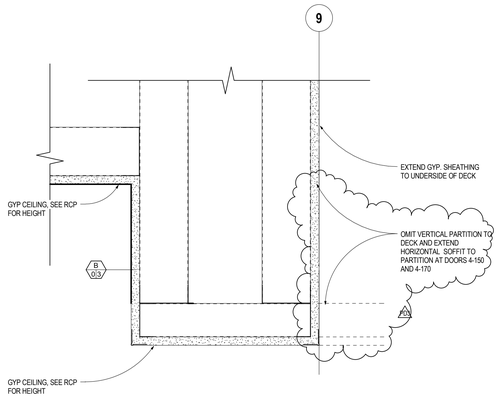
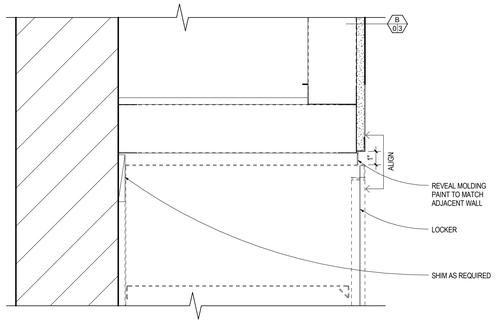


5D a8.41 **CEILING BULKHEAD**
SCALE: 3" = 1'-0"



4D a8.41 **CORRIDOR LOCKER DETAIL**
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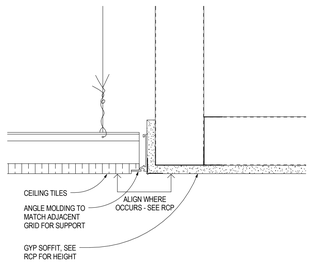

2D a8.41 **CEILING TRANSITION**
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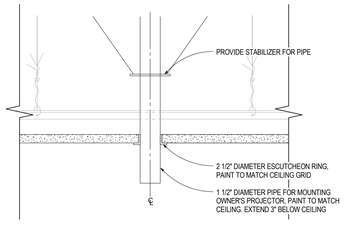
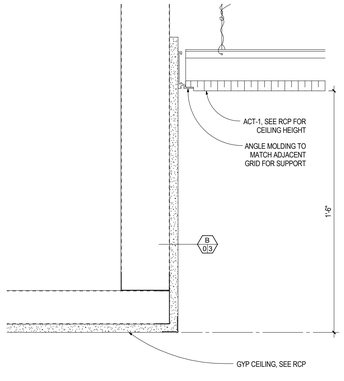
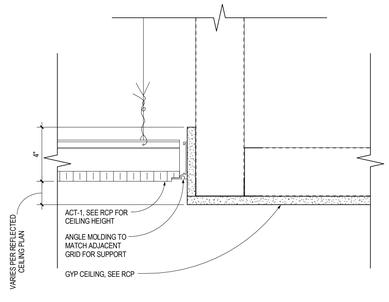


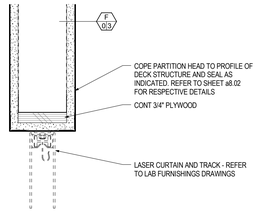
7F a8.41 **PROJECTOR MOUNTING DETAIL**
SCALE: 3" = 1'-0"



5F a8.41 **ACT TO GYP DETAIL**
SCALE: 3" = 1'-0"



4F a8.41 **TYPICAL ACT CLOUD TO GYP SOFFIT**
SCALE: 3" = 1'-0"



2F a8.41 **TYPICAL BULKHEAD AT LASER CURTAIN AND TRACK**
SCALE: 3" = 1'-0"

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
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INTERIOR DETAILS - CEILING

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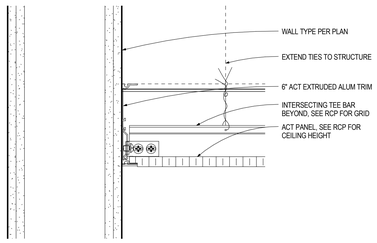
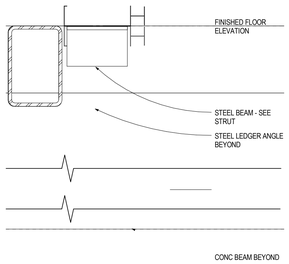
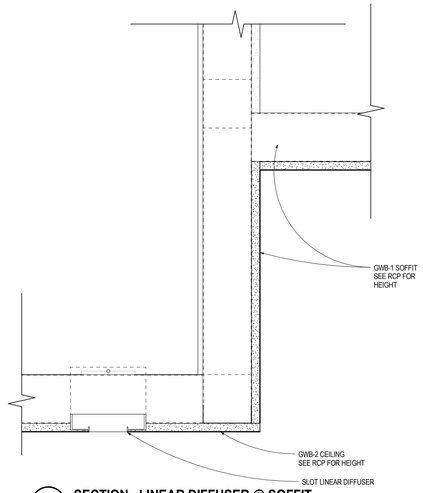


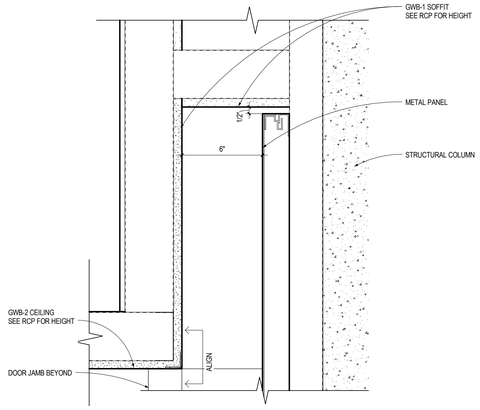
7B a8.42 **TYPICAL ACT-1 FINISH EDGE AT WALL**
SCALE: 3" = 1'-0"



5B a8.42 **TYPICAL RATED STEEL BEAM @ SHAFT WALL**
SCALE: 3" = 1'-0"



3B a8.42 **SECTION - LINEAR DIFFUSER @ SOFFIT**
SCALE: 3" = 1'-0"



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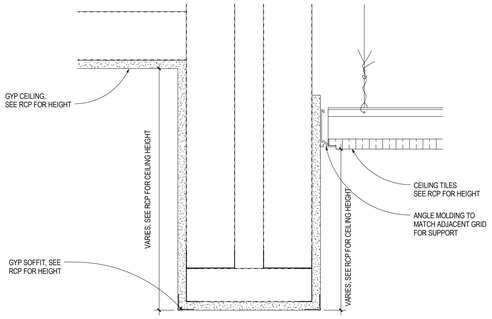

5C a8.42 **SECTION**
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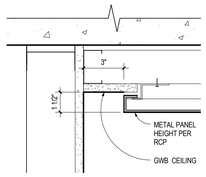

4C a8.42 **SOFFIT**
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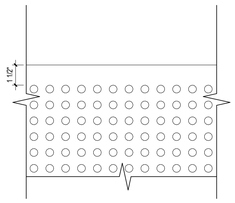

3C a8.42 **DETAIL @ PARTIAL EDGE @ GWB-2**
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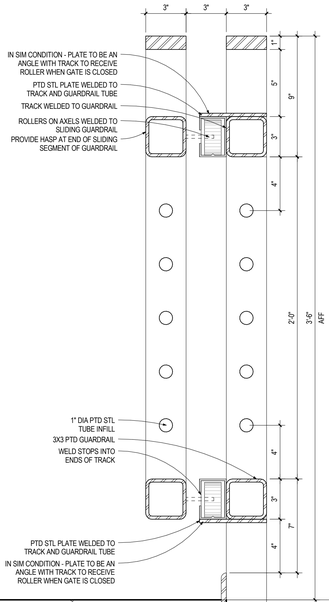
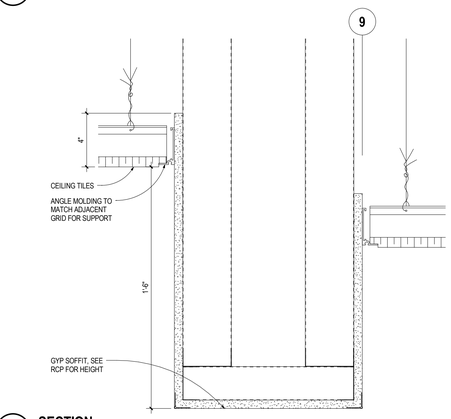
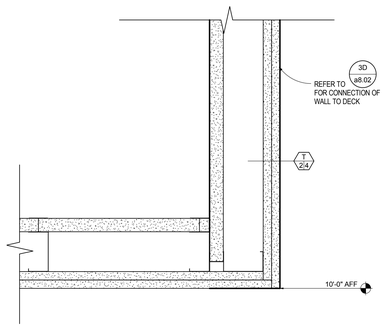
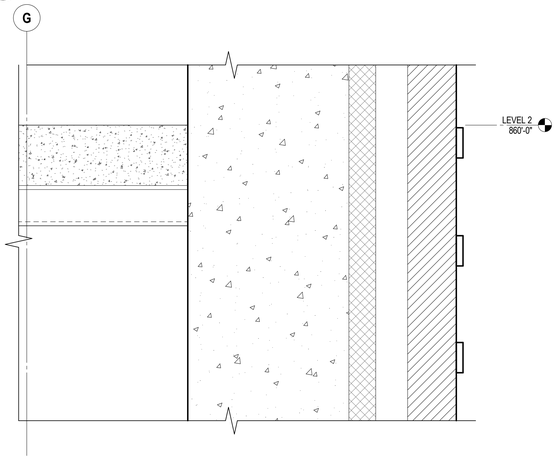




5E a8.42 **SECTION**
SCALE: 3" = 1'-0"



4E a8.42 **SECTION - 2HR HORIZONTAL SHAFT**
SCALE: 3" = 1'-0"



5F a8.42 **SECTION**
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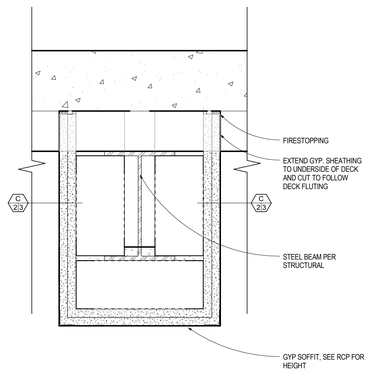

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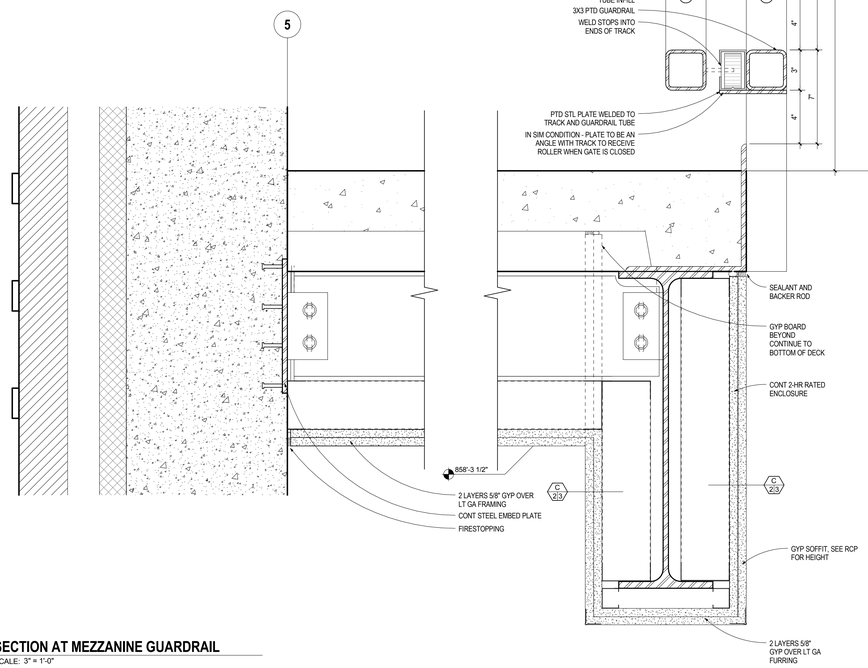

3F a8.42 **SECTION AT MEZZANINE GUARDRAIL**
SCALE: 3" = 1'-0"

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INTERIOR DETAILS - CEILING

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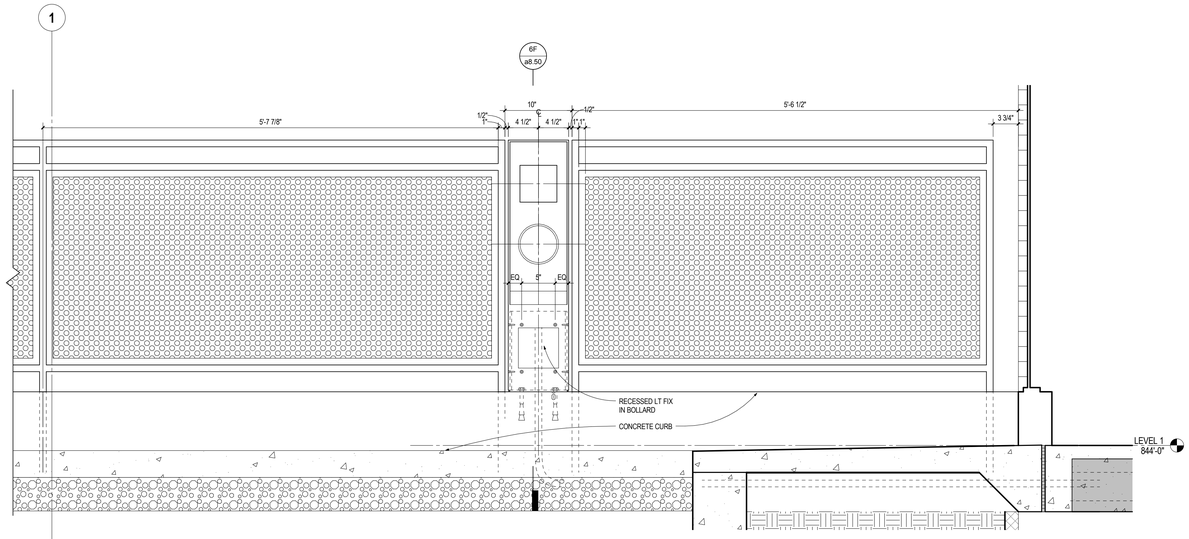
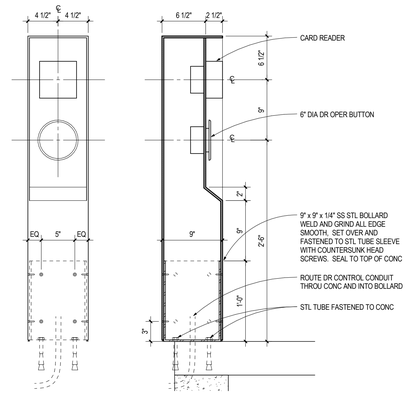
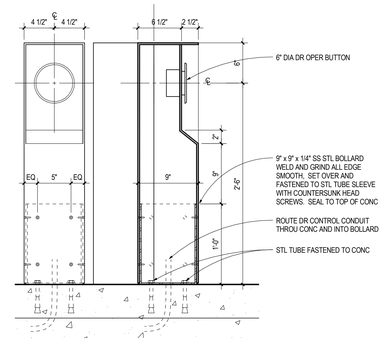


7C a8.50 GUARDRAIL ELEVATION AT LOADING DOCK
SCALE: 1 1/2" = 1'-0"



5C a8.50 BRUSHED STAINLESS STEEL ACCESSIBLE EXT BOLLARD
SCALE: 1 1/2" = 1'-0"



3C a8.50 BRUSHED STAINLESS STEEL ACCESSIBLE INTERIOR BOLLARD
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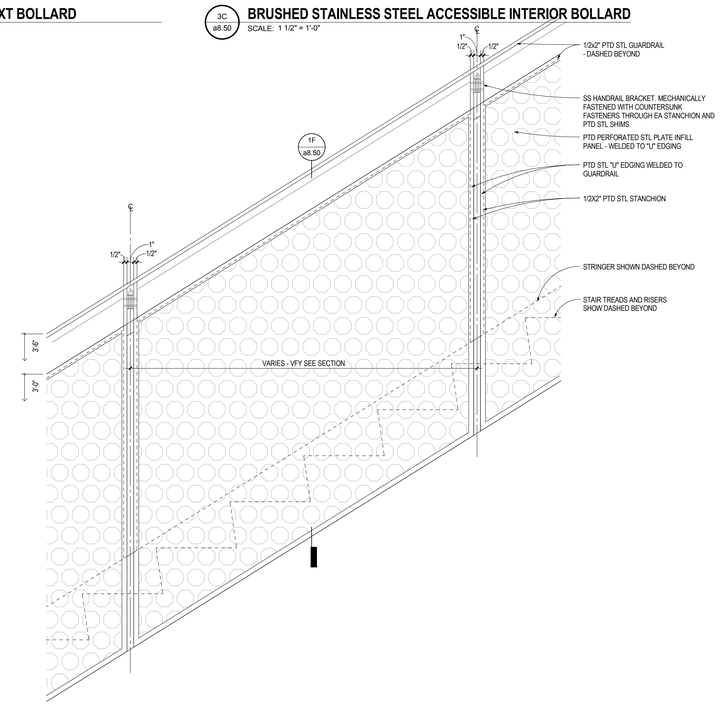
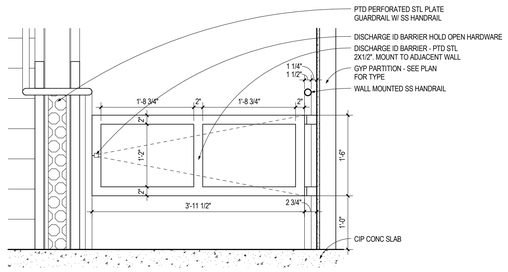
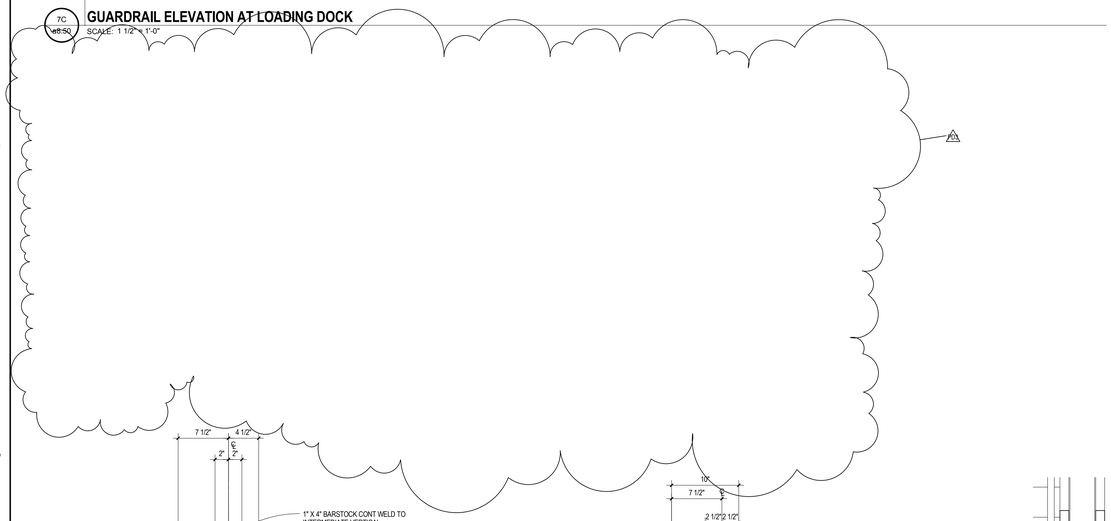


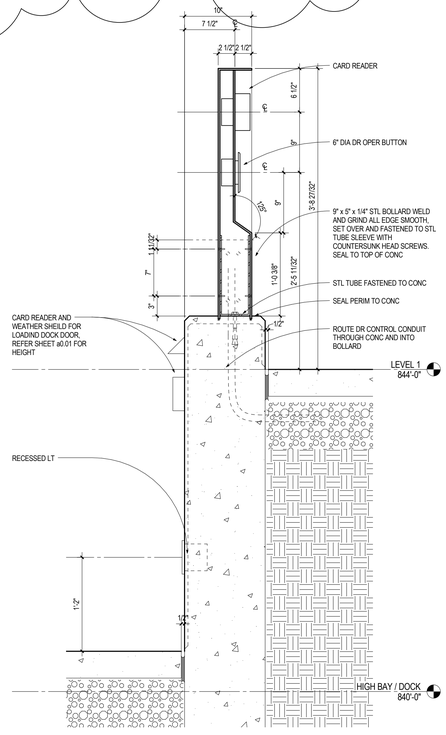


4D a8.50 DISCHARGE ID BARRIER ELEVATION
SCALE: 1" = 1'-0"

2D a8.50 STAIR GUARDRAIL ELEVATION - TYP
SCALE: 1 1/2" = 1'-0"



7F a8.50 GUARD RAIL SECTION AT LOADING DOCK
SCALE: 1 1/2" = 1'-0"



6F a8.50 ACCESSIBLE BOLLARD SECTION AT LOADING DOCK
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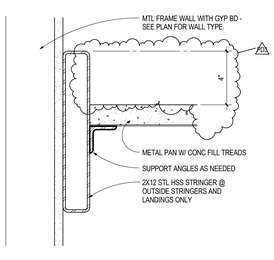
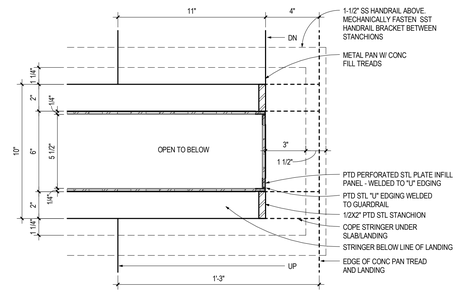


4F a8.50 STAIR SECTION @ OUTSIDE STRINGER
SCALE: 3" = 1'-0"



3F a8.50 STAIR PLAN DETAIL @ LANDING, TYP
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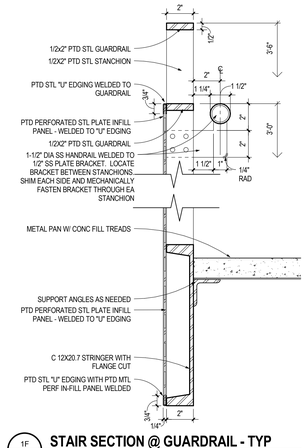

1F a8.50 STAIR SECTION @ GUARDRAIL - TYP
SCALE: 3" = 1'-0"

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STAIR AND RAILING DETAILS

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ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEILING	REMARKS
3-100B	INTERACTION								
3-100C	Room								
5-103	CORRIDOR	CS-3	-	-	PT-1	-	PT-1	OTS	
B-000	ELEV 2	-	-	-	-	-	-	OTS	
B-001	ELEV 1	-	-	-	-	-	-	OTS	
B-100	CORRIDOR	CS-2	RB-1	PT-1	PT-1	PT-1/PT-3	PT-1	REFER TO RCP	
B-101	STAIR 1	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-102	CM LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-102A	LAB SUPPORT	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-102B	PUMP ROOM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-102C	LAB SUPPORT	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-103	WOMEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
B-104	CM LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-104A	PUMP RM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-104B	K400 PIT RM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-104C	PUMP RM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-104D	PIT RM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-105	MEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
B-106	CM LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-106A	MBE/STM RM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-107	CUSTODIAN EQUIP	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-150	CORRIDOR	CS-2	RB-1	PT-1	PT-1/PT-3	PT-1	PT-1/PT-3	REFER TO RCP	
B-151	JAN	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
B-153	A/C LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-153A	PUMP ROOM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-154	CM LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-154A	PREP A	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-154B	PREP B	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-154D	PUMP	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-155	PHYSICS STORAGE	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-156	CNA LAB	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-157	A/C LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-157A	QUIET ROOM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-158	HIGH VOLTAGE SWITCHING VAULT NO. 1	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
B-159	ELEC	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-160	CORRIDOR	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-161	STAIR 2	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-162A	STEAM ENTRANCE	-	-	-	-	-	-	OTS	
B-162B	PHYSICS STOR	CS-1	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-163	MDP	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS/GWB-1/PT-1	
B-164	MECHANICAL	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
B-164A	FIRE PUMP RM	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
B-165	WASTE / RECYCLE	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
B-166	HE LIQUEFIER	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
B-166A	HE RECOVERY	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
B-167	CLNRM ELEC	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
B-168	STUDENT MACHINE SHOP	CS-2	-	PT-1	PT-1	PT-1	PT-1	OTS	
B-169	SECURITY CLOSET	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
1-000	ELEV 2	-	-	-	-	-	-	OTS	
1-001	ELEV 1	-	-	-	-	-	-	OTS	
1-100	LOBBY	CS-1	SSM-1	PT-1/PT-2	PT-1	PT-1	PT-1	REFER TO RCP	REFER TO ELEVATIONS
1-100A	ENTRY VEST	CS-1	SSM-1	PT-2	-	-	-	AGC-1/PT-1	
1-100B	ENTRY VEST	CS-1	SSM-1	PT-2	-	-	-	AGC-1/PT-1	
1-100D	STAIR 3	WD-1	-	-	-	PT-1	-	-	REFER TO DETAILS
1-101	STAIR 1	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
1-102	LARGE CONFERENCE	CPT	RB-1	PT-2/PT-3	PT-1	-	PT-1	REFER TO RCP	
1-103	WOMEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
1-104	VENDING	CS-1	SSM-1	PT-1	PT-1	PT-1	PT-1	REFER TO RCP	
1-104A	ELEC	CS-1	-	PT-1	PT-1	PT-1	PT-1	OTS	
1-104B	CATERING PREP	RBT-1	RB-1	PT-1	PT-1	-	PT-1	ACT-1	
1-105	MEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
1-106	MEDIUM CONFERENCE	CPT	RB-1	PT-2/PT-3	PT-1	-	PT-1	REFER TO RCP	
1-108	CNA CONFERENCE	CPT	RB-1	PT-2/PT-3	PT-1	PT-1	PT-1	REFER TO RCP	
1-140	RECEPTION	CPT	RB-1	PT-1	PT-2	PT-1	PT-2	REFER TO RCP	
1-141	KITCHENETTE	RBT-1	RB-1	PT-1	PT-1	PT-1	PT-3	ACT-1	
1-142	INFO SYSTEM SUPPORT	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-143	ACCOUNT	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-144	DIRECTOR	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-145	OUTREACH COORD.	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-146	LAB MANAGER	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-147	STAFF	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-148	ADMIN	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-150	CORRIDOR	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-150A	COPY	RBT-1	RB-1	-	PT-1	PT-3	PT-1	GWB-1/PT-1	
1-151	STAFF	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-152	STAFF	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-153	PhD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-154	CORRIDOR	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-156	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-157	EXIT CORRIDOR	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS/GWB-1/PT-1	
1-158	IDF	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
1-159	ELEC	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
1-160	CORRIDOR	CS-2	RB-1	PT-1/PT-3	PT-1	PT-1	-	OTS	
1-160A	MECH	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
1-161	STAIR 2	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
1-162	HIGH BAY	EF-3	-	PT-1	PT-1	PT-1	PT-1	OTS/GWB-1/PT-1	
1-163	JAN	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
1-164	FILL STATION	CS-2	-	PT-1	PT-1	PT-1	PT-1	OTS	
1-166	LOADING DOCK	EF-2	-	PT-1	PT-1	PT-1	PT-1	OTS	
1-166A	GAS (H-2) STORAGE	CS-2	-	PT-1	PT-1	PT-1	PT-1	OTS	
1-166B	LIQUID (H-3) STORAGE	CS-2	-	PT-1	PT-1	PT-1	PT-1	OTS	
1-166C	LN2/GAS STORAGE	CS-2	-	PT-1	PT-1	PT-1	PT-1	OTS	

ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEILING	REMARKS
1-168	UNISEX	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
1-170	CORRIDOR	CS-2	RB-1	PT-1	PT-1	-	PT-1/PT-3	REFER TO RCP	
1-170A	ENTRY VEST	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
1-171	WET BIO LAB	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
1-173	CNA LAB	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
1-175	CNA LAB	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
1-177	CNA LAB	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
1-180	CLEANROOM	EF-1	EF-1	PT-8	PT-8	PT-8	PT-8	-	EPOXY PT ALL SURFACES
1-181	EXTERIOR TANK YARD	-	-	-	-	-	-	-	EXTERIOR SPACE
2-000	ELEV 2	-	-	-	-	-	-	-	
2-001	ELEV 1	-	-	-	-	-	-	-	
2-100	CORRIDOR	CS-1	SSM-1	PT-2	-	-	-	REFER TO RCP	
2-100A	INTERACTION	CS-1	SSM-1	PT-1/PT-2	PT-1	PT-1	PT-1	REFER TO RCP	
2-100B	CORRIDOR	CS-1	SSM-1	PT-2	-	P-1	P-1	REFER TO RCP	
2-100D	STAIR 3	WD-1	-	-	-	PT-1	-	-	
2-101	STAIR 1	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-103	WOMEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
2-104	ELEC	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
2-105	MEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
2-107	MEDIUM CONFERENCE	CPT	RB-1	PT-1/PT-2	PT-1	PT-1	PT-1	REFER TO RCP	
2-108	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-110	KITCHENETTE	CS-1	RB-1	PT-1	PT-1/PT-3	PT-1	PT-1	ACT-1	
2-111	COPY	CPT	RB-1	PT-3	PT-1	PT-1	PT-1	GWB-1/PT-1	
2-112	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-113	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-114	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-116	MEETING / FLEX	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-117	ADMIN.	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-118	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-120	HALLWAY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-121	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-122	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-124	MEETING / FLEX	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-125	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-126	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-128	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-131	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-132	MEETING / FLEX	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-134	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-136	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-140	CORRIDOR	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-140	GRAD STUDENTS	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-141	STORAGE	RBT-1	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-142	GRAD STUDENTS	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-144	GRAD STUDENTS	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-146	CNA CAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-146A	CNA VISITING FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-146B	CNA VISITING FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-147	STAIR 2	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-151	STORAGE	RBT-1	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-152	GRAD STUDENTS	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
2-157	IDF	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-158	JANITOR	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-159	ELECTRICAL	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-160	CORRIDOR	CS-2	RB-1	PT-1/PT-3	PT-1	PT-1	PT-1	REFER TO RCP	
2-160A	MECH	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
2-162	CM LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-164	CM LABORATORY A	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-166	CM LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-170	CORRIDOR	CS-2	RB-1	PT-1	PT-1/PT-3	-	PT-1	REFER TO RCP	
2-171	CM LABORATORY	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	OTS	
2-171A	PREP ROOM	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
2-171B	PUMP ROOM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-175	PPMS LAB	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
2-180	CLEANROOM INTERSTITIAL	-	-	PT-8	PT-8	PT-8	PT-8	OTS/PT-8	EPOXY PT ALL SURFACES
2-181	HIGH BAY MEZZANINE	CS-2	RB-1	-	PT-1	PT-1	PT-1	OTS/PT-1	

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

For Architectural Alliance

By

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Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

UNIVERSITY OF MINNESOTA
Driven to Discover℠

MATERIAL FINISH SCHEDULE
LEVELS B-2

a9.02

ROOM FINISH SCHEDULE 2

ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEILING	REMARKS
3-000	ELEV 2	-	-	-	-	-	-		
3-001	ELEV 1	-	-	-	-	-	-		
3-100	CORRIDOR	CS-2	RB-1	PT-2	-	PT-1	-	REFER TO RCP	
3-100A	INTERACTION	CS-2	RB-1	PT-1/PT-2	PT-1	PT-1	PT-1	REFER TO RCP	
3-100B	INTERACTION	CS-2	RB-1	PT-1/PT-2	PT-1	PT-1	-	REFER TO RCP	
3-101	STAIR 1	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-103	WOMEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
3-104	ELEC	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-105	MEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
3-108	CONFERENCE	CPT	RB-1	PT-1/PT-3	PT-1	PT-1	PT-1	ACT-1	
3-110	KITCHENETTE	CS-2	RB-1	PT-1	PT-1/PT-3	PT-1	PT-1	ACT-1	
3-111	COPY	CPT-1	RB-1	PT-3	PT-1	-	PT-1	GWB-1/PT-1	
3-112	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-114	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-116	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-117	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-118	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-120	HALLWAY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-121	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-123	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-124	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-127	MEETING/ FLEX	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-128	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-131	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-132	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-133	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-135	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-136	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-150	CORRIDOR	CS-2	RB-1	-	PT-1	-	PT-1/PT-3	REFER TO RCP	
3-151	FUTURE PHYSICS LABORATORIES	CS-3	-	-	-	-	-	OTS	
3-152	STOR	RBT-1	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-154	FUTURE PHYSICS OFFICES	CS-3	-	-	-	-	-	OTS	
3-156	JANITOR	CS-2 (VA)	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-158	IDF	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-159	ELECTRICAL	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-160	CORRIDOR	CS-2	RB-1	PT-1/PT-3	PT-1	PT-1	-	REFER TO RCP	
3-160A	MECH	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-161	STAIR 2	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-162	FUTURE PHYSICS LABORATORY	CS-3	-	-	-	-	-	OTS	
3-164	CM LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-166	A/C LABORATORY	SDRT-1	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-166A	DARK PROCEDURE	SDRT-1	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-170	CORRIDOR	CS-2	RB-1	PT-1	PT-1/PT-3	-	PT-1/PT-3	REFER TO RCP	
3-171	CM LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-171A	DARK PROCEDURE	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
3-171B	FARADAY RM	SDRT-1	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-173	FUTURE PHYSICS LABORATORIES	CS-3	-	-	-	-	-	OTS	
3-174	A/C LABORATORY	SDRT-1	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-174A	PUMP ROOM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-174B	PREP ROOM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-174C	ELECTRONICS ROOM	SDRT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
3-176	A/C LABORATORY B	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-176A	PUMP RM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-178	A/C LABORATORY A	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
3-178A	ASSEMBLY ROOM	SDRT-1	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-000	ELEV 2	-	-	-	-	-	-	-	
4-001	ELEV 1	-	-	-	-	-	-	-	
4-100	CORRIDOR	CS-2	RB-1	PT-2	-	PT-1	-	REFER TO RCP	
4-100A	CORR	CS-2	RB-1	PT-1/PT-2	PT-1	PT-1	P-1	REFER TO RCP	
4-100B	CORR	CS-2	RB-1	PT-1/PT-2	PT-1	PT-1	-	REFER TO RCP	
4-101	STAIR 1	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-103	WOMEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
4-104	ELEC	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
4-105	MEN	T-1	T-2	T-2/T-3	T-2/T-3	T-2/T-3	T-2/T-3	GWB-1/PT-1	
4-108	CONFERENCE	CPT	RB-1	PT-1/PT-3	PT-1	PT-1	PT-1	ACT-1	
4-110	KITCHENETTE	CS-2	RB-1	PT-1	PT-1/PT-3	PT-1	PT-1	ACT-1	
4-111	COPY	CPT	RB-1	PT-3	PT-1	-	PT-1	GWB-1/PT-1	
4-112	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-114	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-116	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-117	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-118	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-120	HALLWAY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-121	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-123	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-124	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-127	MEETING/FLEX	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-128	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-131	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-132	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-133	FACULTY	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-135	POST DOC	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-136	GRAD	CPT	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-150	CORRIDOR	CS-2	RB-1	-	PT-1/PT-3	-	PT-1/PT-3	REFER TO RCP	
4-151	HEP/A/C LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-151A	DARK PROCEDURE	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
4-151B	DARK PROCEDURE	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
4-152	SOURCE ROOM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
4-154	HEP LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-154B	DARK PROCEDURE	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
4-154C	ELECTRONICS ROOM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-156	JANITOR	CS-2 (VA)	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-158	IDF	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-159	ELECTRICAL	CS-3	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-160	CORRIDOR	CS-2	RB-1	PT-1/PT-3	PT-1	PT-1	-	REFER TO RCP	
4-160A	MECH	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
4-161	STAIR 2	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-162	HEP HEAVY FLAVORS LAB	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-162A	DARK PROCEDURE	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
4-162B	ELECTRONICS ROOM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-164	HEP LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-164A	RF SHIELD ROOM	SDRT-1	RB-1	PT-1	PT-1	PT-1	PT-1	REFER TO RCP	
4-164B	CONTROL RM	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-164C	DARK PROCEDURE	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
4-166	HEP LABORATORY	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
4-170	CORRIDOR	CS-2	RB-1	PT-1	PT-1/PT-3	-	PT-1/PT-3	REFER TO RCP	
4-171	FUTURE LAB	CS-3	-	-	-	-	-	OTS	
4-172	FUTURE LAB	CS-3	-	-	-	-	-	OTS	
4-173	BIO LASER LAB	RBT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-174	BIO LABORATORY	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	OTS	
4-174A	OPTICS LAB	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
4-174B	OPTICS LAB	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
4-175	BIO OPTICS LAB	RBT-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1	
4-175A	TISSUE CULTURE	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	
4-176	SHARED BIO LABS	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	OTS	
4-176A	TOOLS ROOM	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	OTS	
4-176B	PREP ROOM	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	OTS	
4-176C	EQUIP RM	RBS-1	RB-2	PT-1	PT-1	PT-1	PT-1	GWB-1/PT-1	EPOXY PT ALL SURFACES
5-000	ELEV 2	-	-	-	-	-	-	OTS	
5-101	STAIR 1	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
5-102	CORRIDOR	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
5-104	TRANSFORMER VAULT NO. 2	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
5-105	ELECTRICAL ROOM	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
5-106	CORRIDOR	EF-2	-	PT-1	PT-1	PT-1	-	OTS	
5-107	ELEV MACH ROOM	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
5-108	ELECTRICAL ROOM	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
5-109	MECHANICAL	EF-2	-	-	PT-1	-	-	OTS	
5-110	MAIN SERVICE ELECTRICAL ROOM	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
5-111	ELEV CNTRL ROOM	CS-3	-	PT-1	PT-1	PT-1	PT-1	OTS	
5-161	STAIR 2	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	
6-170	STAIR 2	CS-2	RB-1	PT-1	PT-1	PT-1	PT-1	OTS	

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For *Architectural Alliance*

By

Name Tom DeAngelo

Date 02-24-2012 Reg. No. 14703

Issued for	Date
100% CD set	12-16-2011
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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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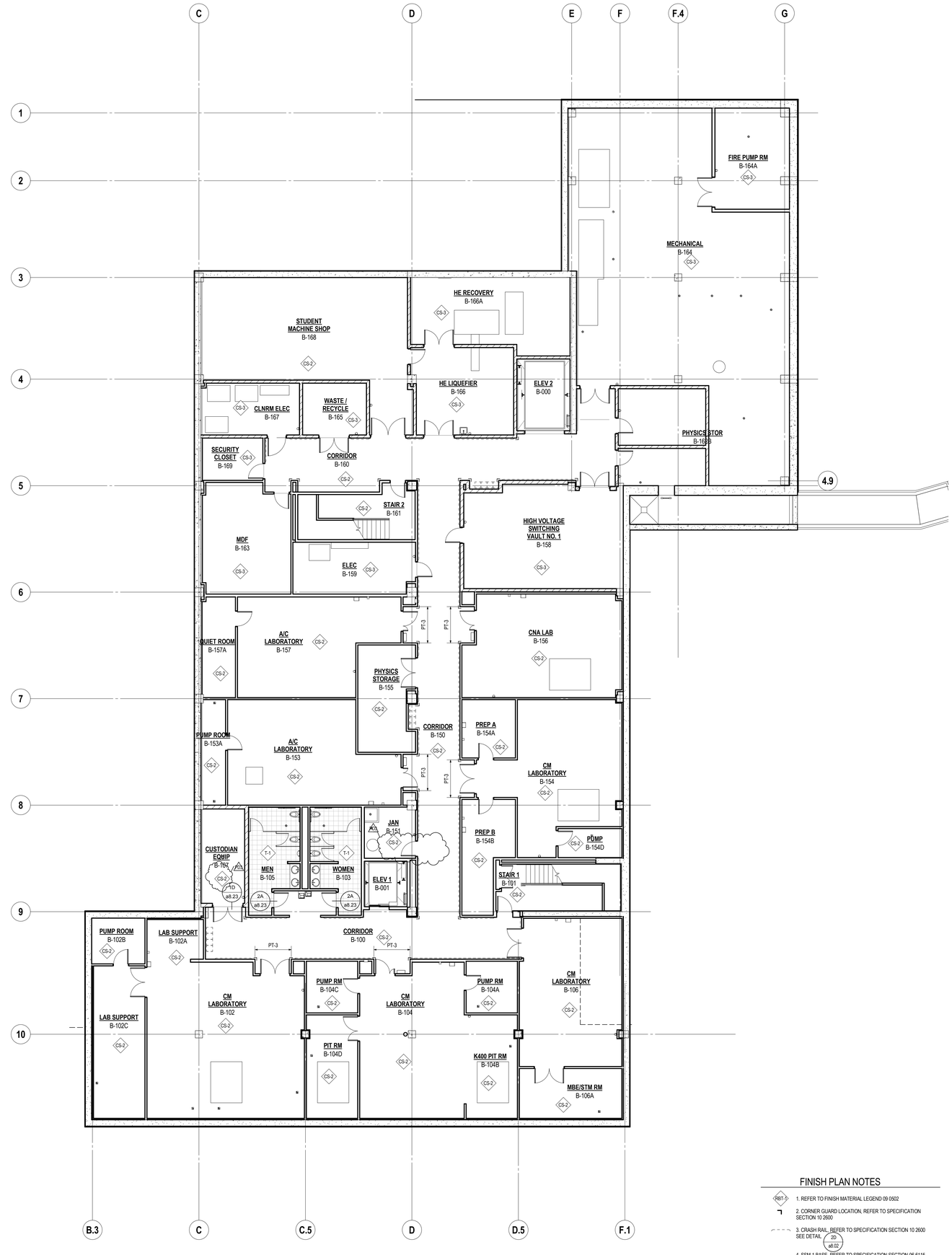
MATERIAL FINISH SCHEDULE
LEVELS 3-P

a9.03



FINISH PLAN NOTES

1. REFER TO FINISH MATERIAL LEGEND 09 0502
2. CORNER GUARD LOCATION, REFER TO SPECIFICATION SECTION 10 2600
3. CRASH RAIL, REFER TO SPECIFICATION SECTION 10 2600 SEE DETAIL 2D / a8.02
4. SSM-1 BASE, REFER TO SPECIFICATION SECTION 06 6115, SEE DETAIL 3D / a8.23
5. REFER TO DETAIL 2B / a8.23 FOR CARPET PATTERN
6. ACCENT PAINT EXTENTS, REFER TO FINISH MATERIAL LEGEND 09 0502

3F / a10.01 **FINISH PLAN-BASEMENT**

SCALE: 1/8" = 1'-0"

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FINISH PLAN-BASEMENT

a10.01

7F a10.02 **FINISH PLAN- LEVEL 1**
SCALE: 1/8" = 1'-0"

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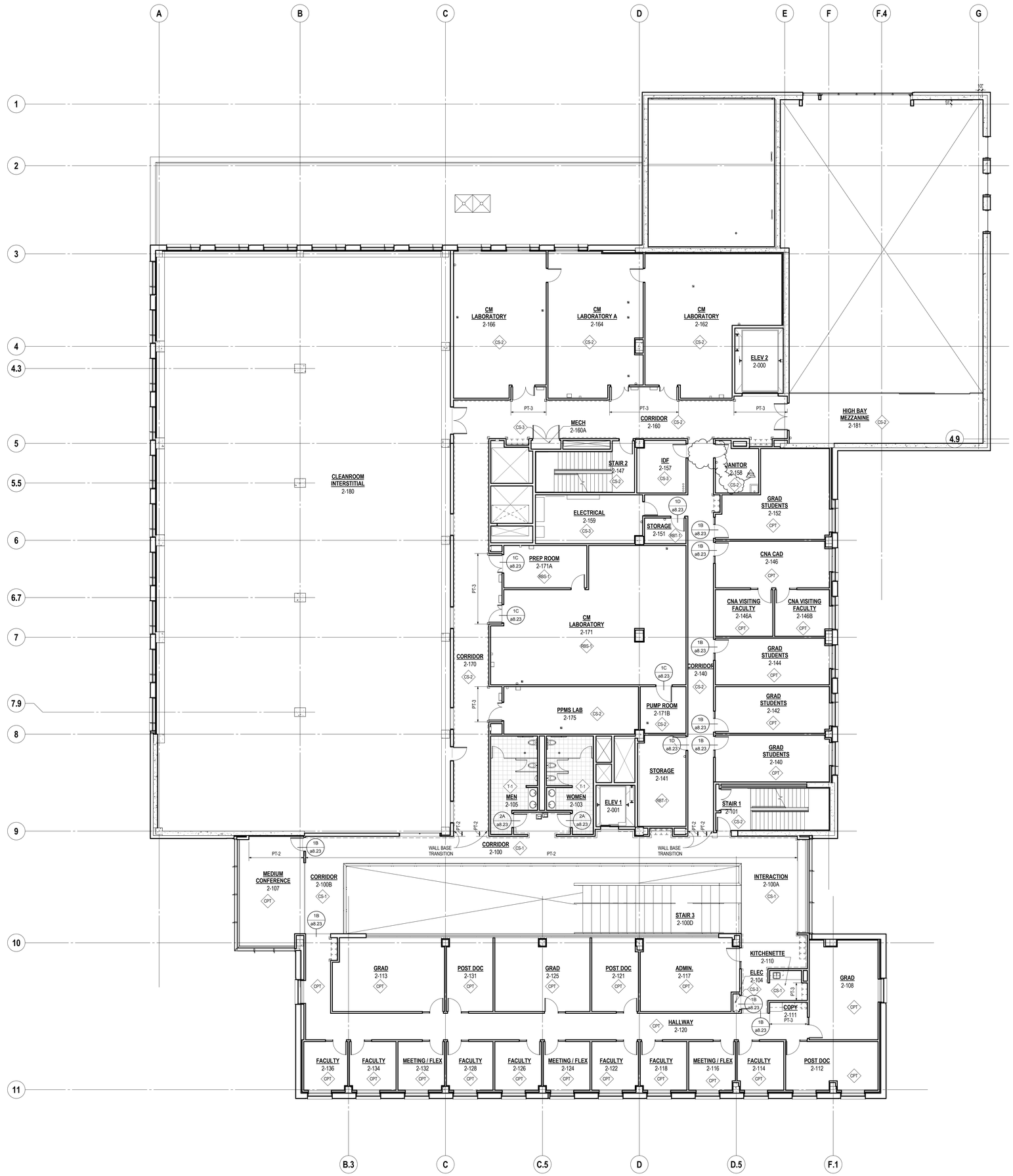
FINISH PLAN- LEVEL 1

a10.02



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7F a10.03 **FINISH PLAN - LEVEL 2**
SCALE: 1/8" = 1'-0"

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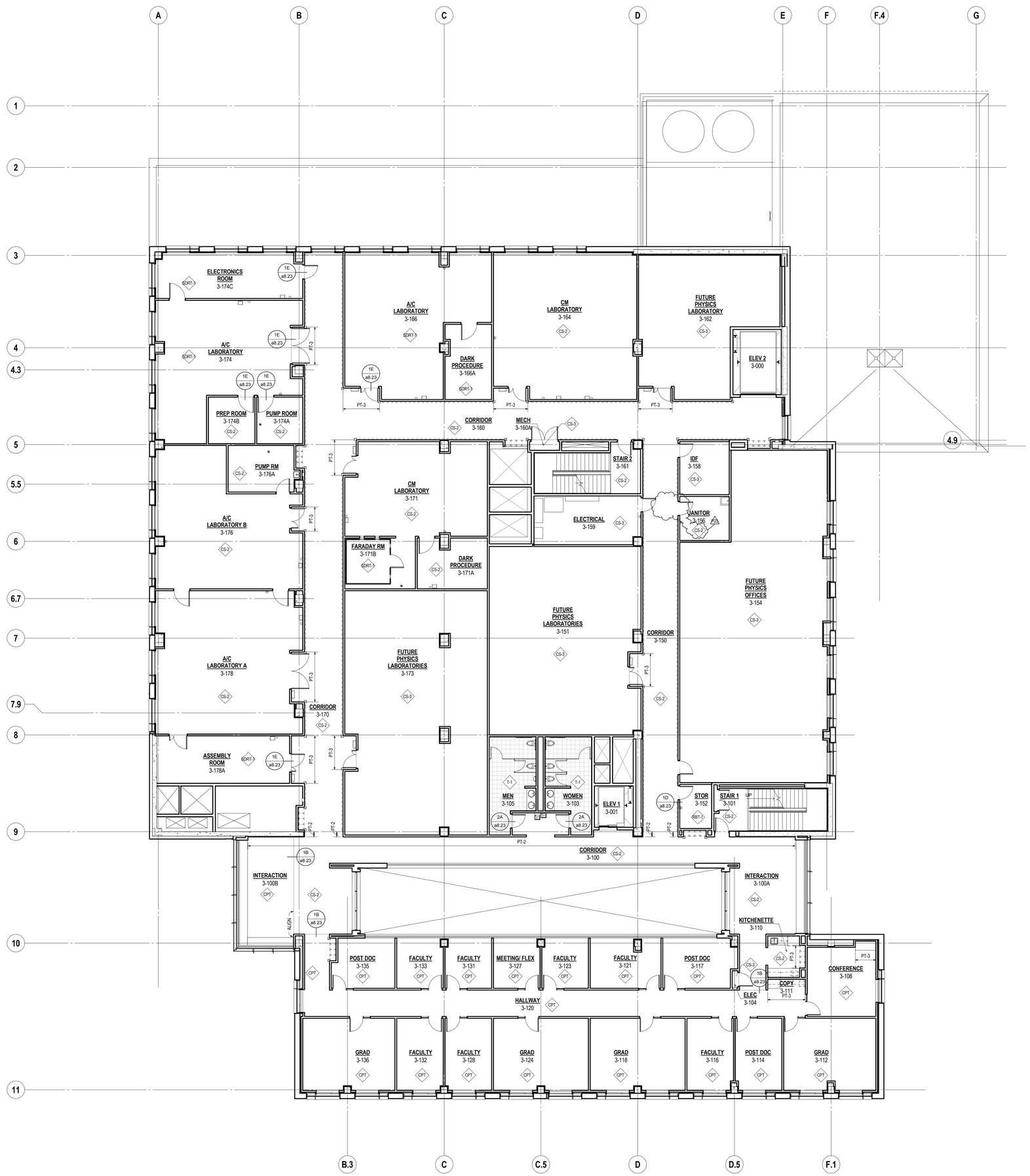
FINISH PLAN - LEVEL 2

a10.03



7F a10.04 **FINISH PLAN - LEVEL 3**
SCALE: 1/8" = 1'-0"

FINISH PLAN NOTES

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3. CRASH RAIL, REFER TO SPECIFICATION SECTION 10 2600 SEE DETAIL 2D a8.02
4. SSM-1 BASE, REFER TO SPECIFICATION SECTION 06 6115, SEE DETAIL 3D a8.23
5. REFER TO DETAIL 2B a8.23 FOR CARPET PATTERN
6. ACCENT PAINT EXTENTS, REFER TO FINISH MATERIAL LEGEND 09 0502

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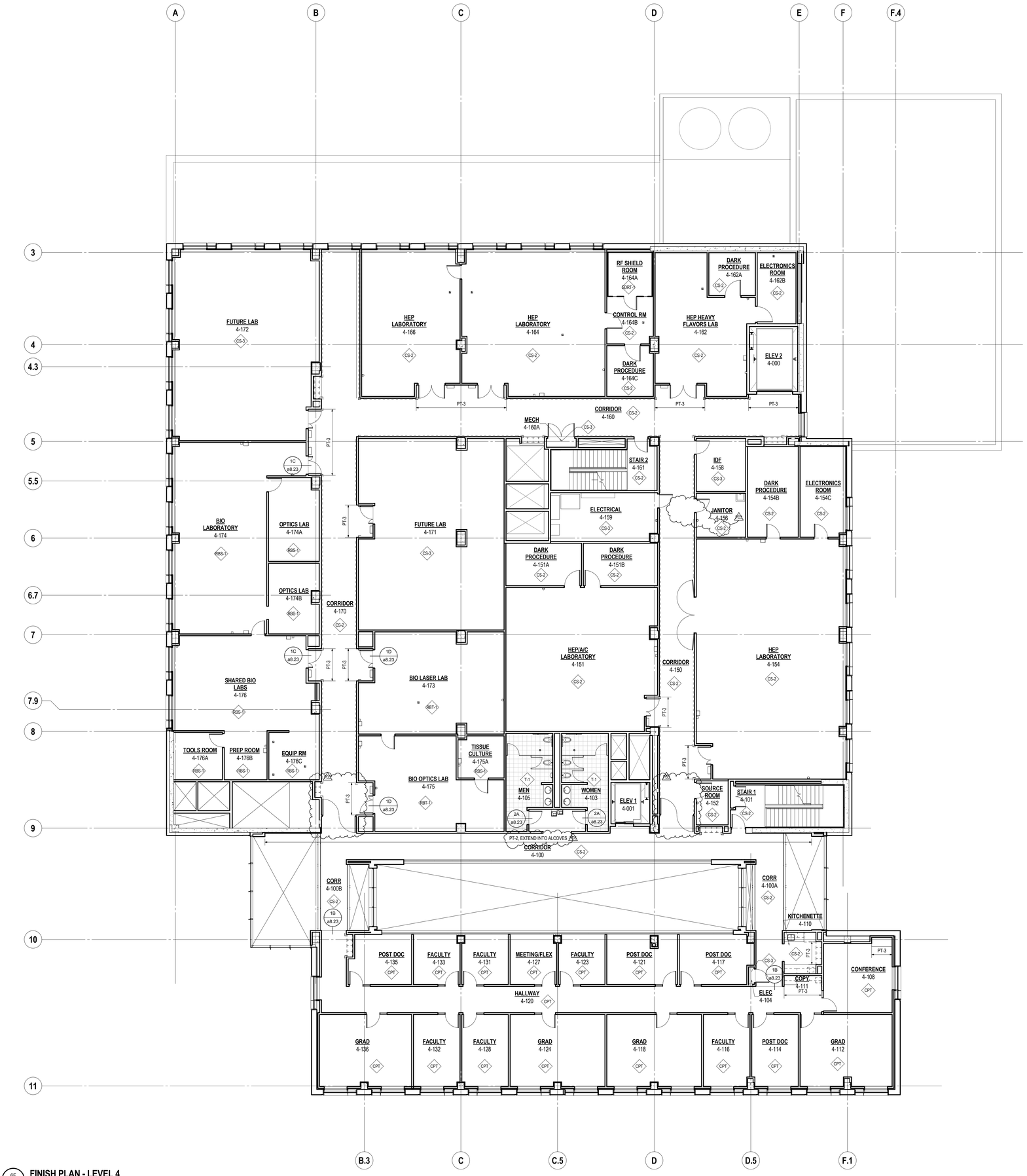
FINISH PLAN - LEVEL 3

a10.04



6F a10.05 **FINISH PLAN - LEVEL 4**
SCALE: 1/8" = 1'-0"

FINISH PLAN NOTES

1. REFER TO FINISH MATERIAL LEGEND 09 0502
2. CORNER GUARD LOCATION, REFER TO SPECIFICATION SECTION 10 2600
3. CRASH RAIL, REFER TO SPECIFICATION SECTION 10 2600 SEE DETAIL 2D a8.02
4. SSM-1 BASE, REFER TO SPECIFICATION SECTION 06 6115, SEE DETAIL 3D a8.23
5. REFER TO DETAIL 2B a8.23 FOR CARPET PATTERN
6. ACCENT PAINT EXTENTS, REFER TO FINISH MATERIAL LEGEND 09 0502

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FINISH PLAN - LEVEL 4

a10.05

GENERAL NOTES

1. ALL WALL BENCHTOPS AND MOVABLE TABLES SHALL BE 30" DEEP INCLUDING WALL BENCH BACK SPLASH (UNLESS OTHERWISE NOTED).
2. ALL BENCHES AND TABLES SHALL BE 36" HIGH (UNLESS OTHERWISE NOTED).
3. ALL BENCH/TABLE TOPS TO BE 1" THICK EPOXY RESIN (UNLESS OTHERWISE NOTED).
4. ALL BACK AND SIDE SPLASHES TO BE 1" THICK AND 4" HIGH, PIPEDROP CURBS TO BE 1" THICK AND 5" HIGH (UNLESS OTHERWISE NOTED).
5. PROVIDE SIDESPLASHES AT ALL BENCH TOPS AGAINST FUME HOODS AND/OR ADJACENT WALLS.
6. OVERALL LENGTH OF BENCHTOPS SHALL BE DETERMINED BY CASEWORK SIZES AND DIMENSIONS AS INDICATED ON PLANS. TOPS SHALL OVERHANG 1/2" AT EACH END AND 1" FROM FRONT OF BASE CABINETS AND TABLES. WHEN OVERALL DIMENSIONS ARE GIVEN, 1/2" OVERHANG IS NOT INCLUDED.
7. ALL CASEWORK, FUME HOODS AND ANY OTHER FURNISHINGS WITH EXPOSED-TO-VIEW BACKS AND SIDES SHALL BE FINISHED.
8. INSTALL CLOSURE PANELS BETWEEN BACK OF CABINETS OR HOODS AND WALLS AT EXPOSED ENDS AND BETWEEN BASE CABINETS AND/OR HOODS THAT ARE SET BACK TO BACK.
9. ALL PENETRATIONS THROUGH BENCHTOP SHALL BE SEALED WITH SEALANT.
10. BACKS OF COUNTERTOPS AND SPLASHES AGAINST WALLS SHALL BE SEALED TO THE WALL WITH SEALANT.
11. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
12. ARCHITECT WILL SELECT COLORS FOR ALL COMPONENTS OF PROJECT INDICATED ON THESE DRAWINGS. COLOR SELECTION WILL BE FROM THE CASEWORK MANUFACTURER'S STANDARD COLOR LINE.
13. FREE STANDING SHELVING AND CASEWORK LESS THAN 18" DEEP SHALL BE SECURED TO PREVENT TIPPING. SUBMIT SHOP DRAWINGS OF ATTACHMENT PRIOR TO INSTALLATION.
14. SAFETY SHOWER/EYEWASH UNITS SHALL COMPLY WITH ANSI STANDARDS FOR USABILITY BY THE PHYSICALLY DISABLED. SAFETY SHOWER/EYEWASH UNITS SHALL BE FURNISHED UNDER DIVISION 11 FOR INSTALLATION UNDER DIVISION 22.
15. FOR LABORATORY SERVICE FITTING TYPES, LOCATIONS AND ORDER, SEE LABORATORY FURNISHINGS PLANS. THESE FITTINGS SHALL BE PROVIDED UNDER DIVISION 11, FOR INSTALLATION UNDER DIVISION 22.
16. AT ALL TALL FREESTANDING VENTED CORROSIVE OR SOLVENT STORAGE CABINETS, VENT PIPING WILL BE PROVIDED AND INSTALLED FROM THE CABINET POINT OF CONNECTION TO THE EXHAUST DUCT SYSTEM PER DIVISION 23.
17. WHERE NO FUME HOOD OCCURS ADJACENT TO CORROSIVE STORAGE OR SOLVENT STORAGE CABINETS, ROUTE VENT PIPE (IN PIPE CHASE) UP NEAREST PIPE DROP ENCLOSURE TO EXHAUST DUCT SYSTEM FOR CONNECTION UNDER DIVISION 23.
18. WHERE FUME HOOD OCCURS ADJACENT TO CORROSIVE STORAGE CABINETS, ROUTE VENT PIPE (IN PIPE CHASE) TO FUME HOOD AND EXTEND 4" ABOVE FUME HOOD WORK SURFACE BEHIND BAFFLE.
19. ALL SNORKEL EXHAUST SHOWN ON THESE DRAWINGS, INCLUDING FLEXIBLE DUCT HOSE, SHALL BE PROVIDED UNDER DIVISION 11. DIVISION 23 SHALL PROVIDE DUCTWORK TO 6" BELOW CEILING OR 9'-0" ABOVE FINISHED FLOOR AT OPEN CEILINGS AND MAKE FINAL CONNECTION TO SNORKEL.
20. LOCATION OF EQUIPMENT, SUCH AS FUME HOODS, OVERHEAD SERVICE CARRIERS, BRACES OR ANY OTHER ITEMS THAT MAY INTERFERE WITH LIGHTING, STRUCTURAL OR MECHANICAL SYSTEMS, SHALL BE CAREFULLY COORDINATED. NOTIFY ARCHITECT OF DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
21. UNLESS OTHERWISE NOTED, ALL MISCELLANEOUS CHANNELS, BRACKETS AND FITTINGS INDICATED ON ALL LABORATORY FURNISHINGS DRAWINGS SHALL BE SUPPLIED, INSTALLED AND PAINTED UNDER DIVISION 11.
22. CONTRACTOR SHALL EXAMINE ALL LABORATORY FURNISHINGS PLANS AND COORDINATE WITH REFLECTED CEILING PLANS FOR PROPER CEILING HEIGHTS & PIPE DROP ENCLOSURE HEIGHTS AND LOCATIONS.
23. OVERHEAD SERVICE CARRIERS, HEAVY DUTY UNISTRUT AND OTHER STRUCTURALLY ANCHORED AND SUSPENDED DEVICES WHICH REQUIRE COORDINATION WITH OTHER TRADES SHALL BE THE RESPONSIBILITY OF THIS DIVISION (UNLESS OTHERWISE NOTED). ADDITIONAL FRAMING MAY BE REQUIRED TO ACCOMMODATE ANCHORAGE AROUND DUCTWORK OR OTHER OBSTRUCTIONS.
24. ALL BULLETIN BOARDS, MARKER BOARDS, CHALKBOARDS, PROJECTION SCREENS, COAT RACKS AND FIRE EXTINGUISHERS ARE INDICATED ON THE "LF" DRAWINGS FOR COORDINATION ONLY.
25. SERVICE FITTINGS SHOWN ON THE "LF" PLAN DRAWINGS ARE FOR LOCATION ONLY. REFER TO DETAILS AND SPECIFICATIONS FOR ACTUAL FITTINGS.
26. ELECTRICAL DEVICES SHALL BE PROVIDED UNDER DIVISION 26. ELECTRICAL DEVICES SHOWN ON THE "LF" DRAWINGS ARE FOR THE LOCATION OF CASEWORK CUTOUTS. DEVICES SHOWN AT CONTROLLED ENVIRONMENTAL ROOMS, FUME HOODS AND LAMINAR FLOW HOODS SHALL BE PROVIDED BY THE EQUIPMENT SUPPLIER.
27. ALL WALL MOUNTED RACEWAYS SHALL BE MOUNTED 43" A.F.F. TO THE BOTTOM OF THE RACEWAY U.O.N.

TYPICAL ABBREVIATIONS

(NOTE: NOT ALL ABBREVIATIONS SHOWN ARE USED. REFER TO FLOOR PLANS FOR ACTUAL ABBREVIATIONS TYPES.)

ADA	AMERICAN DISABILITIES ACT
A.F.F.	ABOVE FINISHED FLOOR
ARCH	ARCHITECTURAL DOCUMENTS
CFM	CUBIC FEET/MINUTE
CENT	CENTRIFUGE
CLG.	CEILING
CLR.	CLEARANCE
DIA	DIAMETER
DIV.	DIVISION
EQUIP	EQUIPMENT
FZR	FREEZER
GA.	GAUGE
G.C.	GENERAL CONTRACTOR
H.D.	HEAVY DUTY
INC	INCUBATOR
MAX.	MAXIMUM
MIN.	MINIMUM
MTD.	MOUNTED
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OFOI	OWNER FURNISHED, OWNER INSTALLED
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
O.H.	OVERHEAD
OHSC	OVERHEAD SERVICE CARRIER
PH	PHASE
REF	REFRIGERATOR
SIM.	SIMILAR
SPEC	SPECIFICATIONS
ST.STL.	STAINLESS STEEL
TEMP	TEMPERATURE
TYP.	TYPICAL
UC	UNDER COUNTER
U.O.N.	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF

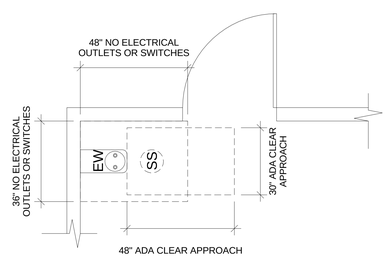
LABORATORY SERVICE ABBREVIATIONS

A	COMPRESSED LAB AIR (100 PSIG)
Ar	ARGON
CA	COMPRESSED LAB AIR (100 PSIG)
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CO2	CARBON DIOXIDE
CW	POTABLE COLD WATER
CWA	COLD WATER WITH ASPIRATOR
DI	DEIONIZED WATER
DH	DRENCH HOSE
DIS	DISTILLED WATER
EW	EYEWASH
He	HELIUM
He(R)	HELIUM RETURN
HW	POTABLE HOT WATER
ICW	INDUSTRIAL COLD WATER
IHW	INDUSTRIAL HOT WATER
LA	LABORATORY AIR (15 PSIG)
LG	LABORATORY GAS
LV	LABORATORY VACUUM
LN	LIQUID NITROGEN
N2	NITROGEN GAS
PCWS(V)	PROCESS COOLING WATER SUPPLY (SERVICE VALVE, PROVIDED UNDER DIVISION 23)
PCWR(V)	PROCESS COOLING WATER RETURN (SERVICE VALVE, PROVIDED UNDER DIVISION 23)
PW	PURIFIED WATER
RO	REVERSE OSMOSIS WATER
SG	SPECIAL GAS
SS	SAFETY SHOWER
(HB)	HOSE BIBB
(IR)	INFRA-RED
__(V)	SERVICE VALVE - PROVIDED UNDER DIV. 22
__(VB)	VALVE BOX - PROVIDED UNDER DIV. 22
CDA	COMPRESSED DRY AIR (100 PSIG)
VAC	VACUUM

LABORATORY SYMBOLS LEGEND

	SYMBOL LEGEND	DESCRIPTION	DETAIL
1		PIPE DROP ENCLOSURE (4/#4.02, 3/#4.02, 2/#4.02)	1/#4.02
2		DRYING RACK	5/#4.02
3		ADJUSTABLE WALL SHELVES (2 TIER U.O.N.)	8/#4.03
4		NOT USED	
5		CYLINDER RESTRAINT	6/#4.01
6		CYLINDER RACK ASSEMBLY	5/#4.01
7		SHROUD	4/#4.06
8		EQUIPMENT EXHAUST - SEE EXHAUST SCHEDULE	
9		SNORKEL FUME EXHAUST - SEE EXHAUST SCHEDULE	
10		OVERHEAD SERVICE CARRIER (WITH CABLE TRAY)	2/#4.03
11		SAFETY SHOWER WITH EYEWASH UNIT	8/#4.05
12		BENCHTOP GROMMET	7/#4.01
13		EXHAUSTED GAS CYLINDER CABINET	
14		SLEEVE (FOR WALL MOUNTED SLEEVES REFER TO ARCHITECTURAL INTERIOR ELEVATIONS)	7/#4.06
15		LASER CURTAINS	4/#4.01
16		LASER CURTAINS	4/#4.01
17		MANIFOLD - SEE EXHAUST SCHEDULE	
18		WATER PURIFIER - (SHOWN FOR COORDINATION ONLY, UNDER DIVISION 22)	
19		OVERHEAD UNISTRUT	5/#4.03
20		MARKER BOARD (SEE ARCHITECTURAL DOCUMENTS, SHOWN FOR COORDINATION ONLY)	
21		6" WIDE CABLE TRAY	8/#4.06
22		HEAVY DUTY ADJUSTABLE SHELVES: WALL MOUNTED - (5 TIER U.O.N.)	5/#4.06
		MOBILE WORK STATION (7/#4.02)	6/#4.02
	TAxx	TALL STORAGE CABINET - SEE CASEWORK MENU	
	MT	MOVABLE TABLE - SEE CASEWORK MENU	
		LEG POST UNDER BENCH/TABLE TOP	
	6'CFH	CHEMICAL FUME HOOD - SEE EXHAUST SCHEDULE	1/#4.00
	BSC	BIOLOGICAL SAFETY CABINET - SEE EXHAUST SCHEDULE	3/#4.00
	LFH	LAMINAR FLOW HOOD	
		OWNER FURNISHED, OWNER INSTALLED EQUIPMENT	
		EPOXY RESIN SINK - SEE SINK SCHEDULE	2/#4.06
		CUP SINK - SEE SINK SCHEDULE	3/#4.06
		ADA COMPLIANT AREA	
	FD	FLOOR DRAIN (SHOWN FOR COORDINATION ONLY)	
	FS	FLOOR SINK (SHOWN FOR COORDINATION ONLY)	

ELECTRICAL AND ADA APPROACH CLEARANCES AT SS/EW



LABORATORY BENCHTOP SCHEDULE

E EPOXY RESIN BENCHTOP

W WOOD BENCHTOP

+30", +34", +36" INDICATES BENCHTOP HEIGHT ABOVE FINISH FLOOR

NOTE:

FOR BENCHTOP TRANSITION HEIGHT REFER TO DETAILS: 3/#4.01

DETAIL SYMBOLS LEGEND

DETAIL NUMBER
SHEET NUMBER

SECTION NUMBER
SHEET NUMBER

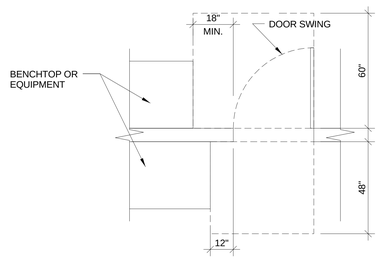
ELEVATION NUMBER
SHEET NUMBER

ELECTRICAL SYMBOLS

120V, 1PH, 20A DUPLEX RECEPTACLE

ELECTRICAL PANEL (SHOWN FOR COORDINATION ONLY, REFER TO DIVISION 26)

INTERIOR DOOR CLEARANCES (ADA COMPLIANT)



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By

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Date 02-24-2012 Reg. No. 41366

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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LABORATORY FURNISHING
GENERAL NOTES & LEGEND

lf1.00

EXHAUST EQUIPMENT SCHEDULES

CHEMICAL FUME HOODS

DRAWING REFERENCE	HOOD SIZE AND TYPE	TYPE OF SASH	TYPE OF SILL	NUMBER OF VERTICAL SASHES	NOMINAL VERTICAL SASH HEIGHT	HORIZONTAL SASH CONFIGURATION		DESIGN OPERATING CONDTIONS			MAXIMUM OPERATING CONDTIONS			MINIMUM VAV AIR FLOW (NOTE 1)	MIN STATIC PRESSURE AT HOOD OUTLET	HOOD COLLAR SIZE	EXHAUST CONNECTION BY MECHANICAL	REMARKS
						NUMBER OF SASHES	NUMBER OF TRACKS	SASH OPENING	FACE VELOCITY	AIRFLOW	SASH OPENING	FACE VELOCITY	AIRFLOW					
								INCH	FPM	CFM	INCH	FPM	CFM	CFM	INCH OF WATER	INCH	INCH DIAMETER	
4' CFH	4' CHEMICAL FUME HOOD	VERTICAL	AIRFOIL	1	30	-	-	18	100	500	28.5	100	800	200	0.25	6 x 18	8	
5' CFH	5' CHEMICAL FUME HOOD	VERTICAL	AIRFOIL	1	30	-	-	18	100	650	28.5	100	1,050	250	0.25	6 x 24	10	
6' CFH	6' CHEMICAL FUME HOOD	VERTICAL	AIRFOIL	1	30	-	-	18	100	800	28.5	100	1,300	300	0.25	6 x 24	12	
8' CFH	8' CHEMICAL FUME HOOD	VERTICAL	AIRFOIL	1	30	-	-	18	100	1,100	28.5	100	1,750	400	0.25	6 x 30	12	

NOTES:
1. MINIMUM VARIABLE AIR VOLUME (VAV) EXHAUST AIRFLOW CORRESPONDS TO 25" DEEP WORK SURFACE. FOR EXTENDED DEPTHS, APPLY AIRFLOW CORRECTION PER MANUFACTURER'S RECOMMENDATIONS.

BIOLOGICAL SAFETY CABINETS

DRAWING REFERENCE	CABINET SIZE AND TYPE	TYPE OF SASH	NUMBER OF VERTICAL SASHES	DESIGN OPERATING CONDTIONS			MIN STATIC PRESSURE AT HOOD OUTLET	HOOD COLLAR SIZE	EXHAUST CONNECTION BY MECHANICAL	REMARKS
				SASH OPENING	FACE VELOCITY	AIRFLOW				
				INCH	FPM	CFM	INCH OF WATER	INCH	INCH DIAMETER	
4' BSC	4' BIO SAFETY CABINET CLASS II TYPE B2	VERTICAL	1	8	105	800	2.0	10 DIA	10	SEE NOTE 1.
6' BSC	6' BIO SAFETY CABINET CLASS II TYPE B2	VERTICAL	1	8	105	1,200	2.0	12 DIA	12	SEE NOTE 1.

NOTES:
1. 100% AIRTIGHT EXHAUST CONNECTION WITH TRANSITION. PROVIDE MANUAL GAS TIGHT EXHAUST DAMPER FOR CABINET GAS DECONTAMINATION. PROVIDE DAMPERS, CONTROLS, AND BYPASS TO GENERAL ROOM EXHAUST INTERLOCKED WITH BSC ON/OFF OPERATION.

OTHER EXHAUST EQUIPMENT

DRAWING REFERENCE	EQUIPMENT	EXHAUST AIR FLOW	STATIC PRESSURE	EXHAUST DUCT CONNECTION SIZE	REMARKS
		CFM	INCH OF WATER	INCH	
RA	EQUIPMENT CEILING EXHAUST	100	0.5	4	TERMINATE EXHAUST DUCT 6-INCH BELOW CEILING WITH TRIM COLLAR. PROVIDE MANUAL VOLUME DAMPER ABOVE CEILING.
SR	SNORKEL FUME EXHAUST	250	0.8	6	BASED ON NEDERMAN ORIGINAL ARM PART NO. 10554335.
1	EXHAUSTED GAS CYLINDER CABINET (2 CYLINDER)	250	0.5	6	
2	EXHAUSTED GAS CYLINDER CABINET (3 CYLINDER)	350	0.5	8	
3	GAS REGULATOR/MANIFOLD RELIEF VALVE EXHAUST CONNECTION	-	-	1	RELIEF VALVE PIPING CONNECTION FROM REGULATOR/MANIFOLD RELIEF VALVE TO ROOM EXHAUST DUCT SYSTEM.
VP	VACUUM PUMP CABINET	100	0.2	6	DEDICATED CABINET EXHAUST DUCT VENT TO ROOM EXHAUST SYSTEM.
CS & TCS	CORROSIVE STORAGE CABINET	UNREGULATED	-	2	PROVIDE SCHEDULE 80 CPVC/PVC PIPE FOR EXHAUST DUCT PIPE.
FS & TSS	SOLVENT STORAGE CABINET	UNREGULATED	-	2	PROVIDE 2"DIA MAKEUP AIR PIPE CONNECTION FROM SUPPLY AIR SYSTEM. PROVIDE BLACK IRON/GALVANIZED STEEL PIPE FOR SUPPLY & EXHAUST DUCT.

LABORATORY SERVICE FITTING SCHEDULE

ABBREV.	FITTING TYPE	MOUNTING	NOTES	DETAIL
CA	COMPRESSED AIR FITTING W/REGULATOR & QUICK DISCONNECT	DECK	SINGLE OUTLET AT BENCH	5 / lf4.05
		WALL		4 / lf4.05
		OHSC		3 / lf4.05
EW	EYEWASH DRENCH HOSE	DECK	DOUBLE HEADED SPRAY	4 / lf4.04
CW	POTABLE COLD WATER	HOOD	REMOTE AT FUME HOOD CUP SINK	3 / lf4.04
		PANEL	AT WATER PURIFIER UNIT	7 / lf4.04
CW(V)	POTABLE COLD WATER (SHUT-OFF VALVE)	WALL	SHUT-OFF VALVE AT UC WASHER UNDER DIVISION 22	
HW(V)	POTABLE HOT WATER (SHUT-OFF VALVE)	WALL	SHUT-OFF VALVE AT UC WASHER UNDER DIVISION 22	
HWCW	POTABLE HOT WATER/ POTABLE COLD WATER	DECK	AT LABORATORY SINK	1 / lf4.04
LA	LABORATORY AIR	DECK	AT WALL BENCH	8 / lf4.04
		HOOD	REMOTE	1 / lf4.05
		OVERHEAD	AT OVERHEAD SERVICE CARRIER	9 / lf4.04
LV	LABORATORY VACCUM	OVERHEAD	AT OVERHEAD SERVICE CARRIER	9 / lf4.04
N2	NITROGEN	DECK	AT WALL BENCH	8 / lf4.04
		HOOD	REMOTE	1 / lf4.05
		WALL		2 / lf4.05
		OVERHEAD	AT OVERHEAD SERVICE CARRIER	9 / lf4.04
SG	SPECIAL GAS	WALL		2 / lf4.05
		HOOD	REMOTE	1 / lf4.05
		OVERHEAD	AT OVERHEAD SERVICE CARRIER	9 / lf4.04
		DECK		8 / lf4.04

LABORATORY SERVICE FITTING SCHEDULE

ABBREV.	FITTING TYPE	MOUNTING	NOTES	DETAIL
PCWS/PCWR	PROCESS COOLING WATER SUPPLY, PROCESS COOLING WATER RETURN	WALL	SERVICE VALVE PROVIDED UNDER DIVISION 23	
		OVERHEAD	SERVICE VALVE PROVIDED UNDER DIVISION 23	
SS/EW	SAFETY SHOWER/ EYEWASH UNIT	WALL (RECESSED)	PULL-DOWN EYEWASH	8 / lf4.05

NOTES:

1. FOR FIXTURE SPACING REFER TO DETAILS: 1 / lf4.06 9 / lf4.05
2. FOR FIXTURE SPACING AT OVERHEAD SERVICE CARRIERS AND WALL MOUNTED LOCATIONS REFER TO WALL BENCH FIXTURE SPACING DETAIL: 1 / lf4.06
3. SERVICE ABBREVIATION __(V) REFERS TO SERVICE VALVE - PROVIDED UNDER DIVISION 22.

LABORATORY SINK SCHEDULE

SINK NUMBER	DESCRIPTION	OUTLET	WIDTH x DEPTH x HEIGHT (INSIDE DIMENSIONS)	REMARKS
SK1	EPOXY RESIN	SIDE	21" x 17" x 10"	DROP-IN
CS1	EPOXY RESIN	CENTER	6" x 14"	RECTANGULAR

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LABORATORY FURNISHING SCHEDULES

lf1.01

D24 — BASE CABINET TYPE; WIDTH (INCHES - TYPICAL)

A24L — BASE CABINET TYPE; WIDTH; DOOR HINGE ON LEFT SIDE

A24R — BASE CABINET TYPE; WIDTH; DOOR HINGE ON RIGHT SIDE

A24C/G — BASE CABINET TYPE; WIDTH; ON CASTERS OR GLIDES IN LIEU OF INTEGRAL TOE BASE

A24M/S — BASE CABINET TYPE; WIDTH; METAL OR STAINLESS STEEL

LD24 — SITTING HEIGHT AT BASE CABINET & KO; BASE CABINET TYPE; WIDTH

KO24 — KNEE OPENING; WIDTH

MT60X — MOVABLE TABLE; WIDTH (NOTE: 30" DEPTH ASSUMED ON GENERAL NOTES); MOVABLE TABLE TYPE (C) ON CASTERS & (D) W/ DRAWER (X = C AND/ OR D)

MT6024 — MOVABLE TABLE; WIDTH; DEPTH

WA36 — WALL-HUNG CABINET; WALL CABINET DOOR TYPE; WIDTH

TD48 — TALL STORAGE CABINET; TALL CABINET DOOR TYPE; WIDTH

TAV48 — DESIGNATES VENTED CABINET WITH 2"DIA CONNECTION

FP — FILLER PANEL

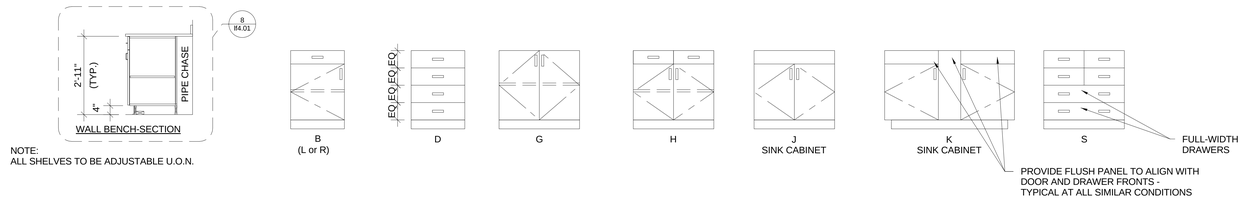
* — DESIGNATES KEY LOCKABLE CASEWORK

** — DESIGNATES PADLOCK HASP

NOTES:

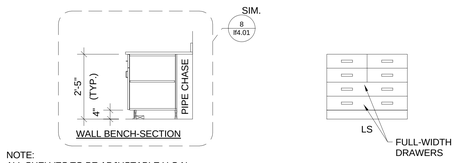
1. FOR CABINET BACKING HEIGHTS REFER TO: (1 / #4.01)
2. FOR SHELVING AND CYLINDER RESTRAINT BACKING HEIGHTS REFER TO: (2 / #4.01)

CASEWORK LEGEND & NOTES



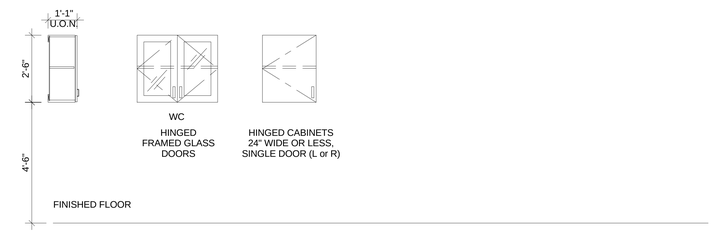
NOTE:
ALL SHELVES TO BE ADJUSTABLE U.O.N.

STANDING HEIGHT BASE CABINETS (WOOD - U.O.N.)

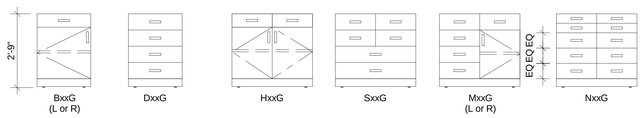


NOTE:
ALL SHELVES TO BE ADJUSTABLE U.O.N.

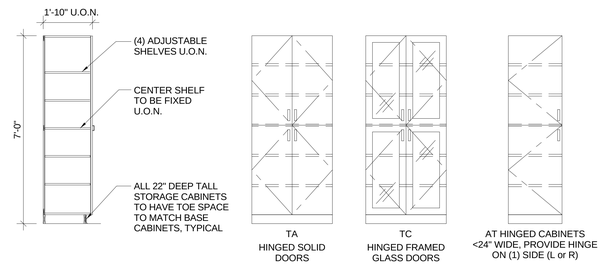
SITTING HEIGHT BASE CABINETS (WOOD - U.O.N)



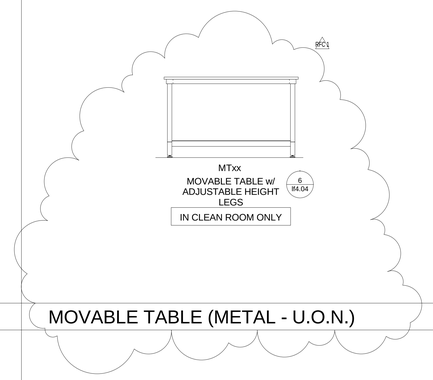
WALL CABINETS (WOOD - U.O.N)



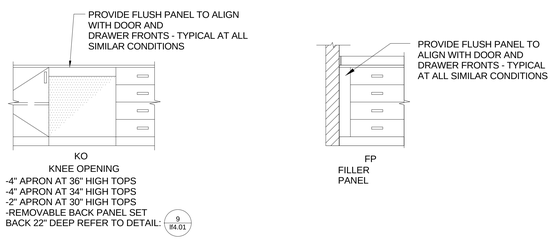
BASE CABINETS ON GLIDES (WOOD - U.O.N.)



TALL STORAGE CABINETS (WOOD - U.O.N.)

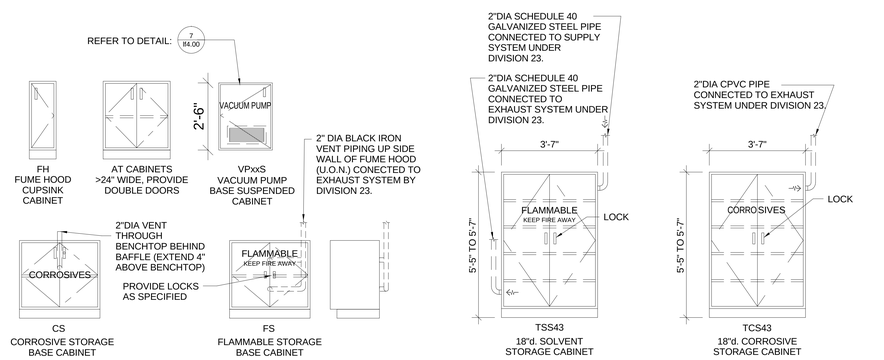


MOVABLE TABLE (METAL - U.O.N.)

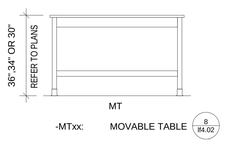


NOTE:
AT LOCATIONS WHERE KNEE OPENINGS WIDTHS ARE NOT GIVEN ON PLANS, FIELD VERIFY WALL TO WALL DIMENSIONS.

KNEE OPENINGS



SPECIAL CABINETS (METAL - U.O.N.)



NOTE:
REFER TO FLOOR PLANS FOR MOVABLE TABLE:
-HEIGHTS
-TYPES &
-ADA DESIGNATION

MOVABLE TABLE (WOOD - U.O.N.)

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Date 11/05/11

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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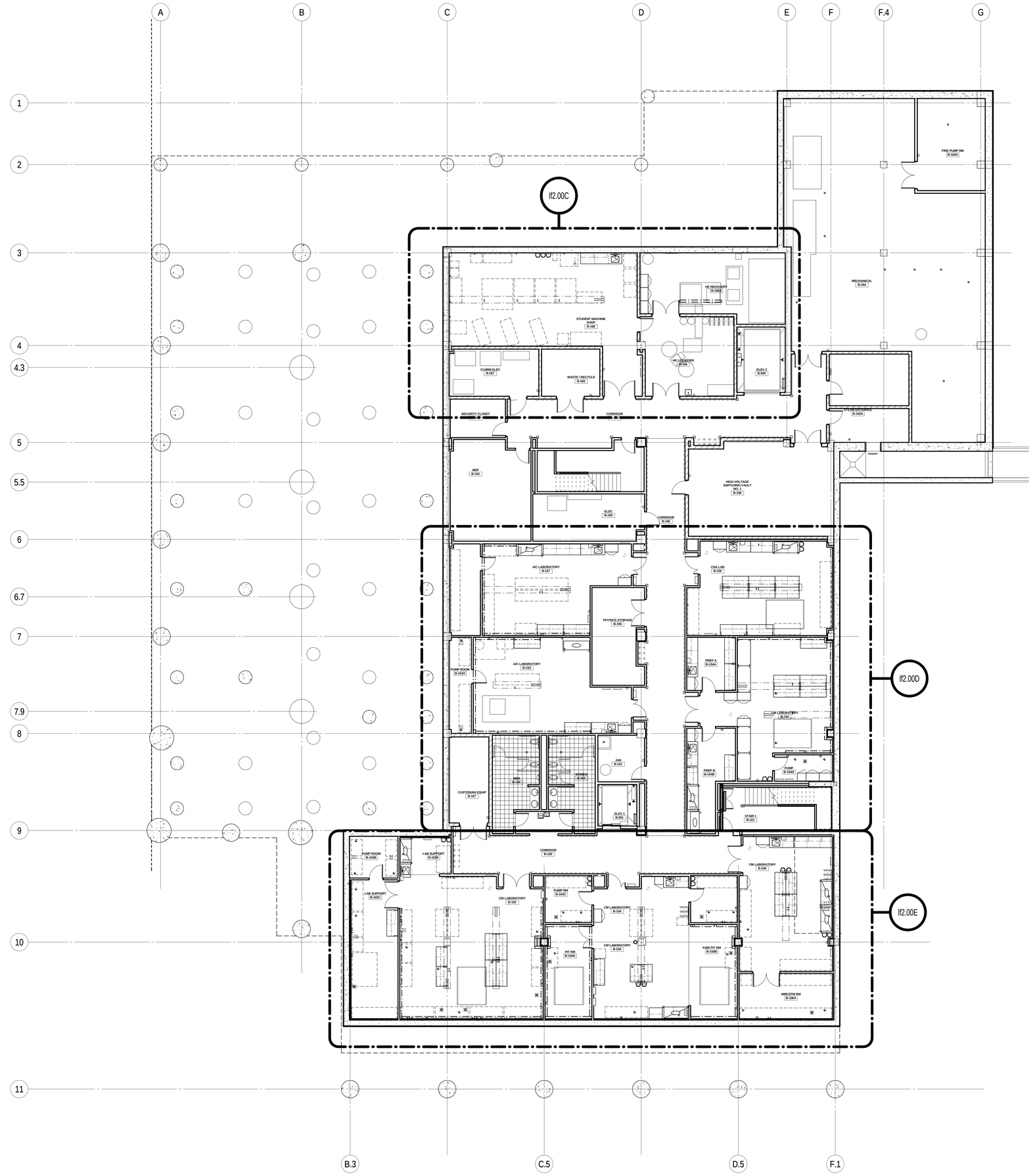
LABORATORY FURNISHING
CASEWORK ELEVATIONS

lf1.02



1 BASEMENT OVERALL PLAN
1/8" = 1'-0"

ARCHITECTURAL ALLIANCE
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For Research Facilities Design

By

Name Richard H. Heinz

Date 02-24-2012 Reg. No. 41366

Issued for	Date
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Bid Package No. 2	02-24-2012

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

PROJECT NORTH

UNIVERSITY OF MINNESOTA
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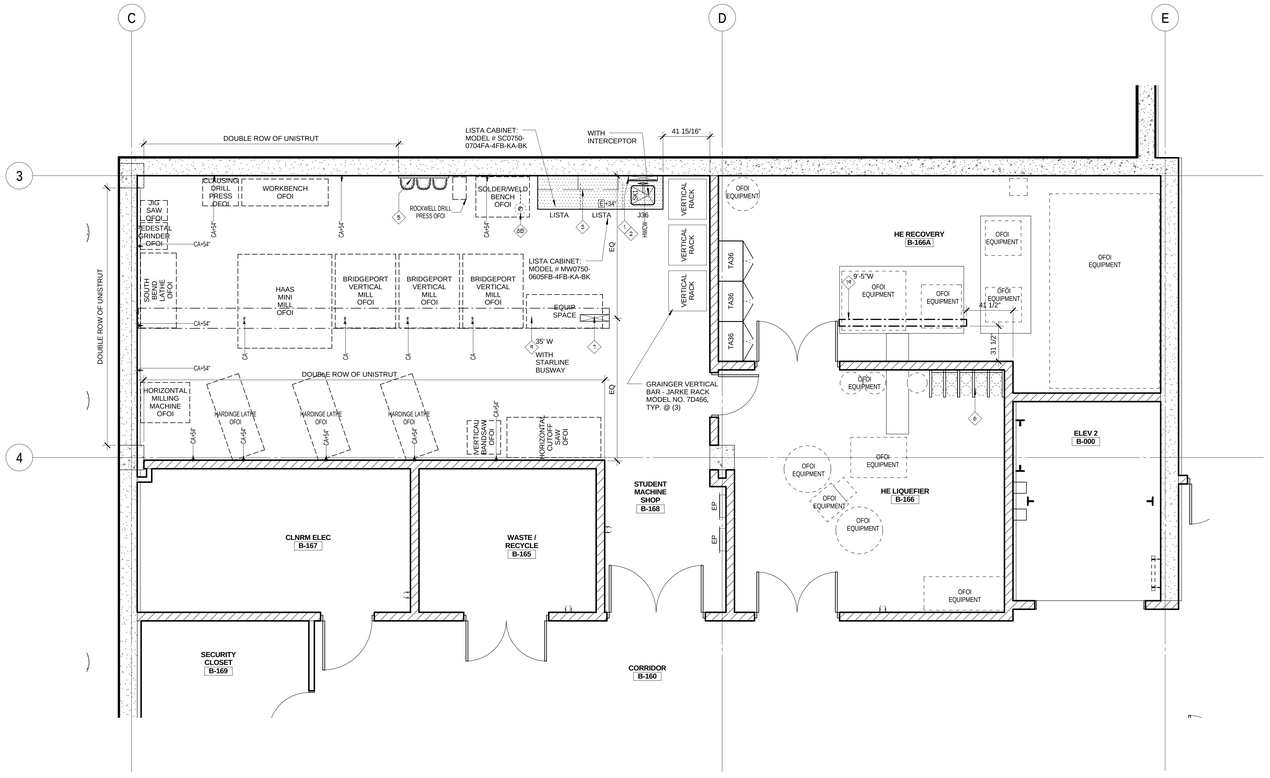
LABORATORY FURNISHING
OVERALL BASEMENT PLAN

lf2.00



1 PARTIAL BASEMENT PLAN C
1/4" = 1'-0"

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

PROJECT NORTH

UNIVERSITY OF MINNESOTA
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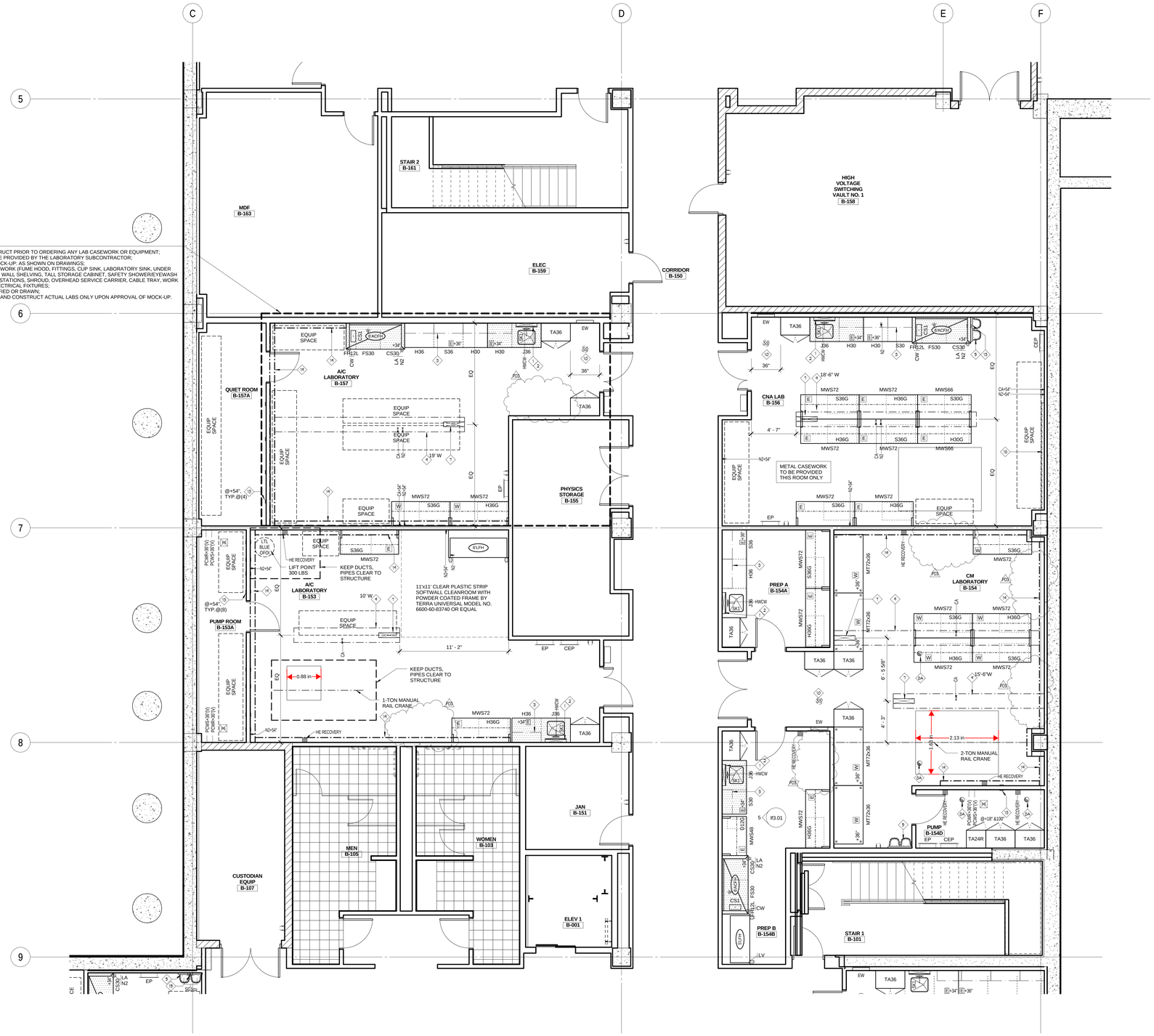
LABORATORY FURNISHING
BASEMENT PARTIAL PLAN

lf2.00C

LF MOCK-UP
* SCHEDULE: CONSTRUCT PRIOR TO ORDERING ANY LAB CASEWORK OR EQUIPMENT;
* LOCATION: OFF-SITE PROVIDED BY THE LABORATORY SUBCONTRACTOR;
* SCOPE/LIMIT OF MOCK-UP: AS SHOWN ON DRAWINGS;
* PROVIDE: ALL CASEWORK (FUME HOOD, FITTINGS, CUP SINK, LABORATORY SINK, UNDER COUNTER CABINETS, WALL SHELVING, TALL STORAGE CABINET, SAFETY SHOWER/EYEWASH UNIT, MOBILE WORK STATIONS, SHROUD, OVERHEAD SERVICE CARRIER, CABLE TRAY, WORK SURFACES), AND ELECTRICAL FIXTURES;
* QUALITY: AS SPECIFIED OR DRAWN;
* APPROVAL: ORDER AND CONSTRUCT ACTUAL LABS ONLY UPON APPROVAL OF MOCK-UP.



1 PARTIAL BASEMENT PLAN D
1/4" = 1'-0"

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Drawn Author

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Date 11/23/11

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

PROJECT NORTH

UNIVERSITY OF MINNESOTA
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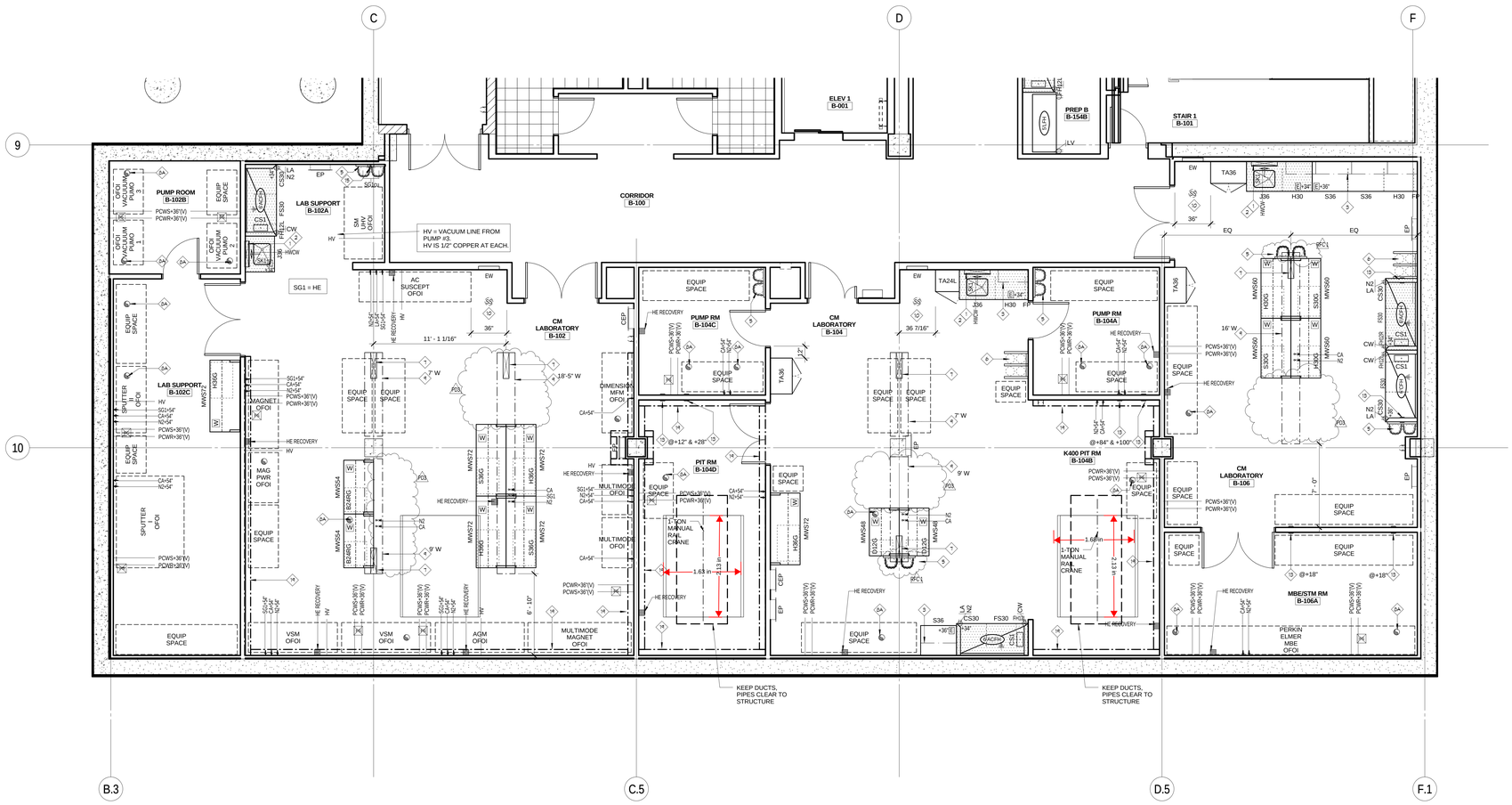
LABORATORY FURNISHING
BASEMENT PARTIAL PLAN

lf2.00D



1 PARTIAL BASEMENT PLAN E
1/4" = 1'-0"

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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UNIVERSITY OF MINNESOTA
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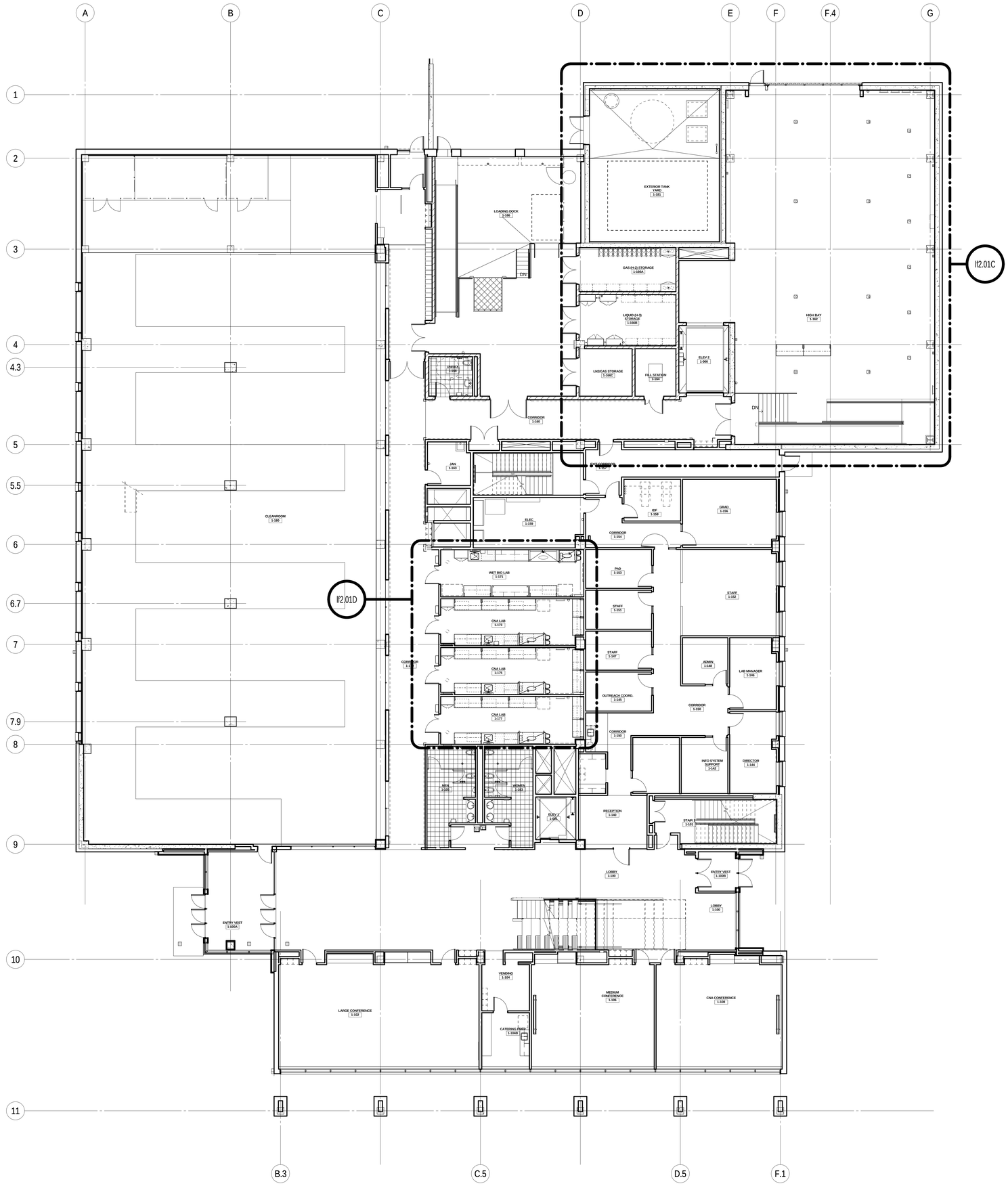
LABORATORY FURNISHING
BASEMENT PARTIAL PLAN

lf2.00E



1 LEVEL 1 OVERALL PLAN
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Physics and Nanotechnology Building

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PROJECT NORTH

UNIVERSITY OF MINNESOTA
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LABORATORY FURNISHING
LEVEL 1 OVERALL PLAN

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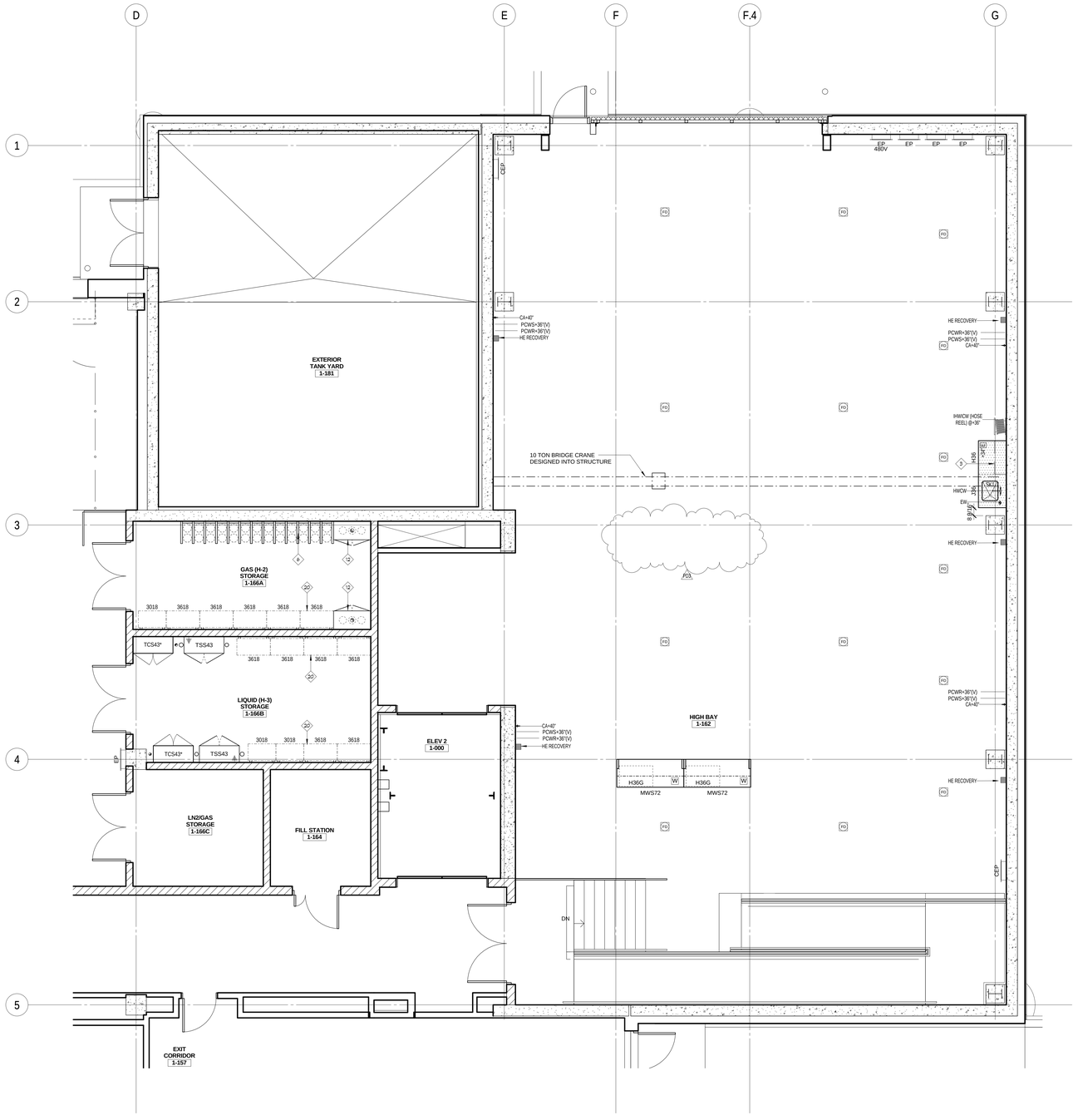

1 PARTIAL LEVEL1 C
1/4" = 1'-0"

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For Research Facilities Design

By

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Date 02-24-2012 Reg. No. 41366

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Project Directive No. 3	05-11-2012

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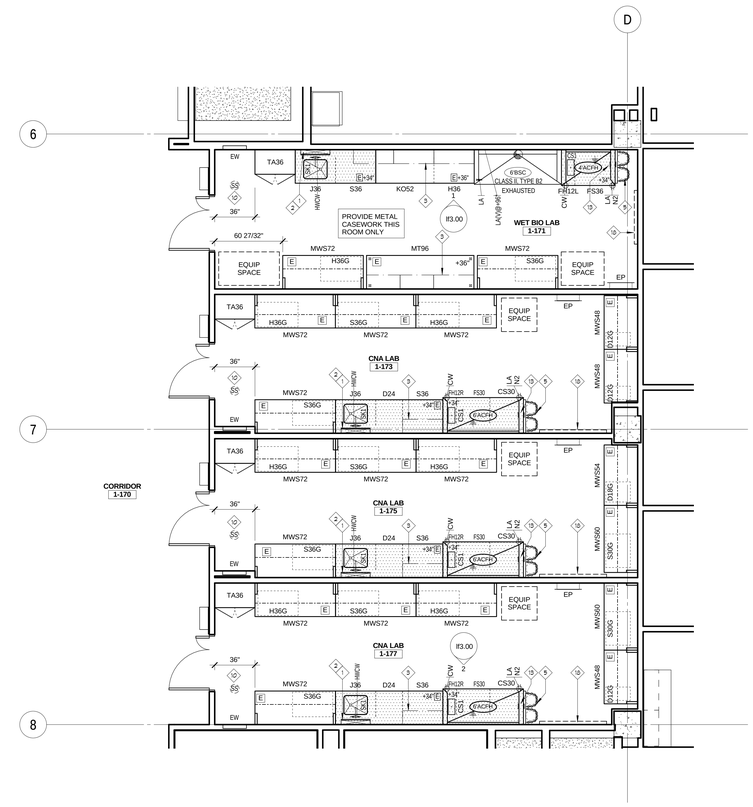
LABORATORY FURNISHING
LEVEL 1 PARTIAL PLAN

lf2.01C



1 PARTIAL LEVEL1 D
1/4" = 1'-0"

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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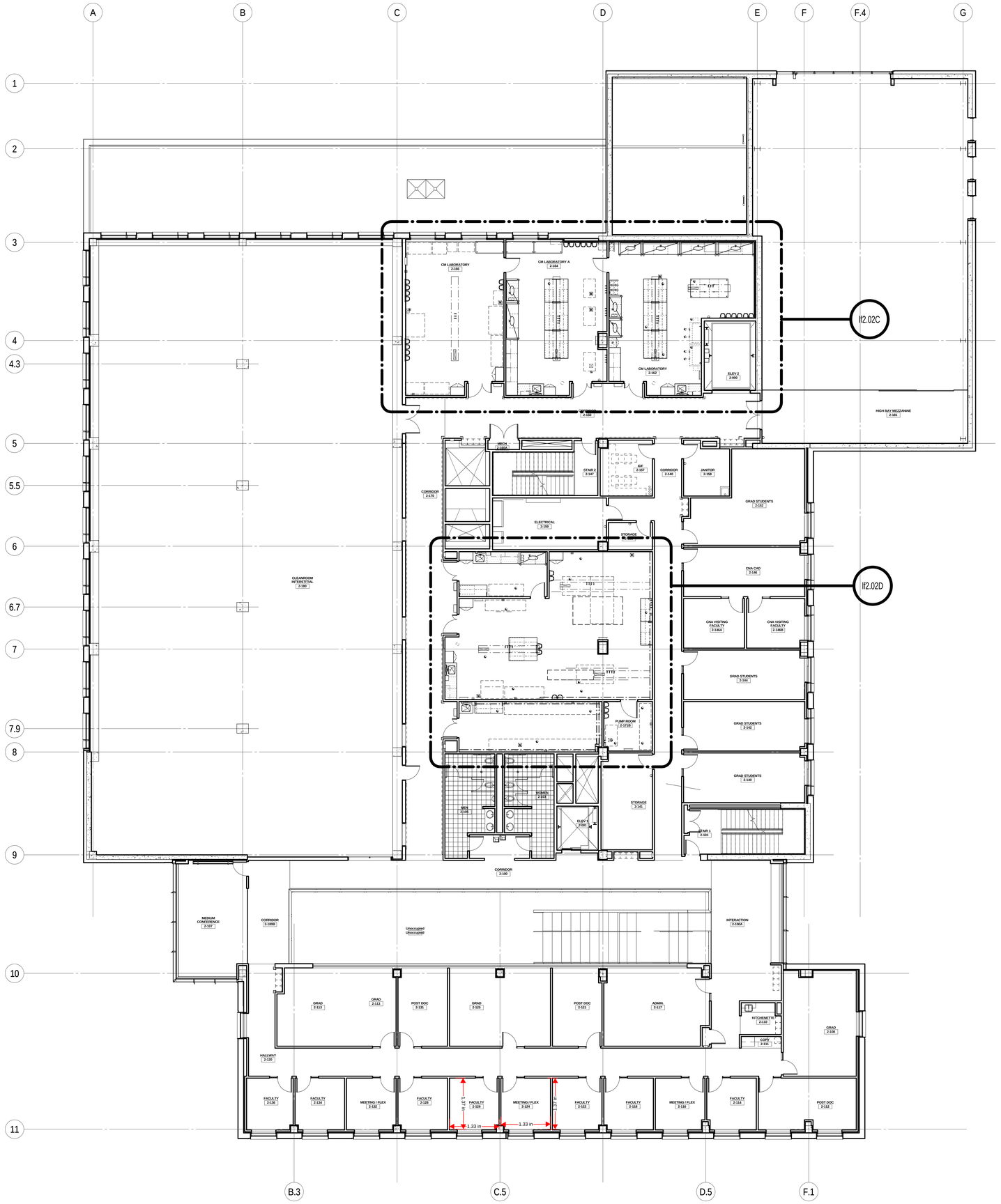
LABORATORY FURNISHING
LEVEL 1 PARTIAL PLAN

lf2.01D



1 LEVEL 2 OVERALL PLAN
1/8" = 1'-0"

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Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

PROJECT NORTH

UNIVERSITY OF MINNESOTA
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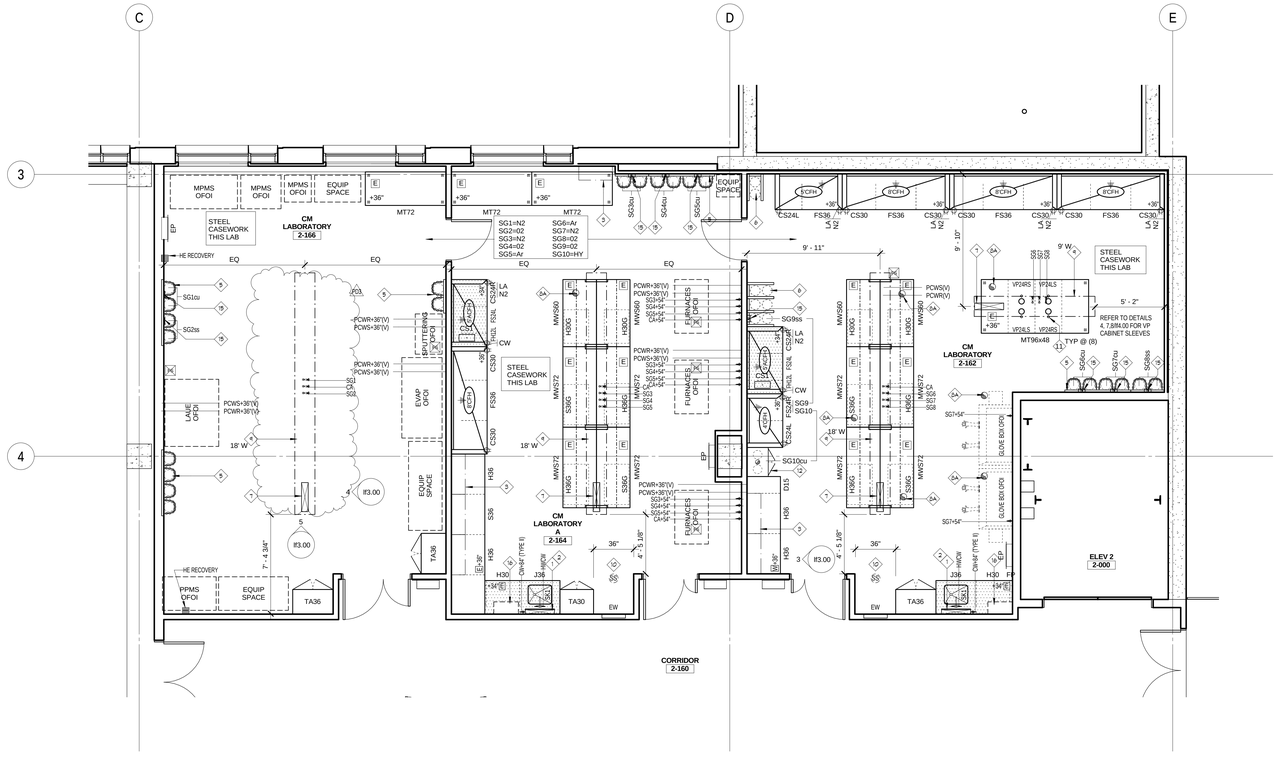
LABORATORY FURNISHING
LEVEL 2 OVERALL PLAN

lf2.02



1 PARTIAL LEVEL 2 C
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Physics and Nanotechnology Building

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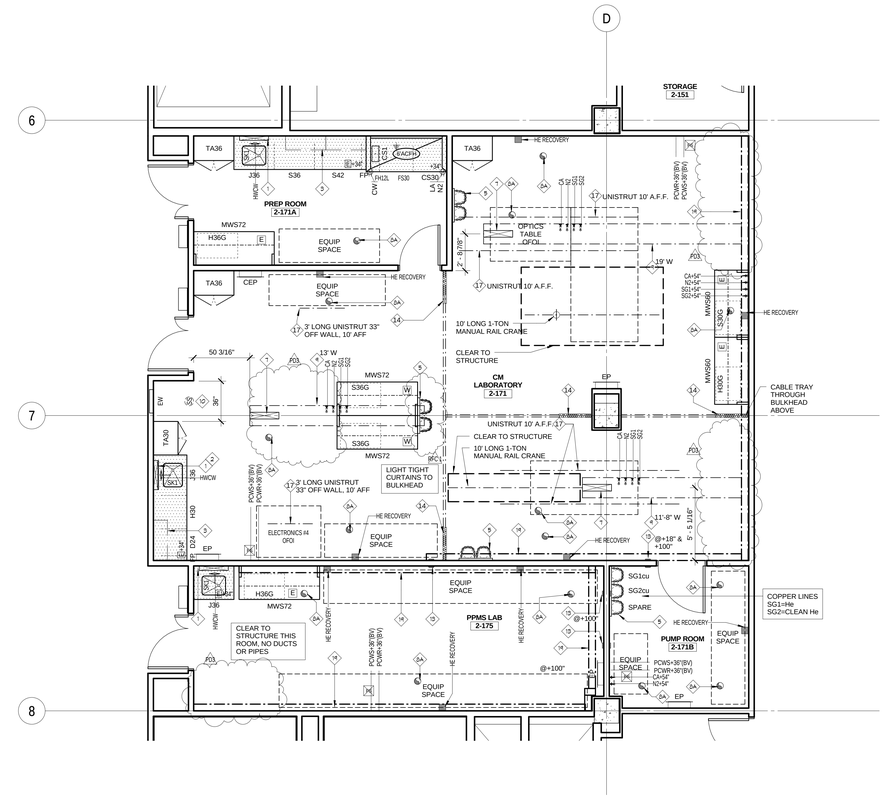
LABORATORY FURNISHING
LEVEL 2 PARTIAL PLAN

lf2.02C



1 PARTIAL LEVEL 2 D
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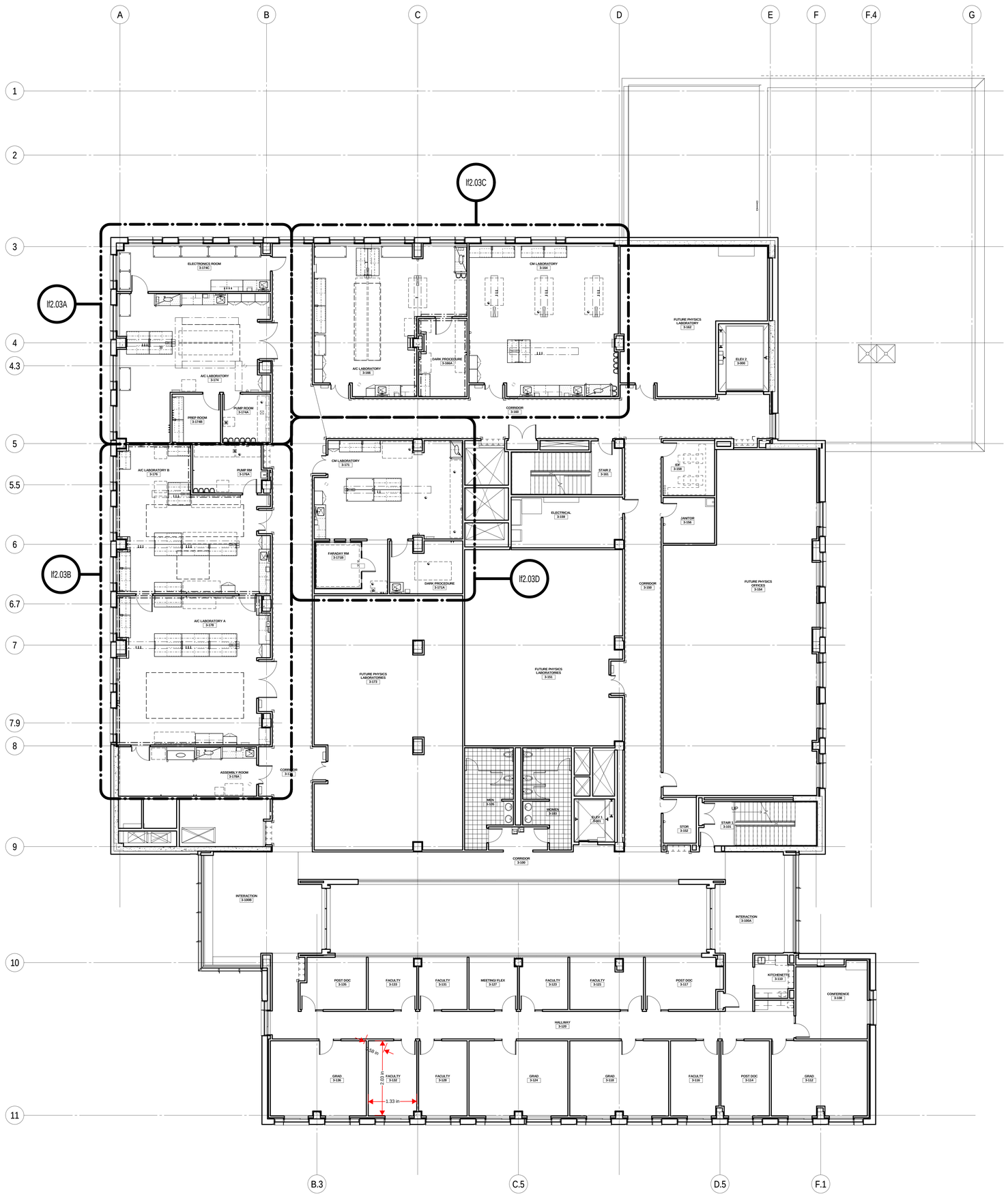
LABORATORY FURNISHING
LEVEL 2 PARTIAL PLAN

lf2.02D



1 LEVEL 3 OVERALL PLAN
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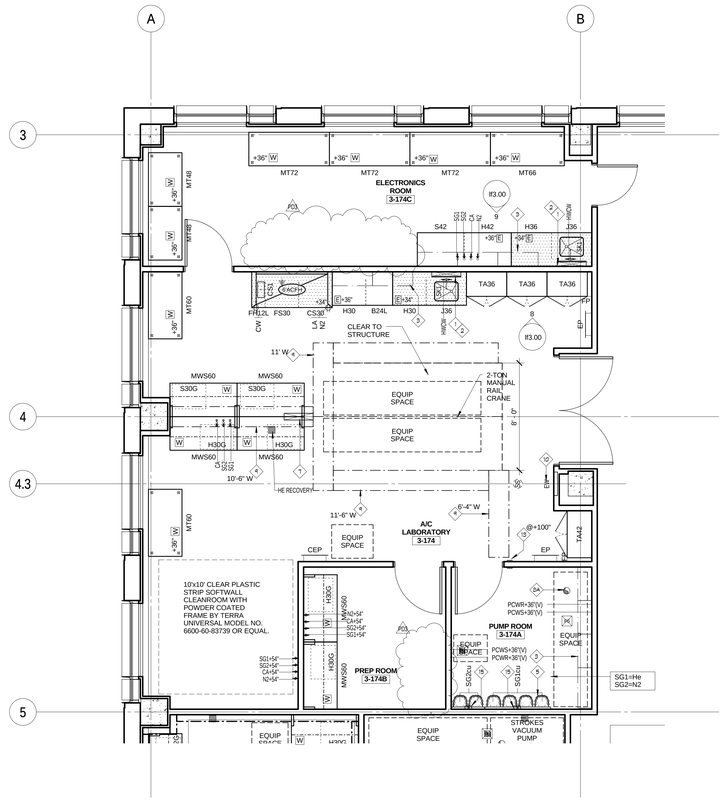
LABORATORY FURNISHING
LEVEL 3 OVERALL PLAN



1 PARTIAL LEVEL 3 A
1/4" = 1'-0"

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For Research Facilities Design

By

Name Richard M. Heinz

Date 02-24-2012 Reg. No. 41366

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Drawn Author

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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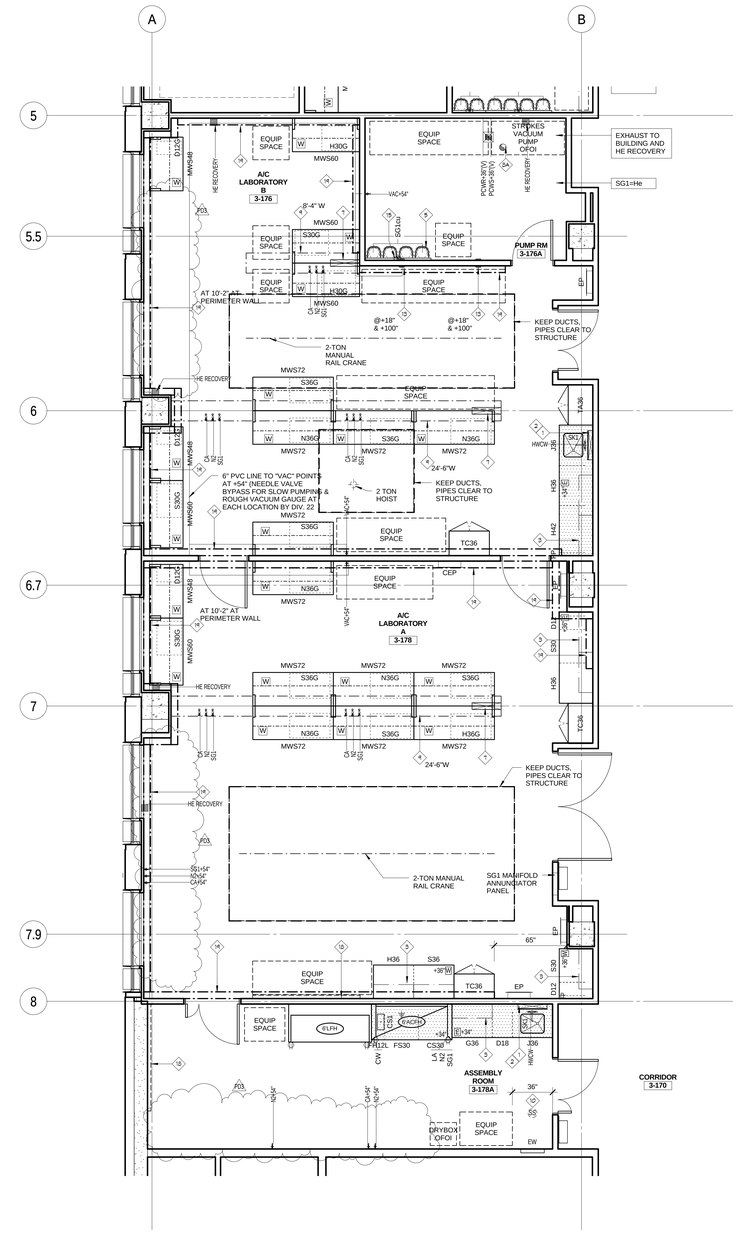
LABORATORY FURNISHING
LEVEL 3 PARTIAL PLAN

If2.03A



1 PARTIAL LEVEL 3 B
1/4" = 1'-0"

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U of M Project # 01-155-08-1718

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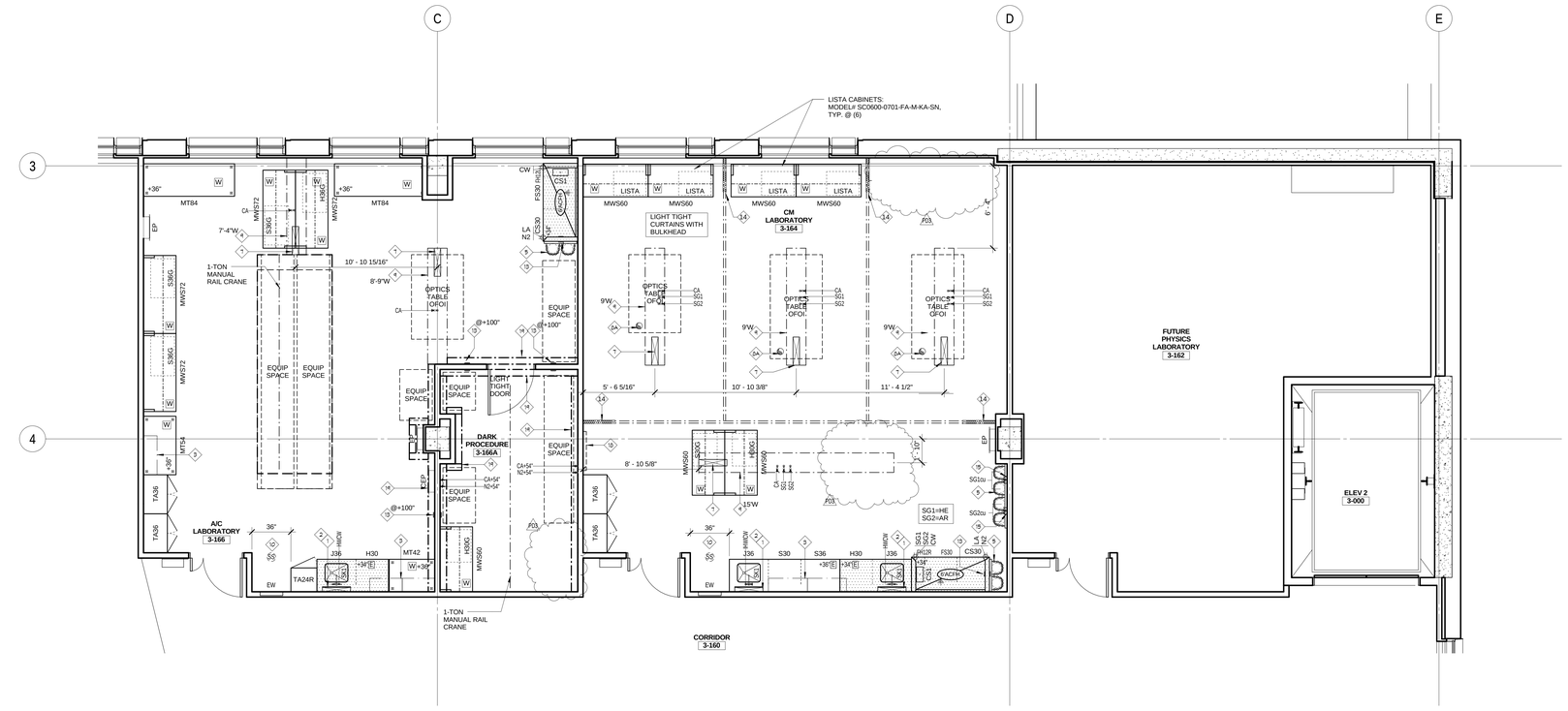
LABORATORY FURNISHING
LEVEL 3 PARTIAL PLAN

lf2.03B



1 PARTIAL LEVEL 3 C
1/4" = 1'-0"

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Physics and Nanotechnology Building

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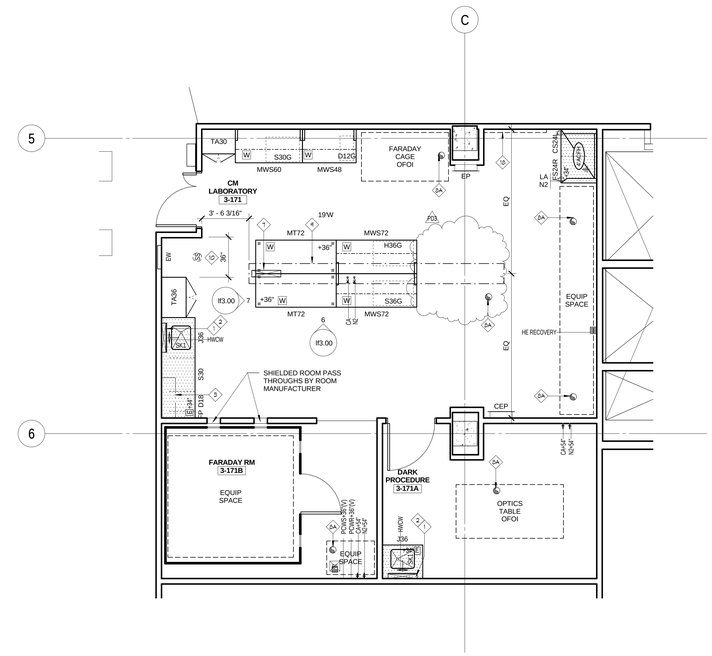
LABORATORY FURNISHING
LEVEL 3 PARTIAL PLAN

lf2.03C



1 PARTIAL LEVEL 3 D
1/4" = 1'-0"

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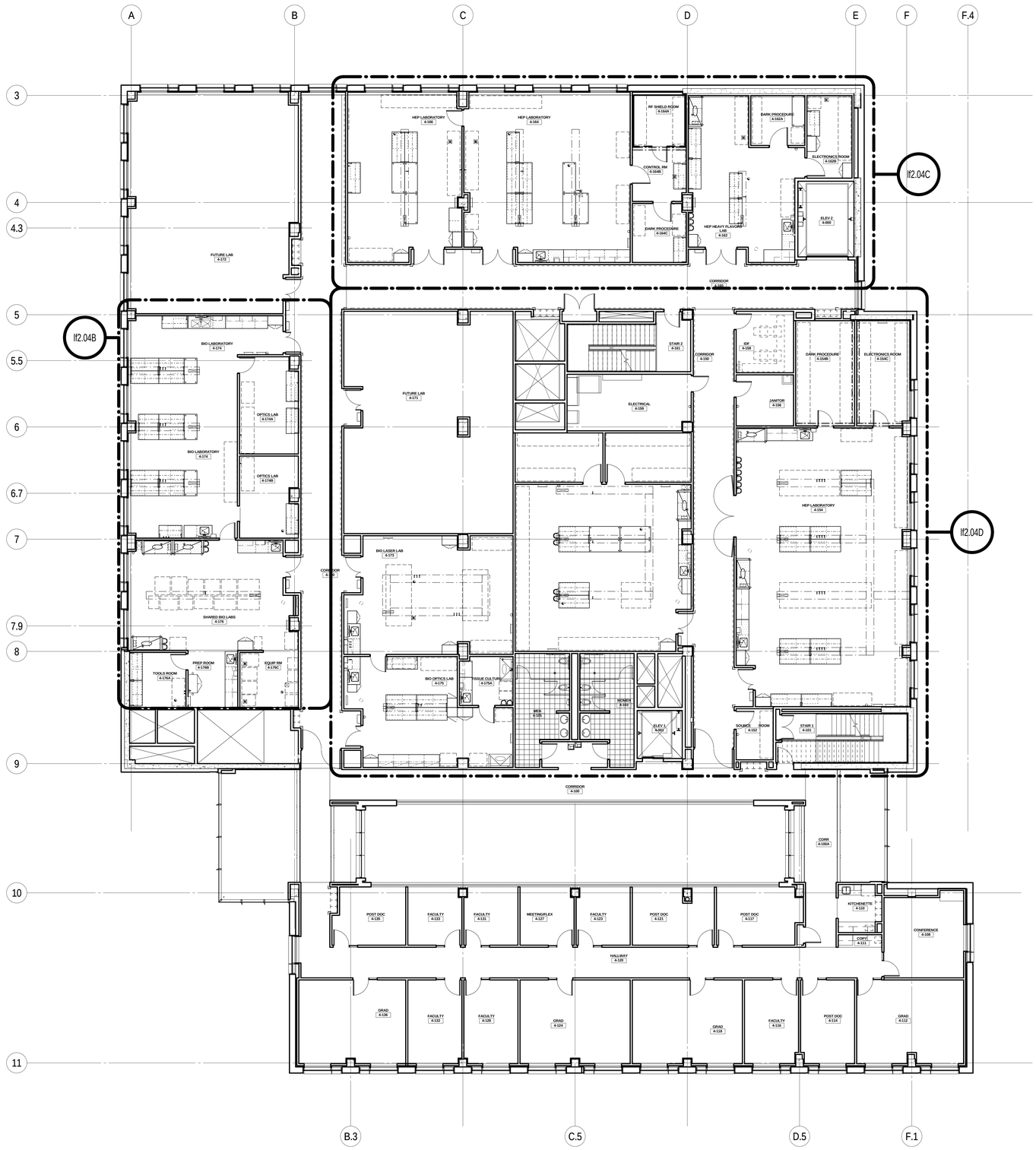
LABORATORY FURNISHING
LEVEL 3 PARTIAL PLAN

If2.03D



1 LEVEL 4 OVERALL PLAN
1/8" = 1'-0"

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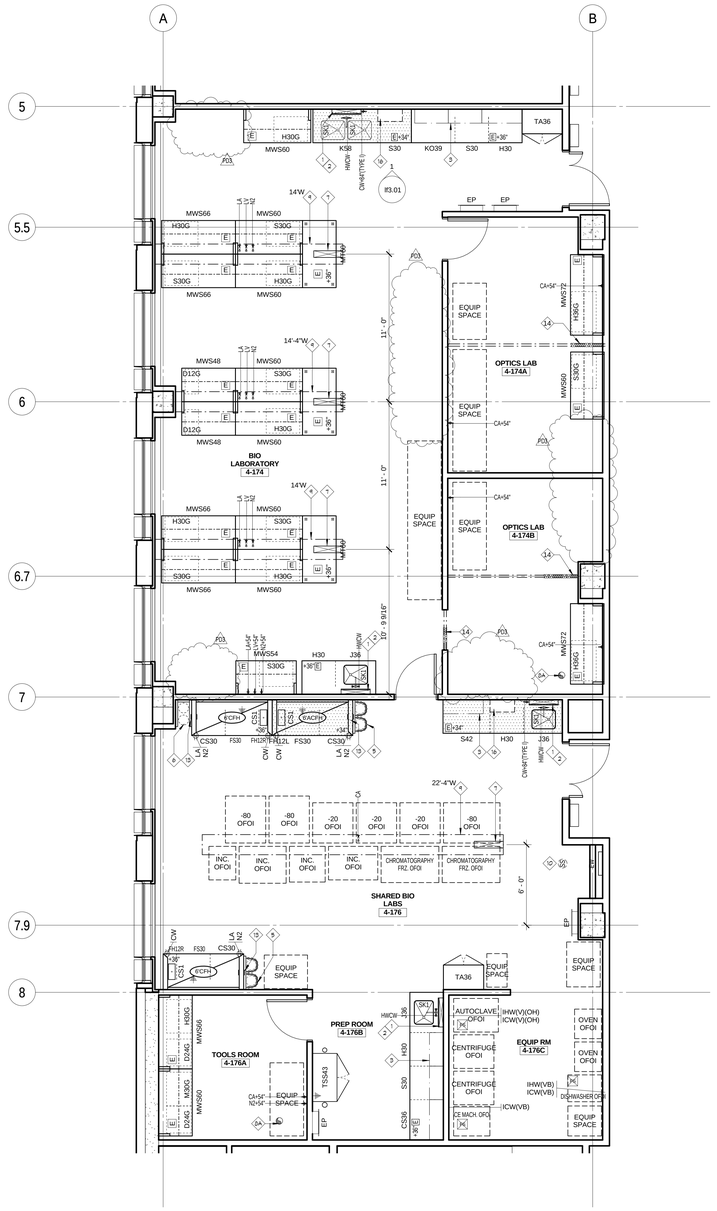
LABORATORY FURNISHING
LEVEL 4 OVERALL PLAN

lf2.04



1 PARTIAL LEVEL 4 B
1/4" = 1'-0"

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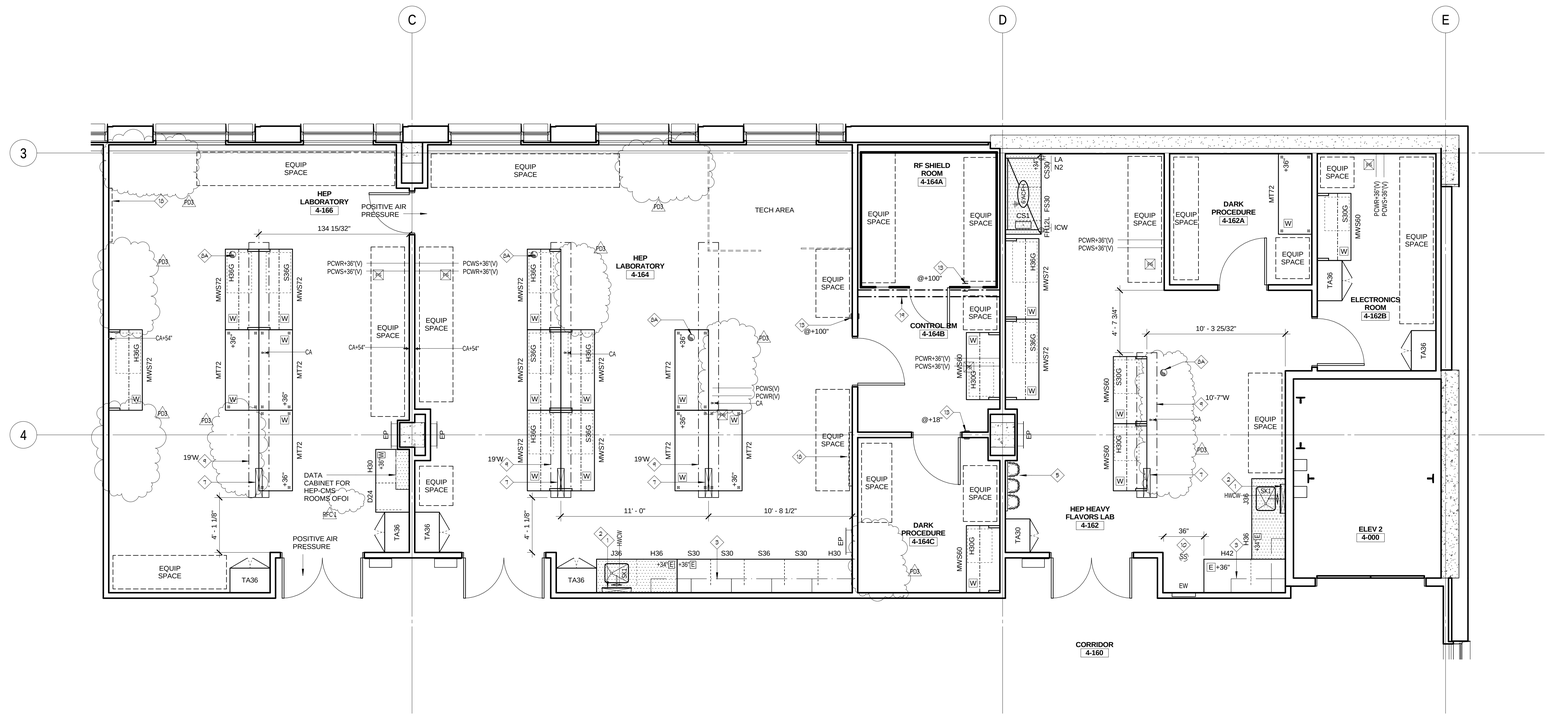
LABORATORY FURNISHING
LEVEL 4 PARTIAL PLAN

If2.04B



1 PARTIAL LEVEL 4 C
1/4" = 1'-0"

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Physics and Nanotechnology Building

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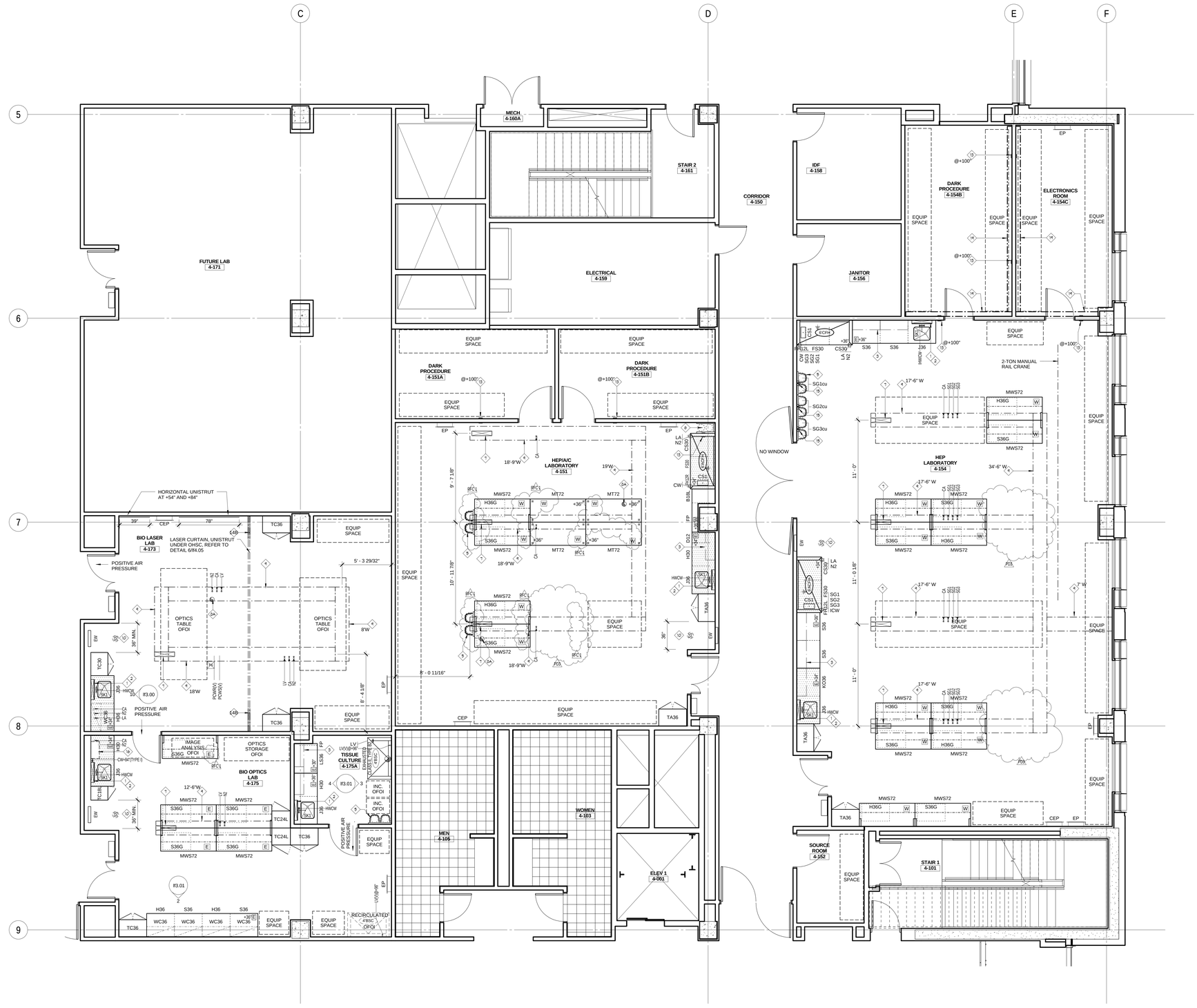
LABORATORY FURNISHING
LEVEL 4 PARTIAL PLAN

lf2.04C



1 PARTIAL LEVEL 4 D
1/4" = 1'-0"

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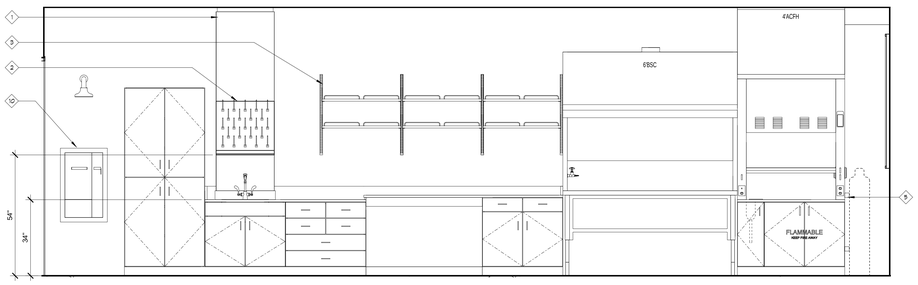
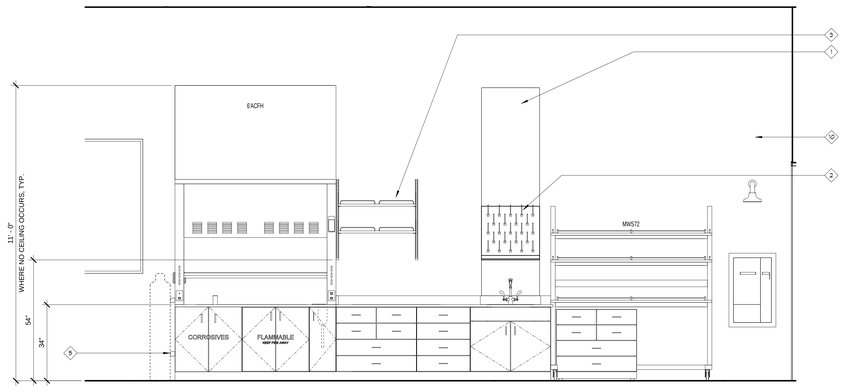
LABORATORY FURNISHING
LEVEL 4 PARTIAL PLAN

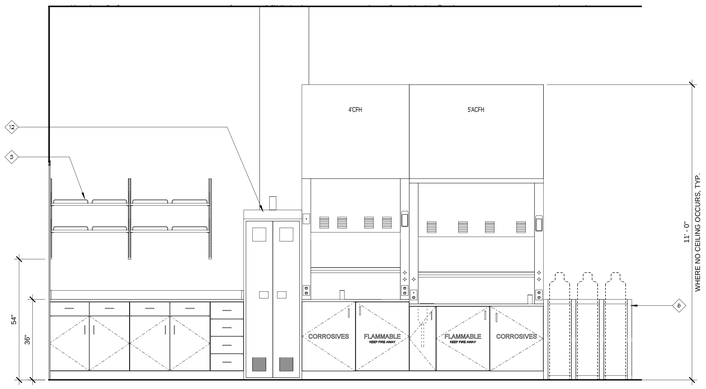
lf2.04D



1 1-171_WET BIO LAB
1/2" = 1'-0"



2 1-177_CNA LAB
1/2" = 1'-0"



3 2-162_CM LAB
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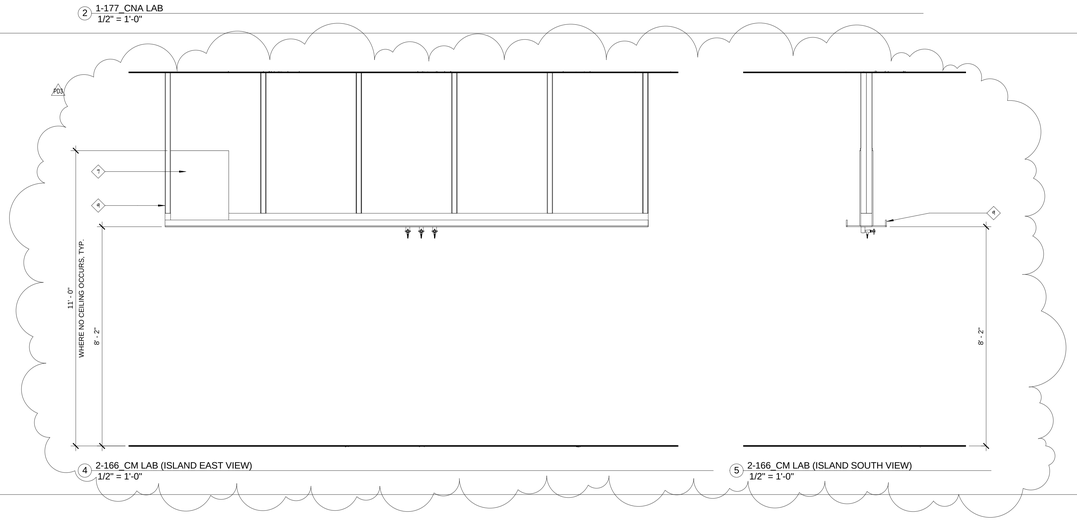
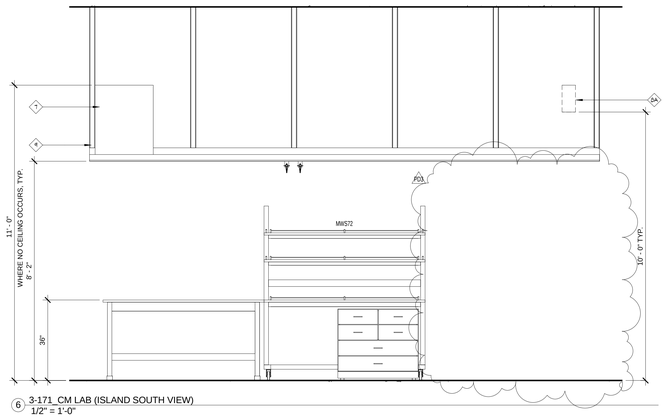
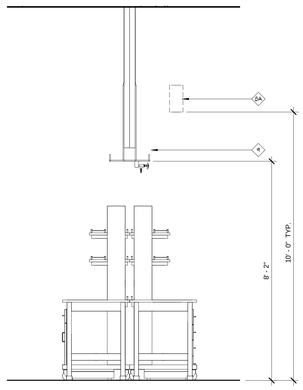


4 2-166_CM LAB (ISLAND EAST VIEW)
1/2" = 1'-0"

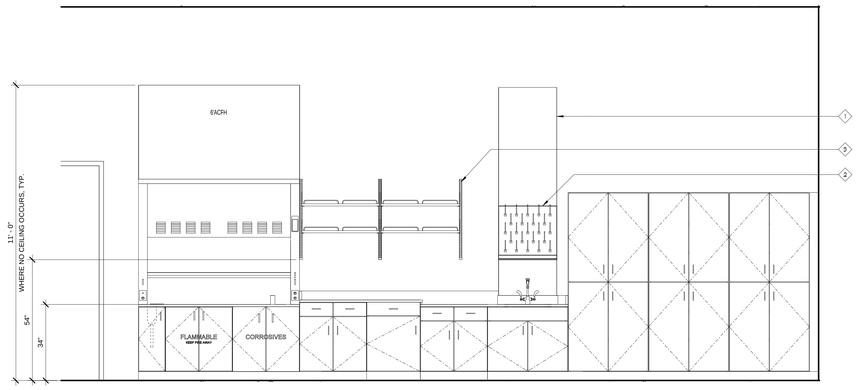
5 2-166_CM LAB (ISLAND SOUTH VIEW)
1/2" = 1'-0"



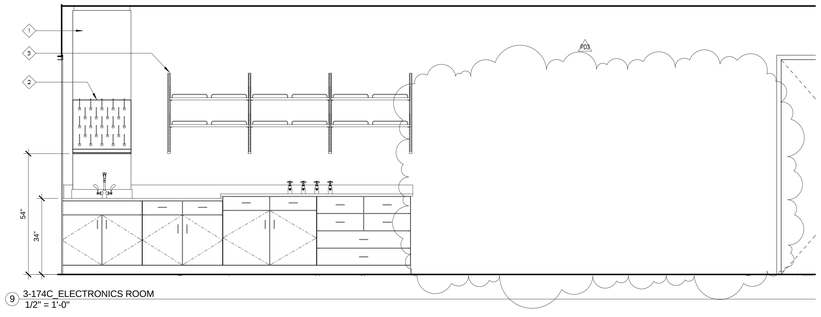
6 3-171_CM LAB (ISLAND SOUTH VIEW)
1/2" = 1'-0"



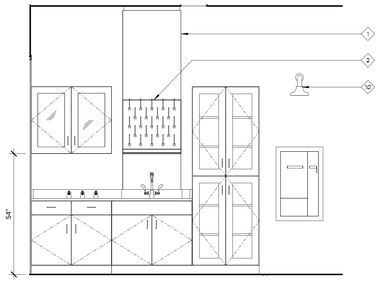
7 3-171_CM LAB (ISLAND WEST VIEW)
1/2" = 1'-0"



8 3-174_A/C LAB
1/2" = 1'-0"



9 3-174C_ELECTRONICS ROOM
1/2" = 1'-0"



10 4-173_BIO LASER LAB
1/2" = 1'-0"

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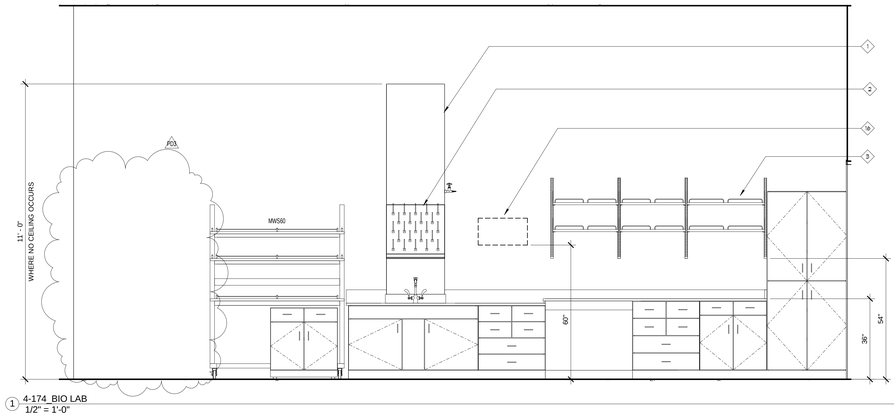
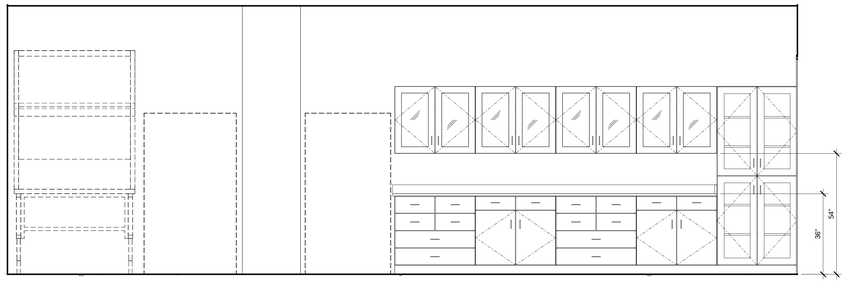
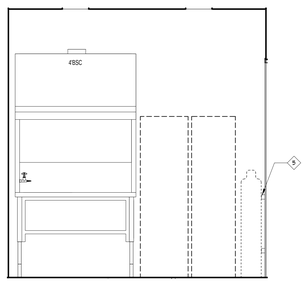
lf3.00



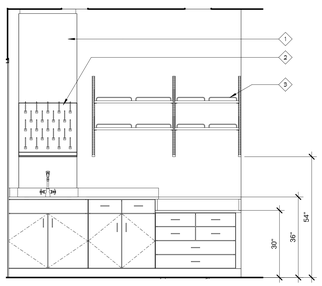
1 4-174_BIO LAB
1/2" = 1'-0"



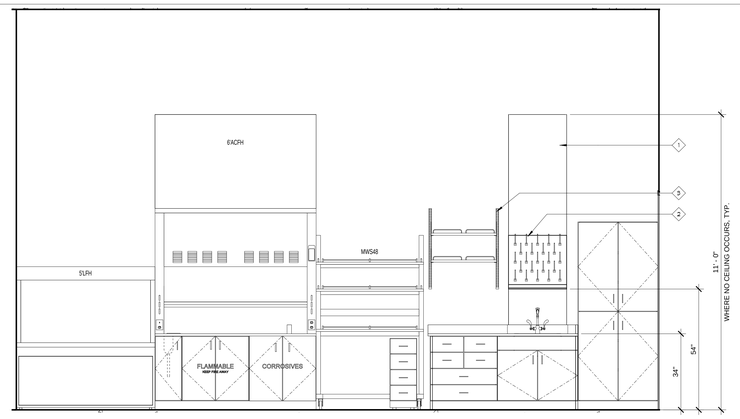
2 4-175_BIO OPTICS LAB
1/2" = 1'-0"



3 4-175A_TISSUE CULTURE (EAST VIEW)
1/2" = 1'-0"



4 4-175A_TISSUE CULTURE (WEST VIEW)
1/2" = 1'-0"



5 B-154B_PREP B
1/2" = 1'-0"

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For Research Facilities Design

By

Name Richard H. Heinz

Date 02-24-2012 Reg. No. 41366

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Date 11/25/11

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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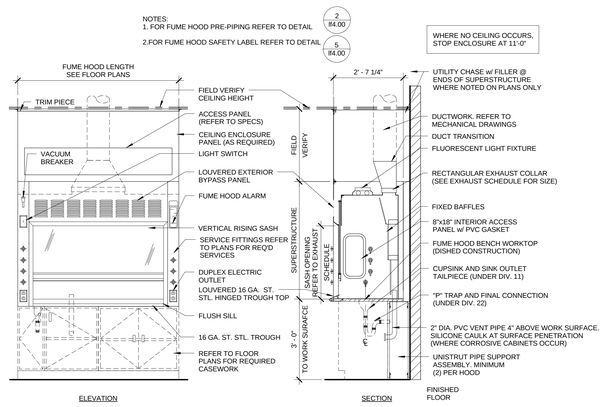
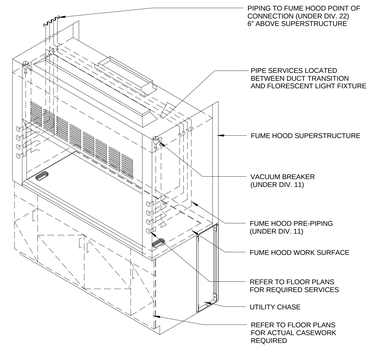
LABORATORY FURNISHING ELEVATIONS

lf3.01



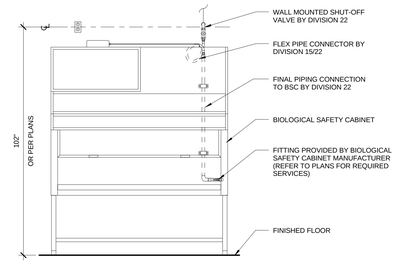
FUME HOOD

1/2" = 1'-0" (1)



FUME HOOD - PRE-PIPING

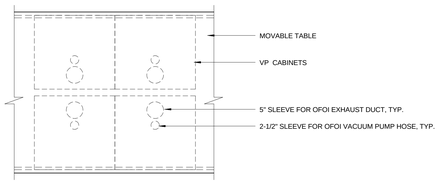
1/2" = 1'-0" (2)



ELEVATION

BIOLOGICAL SAFETY CABINET SERVICE FIXTURES

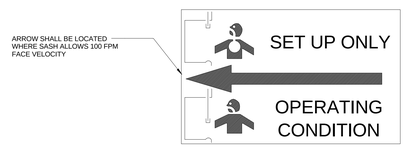
1/2" = 1'-0" (3)



FLOOR PLAN

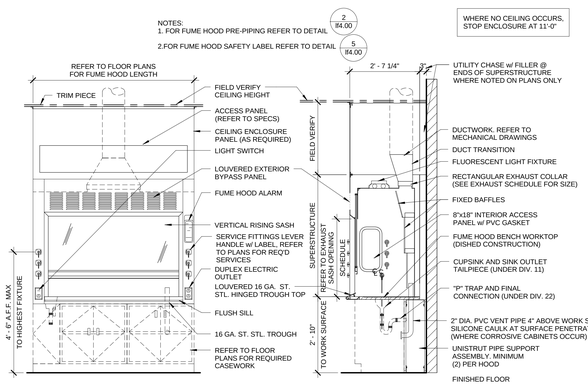
VP - DIAGRAM

3/4" = 1'-0" (4)



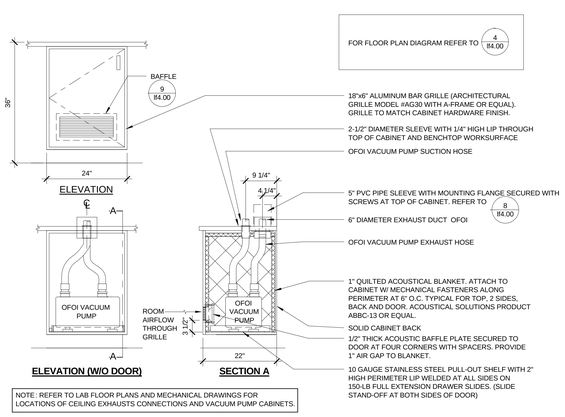
FUME HOOD - SAFETY LABEL

1/2" = 1'-0" (5)



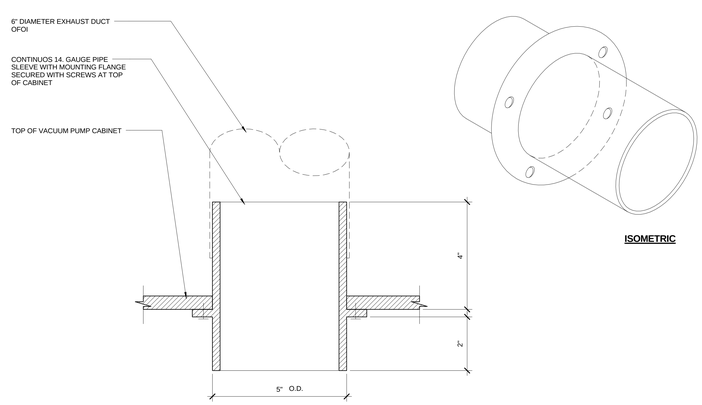
ADA FUME HOOD

1/2" = 1'-0" (6)



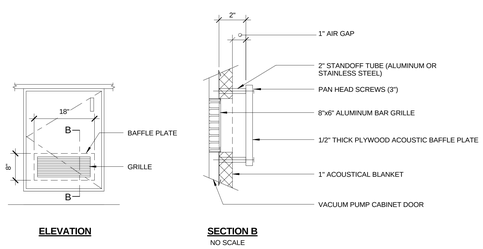
VP - VACUUMP PUMP CABINET

3/4" = 1'-0" (7)



VP - EXHAUST SLEEVE w/ MOUNTING FLANGE

6" = 1'-0" (8)



VP - BAFFLE PLATE

3/4" = 1'-0" (9)

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Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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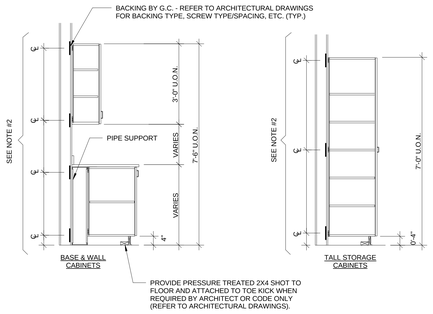
LABORATORY FURNISHING DETAILS

lf4.00

BACKING / ANCHORAGE NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ANCHORAGE REQUIREMENTS.
2. BACKING HEIGHTS TO BE SUBMITTED BY CASEWORK SUPPLIER FOR COORDINATION WITH OTHER TRADES.
3. REFER TO ARCHITECTURAL DRAWINGS FOR WALL TYPES & SUBMIT ALTERNATE ANCHORAGE METHODS FOR CMU, BLOCK WALLS, ETC.



BACKING HEIGHTS - CABINET

1/2" = 1'-0" (1)

BACKING / ANCHORAGE NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ANCHORAGE REQUIREMENTS.
2. BACKING HEIGHTS TO BE SUBMITTED BY CASEWORK SUPPLIER FOR COORDINATION WITH OTHER TRADES.
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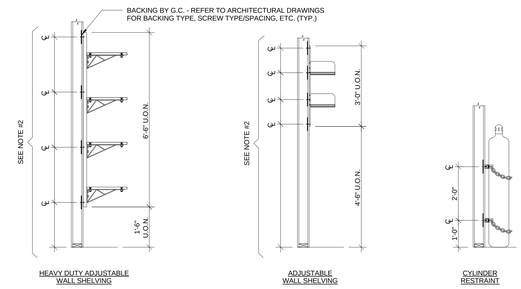
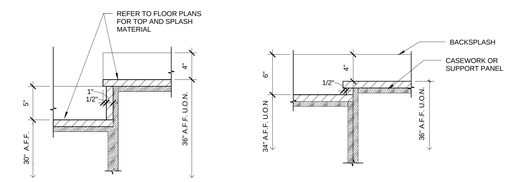


BACKING HEIGHTS - SHELVING AND CYLINDER RESTRAINTS

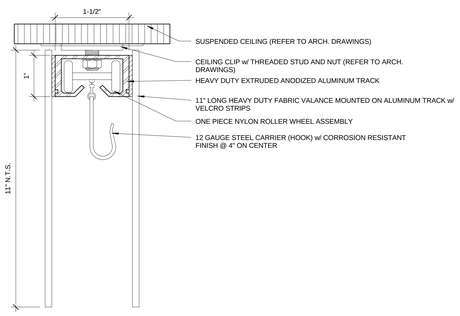
1/2" = 1'-0" (2)



BENCHTOP TRANSITION (36" TO 30") **BENCHTOP TRANSITION (ADA WALL)**

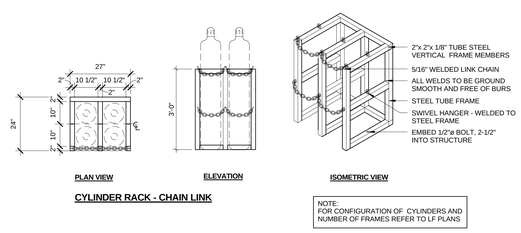
BENCHTOP TRANSITIONS

1 1/2" = 1'-0" (3)



LASER CURTAIN AND TRACK

1 : 1 (4)

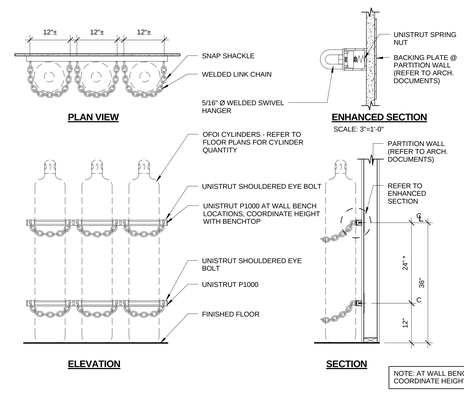


CYLINDER RACK - CHAIN LINK

NOTE:
FOR CONFIGURATION OF CYLINDERS AND NUMBER OF FRAMES REFER TO LF PLANS

CYLINDER RACK ASSEMBLY

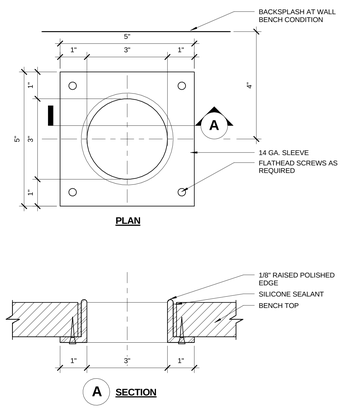
1/2" = 1'-0" (5)



NOTE: AT WALL BENCH LOCATIONS, COORDINATE HEIGHT WITH BENCHTOP

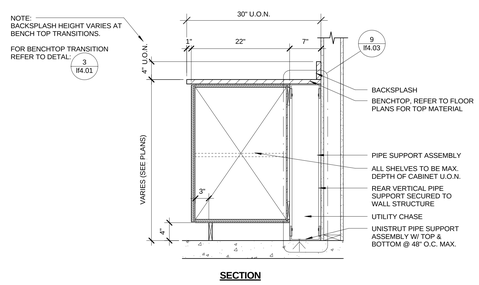
CYLINDER RESTRAINT

3/4" = 1'-0" (6)



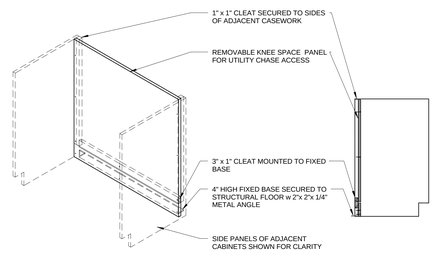
GROMMET

6" = 1'-0" (7)



WALL MOUNTED CONVENTIONAL CASEWORK

1" = 1'-0" (8)



REMOVABLE KNEE SPACE PANEL

3/4" = 1'-0" (9)

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Project

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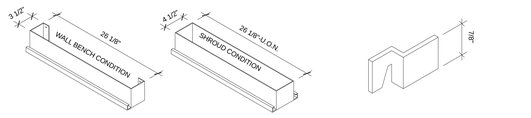
LABORATORY FURNISHING DETAILS

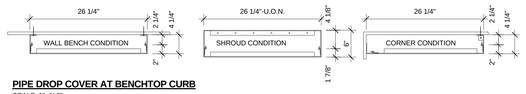
lf4.01



CEILING COLLAR - ISOMETRIC
SCALE: 1"=1'-0"

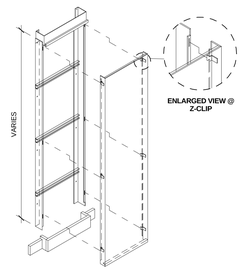
16 GA. Z-CLIP - ISOMETRIC
SCALE: 6"=1-0"

PLAN VIEW - BENCHTOP CURB
SCALE: 1"=1'-0"



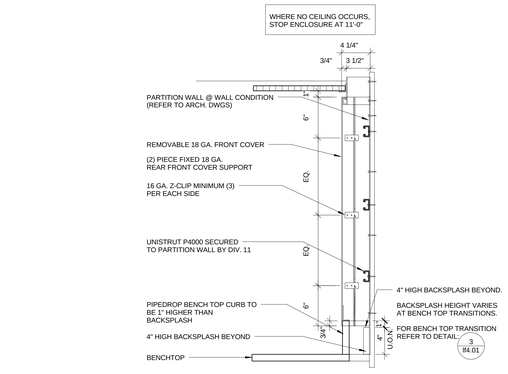
PIPE DROP COVER AT BENCHTOP CURB
SCALE: 1"=1'-0"

PIPE DROP DETAILS — 1" = 1'-0" — 1



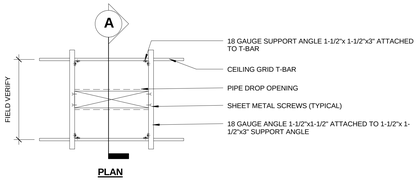
ISOMETRIC @ WALL BENCH CONDITION

PIPE DROP ENCLOSURE ASSEMBLY — 1/2" = 1'-0" — 2

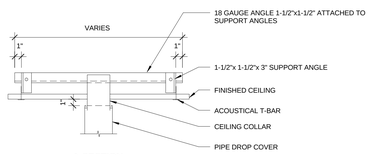


WALL BENCH CONDITION

PIPE DROP SECTIONS — 1 1/2" = 1'-0" — 3

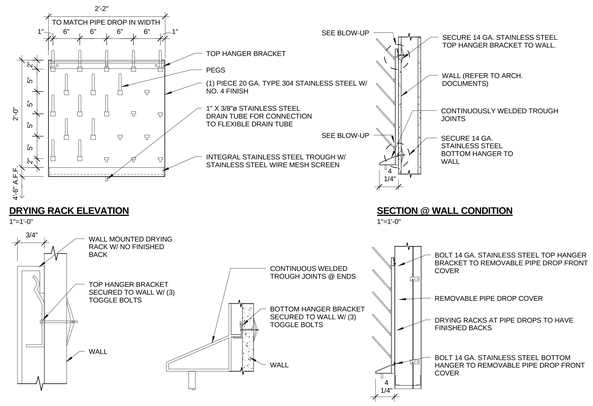


PLAN



A-SECTION
SCALE: 1-1/2"=1'-0"

SHROUD CEILING ATTACHMENT AT OHSC — 3/4" = 1'-0" — 4



DRYING RACK ELEVATION
1"=1'-0"

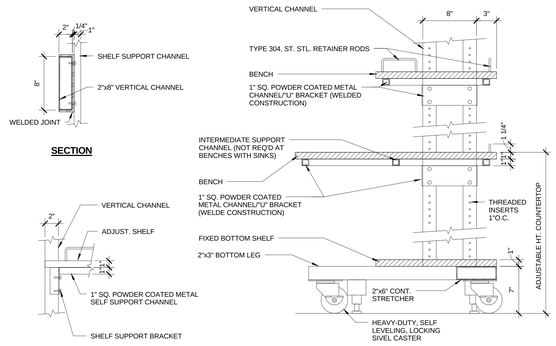
SECTION @ WALL CONDITION
1"=1'-0"

BLOW-UP @ TOP HANGER
3"=1'-0"

BLOW-UP @ BOTTOM HANGER
1-1/2"=1'-0"

SECTION @ PIPE DROP
3"=1'-0"

DRYING RACK - STAINLESS STEEL — 1" = 1'-0" — 5

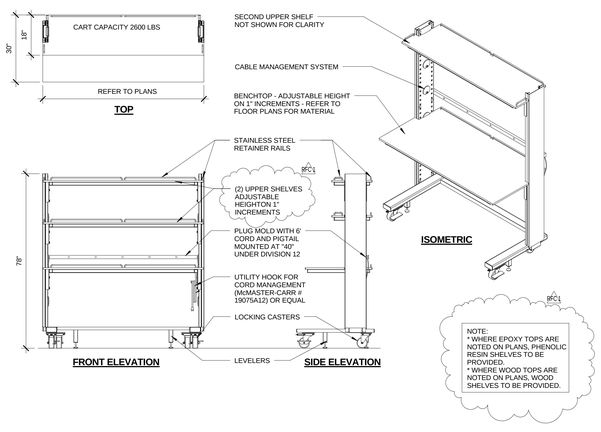


SECTION

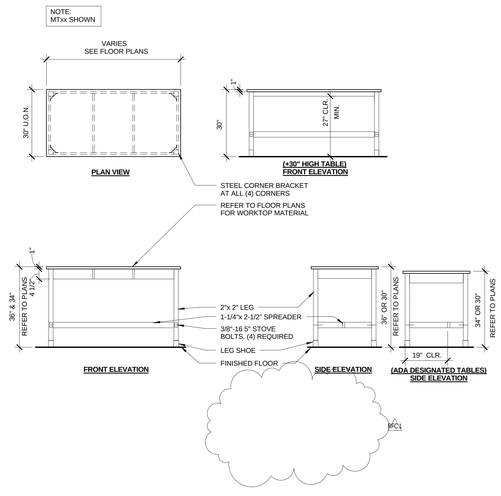
DETAIL

SECTION

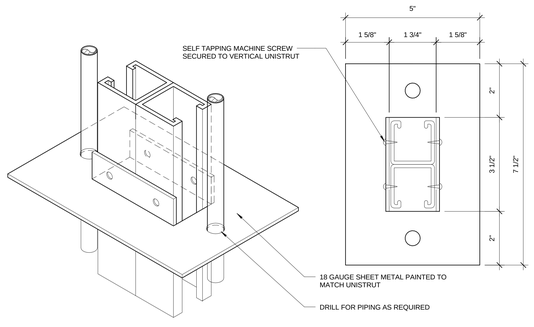
MOBILE WORKSTATION- — 1 1/2" = 1'-0" — 6



MOBILE WORKSTATION-- — 1/2" = 1'-0" — 7



MOVABLE TABLE — 1/2" = 1'-0" — 8



ISOMETRIC

PLAN VIEW

ESCUTCHEON — 6" = 1'-0" — 9

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Drawn Author

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LABORATORY FURNISHING DETAILS

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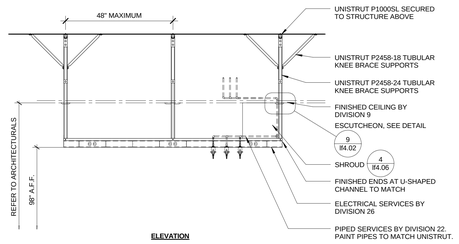
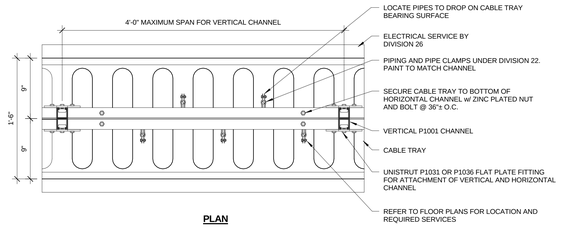


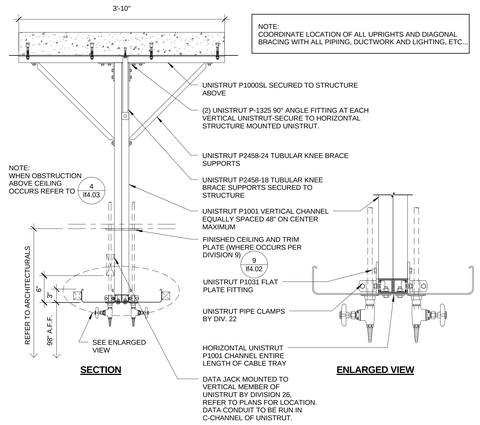
ELEVATION

OVERHEAD SERVICE CARRIER ELEVATION — 1/2" = 1'-0" — 1



PLAN

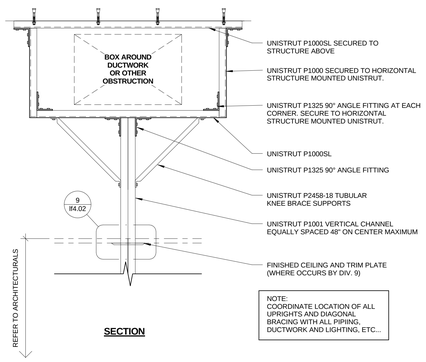
OVERHEAD SERVICE CARRIER w/CABLE TRAY — 1 1/2" = 1'-0" — 2



SECTION

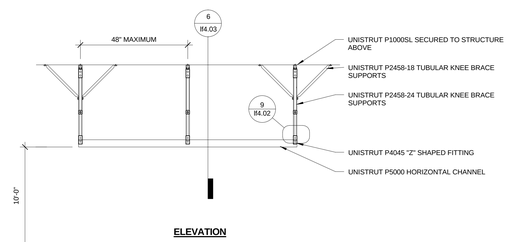
ENLARGED VIEW

OVERHEAD SERVICE CARRIER W/CABLE TRAY SECTION — 1" = 1'-0" — 3



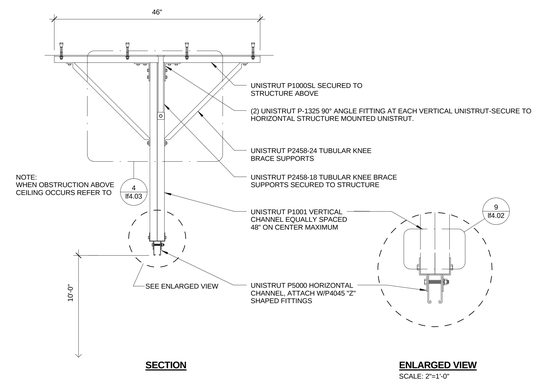
SECTION

OVERHEAD SUPPORT W/ OBSTRUCTION — 1" = 1'-0" — 4



ELEVATION

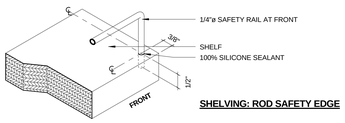
OVERHEAD UNISTRUT ELEVATION — 1/2" = 1'-0" — 5



SECTION

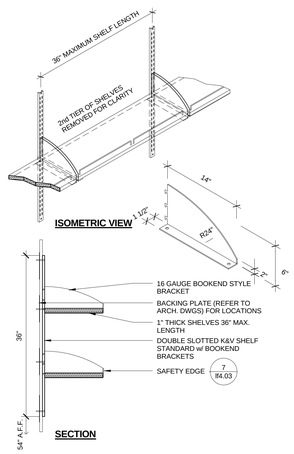
ENLARGED VIEW
SCALE: 2"=1'-0"

OVERHEAD UNISTRUT SECTION — 1" = 1'-0" — 6



SHELVING: ROD SAFETY EDGE

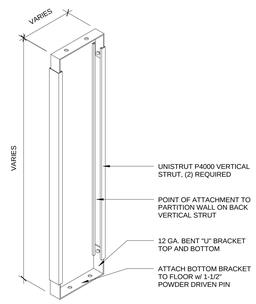
SHELVING - SAFETY EDGES — 6" = 1'-0" — 7



ISOMETRIC VIEW

SECTION

SHELVING - WALL MOUNTED ADJUSTABLE — 1" = 1'-0" — 8



UNISTRUT PIPE SUPPORT ASSEMBLY — 1 1/2" = 1'-0" — 9

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For Research Facilities Design

By

Name Richard M. Heinz

Date 02-24-2012 Reg. No. 41366

Issued for	Date
100% CD set	12-16-2011
Bid Package No. 2	02-24-2012

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Comm. No. 2024031

Drawn Author

Checked Checker

Date 11/23/11

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718

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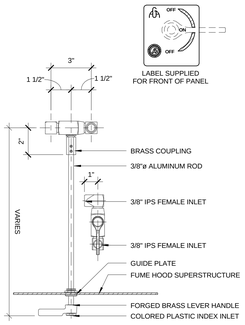
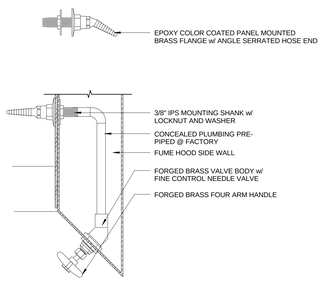
LABORATORY FURNISHING DETAILS

lf4.03



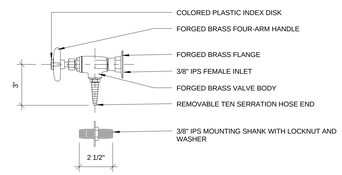
LEVER HANDLE (ADA)



FOUR-ARM HANDLE

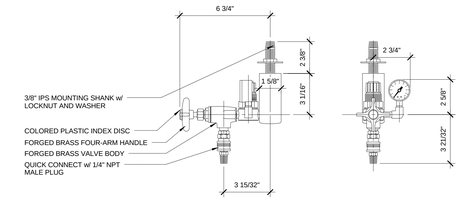
LA, N2, SG - HOOD

3" = 1'-0" (1)



LA, N2, SG, VAC - WALL

3" = 1'-0" (2)

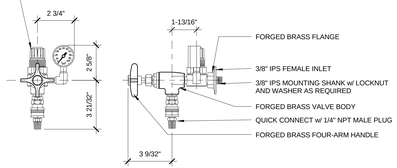


PRESSURE REGULATOR SPECS:
INLET PRESSURE: 250 psig MAX.
OUTLET PRESSURE RANGE: 2-111 psig
TEMPERATURE RANGE: 0°-125°F
PISTON: NON RELIEVING PLASTIC w/ BUNA-N-SEALS

CA - OHSC

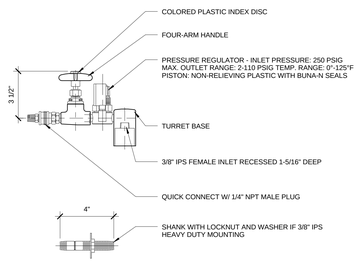
3" = 1'-0" (3)

PRESSURE REGULATOR SPECS:
INLET PRESSURE: 250 psig MAX.
OUTLET PRES. RANGE: 2-111 psig
TEMPERATURE RANGE: 0°-125°F
PISTON: NON-RELIEVING PLASTIC W/ BUNA-N SEALS



CA, CDA - WALL

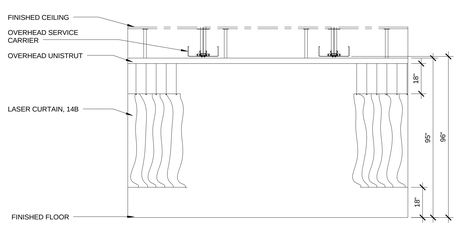
3" = 1'-0" (4)



CA - DECK

3" = 1'-0" (5)

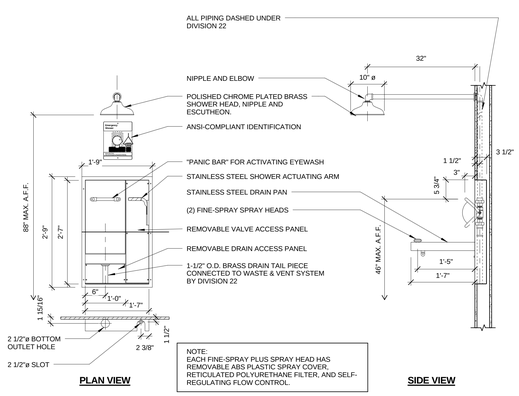
NOT USED



NOTE: NORTH/SOUTH SECTION
ELEVATION FOR ROOM 4-173 ONLY

OVERHEAD SERVICE CARRIER & CURTAIN TRACK

3/8" = 1'-0" (6)



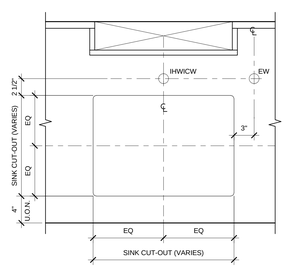
PLAN VIEW

NOTE:
EACH FINE-SPRAY PLUS SPRAY HEAD HAS
REMOVABLE ABS PLASTIC SPRAY COVER,
RETICULATED POLYURETHANE FILTER, AND SELF-
REGULATING FLOW CONTROL.

SIDE VIEW

SAFETY SHOWER/EYEWASH UNIT

3/4" = 1'-0" (8)



PLAN - FITTINGS AT BACK

NOTE:
MOUNT ALL DRENCH HOSES
ROTATED AT A 45° ANGLE
TOWARDS SINK

NOTE:
1. FIXTURE SPACING REPRESENT TYPICAL CONFIGURATIONS. REFER TO FLOOR PLANS FOR ACTUAL SERVICES REQUIRED.
2. CONTRACTOR TO VERIFY CLERANCES FOR ALL SERVICE CUT-OUTS.
3. REFER TO PLANS AND SINK SCHEDULE FOR SINK TYPES AND SIZES.
4. PIPE DROP CUT-OUTS AS OCCURS ON PLANS

FIXTURE SPACING - SINK @ WALL BENCH

1 1/2" = 1'-0" (9)

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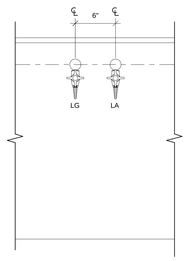
LABORATORY FURNISHING DETAILS

lf4.05

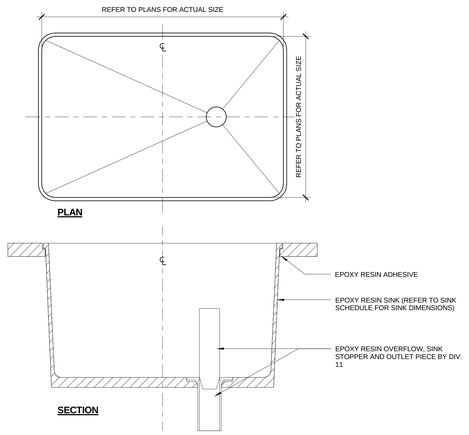


PLAN VIEW

NOTE:
1. FIXTURE SPACING REPRESENT TYPICAL CONFIGURATIONS. REFER TO FLOOR PLANS FOR ACTUAL SERVICES REQUIRED.
2. CONTRACTOR TO VERIFY CLERANCES FOR ALL SERVICE CUT-OUTS.
3. REFER TO FLOOR PLANS FOR ACTUAL SERVICES REQUIRED.
4. REFER TO PLANS AND SINK SCHEDULE FOR SINK TYPES AND SIZES.

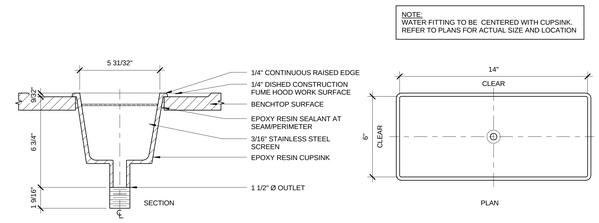
FIXTURE SPACING - WALL BENCH

1 1/2" = 1'-0" (1)



SINK - EPOXY DROP-IN

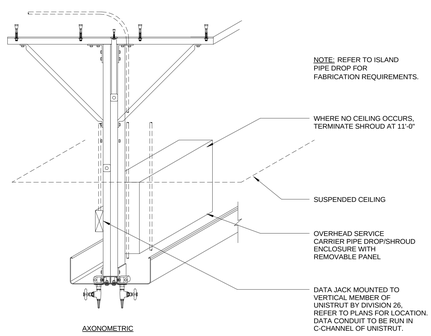
3" = 1'-0" (2)



RECTANGULAR CUPSINK

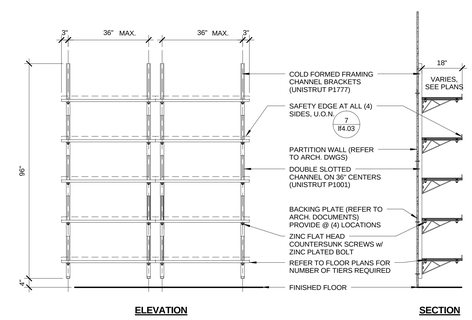
SINK - CUPSINK RAISED LIP @ FUME HOOD

3" = 1'-0" (3)



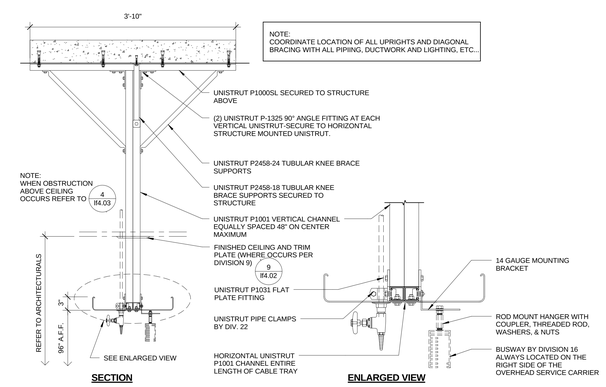
SHROUD

1" = 1'-0" (4)



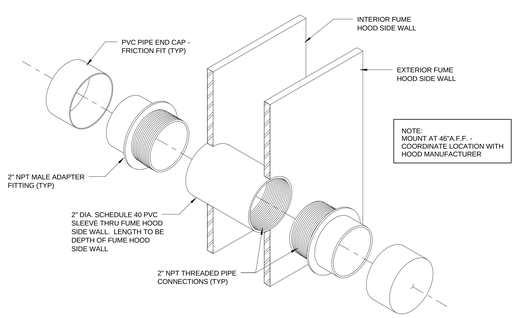
SHELVING - HEAVY DUTY WALL MOUNTED

1/2" = 1'-0" (5)



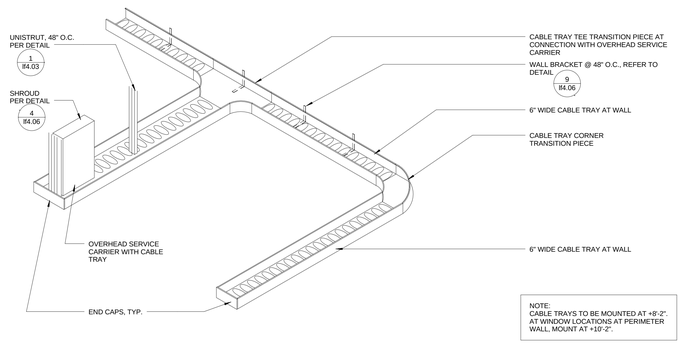
OVERHEAD SERVICE CARRIER WITH BUSWAY SYSTEM

1" = 1'-0" (6)



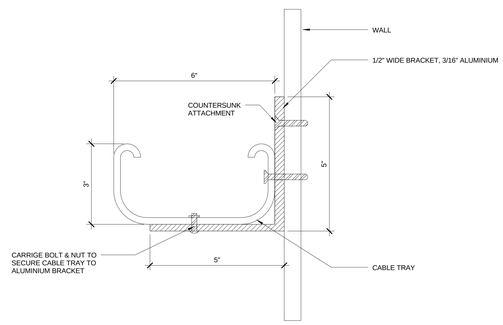
FUME HOOD - SLEEVE

3" = 1'-0" (7)



REPRESENTATIVE CABLE TRAY & OHSC DIAGRAM

3/8" = 1'-0" (8)



CABLE TRAY WALL BRACKET

6" = 1'-0" (9)

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LABORATORY FURNISHING DETAILS

lf4.06

VT01 GENERAL ELEVATOR INFORMATION
VT02 PLANS AND SECTION ELEVATOR 1
VT03 PLANS AND SECTION ELEVATOR 2

1 / VT01 INDEX OF DRAWINGS
SCALE: NTS

ELEVATOR 1 4000# @ 350 FPM
ELEVATOR 2 10000# @ 200 FPM C1 LOADING

2 / VT01 SUMMARY OF ELEVATORS
SCALE: NTS

AFF	ABOVE FINISH FLOOR	DIM.	DIMENSION	HP	HORSEPOWER	O.A.	OVERALL
A.P.	ACCESS PANEL	DC	DIRECT CURRENT	HYDR.	HYDRAULIC	OPP.	OPPOSITE
A/C	AIR CONDITIONING	DISC.	DISCONNECT	IN.	INCH (INCHES)	OVHD	OVERHEAD
ALT.	ALTERNATE	DBG	DISTANCE BETWEEN GUIDE RAILS	IGBT	INSULATED GATE BIPOLAR TRANSDUCER	PL	PLATE
AC	ALTERNATING CURRENT					PLTFM	PLATFORM
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	DN	DOWN	J/S	JOULES PER SECOND	#	POUNDS
		DWG	DRAWING	KCAL	KILOCALORIE	PSI	POUNDS PER SQUARE INCH
AMP	AMPERE	EA.	EACH	KG	KILOGRAMS		
APPROX.	APPROXIMATE	ELEC.	ELECTRICAL	KN	KILONEWTONS	PRELIM.	PRELIMINARY
ARCH.	ARCHITECTURAL	EL.	ELEVATION	KVA	KILOVOLT–AMPERE	RAD.	RADIUS
AUX.	AUXILIARY	ELEV.	ELEVATOR	KW	KILOWATTS	R/O	REAR OPENING
BSMT	BASEMENT	ETS	EMERGENCY TERMINAL SLOWDOWN	K	KIPS	REQ.	REQUIRED
BOT.	BOTTOM			LT	LIGHT	REV.	REVISION
BTUH	BRITISH THERMAL UNITS PER HOUR	EQ.	EQUAL	MPS	METERS PER SECOND	RM	ROOM
		EQUIP.	EQUIPMENT	MACH.	MACHINE	R.O.	ROUGH OPENING
BM	BEAM	ESCL.	ESCALATOR	MRL	MACHINE–ROOM–LESS	SEC.	SECONDARY
BOCA	BUILDING OFFICIALS AND CODE ADMINISTRATION	(E)	EXISTING	MAX.	MAXIMUM	SECT.	SECTION
		°F	FAHRENHEIT	MEZZ.	MEZZANINE	SHT	SHEET
CLG	CEILING	FPM	FEET PER MINUTE	M	METER	SCR	SILICON CONTROLLED RECTIFIER
°C	CELSIUS	F.V.	FIELD VERIFY	MM	MILLIMETERS		
℄	CENTERLINE	F.F.	FINISH FLOOR	MIN.	MINIMUM	SIM.	SIMILAR
CM	CENTIMETERS	FLR	FLOOR	MISC.	MISCELLANEOUS	SPEC.	SPECIFICATION
COL.	COLUMN	FT	FOOT (FEET)	MG	MOTOR–GENERATOR	SF	SQUARE FEET
CLR	CLEAR	FLUOR.	FLUORESCENT	MTD	MOUNTED	SM	SQUARE METERS
CONC.	CONCRETE	F/O	FRONT OPENING	NEC	NATIONAL ELECTRICAL CODE	STD	STANDARD
CMU	CONCRETE MASONRY UNITS	FUT.	FUTURE			SBC	STANDARD BUILDING CODE
		G	GRAVITY	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	STL	STEEL
CONT.	CONTINUOUS	GFCI	GROUND FAULT CIRCUIT INTERRUPTER			STRUCT.	STRUCTURAL
CONTR.	CONTRACTOR					SW.	SWITCH
COORD	COORDINATE	GOV.	GOVERNOR	(N)	NEW	TBD	TO BE DETERMINED
CNTRL	CONTROLLER	GA.	GUAGE	NOM.	NOMINAL	T.O.	TOP OF
CWT	COUNTERWEIGHT	GYP. BD.	GYPSUM BOARD	N/A	NOT APPLICABLE	(TYP)	TYPICAL
CYL.	CYLINDER	HT	HEIGHT	(NIEC)	NOT IN ELEVATOR CONTRACT	UNO	UNLESS NOTED OTHERWISE
DEH	DEAD END HITCH	HZ	HERTZ			UBC	UNIFORM BUILDING CODE
D.	DEEP	H.	HIGH	NTS	NOT TO SCALE	VERT.	VERTICAL
°	DEGREES	HSTWY	HOISTWAY	NO.	NUMBER	V.	VOLT
DTL	DETAIL	HORIZ.	HORIZONTAL	O.C.	ON CENTER	W.	WIDE
ø	DIAMETER	HR	HOUR	OPNG	OPENING	W/	WITH
						WP	WORKPOINT

3 / VT01 ABBREVIATIONS
SCALE: NTS

1. THESE DRAWINGS FOR GENERAL INFORMATION ONLY. REQUIREMENTS OF INDIVIDUAL VENDORS MAY VARY.

4 / VT01 GENERAL NOTES
SCALE: NTS

POWER FEEDER REQUIREMENTS
MAIN POWER SUPPLY: 480–3–60

ELEVATOR NUMBER	CAPACITY (POUNDS)	SPEED (FPM)	TRACTION HP RATING	HYDRO MOTOR HP	HYDRO STARTING AMPS: LOCKED ROTOR	SOLID STATE	WYE DELTA	FULL LOAD AMPS: RUNNING	ACCELERATING	HEAT RELEASE: MACHINE SPACE BTUH PER CAR	
1	4000	350	29	N/A	N/A	N/A	N/A	36	48	4,500	11,200
2	10000	200	75	N/A	N/A	N/A	N/A	126	202	39,000	

NOTES:

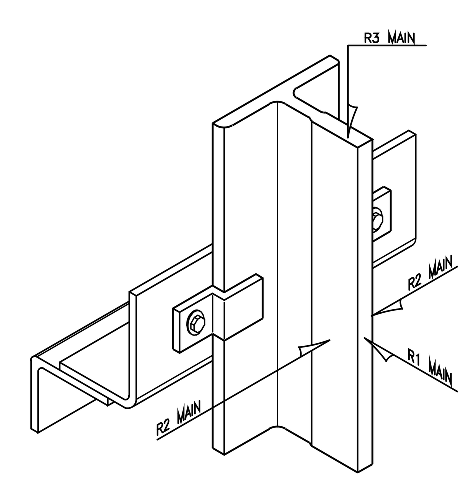
1. ELECTRIC POWER AND CURRENT ARE BASED ON THREE (3) PHASE A.C. POWER SUPPLY.
2. MAIN POWER TO BE PROVIDED AT EACH CONTROLLER THROUGH DISCONNECTING MEANS MEETING NEC REQUIREMENTS.
3. MAIN POWER SUPPLY FEEDERS TO LIMIT VOLTAGE DROP TO LESS THAN 5%.
4. USE COPPER CONDUCTORS ONLY.
5. FEEDER DEMAND FACTORS (NEC SECTION 430–26 AND 620–14)= (2) CARS= 95% (3) CARS= 90% (4) CARS= 85% (5) CARS= 82% (6) CARS= 79% (7) CARS= 77% (8) CARS= 75% (9) CARS= 73% (10) CARS= 72%
6. MACHINE SPACE TEMPERATURE TO BE MIN. 13° C (55° F.) (10° C /50° F. IN MASS.), MAX. 32° C (90° F). TO BE MEASURED 1838 MM (6'–0") ABOVE FINISH FLOOR AT APPROX. CENTER OF ROOM.
7. RELATIVE HUMIDITY MAX. 80% NON–CONDENSING.
8. THE SELECTION OF MAIN POWER SUPPLY DISCONNECTING MEANS OVERCURRENT PROTECTION TO BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE, SECTIONS 620–51 AND 430–52.
9. PROVIDE LOCAL TELEPHONE SERVICE LINE TO EACH CAR CONTROLLER (IF APPLICABLE).
10. PROVIDE GFCI CONVENIENCE OUTLETS PIT, MACHINE ROOM AND MACHINERY SPACES. IN PIT, PROVIDE ONE NON–GFCI OUTLET FOR SUMP PUMP AND/OR OIL RETURN PUMP.
11. PROVIDE HOIST MACHINE WITH VOLTAGE TO MATCH SUPPLY VOLTAGE INDICATED, U.N.O.

ADDITIONAL POWER AND DISCONNECT REQUIREMENTS IN MACHINE ROOM

AUXILIARY SYSTEM	SUPPLY TERMINAL	SUPPLY VOLTAGE	CIRCUIT CAPACITY
CAR LIGHT AND FAN WITH LOCKABLE DISCONNECT	EACH CONTROLLER	120–1–60	(25 AMP PER CAR)
ROPE BRAKE AIR COMPRESSOR (IF APPLICABLE)	AT EACH BRAKE UNIT	120–1–60	(20 AMP PER CAR)
FREIGHT POWER DOORS (IF APPLICABLE)	DOOR CONTROLLER	SAME AS MAIN SUPPLY	30 AMP PER CONTROLLER

5 / VT01 ELEVATOR ELECTRICAL AND MECHANICAL REQUIREMENTS
SCALE: NTS

DATE	DESIGNER	CHECKER
02/14/2011	JB	LB
08/02/2011	JB	BD
08/24/2011	JB	SW



RAIL FORCES MAXIMUM ON EACH GUIDE RAIL
(FORCES ARE IN KIPS)

	ELEVATOR NUMBER	1	2	OCCURING ON
NORMAL FORCES	CAR R1	1.2	3.5	CAR NORMAL FACE OF MAIN RAIL
NORMAL FORCES	CAR R2	1.1	7.5	CAR NORMAL SIDE OF MAIN RAIL – LOADING OR RUNNING
NORMAL FORCES	CAR R3	35.6	66.0	FORCE TRANSMITTED TO PIT STRUCTURE AT CAR SAFETY APPLICATION*
NORMAL FORCES	CWT R3	N/A	N/A	FORCE TRANSMITTED TO PIT STRUCTURE AT CWT SAFETY APPLICATION*

ASME A17.1

BUILDING SUPPORTS TO RESIST HORIZONTAL FORCES WITH A TOTAL DEFLECTION AT POINT OF SUPPORT NOT IN EXCESS OF 3MM (1/8") DURING NORMAL CONDITIONS.

* THESE REACTIONS DO NOT OCCUR SIMULTANEOUSLY WITH PIT BUFFER REACTIONS

A17.1/UBC VARIABLES USED FOR SEISMIC CALCULATIONS:
SEISMIC ZONE = 0 OR 1 (NON–SEISMIC FOR ELEVATORS)

IBC

IBC VARIABLES USED FOR SEISMIC CALCULATIONS:
SEISMIC DESIGN CATEGORY = A (NON–SEISMIC FOR ELEVATORS)

6 / VT01 RAIL FORCES
SCALE: NTS

LEGAL HOISTWAY AND PIT

1. HOISTWAY. CLEAR, PLUMB, SUBSTANTIALLY FLUSH WITH VARIATIONS NOT TO EXCEED 25 MM (1") WITHIN 30 M (100') VERTICALLY AT ANY POINT.
2. HOISTWAY VENTILATION, HEATING AND/OR COOLING WHERE THE HOIST MACHINE IS LOCATED WITHIN THE HOISTWAY. MAINTAIN TEMPERATURE BETWEEN 13° C. (55° F.) AND 32° C. (90° F.) AT THE LOCATION OF THE HOIST MACHINE.
3. BEVEL CANTS NOT LESS THAN 75° FROM THE HORIZONTAL ON ANY REAR OR SIDE WALL LEDGES AND BEAMS, INCLUDING BUILDING SUPPORT FOR TRACTION MACHINE BEAMS, THAT PROJECT OR RECESS 100 MM (4") OR MORE INTO THE HOISTWAY PER ASME A17.1 2000+ CODE. CANTS NOT REQUIRED ON DIVIDER BEAMS. ENCLOSE WEB OF HOISTWAY STEEL FRAMING.
4. GUIDE RAIL SUPPORT. ADEQUATE STRUCTURAL SUPPORT FOR ATTACHMENT OF ELEVATOR CAR AND/OR COUNTERWEIGHT GUIDE RAILS AT EACH FLOOR, PIT AND OVERHEAD.
5. SUPPORTS AT EACH FLOOR FOR CAR AND CWT GUIDE RAIL FASTENING, AND INTERMEDIATE SUPPORTS WHERE FLOOR HEIGHTS EXCEED SPACING REQUIREMENTS SHOWN ON LERCH BATES DRAWINGS. BUILDING SUPPORTS NOT TO DEFLECT IN EXCESS OF 1/8" UNDER NORMAL CONDITIONS.
6. GUIDE RAIL BRACKET SUPPORTS IN CONCRETE. INSERTS OR IMBEDS, IF USED, WILL BE PROVIDED BY ELEVATOR CONTRACTOR AND INSTALLED BY GENERAL CONTRACTOR. VERIFY LOCATION ON ELEVATOR CONTRACTOR'S SHOP DRAWINGS.
7. SMOKE DETECTORS (NFPA NO. 72) IN EACH ELEVATOR LOBBY, AND MACHINE ROOM TO INITIATE FIREFIGHTER'S RETURN FEATURE. MAIN LOBBY FLOOR DETECTOR TO BE INDIVIDUALLY ZONED. SUPPLY TWO DRY CONTACTS AND DETECTOR WIRES TO EACH ELEVATOR GROUP CONTROLLER IN EACH ELEVATOR MACHINE ROOM.
8. CUTTING AND PATCHING WALLS, BEAMS AND FLOORS.
9. WALL BLOCK–OUTS AND FIRE–RATED CLOSURE FOR CONTROL AND SIGNAL FIXTURE BOXES WHICH PENETRATE WALLS.
10. STEEL BEAMS, CONCRETE WALL/BEAMS, OR STRUCTURAL SLAB FOR SUPPORT OF HOIST MACHINE, ROPE SHEAVES, AND DEAD–END HITCH BEAMS. SUPPORT BEAMS SHALL NOT EXCEED DEFLECTION OF L/1666 OF THE SPAN UNDER STATIC LOAD.
11. ERECT FRONT HOISTWAY WALL FOR SHAFTWALL CONSTRUCTION AFTER ELEVATOR ENTRANCE FRAMES HAVE BEEN INSTALLED.
12. ROUGH OPENINGS. IF FRONT HOISTWAY WALLS ARE CONCRETE OR MASONRY, FOR TRACTION AND HYDRAULIC APPLICATIONS, FORM ROUGH OPENINGS 300 MM (12") GREATER IN WIDTH AND 100 MM (4") GREATER IN HEIGHT THAN CLEAR OPENING. FOR MRL APPLICATIONS, FORM ROUGH OPENINGS 500 MM (20") GREATER IN WIDTH AND 250 MM (10") GREATER IN HEIGHT THAN CLEAR OPENING. GROUT ROUGH OPENINGS AFTER ELEVATOR ENTRANCE FRAMES HAVE BEEN INSTALLED.
13. HOIST BEAM AT TOP OF EACH HOISTWAY FOR HYDRAULIC OR MRL ELEVATOR EQUIPMENT INSTALLATION AND MAINTENANCE AS INDICATED IN LB SECTION DRAWINGS. BOTTOM OF BEAM SHALL MEET THE MINIMUM CLEAR DIMENSION. MAKE HOIST BEAM REMOVABLE IF NECESSARY TO MEET MIN CLEAR DIMENSION. VERIFY HOIST BEAM LOCATION AND LOAD REQUIREMENTS WITH ELEVATOR CONTRACTOR.
14. SOUND–ATTENUATING ASSEMBLIES FOR WALLS OF MACHINE ROOM, CONTROLLER SPACE AND/OR HOISTWAY WHERE SOUND–SENSITIVE AREAS ARE ADJACENT.
15. STRUCTURAL PIT FLOOR FOR MACHINE–ROOM–LESS CAR AND COUNTERWEIGHT BUFFER AND GUIDE RAIL IMPACT LOADS. ELEVATOR GUIDE RAIL IMPACT AND INDIVIDUAL BUFFER IMPACT LOADS DO NOT OCCUR SIMULTANEOUSLY.
16. STRUCTURAL PIT FLOOR FOR TRACTION CAR AND COUNTERWEIGHT BUFFER AND GUIDE RAIL IMPACT LOADS. INDIVIDUAL ELEVATOR BUFFER AND GUIDE RAIL IMPACT LOADS DO NOT OCCUR SIMULTANEOUSLY.
17. INDIRECT PIT DRAIN WITH GRATING COVER LEVEL WITH PIT FLOOR TO MAINTAIN DRY PIT, AS REQUIRED, PER CODE.
18. PROTECT OPEN HOISTWAYS AND ELEVATOR ENTRANCES DURING CONSTRUCTION PER O.S.H.A. REGULATIONS.
19. PROTECT CAR ENCLOSURE, ELEVATOR ENTRANCES AND SPECIAL METAL FINISHES FROM DAMAGE AFTER INSTALLATION.
20. STRUCTURAL STEEL CHANNEL FRAMES, FLOOR TO BUILDING BEAM ABOVE AND STRUCTURAL STEEL CHANNEL HEADER AND STEEL ANGLE SILLS FOR VERTICAL BI–PARTING HOISTWAY ENTRANCES.

LEGAL MACHINE ROOMS AND CONTROLLER SPACES

1. REINFORCED MACHINE ROOM FLOOR CAPABLE OF SUPPORTING STATIC LOADS IMPOSED BY ELEVATOR EQUIPMENT, WITH THE EXCEPTION OF TRACTION ELEVATOR HOIST MACHINES. FLOORS SHALL SUSTAIN CONCENTRATED LOAD OF 1000 N (225#) ON ANY 2000 SQUARE MM (3 SQUARE INCH) AREA.
2. WALL ENCLOSURES ERECTED AT MACHINE ROOM LEVEL AFTER MACHINE OR PUMP UNIT IS SET IN PLACE. SOUND–ATTENUATION FOR WALLS ADJACENT TO TENANT SPACE.
3. BLOCK–OUTS THROUGH MACHINE ROOM FLOOR, SECONDARY FLOOR AND/OR WALLS FOR HOIST ROPES, HYDRAULIC OIL LINE, AND ELECTRICAL WIRING DUCTS. VERIFY LOCATION ON ELEVATOR CONTRACTOR SHOP DRAWINGS.
4. HOIST MACHINE CONCRETE HOLD–DOWN PAD, OR ADEQUATE STRUCTURAL SUPPORT, FOR BASEMENT MACHINE APPLICATION. VERIFY LOCATION AND SIZE OF HOLD–DOWN BOLTS ON ELEVATOR CONTRACTOR SHOP DRAWINGS. HOLD–DOWN BOLTS PROVIDED AND INSTALLED BY ELEVATOR CONTRACTOR.
5. SELF–CLOSING, SELF–LOCKING ACCESS DOOR OR GATE FOR MACHINE ROOM, CONTROLLER SPACE, AND MACHINERY SPACE. KEYING MUST BE INDEPENDENT OF ANY OTHER BUILDING LOCKS. DOOR OR GATE SHALL BE OPENABLE FROM INSIDE WITHOUT KEY. SOUND–ATTENUATING DOORS WHERE ACCESS IS FROM ADJACENT TENANT SPACE. RECOMMEND MINIMUM 1070 MM X 2130 MM (3'–6" X 7'–0") DOOR.
6. LEGAL ACCESS TO MACHINE ROOMS / CONTROLLER SPACES BY MEANS OF A STAIR WITH 60 DEGREE MAXIMUM ANGLE FROM THE HORIZONTAL. FOR PASSAGE ACROSS ROOFS, A STAIRWAY WITH A SWINGING DOOR AND PLATFORM AT THE TOP LEVEL SHALL BE PROVIDED FROM THE TOP FLOOR OF THE BUILDING TO THE ROOF LEVEL.
7. MACHINE AND CONTROLLER SPACE VENTILATION AND HEATING. FOR IBC, INDEPENDENT VENTILATION OR AIR–CONDITIONING SYSTEM TO PREVENT OVERHEATING OF SOLID–STATE ELECTRICAL EQUIPMENT. MAINTAIN MINIMUM TEMPERATURE OF 13°C (55°F) MAXIMUM 32°C (90°F). MAINTAIN MAXIMUM 80% RELATIVE HUMIDITY, NON–CONDENSING. HVAC UNIT MAY (MAY NOT, CITY OF L.A. JURISDICTION) BE LOCATED WITHIN THE BOUNDS OF THE MACHINE/CONTROLLER ROOM IF SOLELY FOR THE HEATING OR COOLING OF THAT MACHINE/CONTROLLER ROOM.
8. MINIMUM HEADROOM CLEARANCES: 2400 MM (8'–0") RECOMMENDED UNDER MACHINE ROOM / CONTROLLER SPACE CEILING AND 2275 MM (7'–6") UNDER ENCROACHING BEAMS (INCLUDING FIREPROOFING). CLEARANCE ABOVE HOIST MACHINE AS SHOWN ON LERCH BATES DRAWINGS. CODE MINIMUM CLEARANCE: 2130 MM (7'–0").
9. HOIST BEAM IN EACH TRACTION ELEVATOR MACHINE ROOM FOR INSTALLATION AND MAINTENANCE AS INDICATED IN LB SECTION DRAWINGS. BOTTOM OF BEAM SHALL MEET THE MINIMUM CLEAR DIMENSION. MAKE HOIST BEAM REMOVABLE IF NECESSARY TO MEET MIN CLEAR DIMENSION. VERIFY HOIST BEAM LOCATION AND LOAD REQUIREMENTS WITH ELEVATOR CONTRACTOR. NO OTHER TRADES MAY OBSTRUCT THE HOIST BEAM OR USE IT TO HANG EQUIPMENT SUCH AS SPRINKLER LINES, CONDUIT, ETC.
10. GUARD RAILS WHERE MACHINE ROOM / CONTROLLER SPACE HAS MORE THAN ONE LEVEL, MINIMUM 1070 MM (42") HIGH AT RAISED AREA WHEN DIFFERENCE IN LEVELS IS GREATER THAN 400 MM (16"). TOE BOARDS PER CODE. FOR ACCESS TO RAISED LEVEL PROVIDE VERTICAL LADDER WITH HANDGRIP WHERE DIFFERENCE IN LEVELS IS 200 MM (8") AND LESS THAN 900 MM (36"). WHERE DIFFERENCE IN FLOOR LEVELS IS 900 MM (36") OR GREATER, PROVIDE SHIPS LADDER WITH 60 DEGREE MAXIMUM INCLINE AND TOP LANDING AS REQUIRED.
11. OVERHEAD MACHINERY SPACE ACCESS DOOR. MINIMUM 750 MM X 750 MM (30" X 30") SELF–CLOSING, SELF–LOCKING WITH LADDER WITH PLATFORM. FLOOR OF OVERHEAD SPACE SHALL SUPPORT A CONCENTRATED LOAD OF 1000 N (225#) ON ANY 2000 SQUARE MM (3 SQUARE INCH) AREA, AND A LIVE LOAD OF NOT LESS THAN 6 KPA (125# PER SQUARE FOOT). BAR–TYPE FLOOR GRATING SHALL REJECT A 20 MM (0.8") DIAMETER BALL.
12. CLASS "ABC" FIRE EXTINGUISHER IN EACH ELEVATOR MACHINE ROOM / CONTROLLER SPACE.
13. MACHINE ROOM / CONTROLLER SPACE ENCLOSURES AND ACCESS DOORS SHALL HAVE A FIRE ENDURANCE AT LEAST EQUAL TO THAT REQUIRED FOR THE HOISTWAY ENCLOSURE AND THE HOISTWAY DOORS, RESPECTIVELY.
14. ONLY EQUIPMENT USED IN CONJUNCTION WITH THE FUNCTION OF THE ELEVATOR SHALL BE PERMITTED IN THE ELEVATOR MACHINE ROOM AND CONTROLLER SPACE. ACCESS THROUGH ELEVATOR MACHINE/CONTROLLER SPACES TO ADJACENT ROOMS OR AREAS SHALL NOT BE PERMITTED. PERMANENT AND UNOBSTRUCTED ACCESS TO MACHINE/CONTROLLER SPACES SHALL BE PROVIDED FOR AUTHORIZED PERSONNEL.

ELECTRICAL SERVICES

1. LIGHTING AND GFCI CONVENIENCE OUTLETS IN PIT, MACHINE ROOM, CONTROLLER SPACE, AND OVERHEAD MACHINERY SPACE. (NO GFCI PROTECTION REQUIRED FOR SUMP PUMP OUTLET. NO GFCI PROTECTION FOR SUMP PUMP IN MINNESOTA.) ADEQUATE LIGHTING TO MAINTAIN 100 LUX (10 FC) MINIMUM ILLUMINATION AT THE PIT FLOOR, AND 200 LUX (19 FC) AT THE MACHINE ROOM FLOOR, CONTROL ROOM FLOOR, AND OVERHEAD AND SECONDARY MACHINERY SPACES.
2. THREE–PHASE MAINLINE COPPER POWER FEEDER TO TERMINALS OF EACH ELEVATOR CONTROLLER WITH PROTECTED, LOCKABLE "OPEN", DISCONNECTING MEANS MEETING NEC REQUIREMENTS. LOCATE DISCONNECTING MEANS IN THE MACHINE ROOM / CONTROLLER SPACE. VERIFY CONTROLLER LOCATION ON ELEVATOR SHOP DRAWINGS. PROVIDE CLEARANCES AROUND DISCONNECTING MEANS AS REQUIRED BY CODE. AUXILIARY FEEDERS AND DISCONNECTING MEANS FOR MACHINE/CONTROLLER ROOMS WITH MULTIPLE LEVELS. AUXILIARY CONTACTS FOR HYDRAULIC ELEVATORS FOR BATTERY LOWERING DEVICE ELECTRICAL INTERLOCK.
3. SINGLE–PHASE COPPER POWER FEEDER TO EACH CONTROLLER FOR CAR LIGHTING, EXHAUST BLOWER AND CONVENIENCE OUTLET WITH PROTECTED, LOCKABLE "OPEN", DISCONNECTING MEANS MEETING NEC REQUIREMENTS. LOCATE DISCONNECTING MEANS IN THE MACHINE/CONTROLLER ROOM. VERIFY CONTROLLER LOCATION ON ELEVATOR SHOP DRAWINGS.
4. FIRE ALARM INITIATING DEVICES IN EACH ELEVATOR LOBBY, FOR EACH MULTIPLE HOISTWAY OR SINGLE HOISTWAY AND EACH MACHINE ROOM / CONTROLLER SPACE, TO INITIATE FIREFIGHTER'S RETURN FEATURE. PROVIDE A DISCRETE SIGNAL FROM EACH OF THE FOLLOWING ZONES OR DETECTORS: MAIN LOBBY, ALL OTHER LOBBIES, EACH HOISTWAY, AND EACH MACHINE ROOM / CONTROLLER SPACE. WHERE A GROUP OF ELEVATORS INCLUDES MULTIPLE HOISTWAYS, PROVIDE A DISCRETE SIGNAL FROM EACH HOISTWAY. SUPPLY TWO DRY CONTACTS AND DETECTOR WIRES TO EACH ELEVATOR GROUP CONTROLLER IN EACH ELEVATOR MACHINE ROOM / CONTROLLER SPACE.
5. TEMPORARY POWER AND ILLUMINATION TO INSTALL, TEST AND ADJUST ELEVATOR EQUIPMENT.
6. EMERGENCY TELEPHONE LINE TO EACH INDIVIDUAL OR DESIGNATED ELEVATOR CONTROL PANEL IN ELEVATOR MACHINE/CONTROLLER ROOM.
7. THREE–PHASE POWER FEEDER TO EACH FREIGHT ELEVATOR POWER DOOR CONTROLLER IN THE MACHINE/CONTROLLER ROOM WITH PROTECTED, LOCKABLE "OPEN" DISCONNECTING MEANS MEETING NEC REQUIREMENTS.
8. SINGLE–PHASE POWER FEEDERS TO MACHINE ROOM / CONTROLLER SPACE ELEVATOR MONITORING PANEL/DISPLAY UNIT WITH SINGLE–PHASE, PROTECTED, LOCKABLE "OPEN", DISCONNECTING MEANS MEETING NEC REQUIREMENTS.
9. SINGLE–PHASE POWER FEEDERS TO CONTROLLER(S) FOR CCTV WITH LOCKABLE "OPEN", DISCONNECTING MEANS MEETING NEC REQUIREMENTS.
10. SINGLE–PHASE POWER FEEDERS TO CONTROLLER(S) FOR ROPE BRAKE AIR COMPRESSOR WITH DISCONNECTING MEANS MEETING NEC REQUIREMENTS.

7 / VT01 RELATED WORK NOT PROVIDED IN ELEVATOR CONTRACT
SCALE: NTS
(BASED ON ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS. CONSULT LOCAL CODES FOR ADDITIONAL REQUIREMENTS.)

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I hereby certify that this plan or drawing was prepared by me or under my direct supervision and that I am a duly licensed Discipline under the laws of the State of Minnesota.

For

By

Name

Date 10-14-2011 Reg. No.

Issued for	Date
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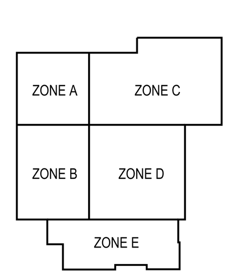
Date 10/14/2011

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718



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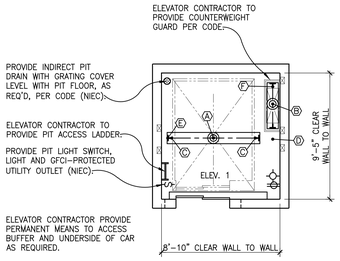
Drawing Title

GENERAL ELEVATOR INFORMATION

VT01



1 VT02 **PIT PLAN ELEVATOR 1**
SCALE: 1/4" = 1'–0"
DUTY: 4000# @ 350 FPM

PIT REACTION TABLE

DUTY: 4000# @ 350 FPM

A	52.3 K	CAR BUFFER
B	47.8 K	CWT BUFFER
C	31.2 K EACH	CAR SAFETY (SEE CAR RX RAIL FORCE)
D	*31.0 K	DRIVE MACHINE LOAD ON CAR RAIL COMBINED WITH CWT DEH LOAD ON CWT RAIL
E	*22.0 K	DYNAMIC LOAD ON CAR RAIL
F	*9.6 K	DYNAMIC LOAD ON CWT RAIL

* THESE REACTIONS CAN OCCUR SIMULTANEOUSLY. OTHERWISE, REACTIONS DO NOT OCCUR SIMULTANEOUSLY.

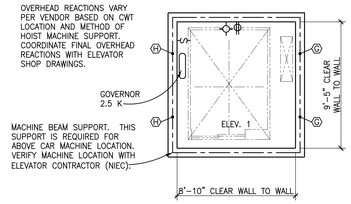
PIT NOTES:

PROVIDE ADEQUATE LIGHTING TO MAINTAIN MIN. 100 LUX (10 FC) ILLUMINATION AT PIT FLOOR (NIEC).

PROVIDE PIT ACCESS LADDERS, LIGHT SWITCHES, LIGHTS, AND GFCI–PROTECTED UTILITY OUTLETS (NIEC).

PROVIDE ONE PIT LADDER, LIGHT SWITCH, LIGHT FIXTURE, AND OUTLET PER ELEVATOR.

PROVIDE ADEQUATE STRUCTURAL SUPPORT REQUIRED FOR BUFFER AND RAIL FORCE REACTIONS (NIEC).



4 VT02 **OVERHEAD PLAN ELEVATOR 1**
SCALE: 1/4" = 1'–0"
DUTY: 4000# @ 350 FPM

OVERHEAD REACTION TABLE

DUTY: 4000# @ 350 FPM

KEY	REACTION
G	18.2 K EACH
H	11.6 K EACH

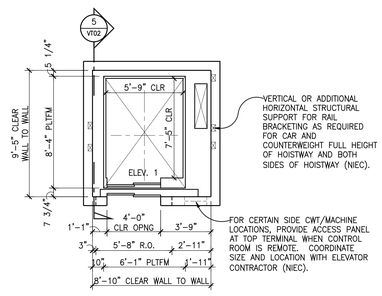
REACTIONS HAVE BEEN DOUBLED FOR IMPACT.

OVERHEAD NOTES:

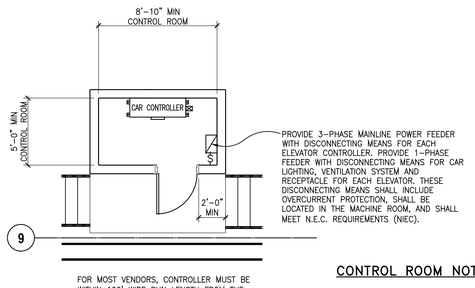
PROVIDE ADEQUATE LIGHTING TO MAINTAIN MIN. 200 LUX (19 FC) ILLUMINATION AT TOP OF HOISTWAY (NIEC).

PROVIDE LIGHTS, LIGHT SWITCHES AND GFCI–PROTECTED UTILITY OUTLETS. COORDINATE LOCATIONS WITH ELEVATOR CONTRACTOR (NIEC).

PROVIDE STRUCTURAL SUPPORT TO SUSTAIN REACTIONS INDICATED (NIEC).



2 VT02 **HOISTWAY PLAN ELEVATOR 1**
SCALE: 1/4" = 1'–0"
DUTY: 4000# @ 350 FPM



CONTROL ROOM NOTES:

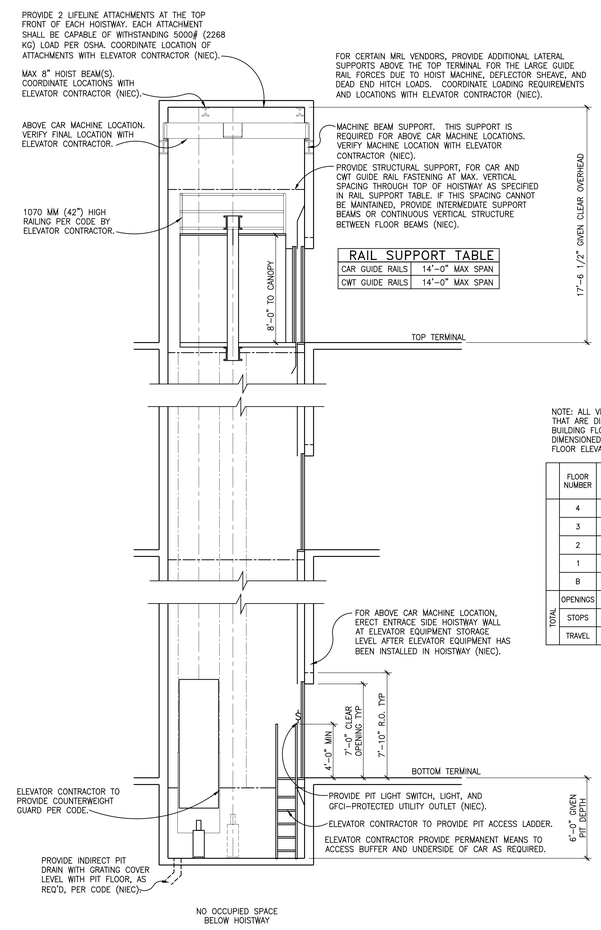
PROVIDE SELF–CLOSING, SELF–LOCKING CONTROL ROOM ACCESS DOOR (NIEC).

PROVIDE ADEQUATE LIGHTING TO MAINTAIN MIN. 200 LUX (19 FC) ILLUMINATION AT CONTROL ROOM FLOOR (NIEC).

PROVIDE LIGHT(S), LIGHT SWITCH(ES) AND GFCI–PROTECTED UTILITY OUTLET(S). COORDINATE LOCATIONS WITH ELEVATOR CONTRACTOR (NIEC).

HEAT EMISSION PER ELEVATOR CAR CONTROLLER	11,200 BTUH.

3 VT02 **MACHINE ROOM PLAN ELEVATOR 1**
SCALE: 1/4" = 1'–0"
DUTY: 4000# @ 350 FPM



RAIL SUPPORT TABLE

CAR GUIDE RAILS	14'–0" MAX SPAN
CWT GUIDE RAILS	14'–0" MAX SPAN

NOTE: ALL VERTICAL DIMENSIONS THAT ARE DIMENSIONED FROM A BUILDING FLOOR ELEVATION ARE DIMENSIONED TO THE FINISH FLOOR ELEVATION.

	FLOOR NUMBER	OPENING REAR/FRONT		FLOOR HEIGHT (FT)
	4			
	3		F	16'–0"
	2		F	16'–0"
	1		F	16'–0"
	B		F	16'–0"
TOTAL	OPENINGS		5	
	STOPS	5		
	TRAVEL			64'–0"

5 VT02 **HOISTWAY SECTION ELEVATOR 1**
SCALE: 1/4" = 1'–0"
DUTY: 4000# @ 350 FPM

DATE	DESIGNER	CHECKER
03/14/2011	LB	LB
08/02/2011	JB	BD
08/24/2011	JB	SW

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For

By

Name

Date 10-14-2011 Reg. No.

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Drawn JB

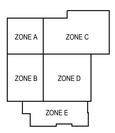
Checked LB

Date 10/14/2011

Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718



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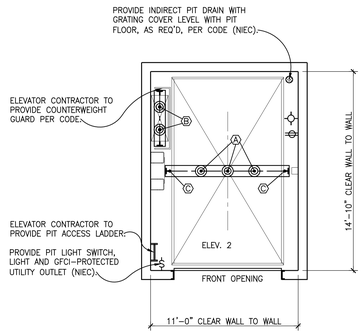
Drawing Title
PLANS AND SECTION ELEVATOR 1

VT02



1 VT03 **PIT PLAN ELEVATOR 2**
SCALE: 1/4" = 1'-0"
DUTY: 10000# @ 200 FPM C1 LOADING
REGULAR BI-PARTING DOORS

PIT REACTION TABLE	
DUTY: 10000# @ 200 FPM C1 LOADING	
KEY	REACTION
A	54.6 K EACH
B	70.8 K EACH
C	66.4 K EACH (SEE CAR R3 RAIL FORCE)

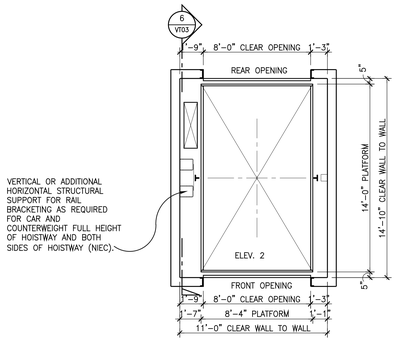
REACTIONS DO NOT OCCUR SIMULTANEOUSLY

PROVIDE ADEQUATE LIGHTING TO MAINTAIN MIN. 100 LUX (10 FC) ILLUMINATION AT PIT FLOOR (NIEC)

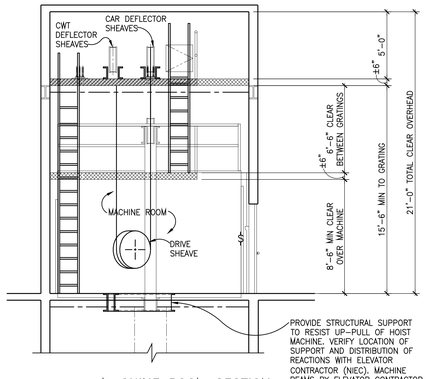
PROVIDE PIT ACCESS LADDER(S) OR DOOR(S), LIGHT SWITCH(ES), LIGHT(S), AND GFCI-PROTECTED UTILITY OUTLET(S) (NIEC)

COORDINATE LIGHT FIXTURES AND UTILITY OUTLETS LOCATION WITH ELEVATOR CONTRACTOR (NIEC).

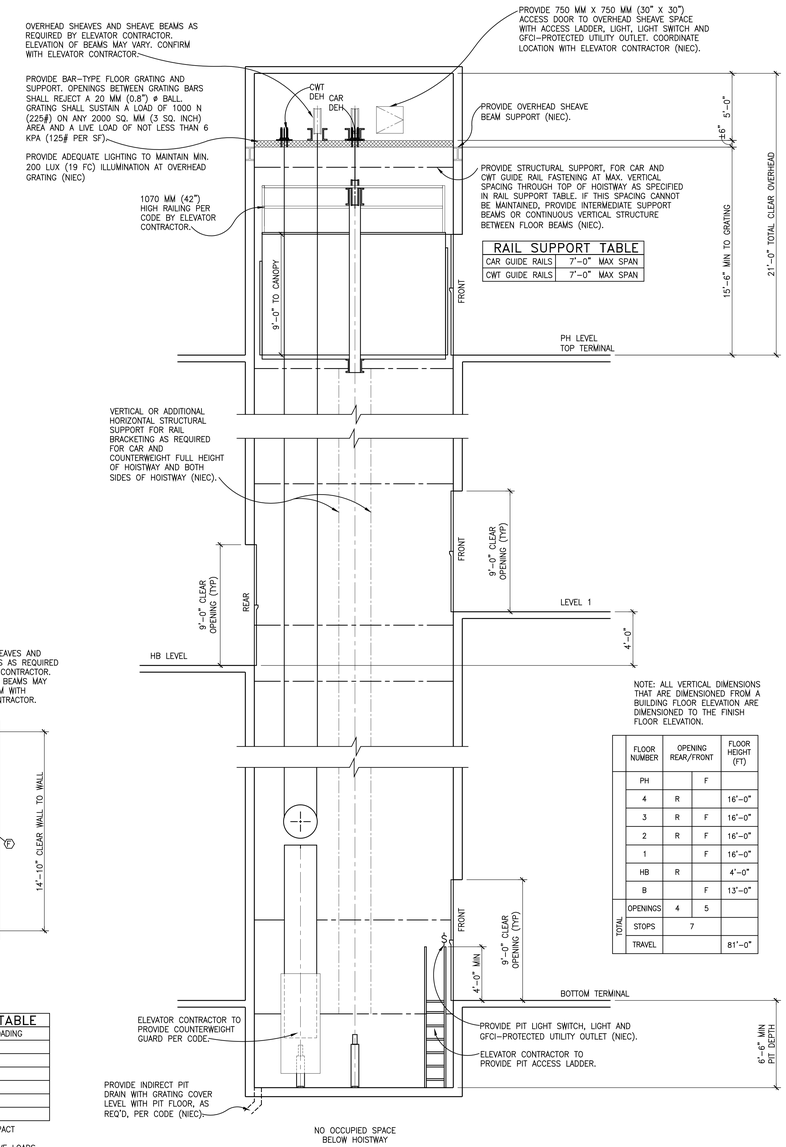
PROVIDE ADEQUATE STRUCTURAL SUPPORT REQUIRED FOR BUFFER AND R3 RAIL FORCE REACTIONS (NIEC)



2 VT03 **HOISTWAY PLAN ELEVATOR 2**
SCALE: 1/4" = 1'-0"
DUTY: 10000# @ 200 FPM C1 LOADING
REGULAR BI-PARTING DOORS



4 VT03 **MACHINE ROOM SECTION ELEVATOR 2**
SCALE: 1/4" = 1'-0"
DUTY: 10000# @ 200 FPM C1 LOADING
REGULAR BI-PARTING DOORS

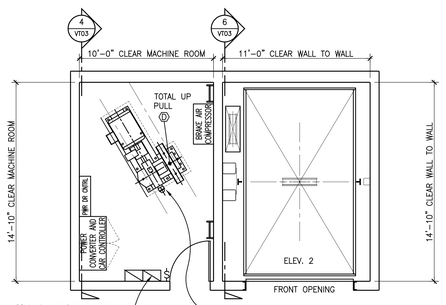


6 VT03 **HOISTWAY SECTION ELEVATOR 2**
SCALE: 1/4" = 1'-0"
DUTY: 10000# @ 200 FPM C1 LOADING
REGULAR BI-PARTING DOORS

NOTE: ALL VERTICAL DIMENSIONS THAT ARE DIMENSIONED FROM A BUILDING FLOOR ELEVATION ARE DIMENSIONED TO THE FINISH FLOOR ELEVATION.

	FLOOR NUMBER	OPENING REAR/FRONT		FLOOR HEIGHT (FT)
	PH		F	
	4	R		16'-0"
	3	R	F	16'-0"
	2	R	F	16'-0"
	1		F	16'-0"
	HB	R		4'-0"
	B		F	13'-0"
TOTAL	OPENINGS	4	5	
	STOPS	7		
	TRAVEL			81'-0"

RAIL SUPPORT TABLE	
CAR GUIDE RAILS	7'-0" MAX SPAN
CWT GUIDE RAILS	7'-0" MAX SPAN



PROVIDE 3-PHASE MAINLINE POWER FEEDER WITH DISCONNECTING MEANS FOR EACH ELEVATOR CONTROLLER. PROVIDE 1-PHASE FEEDER WITH DISCONNECTING MEANS FOR CAR LIGHTING, VENTILATION SYSTEM AND RECEPTACLE FOR EACH ELEVATOR. THESE DISCONNECTING MEANS SHALL INCLUDE OVERCURRENT PROTECTION, SHALL BE LOCATED IN THE MACHINE ROOM, AND SHALL MEET N.E.C. REQUIREMENTS (NIEC).

PROVIDE STRUCTURAL SUPPORT TO RESIST UP-PULL OF HOIST MACHINE. VERIFY LOCATION OF SUPPORT AND DISTRIBUTION OF REACTIONS WITH ELEVATOR CONTRACTOR (NIEC). MACHINE BEAMS BY ELEVATOR CONTRACTOR.

MACHINE ROOM HEAT EMISSION 39,000 BTUH TOTAL

PROVIDE STRUCTURAL SUPPORT TO SUSTAIN REACTIONS INDICATED (NIEC)

DASHED LINE INDICATES HOISTWAY BELOW

FOR EQUIPMENT IN THE MACHINE ROOM, A CLEARANCE OF NOT LESS THAN 450 MM (18") SHALL BE PROVIDED IN THE DIRECTION(S) REQUIRED FOR MAINTENANCE, AND A CLEAR PATH OF NOT LESS THAN 450 MM (18") SHALL BE PROVIDED TO ALL COMPONENTS THAT REQUIRE MAINTENANCE

IF A STRUCTURAL CONCRETE SLAB IS USED TO SUPPORT THE HOIST MACHINE(S), THE STRUCTURAL ENGINEER SHALL COORDINATE THE SLAB DESIGN AND ASSOCIATED DETAILS INCLUDING DISTRIBUTION OF REACTIONS WITH THE DESIGNATED ELEVATOR CONTRACTOR. THE SLAB DESIGN SHALL MEET ALL APPLICABLE REQUIREMENTS OF ASME A17.1 (NIEC).

MACH RM REACTION TABLE	
DUTY: 10000# @ 200 FPM C1 LOADING	
KEY	REACTION
D	54.7 K UP-PULL

REACTIONS HAVE BEEN DOUBLED FOR IMPACT

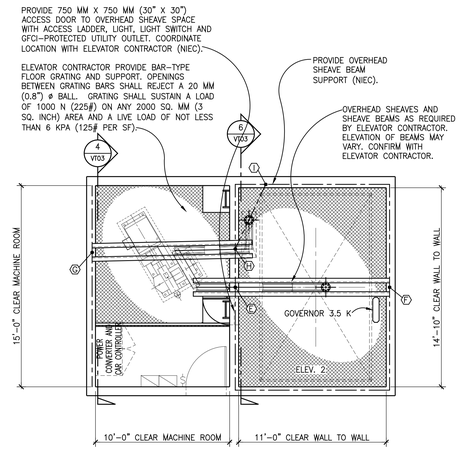
REACTIONS DO NOT INCLUDE DEAD OR LIVE LOADS OF MACHINE ROOM FLOOR

PROVIDE SELF-CLOSING, SELF-LOCKING MACHINE ROOM ACCESS DOOR (NIEC)

PROVIDE ADEQUATE LIGHTING TO MAINTAIN MIN. 200 LUX (19 FC) ILLUMINATION AT MACHINE ROOM FLOOR (NIEC)

PROVIDE LIGHTS, LIGHT SWITCHES AND GFCI-PROTECTED UTILITY OUTLETS. COORDINATE LOCATIONS WITH ELEVATOR CONTRACTOR (NIEC).

3 VT03 **PH LEVEL MACHINE ROOM PLAN ELEVATOR 2**
SCALE: 1/4" = 1'-0"
DUTY: 10000# @ 200 FPM C1 LOADING
REGULAR BI-PARTING DOORS



MACH RM REACTION TABLE	
DUTY: 10000# @ 200 FPM C1 LOADING	
KEY	REACTION
E	79.1 K
F	23.8 K
G	8.9 K
H	61.0 K
I	12.3 K

REACTIONS HAVE BEEN DOUBLED FOR IMPACT

REACTIONS DO NOT INCLUDE DEAD OR LIVE LOADS OF MACHINE ROOM FLOOR

PROVIDE ADEQUATE LIGHTING TO MAINTAIN MIN. 200 LUX (19 FC) ILLUMINATION AT OVERHEAD GRATING (NIEC)

5 VT03 **OVERHEAD PLAN ELEVATOR 2**
SCALE: 1/4" = 1'-0"
DUTY: 10000# @ 200 FPM C1 LOADING
REGULAR BI-PARTING DOORS

DATE	DESIGNER	CHECKER
02/14/2011	JB	LB
06/01/2011	JB	BD
08/24/2011	JB	SW

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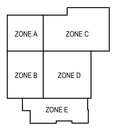
Project

Physics and Nanotechnology Building

U of M Project # 01-155-08-1718



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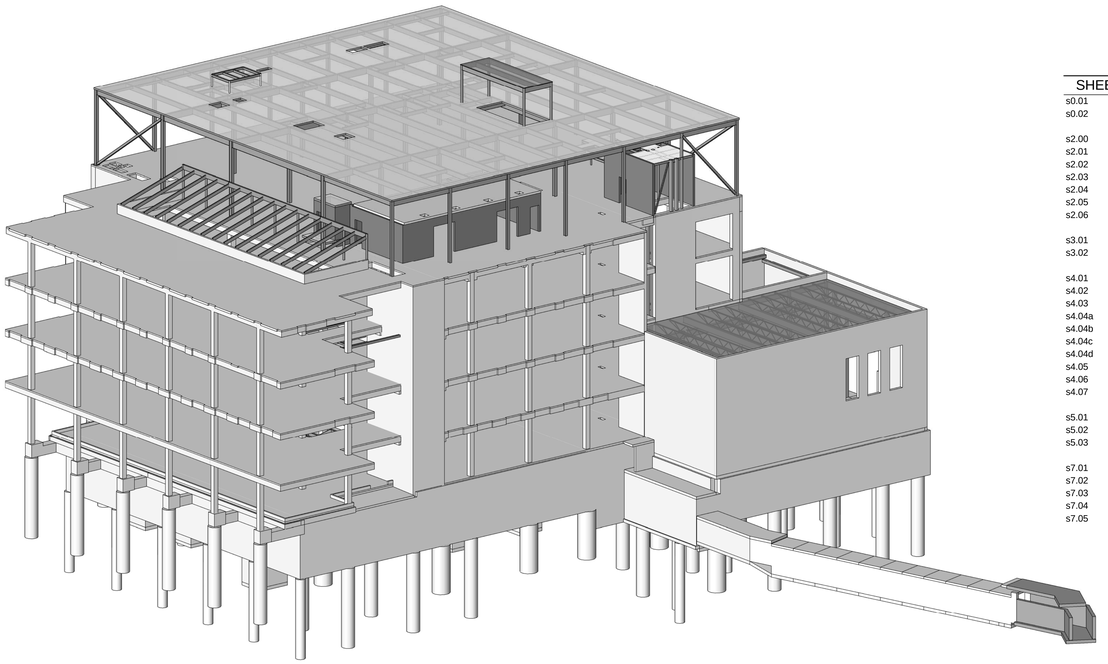
Drawing Title
PLANS AND SECTION ELEVATOR 2

VT03



1 3D PERSPECTIVE

SHEET LIST

SHEET #	SHEET NAME	BP-1	PD-1	100% CD	BP-2	PD-3
s0.01	TITLE SHEET	FC			FC	FC
s0.02	GENERAL STRUCTURAL NOTES	FC			FC	FC
s2.00	FOUNDATION PLAN	FC	FC		FC	FC
s2.01	LEVEL 1 - FOUNDATION / FRAMING PLAN	FC			FC	FC
s2.02	LEVEL 2 - FRAMING PLAN				FC	FC
s2.03	LEVEL 3 - FRAMING PLAN				FC	FC
s2.04	LEVEL 4 - FRAMING PLAN				FC	FC
s2.05	PENTHOUSE - FRAMING PLAN				FC	FC
s2.06	ROOF - FRAMING PLAN				FC	FC
s3.01	SHEAR WALL AND BRACE FRAME ELEVATIONS	FC			FC	FC
s3.02	SHEAR WALL AND BRACE FRAME DETAILS	FC			FC	FC
s4.01	SCHEDULES	FC			FC	FC
s4.02	ELEVATED COLUMN SCHEDULE	FC			FC	FC
s4.03	WALL SCHEDULE AND TYPICAL WALL AND COLUMN DETAILS	FC			FC	FC
s4.04a	CONCRETE BEAM SCHEDULE AND TYPICAL DETAILS	FR			FC	FC
s4.04b	CONCRETE BEAM SCHEDULE				FC	FC
s4.04c	CONCRETE BEAM SCHEDULE				FC	FC
s4.04d	CONCRETE BEAM SCHEDULE				FC	FC
s4.05	CONCRETE JOIST SCHEDULES AND TYPICAL DETAILS				FC	FC
s4.06	STEEL FRAMING SCHEDULES AND TYPICAL DETAILS				FC	FC
s4.07	MASONRY SCHEDULE AND DETAILS				FC	FC
s5.01	STRUCTURAL FOUNDATION DETAILS	FC	FC		FC	FC
s5.02	STRUCTURAL FOUNDATION DETAILS	FC			FC	FC
s5.03	STRUCTURAL FOUNDATION DETAILS	FC			FC	FC
s7.01	STRUCTURAL FRAMING DETAILS				FC	FC
s7.02	STRUCTURAL FRAMING DETAILS				FC	FC
s7.03	STRUCTURAL FRAMING DETAILS				FC	FC
s7.04	STRUCTURAL FRAMING DETAILS				FC	FC
s7.05	STRUCTURAL FRAMING DETAILS				FC	FC

STRUCTURAL ABBREVIATIONS:

A	
ADDL	ADDITIONAL
ADJ	ADJACENT
ALT	ALTERNATE
ALUM	ALUMINUM
AR	ANCHOR ROD
ARCH	ARCHITECT
B	
BDE	BOTTOM OF DECK ELEVATION
BM	BEAM
BOT	BOTTOM
BP	BEARING PLATE / BASE PLATE
BR	BOTTOM REINFORCING
BTWN	BETWEEN
C	
CANTL	CANTILEVER
C/C	CENTER TO CENTER
CIP	CAST IN PLACE
CGS	CENTER OF GRAVITY STRAND
CJ	CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTER LINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN(S)	CONNECTION(S)
CONST	CONSTRUCTION
CONT	CONTINUOUS
D	
d	NAIL DIAMETER
db	BAR DIAMETER
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DF	DOUGLAS FIR-LARCH
DIA	DIAMETER
DIAG	DIAGONAL
DL	DEAD LOAD
E	
EA	EACH
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EJ	EXPANSION JOINT
EMBED	EMBEDMENT
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
E-W	EAST - WEST DIRECTION
(E)	EXISTING
EXP	EXPANSION
F	
FDN	FOUNDATION
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FLR	FLOOR
FS	FOOTING STEP
FT	FEET
FTG	FOOTING
FV	FIELD VERIFY
G	
GA	GAGE/GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
GLB	GLUE LAMINATED BEAM
GR	GRADE
GSN	GENERAL STRUCTURAL NOTES
GWB	GYPSUM WALL BOARD
H	
HK	HOOK
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
HSS	HOLLOW STRUCTURAL SHAPE
HT	HEIGHT
I	
ID	INSIDE DIAMETER
ISF	INSIDE FACE
J	
JT	JOINT
JBE	JOIST BEARING ELEVATION
K	
K	KIPS
KLF	KIPS PER LINEAL FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
KO	KNOCK OUT
L	
LB(S)	POUND(S)
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LSH	LONG SIDE HORIZONTAL
LSL	LAMINATED STRAND LUMBER
LWT	LIGHT WEIGHT
LVL	LAMINATED VENEER LUMBER
M	
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL & PLUMBING
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
N	
NIC	NOT IN CONTRACT
N-S	NORTH - SOUTH DIRECTION
NTS	NOT TO SCALE
NWT	NORMAL WEIGHT
O	
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSF	OUTSIDE FACE
OPNG	OPENING
OPP	OPPOSITE
O/O	OUT TO OUT
P	
PAF	POWER ACTUATED FASTENER
PC	PRECAST CONCRETE
PL	PLATE
PLF	POUNDS PER LINEAL FOOT
PLYWD	PLYWOOD
PRE FAB	PREFABRICATED
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	POST TENSIONED
Q	
QTY	QUANTITY
R	
R	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REINF	REINFORCEMENT/REINFORCING
REQD	REQUIRED
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
S	
SB	SOIL BORING
SC	SLIP CRITICAL
SCHED	SCHEDULE
SER	STRUCTURAL ENGINEER OF RECORD
SF	SQUARE FOOT
SIM	SIMILAR
SL	SNOW LOAD
SOG	SLAB ON GRADE
SPA	SPACES
SPEC	SPECIFICATION
SPF	SPRUCE PINE FIR
SS	STAINLESS STEEL
SSLT	SHORT-SLOT LOAD TRANSVERSE
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUCT	STRUCTURE / STRUCTURAL
SYM	SYMMETRICAL
SYP	SOUTHERN YELLOW PINE
T	
T/G	TOUNGE AND GROOVED
TBE	TOP OF BEAM ELEVATION
TDE	TOP OF DECK ELEVATION
TDPE	TOP OF DRILLED PIER ELEVATION
TEMP	TEMPORARY
TFE	TOP OF FOOTING ELEVATION
TGBE	TOP OF GRADE BEAM ELEVATION
TPCE	TOP OF PILE CAP ELEVATION
TPE	TOP OF PIER ELEVATION
TR	TOP REINFORCING
TRANS	TRANSVERSE
TSE	TOP OF SLAB ELEVATION
TWE	TOP OF WALL ELEVATION
TYP	TYPICAL
U	
UNO	UNLESS NOTED OTHERWISE
URM	UNREINFORCED MASONRY
V	
VERT	VERTICAL
W	
W/	WITH
W/O	WITHOUT
WD	WOOD
WF	WIDE FLANGE
WL	WIND LOAD
WP	WORK POINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

MARKS AND SYMBOLS LEGEND:

MARKS:

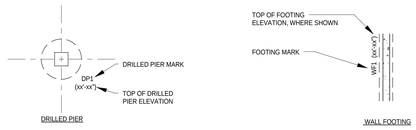
B1001	CONCRETE BEAM MARK NUMBER
BP1	BEARING / BASE PLATE MARK NUMBER
BRF1	BRACE FRAME MARK NUMBER
BR1	MILD STEEL BOTTOM REINFORCING MARK NUMBER
C1	COLUMN MARK NUMBER
CC1	CONCRETE COLUMN MARK NUMBER
D1	STEEL DECK MARK NUMBER
DC1	DROP CAPITAL MARK NUMBER
DP1	DRILLED PIER MARK NUMBER
EP1	EMBEDDED PLATE MARK NUMBER
F1	SPREAD FOOTING MARK NUMBER
GB1	GRADE BEAM MARK NUMBER
HCP	HOLLOW CORE PLANK
HD1	HOLD DOWN MARK NUMBER
J10	JOIST MARK NUMBER
L1	LINTEL MARK NUMBER
LC1	LIGHT GAGE COLUMN MARK NUMBER
MC1	MASONRY COLUMN MARK NUMBER
MF1	MOMENT FRAME MARK NUMBER
P1	PIER MARK NUMBER
PC1	PILE CAP MARK NUMBER
PTB101	POST TENSIONED CONCRETE BEAM MARK NUMBER
S1	SLAB MARK NUMBER
SC1	STEEL COLUMN MARK NUMBER
SR1	STUD RAIL REINFORCING MARK NUMBER
SW1	SHEAR WALL MARK NUMBER
T1	TRUSS MARK NUMBER
TR1	MILD STEEL TOP REINFORCING MARK NUMBER
W1	WALL MARK NUMBER
WC1	WOOD COLUMN MARK NUMBER
WF1	WALL FOOTING MARK NUMBER
WO1	WEB OPENING
WSW1	WOOD SHEAR WALL MARK NUMBER

GENERAL SYMBOLS:

MATCH LINE
LINE OF DEMOLITION
(?'-?") SLAB STEP LOCATION WITH ELEVATIONS
SLAB STEP LOCATION
CHANGE IN SLAB SLOPE
CHANGE IN SLAB THICKNESS
1 KEY NOTE MARK NUMBER
0 NEW BUILDING GRID LINE
0 EXISTING BUILDING GRID LINE
ELEVATION MARKER
SHADED AREA INDICATES EXISTING CONSTRUCTION
W1 WALL MARK NUMBER
APPROXIMATE LOCATION OF UTILITY PIPE PENETRATION THROUGH FOUNDATION WALL
FS FOOTING STEP LOCATION
SB1 APPROXIMATE LOCATION OF SOIL BORING
COMPRESSION PILE
TENSION / COMPRESSION PILE
TEST PILE
SPAN DIRECTION OF ELEMENT
EXTENT OF ELEMENT
OR CONTINUOUS EXTENT OF ELEMENT

PLAN SYMBOLS LEGEND:

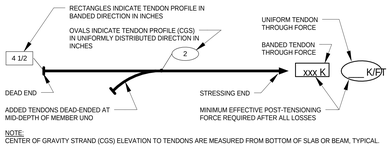
FOUNDATION SYSTEM:



PRECAST CONCRETE FRAMING SYSTEM:

NOTES:
1. PRECAST GIRDER WIDTHS AT INTERIOR BEAM LINES MAY BE ADJUSTED BASED ON THE PRECAST SUPPLIER'S STANDARD
2. PRECAST GIRDER DEPTHS MAY NOT EXCEED DEPTHS NOTED.

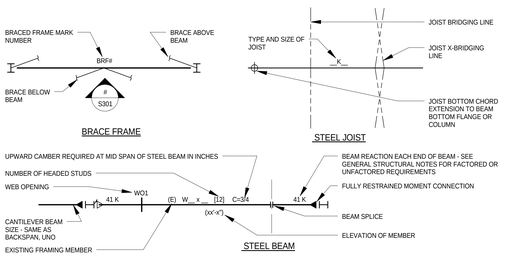
CONCRETE FRAMING SYSTEM:



NOTE:
CENTER OF GRAVITY STRAND (CGS) ELEVATION TO TENDONS ARE MEASURED FROM BOTTOM OF SLAB OR BEAM, TYPICAL.

PT TENDON

STEEL FRAMING SYSTEM:



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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

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100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
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Date 10-14-2011

Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
Driven to Discover℠

TITLE SHEET

s0.01

GENERAL STRUCTURAL NOTES:

TYPICAL NOTES:
These notes specify the requirements for the design represented in these documents. The construction and materials shall comply with all the pertinent codes and references, plans, and details, including (but not limited to) those shown in architectural, civil, mechanical and electrical drawings.

The contractor shall verify all dimensions and existing conditions in the field that affect construction prior to commencing work on the affected element or shop drawing submittals. Resolve any discrepancies with the architect prior to construction.

The contract structural drawings and specifications represent the completed structure. The contractor is responsible for bracing and shoring (without overstressing) all structural elements as necessary at any stage of construction until completion of the project. The Structural Engineer is not responsible for the contractor's means, methods, sequences or procedures of construction. Contractor shall recognize and consider effects of thermal movements of structural elements during construction period.

The contractor is solely responsible for site safety including all temporary precautionary measures and safety programs. Site observation visits by the Structural Engineer do not include review of the contractor's safety precautions.

Refer to architectural, mechanical and electrical drawings for locations, elevations, dimensions, and details of sleeves, inserts, openings, recesses, curbs, housekeeping pads, etc. that are not shown on the structural drawings and do not damage structural members.

Information shown in the structural drawings regarding existing conditions represents the current and general field conditions related to the new work, to the best of our knowledge. Report all discrepancies to the Architect for resolution prior to performing related new work.

Requests for information shall be submitted in writing and shall reference the part of the construction documents that is in question.

SPECIAL INSPECTIONS:
Contractor shall read and understand their duties in the specification and under the building code for special inspections and coordinate as necessary the owner's responsibilities.

The special inspectors shall be provided and shall only use approved shop drawings.

Special inspection reports are to be submitted immediately to the SER, Architect, and Contractor daily when inspections are performed.

The general contractor shall provide timely notice to the special inspector and sufficient time for the inspector to perform their inspection.

SHOP DRAWINGS:
All engineering design provided by others and submitted for review shall bear the certification stamp and signature of a qualified professional engineer who is licensed in the state where the project is located.

Submit shop drawing schedule with construction schedule that includes consideration for review period. See specification for additional information.

SPECIAL INSPECTION SCHEDULE:

SPECIAL INSPECTIONS REQUIRED OF STRUCTURAL ELEMENTS (PER IBC 2006, CHAPTER 17):

	Continuous	Periodic	Not Req'd	See Arch.	
1. Steel *					Table 1704.3
1.1 Welding	☐	■	☐	☐	
1.2 Details	☐	■	☐	☐	
1.3 High-strength Bolts	☐	■	☐	☐	
2. Concrete					Table 1704.4
2.1 Reinforcing steel including Prestressing tendons	☐	■	☐	☐	
2.2 Bolts installed in concrete	■	☐	☐	☐	
2.3 Required design mix	☐	■	☐	☐	
2.4 Sampling	■	☐	☐	☐	
2.5 Shotcrete	☐	☐	■	☐	
2.6 Curing techniques	☐	☐	■	☐	
2.7 Prestressed concrete forces and grouting	■	☐	☐	☐	
2.8 Erection of precast concrete members	☐	■	☐	☐	
2.9 Verification of IN-SITU concrete strength	☐	☐	■	☐	
3. Masonry					
3.1 Level 1 Special Inspection *	☐	■	☐	☐	1704.5.1, 1704.5.2, Table 1704.5.1
3.2 Level 2 Special Inspection	☐	☐	■	☐	1704.5.3, Table 1704.5.3
4. Wood	☐	☐	■	☐	1704.6
5. Soils	☐	■	☐	☐	1704.7
6. Pile Foundations	☐	☐	■	☐	1704.8
7. Pier Foundations	■	☐	☐	☐	1704.9
8. Wall Panel and Veneers	☐	☐	☐	■	1704.10
9. Sprayed Fire-Resistant Materials	☐	☐	☐	■	1704.11
10. Exterior Insulation and Finish Systems (EIFS)	☐	☐	☐	■	1704.12
11. Special Cases	☐	☐	☐	■	1704.13
12. Smoke Control Systems	☐	☐	☐	■	1704.14

* Please see referenced tables for exceptions.

DEFERRED SUBMITTALS:
The following items shall be issued as deferred submittals per IBC:
Cold-formed metal framing
Curtainwall Systems
Skylight Systems

All items issued as deferred submittals shall be issued a minimum of 30 days prior to installation and shall not be installed until their design and submittal documents have been reviewed for general conformance to the drawings by the general contractor, the engineer of record and the building official. A copy of the deferred submittal shall be forwarded to the city after the engineer of record has reviewed the documents and prior to erection of the deferred submittal items.

DESIGN CODES AND STANDARDS:
Minnesota State Building Code, MSBC 2007

2006 International Building Code, as amended and adopted by the MSBC 2007

ACI 318-05 Building Code Requirements for Reinforced Concrete

ACI 530-05 Building Code Requirements for Masonry Structures, Allowable Stress Design

ACI 530.1-05 Masonry Structures

AISC 360-05 Specification for Structural Steel Buildings

AISI NAS-01 North American Specification for the design of Cold-Formed Steel Structural Members including 2004 supplement.

ASCE 7-05 Minimum design loads for buildings and other structures including supplement NO. 1 and excluding Chapter 14 and Appendix 11A.

ASCE 3-01 Structural Design of Composite Slabs

SJI K-1.1-05 Standard Specification for Open Web Steel Joists, K-series.

SJI LH/DLH-1.1-05 Standard Specification for long span steel joist, LH series, and deep long span steel joist, DLH series.

MATERIAL PROPERTIES:
Reinforcing Steel (Fy):

Typical	60,000 psi	ATSM A615 Grade 60
Weldable	60,000 psi	ASTM A706 Grade 60

Cast-in-Place Concrete (f'c) at 28 days, UNO:

Controlled Low Strength Material (CLSM)	1,200 psi Maximum, 50 psi Minimum
Footings	4,000 psi
Grade Beams	6,000 psi
Concrete Fill for Drilled Piers	4,000 psi
Walls (non-shear)	6,000 psi
Structural Slabs and Beams	6,000 psi
Shear Walls, see schedule	Varies
Columns, see schedule	Varies
Concrete placed over Steel Floor Deck	4,000 psi
Slabs on Grade	4,000 psi
Exterior Concrete	4,000 psi
Masonry Corefill Concrete	3,000 psi
All Concrete not otherwise noted	4,000 psi

Concrete Masonry- Prism (f'm):
Typical Units: 1,500 psi

Structural Steel (Fy):

Wide Flanges	50,000 psi	ASTM A992
Angles, Channels, Plates, and Bars	36,000 psi	ASTM A36
Grade B Rectangular HSS	46,000 psi	ASTM A500
Grade B Round HSS	42,000 psi	ASTM A500
Grade B Steel Pipe	35,000 psi	ASTM A53

Structural Fasteners:

Typical High-Strength Bolts	92,000 psi	ASTM A325
High-Strength Bolts as noted on plan	150,000 psi	ASTM A490
Grade 36 Anchor Rods, UNO	36,000 psi	ASTM F1554
Threaded Rods	36,000 psi	ASTM A36
Anchor Rods, Grade 55 as noted on plan	55,000 psi	ASTM F1554
Anchor Rods Grade 105 as noted on plan	105,000 psi	ASTM F1554
Direct -Tension Indicator Washers as noted on plan		ASTM F959

Cold-formed Light Gauge Metal Framing (Fy):

Studs, Joists, Braces-16 ga. and heavier	50,000 psi	ASTM A653
Studs, Joists, Braces-18 ga. and lighter	33,000 psi	ASTM A653
Track, Channels and Accessories	33,000 psi	ASTM A653

DESIGN LOADS:
LATERAL LOADS:
Primary Frame Wind Data:
Basic Wind Speed: 90 mph
Wind Importance Factor: 1.15 (1)
Exposure: B (2)

Component Loads:
Exterior Component/Cladding: Supplier to develop based on MSBC 2007 and to indicate on shop drawings.

GRAVITY LOADS:
Roof Snow Load:
Ground Snow Load, Pg: 50 psf
Flat-Roof Snow Load, Pf: 35 psf
Snow Exposure Factor, Ce: 1.0
Snow Load Importance Factor, I: 1.1 (1)
Unbalanced/Drift Snow Load:Refer to plan, UNO

Roof Load:
Live Load, (reducible): Snow load controls
Net Uplift for Joist Design: 10 psf
Mechanical Room Hanging Loads: 40 psf
Hanging Catwalks: 75 psf

Mechanical and Electrical Equipment Units:
Refer to drawings for the unit locations, sizes, and weights.

Future Mechanical and Electrical Units:
This project is not designed for future units.

Floor Loads:
Office Live Load, (reducible): 100 psf
Office Concentrated Load: 2000 lbs
Partition: 0 psf

Light Storage Load: 125 psf
Partition: 0 psf

Heavy Storage Load: 250 psf
Partition: 0 psf

Laboratory Live Load: 125 psf
Partition: 0 psf

Stairs, Corridors and Lobbies: 100 psf
Stair Tread Concentrated Load: 300 lbs
Catwalks: 75 psf

Mechanical Rooms: 125 psf
Mechanical Room Hanging Loads: 40 psf

Exterior Site Surcharge Loads:
Fire Trucks: 250 psf
Sidewalk: 250 psf

FOUNDATIONS:
Refer to Geotechnical report number BL-10-00600 by Braun Intertec Corporation, dated June 30, 2010 and amended July 6, 2011.

The contractor shall verify the location of all existing and new underground utilities and tanks prior to beginning excavation and contact Gopher State One Call.

The minimum dimension from exterior grade to bottom of footing and foundation shall be 42" adjacent to heated areas, and 60" in unheated areas.

For underground utilities adjacent to foundations and through foundations reference drawings for detail showing step footings below utilities as required to avoid undermining of structure by utilities.

CONVENTIONAL FOOTINGS:
Footings supporting miscellaneous building components are designed for a maximum allowable soil bearing pressure of 3000 pounds per square foot on undisturbed natural soil or compacted engineered fill. Soil bearing pressure is to be verified in the field during construction by a qualified Geotechnical Engineer.

All topsoil, fill, organic swamp deposits, and/or other unsuitable bearing material shall be removed below the footings and/or within the building area to the depths indicated in the geotechnical engineering report and extent of removal shall be field verified by the Geotechnical Engineer.

All excavations shall be observed by a qualified Geotechnical Engineer to verify removal of all unsuitable material, and confirm the proper preparation of bearing conditions. Rock excavation for individual footings is not expected to exceed five foot depth, U.N.O. No mass excavation is anticipated. Blasting is not permitted.

For footings that do not bear on natural undisturbed soil, extend engineered fill laterally beyond bottom edge of footing for a distance equal to the depth of engineered fill. Reference drawings for details.

Foundation and retaining walls shall be back filled with free draining fill approved by the Geotechnical Engineer. Provide drain tile required by the contract documents and verify with architect and civil engineer.

Backfill equally on both sides of foundation walls to prevent overturning or lateral wall movement, or brace as necessary.

For stepping of wall footings reference drawings for detail.

DRILLED PIERS:
Drilled piers (Caissons) are designed for an allowable bearing pressure of 60 ksf (30 tsf) on competent bedrock. Allowable bearing pressure is to be verified in the field by a Geotechnical Engineer.

The soil condition and placing tolerance of the drilled pier (caisson) must be verified by a qualified Geotechnical Engineer.

Drilled piers (Caissons) bearing on rock shall be socketed into the rock as noted in the drawings. See geotechnical engineering report for removal of loose and/or fractured rock at the bearing surface of the drilled pier (caisson).

See geotechnical report for casing requirements. Reference drawings for details.

REINFORCED CONCRETE:
The detailing, fabrication and erection of all reinforcing shall be done in accordance with the latest edition of ACI-315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures and ACI-318, "Building Code Requirements for Structural Concrete."

All reinforcing bars are deformed and continuous, unless noted otherwise. Refer to drawings for reinforcing lap length schedule.

Provide suitable wire spacers, chairs, etc. for support of reinforcing steel in proper position while placing concrete. All bars shall be tied to prevent displacement while placing concrete. All chairs and slab bolsters shall be plastic or steel with plastic tips. When reinforcing steel is epoxy coated or pt tendons are fully encapsulated, all chairs and slab bolsters shall be epoxy coated or plastic and all support bars shall be epoxy coated. Chairs are to be stable and resist tipping. Acceptable products are GTI or approved equal.

The fabricator shall submit a complete list of accessories and placing details with the shop drawings.

No horizontal construction joints shall be placed in beams, joists, or slabs, unless shown on drawings.

Locate vertical construction joints in beams and slabs at central one third of span. Refer to drawings for details. Submit proposed construction joint locations to the Structural Engineer of Record for review prior to placement of concrete. Where new concrete is placed against existing concrete, the existing concrete shall be roughened to a minimum 1/4" amplitude.

Refer to drawings and ACI 318 Chapter 6 for placement guidelines of embedded pipes, sleeves, and conduits. Conduits are not permitted in slabs 3 inches or less in thickness.

Provide a 3/4 inch chamfer for all exposed concrete corners. See Architectural drawings and specification for details and additional requirements.

The general contractor shall notify the Special Inspector a sufficient period in advance of placing concrete to allow required inspections and testing to occur in a timely fashion.

Formwork and all shoring for flatwork shall be left in place until the concrete reaches at least 75 percent of the 28-day compressive strength. Design of shoring and reshoring is the responsibility of the contractor and shall conform to ACI 347R-88.

Concrete compressive strength testing used to determine flatwork stripping times shall be performed using one of the following methods:

Cippoc and standard cylinders cured and stored in the same conditions as the flatwork.

Maturity testing properly calibrated and conducted by an approved testing agency.

Aluminum conduit, aluminum sleeves and aluminum embeds are not permitted in concrete.

Exterior concrete to have 6% +/- 1% entrained air.
All concrete used in parking ramp slabs, beams and columns to contain corrosion inhibiting admixtures.

Calcium chloride is not permitted as a concrete additive.

Concrete Cover on Reinforcing:

Topping Slab:	3/4" clear top
Slab on Grade:	upper third of slab
Concrete covers are intended to meet the requirements of the IBC 2000 section 719 prescriptive fire protection.	
Footings and Caissons:	3" clear bottom and sides 2" clear top
Walls: #5 and smaller	1 1/2" clear earth or weather face
#6 and greater	2" clear earth or weather face 3/4" interior face
Columns and Beams:	1 1/2" clear to ties or stirrups
Joists:	1" clear top 3/4" clear bottom and sides (3)
Slabs:	1" clear top 3/4" clear bottom carbonate aggregate 1" clear bottom siliceous aggregate
Structural Slabs Cast on Ground:	2" clear top 1 1/2" clear bottom (3)

POST-TENSIONED CONCRETE:
Post-Tensioning tendon forces shown on plan are based on 1/2" diameter, 270 ksi seven wire "low relaxation" unbonded tendons. Tendon material shall be continuous. Splices are not permitted without the written consent of the structural engineer.

Tendons are to be protected from weather and stored off the ground.

See specification for manufacturer and shop drawing submittals, shoring/re-shoring, quality control, and other requirements.

Shop drawings shall provide dimensions for tendon spacing and support bar spacing in addition to tendon elevations and other necessary information.

Provide structural engineer with field and file drawings prior to placing tendons referenced on sheets.

The following maximum effective force (after all losses) per tendon shall be used:
1/2" low relaxation tendon: 27 kips (270 ksi)

Tendon through forces after losses and center of gravity elevations of tendons are shown in the drawings.

Tendon supplier shall submit loss calculations, which clearly show the effective force in each tendon, with the shop drawings that are certified by a qualified Professional Engineer who is licensed in the state where the project is located.

Tendon supplier/fabricator shall be a current member of the Post-Tensioning Institute (PTI). Fabricator shall participate in a current third party PTI approved quality control program and be inspected at least annually.

Tendon anchors shall be provided that match the diameter and the strength of the tendons provided.

Minimum thickness of extruded sheathing shall be 40 mils, unless noted otherwise.

In beams provide #5 support bar at maximum 2'-0" o.c. Beam stirrups are to be supported by longitudinal continuous beam bolsters.

Deviation in spacing of tendons is permitted where it is required to avoid embedded items and inserts specifically located with prior approval of the structural engineer.

The curvature for horizontal deviation shall not be less than a radius of 21'-0" nor slopes of 1 to 6 with out additional reinforcing as shown on the drawings.

Tendons shall clear all embedded items, sleeves and openings by a minimum of 3 inches and shall not be tied directly to the embedded items or sleeves.

Sleeves and conduits shall pass perpendicularly through beams in the center third of the beam's depth. Embedded boxes shall not be located on the bottom face of beams and shall meet clearance requirements for tendons and reinforcing steel.

Embedded boxes, sleeves and conduits shall not be placed within a distance of 2'-6" from the face of any column and shall not be placed within 1'-6" of any anchor without prior approval from the structural engineer.

In areas of high conduit concentration where it is not possible to meet the above requirements, consult the structural engineer prior to placement.

Stressing shall not commence until the concrete has attained a minimum verified compressive strength of 3,000 psi for 270 ksi tendons, or a higher value specified by the anchor manufacturer.

Concrete compressive strength testing shall be performed using one of the following methods:

Cippoc and standard cylinders cured and stored in the same conditions as the flatwork.

Maturity testing properly calibrated and conducted by an approved testing agency.

All stressing operations shall be observed by the owner's testing agency. Provide stressing logs for each tendon with a thorough explanation of all deviations from the specified elongation provided on the approved shop drawings. Do not cut tendon ends until after stressing records have been submitted to and approved by the Structural Engineer.

Drilling holes or installing post-construction anchors in post-tensioned concrete slabs or beams requires the written consent of the Structural Engineer of Record. These activities shall not damage any embedded post-tensioning tendon or mild steel reinforcement.

PRECAST CONCRETE - STRUCTURAL:
Comply with MNL-116 and /or MNL-117 of the Precast Concrete Institute, ACI- 318, and "Recommendations for Concrete Members Prestressed with Unbonded Tendons" by ACI-ASCE Joint Committee 423.

Precast, prestressed members shall be design for "in place" loads, including superimposed loads shown on the drawings.

Prestressing strands shall conform to the ASTM - A416, "Standard Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete"(including supplements) Grade 250K or 270K.

Precast manufacturer is to design, provide calculations, and furnish steel headers for openings as necessary or as shown on the drawings. Refer to the architectural drawings for fire protection requirements for the steel headers.

The welders for steel connections in precast shall be certified in accordance with AWS D1.1.

Refer to Architectural drawings for fire rating requirements. All members, planks and beams, shall be designed for unrestrained conditions.

Provide dovetail masonry anchor slots in precast, prestressed concrete members when used as back-up for masonry veneer. Refer to Architectural drawings.

The precast manufacturer shall submit for review certified shop drawings and design calculations prepared by a qualified Professional Engineer who is registered in the state where the project occurs.

Precast elements used as a diaphragm system shall be designed to resist all lateral forces as noted on the documents. The precast manufacturer shall be responsible for the complete design of the precast components and all connections necessary to provide a fully functional diaphragm.

Precast wall elements used as part of the lateral load resisting system shall be designed to resist all diaphragm reactions. The precast manufacturer shall be responsible for the complete design of the elements and all connections necessary to support in plane and out of plane forces.

Wall panels and connections to roof and floor structure shall be designed for lateral loads required by the referenced building code as well as the loads shown on plan. Where no load is shown parallel to the wall panels, design for a minimum in-plane load of 50 pf over the entire wall length. Anchorage of each wall panel to the structure at each level shall include a minimum design load of 200 pounds per linear foot perpendicular to the plane of the wall. (REVIEW ACI 16.5.1.2)

CONCRETE SLABS ON GRADE:
Slabs on grade shall be place in lane fashion.

The control or construction joints shall be placed as shown on the drawings. The joints shall align with the column grids and be spaced as noted below:

Exterior slabs	24 times slab thickness, maximum;
Interior slabs	36 times slab thickness, maximum;
Interior slabs	48 times slab thickness, maximum, with carpeting

The panels formed by control or construction joints shall not be "L" shaped and a rectangular panel's aspect ratio shall not exceed 1.5.

Refer to the drawings for the typical slab on grade construction and saw cut control joint detail. Control and construction joints must be continuous and not offset.

Refer to drawings for detail of isolation diamonds or circles at columns.

Refer to drawings for reinforcing at re-entrant corners. Bend bars as necessary at obstructions.

Refer to the specification for the existence, type, and thickness of interior ground vapor retard. Locate a vapor retarder directly beneath the slab on grade on top of a 6 inch compactable granular base. Refer to the specification for requirements for the compactable granular base.

Mechanically vibrate concrete around trench drains, floor ducts, construction joint dowels, loading docks, architectural features and other embedded items.

Refer to the specification for slab on grade pre-pour meeting.

Refer to the specification for acceptable methods of curing the concrete.

Refer to flooring manufacturer's specification for levelness, flatness and curing of concrete slabs on grade to receive special architectural floor finishes.

REINFORCED MASONRY:
All masonry units are placed in running bond fashion. Corners shall have a standard bond by overlapping units.

Special shapes shall be provided for jambs, columns, pilasters, control joints, corners, and lintels.

All masonry walls shall have horizontal joint reinforcing spaced at 16" o.c. Horizontal joint reinforcing shall be truss style and fabricated with galvanized nine-gauge wire and shall include corner and intersecting wall pieces. Provide minimum 6" laps at all splices.

Vertical reinforcing shall be held in place by rebar positioners, crossties, chairs, or tying to every other layer of horizontal reinforcing steel. Refer to the detail in the drawings for vertical reinforcing bar location in a core.

Provide concrete cover of minimum 1/2" to face shell.

Refer to detail in the drawings for reinforcing bar lap lengths.

Extend vertical reinforcing from footings to 2" clear top of wall or to beam bearing. Extend vertical reinforcing into the next level of construction and lap in accordance with the lap schedule.

When typical vertical wall reinforcing is interrupted by long wall openings, provide typical vertical wall reinforcing above and below opening, and extend into horizontal bond beams. Refer to the schedule on the drawings, for masonry wall opening lintels. Refer to the detail in the drawings for masonry openings minimum jamb reinforcing.

Provide vertical reinforcing at the ends of walls and at wall intersections to match specified reinforcing. Run reinforcing full height of walls.

All masonry units shall be placed with full face shell mortar coverage on horizontal and vertical face shells. Webs shall also have full mortar coverage around all grouted cells.

Fill block core at vertical reinforcing (8" minimum length along wall) with concrete grout. Filling cores with mortar is not allowed. Vibrate in place. Rodding and puddling are not allowed.

Maximum lift height is four feet. For concrete core fill pour height up to maximum 8'-0", provide cleanouts if pour height exceeds 5'-0".

Masonry cement mortar is not allowed.

Calcium chloride or admixtures containing chloride shall not be used in mortar or grout.

For reinforced masonry bond beams, provide bent corner bars at corners and intersections that match reinforcing. Step bond beams as necessary to match roof slopes. Lap reinforcing bars per schedule.

For construction of masonry control joints refer to detail in drawings.

Unless noted otherwise on the drawings place control joints in masonry walls such that no straight run of wall exceeds 24'-0" and within 4'-0" of corners. Do not place control joints within 48 inches of a masonry opening jamb or a steel bearing plate.

Place bond beam reinforcing continuously through control joints. Do not splice bond beam reinforcing within 6'-0" of a control joint.

Provide bond beam with reinforcing at all floor lines, roof lines, and top of walls. Refer to details in the drawings.

Grout below steel bearing plate and refer to the drawings for additional information.

Refer to drawings for reinforcing schedule, top of wall bracing, thickened bearing slab and lintel schedule for non-bearing masonry walls. Refer to Architectural drawings for location and extent.

LOOSE ANGLE BRICK LINTELS:
Fit lintel such that vertical leg is tight to back of brick, locate brick ties to backup at first bed joint above angle's vertical leg and provide minimum 8" support each end.

Refer to architectural drawing for locations and to drawings for size span criteria, and loading limits.

EXPANSION AND ADHESIVE ANCHORS:
Anchors in concrete or concrete masonry when not exposed to earth, weather, or corrosive environment shall be as noted below:

Expansion anchors shall be stud type with a single piece three section wedge and zinc plated in accordance with ASTM B633.

Threaded anchor rod for adhesive anchors in concrete shall be ASTM A193, Grade B7, or ASTM A36, as noted in the drawings. The adhesive used for anchors shall be a structural grade, two part epoxy or acrylic material that meets the requirement of ASTM C-881 Types I, II, IV, and V, Grade 3, Classes B and C as noted on plans.

Holes shall be drilled with a bit and cleaned using a method that complies with the manufacturer's guidelines, and specifications. Do not cut or damage reinforcing steel or P-T tendons.

Upon the request of the structural engineer the anchors shall be proof tested by the manufacturer to verify capacity of anchors that do not meet the conditions in the construction documents.

Minimum embedment depths in concrete and concrete masonry for expansion and adhesive anchors shall be as noted below:

Concrete base material:
For 1/2", 5/8", and 3/4" diameter expansion anchors provide 4 3/4"embed, UNO on plan.

For 1/2"and 5/8" diameter adhesive anchors provide 5" embed. For 3/4" diameter adhesive anchors provide 7" embed, UNO on plan.

Grouted solid concrete masonry unit material:
For 1/2", 5/8", and 3/4" diameter expansion anchors provide 4 3/4"embed, UNO on plan.

For adhesive anchors refer to the product's ICBO Report.

Pre-approved manufacturer are as follows: HILTI, ITWR Ramset/Redhead, Powers Fasteners, and Simpson Strong-Tie. For review of alternate products, submit manufacture's product data and product's current ICBO report prior to construction.

Anchors in concrete or concrete masonry when exposed to earth, weather, or corrosive environment shall be manufactured from AISI 304/316 Stainless Steel.

STRUCTURAL STEEL:
Structural steel shall be detailed, fabricated and erected in compliance with AISC Specification for the design, fabrication, erection of structural steel for building, and Code of standard practice, and OSHA steel erection standards.

All beams and girders shall be cambered at mid-span as indicated on the structural drawings. The cambers indicated shall be present in the beam in its erected position after completion of the end connections and shall be verified prior to placing concrete. Cambering tolerances shall be (-0", +1/4"). No center point cambering allowed.

Splicing structural members where not detailed on the drawings is prohibited without prior approval of the structural engineer.

Modification of structural steel members in the field is not allowed without written approval by the structural engineer.

All composite beams using the concrete slab as a compression flange are designed for unshored construction unless noted otherwise.

Anchor rods shall be minimum 3/4" diameter or as detailed in drawings.

Steel members indicated as architecturally exposed structural steel ("AESS") shall conform to enhanced tolerance criteria as defined in the specifications

STRUCTURAL STEEL CONNECTIONS:
Unless detailed otherwise, beam shop connections may be welded or bolted and field connections are to be bolted. Bolts shall be a minimum 3/4" diameter for connections specified or detailed in the drawings. The fabricator may submit an alternate connection with the calculations that is certified by a professional engineer who is licensed in the state where the project is located.

All beam web copes must be made to a 1 inch minimum radius.

Welded connections shall be made in accordance with ANSI/AWS D1.1 Structural Welding Code using E70XX electrodes unless noted otherwise. Weld sizes not shown or controlled by the required forces shall be AWS code minimum size. Welds shall be visually inspected for compliance with the AWS code visual inspection criteria. Welders shall be qualified in accordance with ANSI/AWS D1.1 and shall be experienced in weld in structural steel.

Full penetration welds shall be tested using NDT methods such as ultrasonic, magnetic particle or other methods referenced in the AWS code. Welds subject to NDT methods shall also have been found compliant with the AWS visual inspection criteria.

STEEL JOISTS AND JOIST GIRDERS:
Manufacturer shall be a current member of the Steel Joist Institute (SJI).

Detail, fabricate and erect steel joists, joist girders and bridging in accordance with SJI Specifications, AISC Specifications and Codes, and OSHA steel erection standards.

The manufacturer shall submit certified structural calculations by a qualified structural engineer licensed in the state in which the project is located for all joists that support concentrated or varying uniform loads, or non-standard loads as indicated on the drawings. See plans and details for special joist loads.

Welded connections shall be made in accordance with AWS D1.1 using E70XX electrodes unless noted otherwise. Welders shall be qualified in accordance with ANSI/AWS D1.1.

When uplift forces are indicated in the Design Loads section or on the drawings, the joist manufacturer shall consider them in the design of the joists and bridging. A single line of bottom chord bridging must be provided near the first bottom chord panel points at all uplift conditions.

Design roof joists for a minimum 10 psf net uplift due to wind.

Design joists for mechanical unit loads shown on plan. The General Contractor verify and coordinate the size, weight and location of mechanical units with the mechanical contractor for use by the joist manufacturer.

In addition to the loads indicated on the drawings design joist to support a 250 pound concentrated load at any point on the top and bottom chords.

Design joists for hanging loads including but not limited to rain water leaders, process piping, cable trays, etc. General contractors verify location and magnitude of all such loads prior to fabrication of joists and joist girders.

General contractor verify if special joist panel point alignment or bridging configuration is required to accommodate the location of sprinkler lines, duct work, etc. As necessary align all joist web members throughout a bay and align similarly for each bay.

Design joists for the load from the diagonal braces to the bottom flange of beams at and near columns due to beam stability requirements. See plans and details for special joist loads.

Design joists for the load from the diagonal braces to the exterior spandrel wall due to wind.

Design joists for point load due to brick veneer from an exterior wall above. Reference drawings for detail.

Camber joist per the SJI specification or as noted on the plans and details.

Provide bottom chord extensions for ceiling support as required by the architect.

When beams have joists bearing from one side only, bear joist on full beam flange.

Bridging shall conform to SJI specifications and codes. Provide diagonal bridging for all LH and DLH joist. Anchor all bridging to walls and beams parallel to joists and provide horizontal bridging in end space adjacent to the wall. Reference drawings for details.

All bridging, bridging anchors and building structure that resist the bridging loads, shall be completely installed before construction loads are placed on the joists.

Refer to drawings for joist bearing plates in masonry or concrete.

Items to be suspended from the roof structure (other than lightweight ceiling grids) shall be connected to top chord panel points only unless noted or detailed otherwise. Reference drawings for typical detail of reinforcing at concentrated loads.

Joist reinforcement is required where concentrated loads are not applied to a panel point. Reference the drawings for the detail.

STEEL ROOF DECK:
Manufacturer shall be a current member of the Steel Deck Institute (SDI).

Detail, manufacture and install steel roof deck and accessories in accordance with the SDI specifications and codes and OSHA requirements.

Steel roof deck shall be as noted on plan.

Welding shall be in accordance with AWS D1.3. Welders shall be qualified in accordance with AWS D1.3.

Where spray-on fireproofing of the deck is required, the contractor shall verify that the deck finish is compatible with the proposed fireproofing material to ensure proper bonding of the fireproofing. Coordinate fireproofing locations and requirements with the architect.

All steel deck shall span a minimum of three spans, unless otherwise approved by the engineer. Deck ends are to be lapped over supports.

Contractor shall verify the location and extent of acoustical steel deck with the architectural drawings.

Reference drawings for detail on steel roof deck fastening requirements unless noted otherwise. Powder actuated or pneumatically driven fasteners are not allowed.

Provide reinforcement or frames for deck openings as indicated on the drawings.

COMPOSITE STEEL FLOOR DECK:
Manufacturer shall be a current member of the Steel Deck Institute (SDI).
Composite steel floor deck shall be as noted on plan.

Detail, manufacture and install composite steel floor deck and accessories in accordance with the SDI specifications, codes and OSHA steel erection standards.

Refer to drawings for composite steel floor deck fastening requirements unless noted otherwise. Powder actuated or pneumatically driven fasteners are not allowed.

Provide and install pour stops, column closures, end closures, cover plates and girder fillers and other accessories as required by the SDI unless otherwise indicated or detailed.

Where spray-on fireproofing of the deck is required, the contractor shall verify that the deck finish is compatible with the proposed fireproofing material to ensure proper bonding of the fireproofing. Coordinate fireproofing locations and requirements with the architect.

Provide reinforcement or frames for deck openings as indicated on the drawings.

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
Bid Package No. 1	10-14-2011
1 100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
Project Directive No. 2	03-14-2012
Project Directive No. 3	05-11-2012

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Date 10-14-2011

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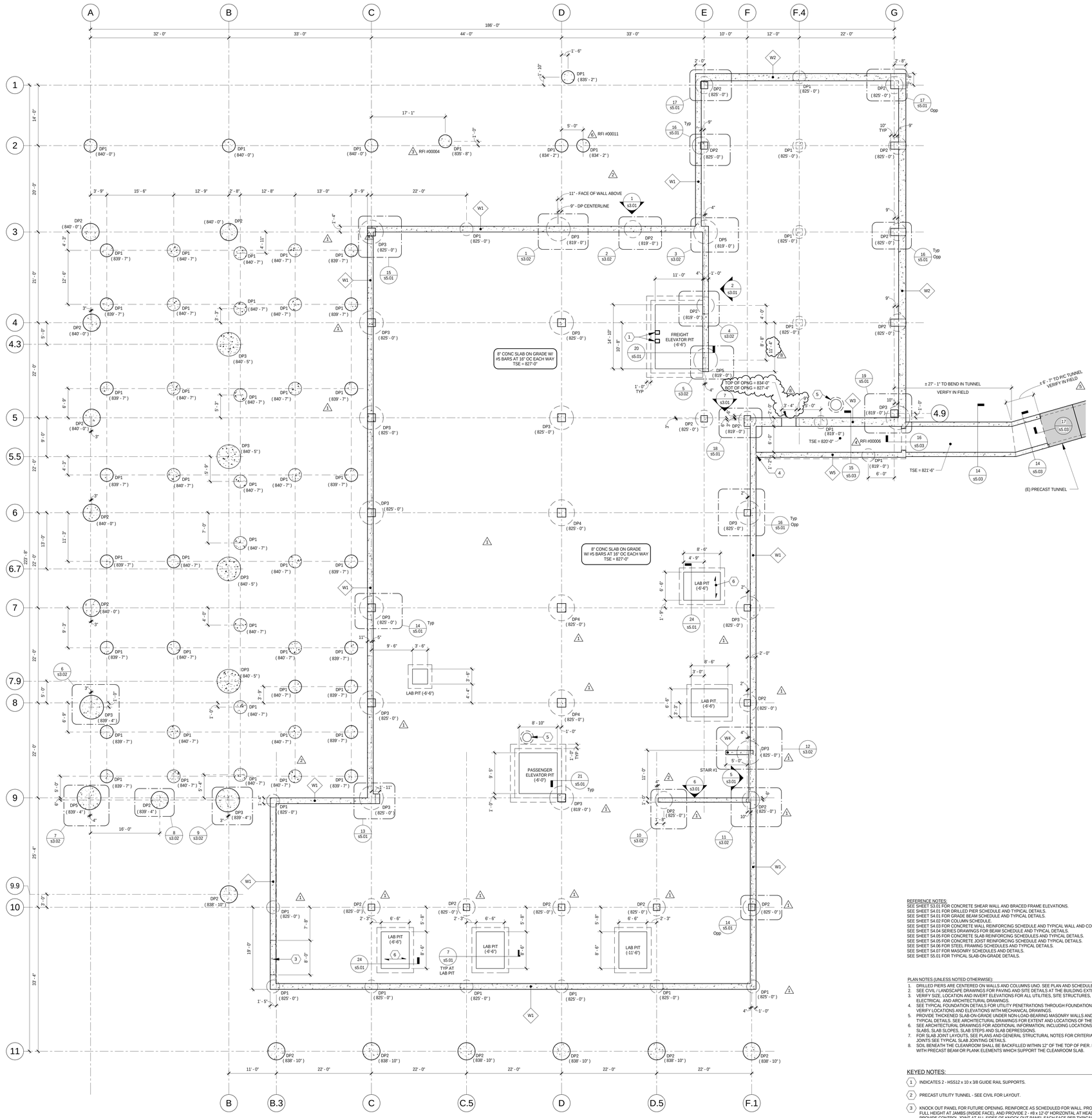
GENERAL STRUCTURAL NOTES

s0.02



1 FOUNDATION PLAN
1/8" = 1'-0"

NORTH

REFERENCE NOTES:
SEE SHEET S3.01 FOR CONCRETE SHEAR WALL AND BRACED FRAME ELEVATIONS.
SEE SHEET S4.01 FOR DRILLED PIER SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.01 FOR GRADE BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.02 FOR COLUMN SCHEDULE.
SEE SHEET S4.03 FOR CONCRETE WALL REINFORCING SCHEDULE AND TYPICAL WALL AND COLUMN DETAILS.
SEE SHEET S4.04 SERIES DRAWINGS FOR BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE SLAB REINFORCING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE JOIST REINFORCING SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.06 FOR STEEL FRAMING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.07 FOR MASONRY SCHEDULES AND DETAILS.
SEE SHEET S5.01 FOR TYPICAL SLAB-ON-GRADE DETAILS.

PLAN NOTES (UNLESS NOTED OTHERWISE):
1. DRILLED PIERS ARE CENTERED ON WALLS AND COLUMNS UNO. SEE PLAN AND SCHEDULE FOR DRILLED PIER SIZE AND REINFORCING.
2. SEE CIVIL / LANDSCAPE DRAWINGS FOR PAVING AND SITE DETAILS AT THE BUILDING EXTERIOR.
3. VERIFY SIZE, LOCATION AND INVERT ELEVATIONS FOR ALL UTILITIES, SITE STRUCTURES, SUMPS AND DRAINS WITH CIVIL, MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS.
4. SEE TYPICAL FOUNDATION DETAILS FOR UTILITY PENETRATIONS THROUGH FOUNDATIONS. SEE PLAN FOR APPROXIMATE LOCATIONS. VERIFY LOCATIONS AND ELEVATIONS WITH MECHANICAL DRAWINGS.
5. PROVIDE THICKENED SLAB-ON-GRADE UNDER NON-LOAD-BEARING MASONRY WALLS AND STAIR STRINGER BASES AS SHOWN IN THE TYPICAL DETAILS. SEE ARCHITECTURAL DRAWINGS FOR EXTENT AND LOCATIONS OF THESE ELEMENTS.
6. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION, INCLUDING LOCATIONS AND DIMENSIONS OF RAMPS, THICKENED SLABS, SLAB SLOPES, SLAB STEPS AND SLAB DEPRESSIONS.
7. FOR SLAB JOINT LAYOUTS, SEE PLANS AND GENERAL STRUCTURAL NOTES FOR CRITERIA. FOR TYPICAL CONTROL AND CONSTRUCTION JOINTS SEE TYPICAL SLAB JOINTING DETAILS.
8. SOIL BENEATH THE CLEANROOM SHALL BE BACKFILLED WITHIN 12" OF THE TOP OF PIER. BACKFILLED SOIL SHALL NOT BE IN CONTACT WITH PRECAST BEAM OR PLANK ELEMENTS WHICH SUPPORT THE CLEANROOM SLAB.

RFI #00015

KEYED NOTES:

1. INDICATES 2 - HSS12 x 10 x 3/8 GUIDE RAIL SUPPORTS.
2. PRECAST UTILITY TUNNEL - SEE CIVIL FOR LAYOUT.
3. KNOCK OUT PANEL FOR FUTURE OPENING. REINFORCE AS SCHEDULED FOR WALL. PROVIDE 2 ADDITIONAL #8 VERTS FULL HEIGHT AT JAMBS (INSIDE FACE), AND PROVIDE 2 - #8 x 12'-0" HORIZONTAL AT HEAD OF KNOCK OUT PANEL. PROVIDE CONTROL JOINT AT ALL SIDES OF KNOCK OUT PANEL EACH FACE PER TYPICAL WALL CONTROL JOINT DETAIL. BOTTOM OF KNOCK OUT PANEL = 827'-4". TOP OF KNOCK OUT PANEL = 837'-0".
4. PROVIDE #5 HOOKED DOWELS AT 12" OC AT WALL INTERFACE. LAP WITH SCHEDULED HORIZONTAL REINFORCING.
5. PIT SUMP WITH CONCRETE PAD PER SUPPLIER. SEE MECHANICAL DRAWINGS.
6. 3" - 20 GAGE COMPOSITE DECK WITH 4 1/2" TOPPING WITH W2.1 x W2.1 WWF OVER LAB PIT.

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Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
Bid Package No. 1	10-14-2011
1 Project Directive No. 1	11-29-2011
2 100% CD Set	12-16-2011
Bid Package No. 2	02-24-2011
3 Project Directive No. 2	03-14-2012
4 Project Directive No. 3	05-11-2012

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Date 10-14-2011

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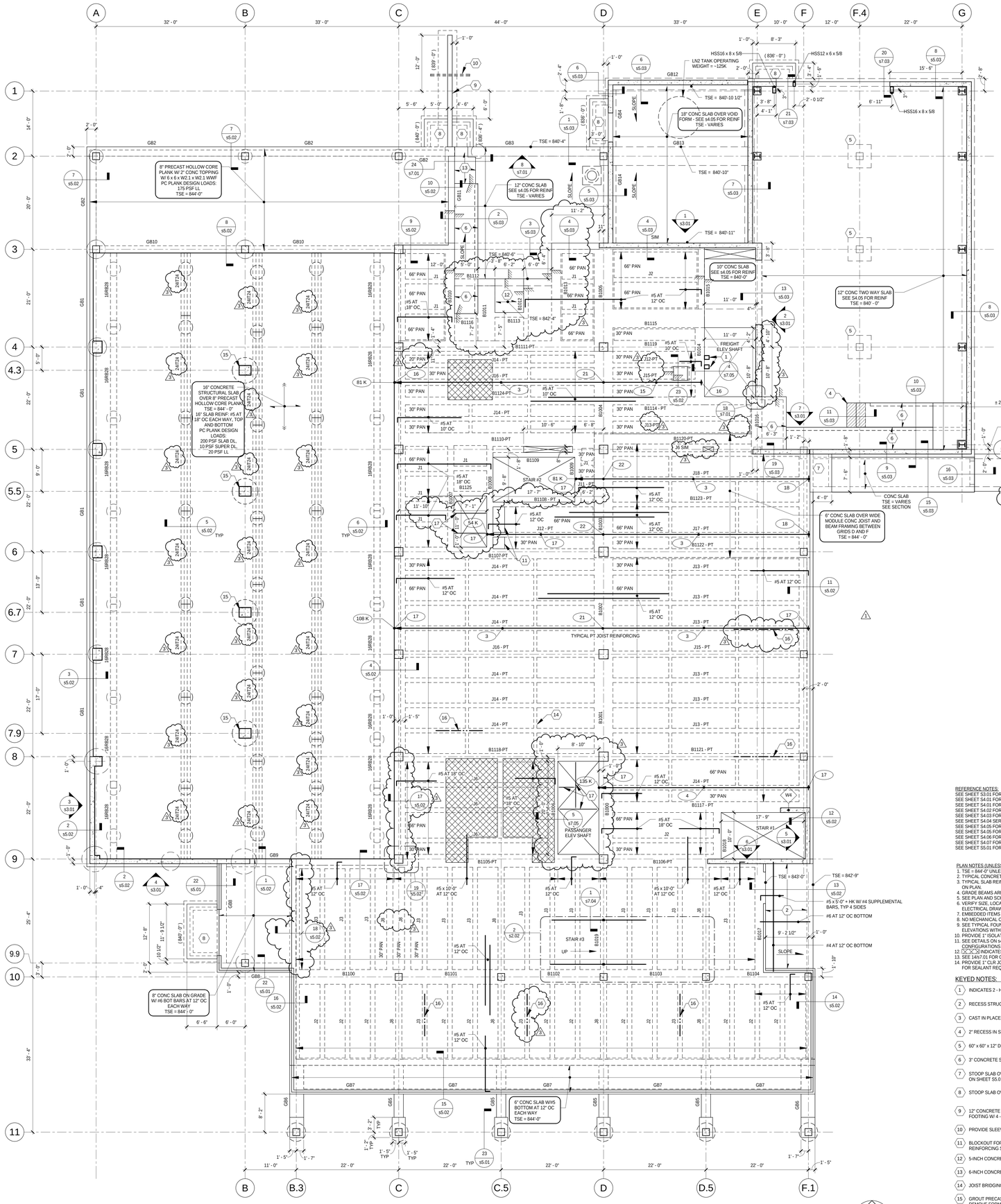
FOUNDATION PLAN

s2.00



1 LEVEL 1 - FRAMING PLAN
1/8" = 1'-0"

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2 Project Directive No. 2	03-14-2012
3 Project Directive No. 3	05-11-2012

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Date 10-14-2011

Project

Physics and Nanotechnology Building

REFERENCE NOTES:
SEE SHEET S3.01 FOR CONCRETE SHEAR WALL AND BRACED FRAME ELEVATIONS.
SEE SHEET S4.01 FOR DRILLED-PIER SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.01 FOR GRADE BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.02 FOR COLUMN SCHEDULE.
SEE SHEET S4.03 FOR CONCRETE WALL REINFORCING SCHEDULE AND TYPICAL WALL AND COLUMN DETAILS.
SEE SHEET S4.04 SERIES DRAWINGS FOR BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE SLAB REINFORCING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE JOIST REINFORCING SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.06 FOR STEEL FRAMING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.07 FOR MASONRY SCHEDULES AND DETAILS.
SEE SHEET S5.01 FOR TYPICAL SLAB-ON-GRADE DETAILS.

PLAN NOTES (UNLESS NOTED OTHERWISE):
1. TSE = 844'-0" UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION.
2. TYPICAL CONCRETE FLOOR CONSTRUCTION: 5" SLAB OVER 20" HIGH PAN (25" TOTAL DEPTH). PAN WIDTH: 53" UNLESS NOTED OTHERWISE.
3. TYPICAL SLAB REINFORCING SHALL BE #4 AT 12" OC PERPENDICULAR TO JOISTS. PROVIDE #4 AT 18" OC PARALLEL TO JOIST WHERE NO TOP BAR IS SHOWN ON PLAN.
4. GRADE BEAMS ARE CENTERED ON WALLS AND COLUMNS UNO. SEE PLAN AND SCHEDULE FOR GRADE BEAM SIZE AND REINFORCING.
5. SEE PLAN AND SCHEDULES FOR COLUMN, WALL AND PIER INFORMATION.
6. VERIFY SIZE, LOCATION AND NUMBER OF ALL OPENINGS THROUGH FLOOR WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. SEE TYPICAL DETAILS AND FRAMING AT OPENINGS.
7. EMBEDDED ITEMS SHALL NOT INTERRUPT SPECIFIED REINFORCING.
8. NO MECHANICAL OR ELECTRICAL SLEEVES SHALL PENETRATE JOISTS OR BEAMS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL.
9. SEE TYPICAL FOUNDATION DETAILS FOR UTILITY PENETRATIONS THROUGH FOUNDATIONS. SEE PLAN FOR APPROXIMATE LOCATIONS. VERIFY LOCATIONS AND ELEVATIONS WITH MECHANICAL DRAWINGS.
10. PROVIDE 1" ISOLATION JOINT AT PERIMETER OF CONCRETE COLUMNS WITHIN CLEANROOM. REMOVE FORMING MATERIAL TO PROVIDE CLEAR GAP.
11. SEE DETAILS ON S4.05 FOR CAST-IN ANCHORAGES FOR HOISTS AND OVERHEAD SERVICE CARRIERS. SEE LAB PLANNING DRAWINGS FOR LAYOUT AND CONFIGURATIONS OF HOISTS AND OVERHEAD SERVICE CARRIERS.
12. ◇ INDICATES 1/2" SLAB RECESS. SEE ARCHITECTURAL DRAWINGS FOR EXTENT.
13. SEE 14/s7.01 FOR CONNECTIONS AT MECHANICAL SHAFT DIVIDER FRAMING.
14. PROVIDE 1" CLR JOINT ALL SIDES OF CLEAN ROOM SLAB AND AT INTERIOR COLUMNS. REMOVE FORMING MATERIALS AFTER SLAB PLACEMENT. SEE ARCH FOR SEALANT REQUIREMENTS.

KEYED NOTES:
1. INDICATES 2 - HSS12 x 10 x 3/8 GUIDE RAIL SUPPORTS.
2. RECESS STRUCTURAL SLAB AT EXTERIOR ENTRY W/ INSULATION AND TOPPING SLAB - SEE ARCH.
3. CAST IN PLACE TUNNEL BELOW - SEE SHEET S2.00.
4. 2" RECESS IN STRUCTURAL SLAB AT RAMP BASE.
5. 60" x 60" x 12" DEEP CONCRETE DROP CAPITAL.
6. 3" CONCRETE SLAB OVER 3" - 20 GA COMPOSITE STEEL DECK REINFORCED W/ W1.4 x W1.4 WWF.
7. STOOP SLAB OVER STRUCTURAL SLAB. PROVIDE DOWELS FROM FOUNDATION WALLS IN CONC SLAB. SEE TYP DETAILS ON SHEET S5.01 FOR STOOP INFORMATION.
8. STOOP SLAB OVER FOUNDATION WALLS. SEE TYP DETAILS ON SHEET S5.01 FOR STOOP INFORMATION.
9. 12" CONCRETE RETAINING WALL W/ #6 VERTS AT 12" OC AND #5 HORIZ AT 12" OC W/ 4'-0" WIDE x 16" DEEP CONCRETE FOOTING W/ 4 - #5 LONGITUDINAL BARS BOTTOM AND #5 AT 16" OC TRANSVERSE TOP BARS. TWEAK 844'-9" 3
10. PROVIDE SLEEVE/BLOCKOUT FOR ELECTRICAL DUCT BANK. SEE CIVIL FOR LAYOUT AND ELEVATION.
11. BLOCKOUT FOR ELECTRICAL CONDUIT. PROVIDE 1 1/2" x 2" KEYWAY AT SLAB AND THREADED COUPLERS FOR SLAB REINFORCING SHOWN ON PLAN AND PLAN NOTES.
12. 5-INCH CONCRETE SLAB WITH #5 BOTTOM BARS AT 9" OC EACH WAY.
13. 6-INCH CONCRETE TOPPING SLAB WITH #4 BARS AT 12" OC EACH WAY.
14. JOIST BRIDGING AT 3 EQUAL SPACES. SEE TYPICAL JOIST BRIDGING SECTION ON s4.05.
15. GROUT PRECAST SLAB CORES SOLID ADJACENT TO COLUMN. PROVIDE 1" CLEAR JOINT ALL SIDES OF COLUMN. REMOVE FORMING MATERIALS AFTER SLAB PLACEMENT. SEE ARCHITECT FOR SEALANT REQUIREMENTS.
16. APPROXIMATE LOCATION OF MANUAL RAIL CRANE BELOW. SEE PLAN NOTE FOR ADDITIONAL INFORMATION.
17. HSS6 x 4 x 1/4 SHAFT DIVIDER BEAM. VERIFY LOCATION WITH ARCH AND MECHANICAL. SEE PLAN NOTE 13 THIS SHEET FOR ADDITIONAL INFORMATION. 3

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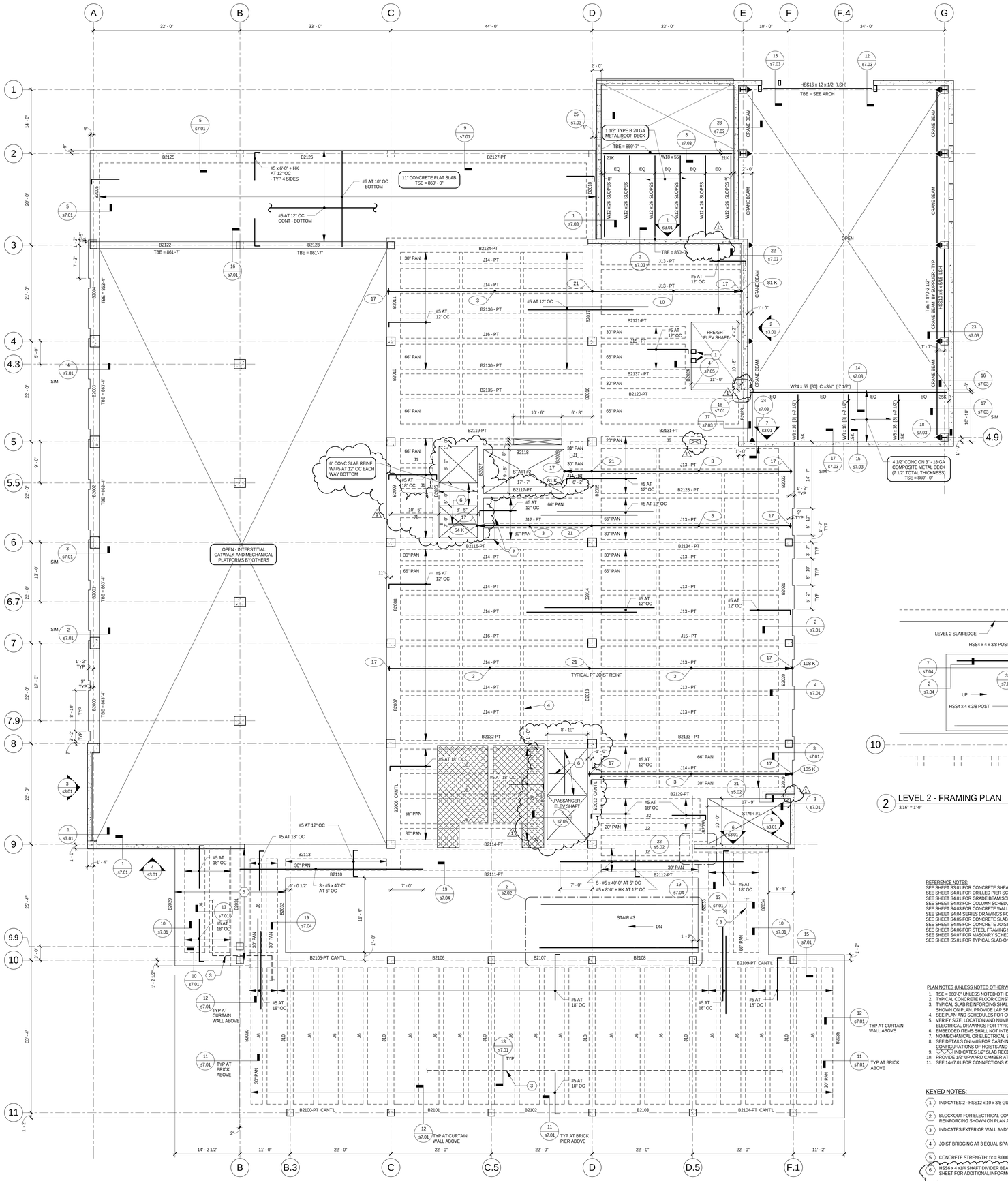
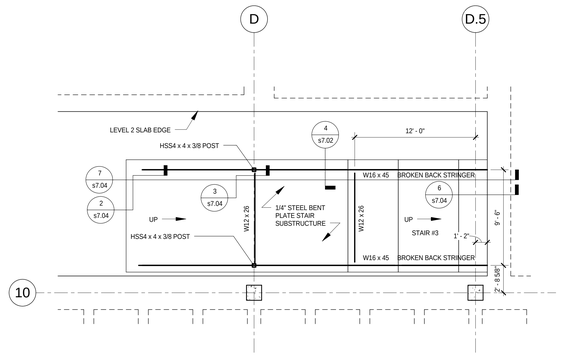
LEVEL 1 - FOUNDATION / FRAMING PLAN

s2.01



1 LEVEL 2 - FRAMING PLAN
1/8" = 1'-0"



2 LEVEL 2 - FRAMING PLAN
3/16" = 1'-0"

REFERENCE NOTES:
SEE SHEET S3.01 FOR CONCRETE SHEAR WALL AND BRACED FRAME ELEVATIONS.
SEE SHEET S4.01 FOR DRILLED PIER SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.01 FOR GRADE BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.02 FOR COLUMN SCHEDULE.
SEE SHEET S4.03 FOR CONCRETE WALL REINFORCING SCHEDULE AND TYPICAL WALL AND COLUMN DETAILS.
SEE SHEET S4.04 SERIES DRAWINGS FOR BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE SLAB REINFORCING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE JOIST REINFORCING SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.06 FOR STEEL FRAMING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.07 FOR MASONRY SCHEDULES AND DETAILS.
SEE SHEET S5.01 FOR TYPICAL SLAB-ON-GRADE DETAILS.

PLAN NOTES (UNLESS NOTED OTHERWISE):
1. TSE = 860'-0" UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION.
2. TYPICAL CONCRETE FLOOR CONSTRUCTION: 5" SLAB OVER 20" HIGH PAN (25" TOTAL DEPTH). TYPICAL PAN WIDTH: 53" UNLESS NOTED OTHERWISE.
3. TYPICAL SLAB REINFORCING SHALL BE #4 AT 12" OC PERPENDICULAR TO JOISTS. PROVIDE #4 AT 18" OC PARALLEL TO JOIST WHERE NO TOP BAR IS SHOWN ON PLAN. PROVIDE LAP SPLICES AS NEEDED.
4. SEE PLAN AND SCHEDULES FOR COLUMN, WALL AND PIER INFORMATION.
5. VERIFY SIZE, LOCATION AND NUMBER OF ALL OPENINGS THROUGH FLOOR WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR TYPICAL DETAILS AND FRAMING AT OPENINGS.
6. EMBEDDED ITEMS SHALL NOT INTERRUPT SPECIFIED REINFORCING.
7. NO MECHANICAL OR ELECTRICAL SLEEVES SHALL PENETRATE JOISTS OR BEAMS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL.
8. SEE DETAILS ON M05 FOR CAST-IN ANCHORAGES FOR HOISTS AND OVERHEAD SERVICE CARRIERS. SEE LAB PLANNING DRAWINGS FOR LAYOUT AND CONFIGURATIONS OF HOISTS AND OVERHEAD SERVICE CARRIERS.
9. INDICATES 1/2" SLAB RECESS. SEE ARCHITECTURAL DRAWINGS FOR EXTENT.
10. PROVIDE 1/2" UPWARD CAMBER AT NON POST-TENSIONED JOISTS WITH SPAN GREATER THAN 25'-0", TYPICAL.
11. SEE 14/s7.01 FOR CONNECTIONS AT MECHANICAL SHAFT DIVIDER FRAMING.

KEYED NOTES:
1. INDICATES 2 - HSS12 x 10 x 3/8 GUIDE RAIL SUPPORTS.
2. BLOCKOUT FOR ELECTRICAL CONDUIT. PROVIDE 1 1/2" x 2" KEYWAY AT SLAB AND THREADED COUPERS FOR SLAB REINFORCING SHOWN ON PLAN AND PLAN NOTES.
3. INDICATES EXTERIOR WALL AND WINDOW SYSTEM BELOW. SEE ARCHITECT FOR LAYOUT AND DIMENSIONS.
4. JOIST BRIDGING AT 3 EQUAL SPACES. SEE TYPICAL JOIST BRIDGING SECTION ON s4.05.
5. CONCRETE STRENGTH: f'c = 8,000 PSI IN THIS REGION.
6. HSS6 x 4 x1/4 SHAFT DIVIDER BEAM. VERIFY LOCATION WITH ARCH AND MECHANICAL. SEE PLAN NOTE 11 THIS SHEET FOR ADDITIONAL INFORMATION.

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Signature:

Date 02/24/2012 Reg. No. 44681

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ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
1 Project Directive No. 3	05-11-2012

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Date 12/16/2011

Project

Physics and Nanotechnology Building

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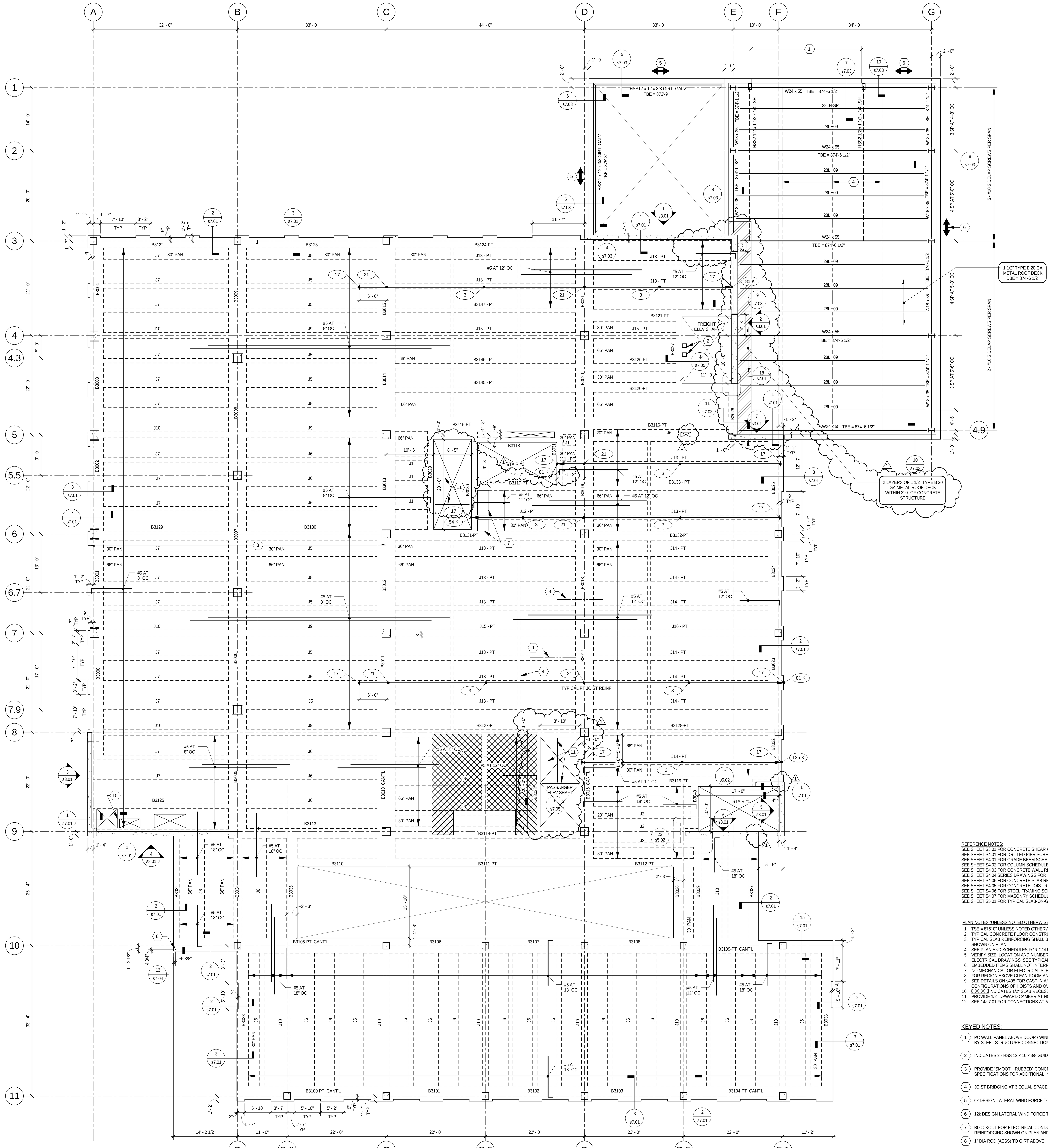
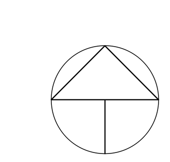
LEVEL 2 - FRAMING PLAN

s2.02



1 LEVEL 3 - FRAMING PLAN
1/8" = 1'-0"



NORTH

REFERENCE NOTES:
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SEE SHEET S4.01 FOR DRILLED PIER SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.01 FOR GRADE BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.02 FOR COLUMN SCHEDULE.
SEE SHEET S4.03 FOR CONCRETE WALL REINFORCING SCHEDULE AND TYPICAL WALL AND COLUMN DETAILS.
SEE SHEET S4.04 SERIES DRAWINGS FOR BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE SLAB REINFORCING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE JOIST REINFORCING SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.06 FOR STEEL FRAMING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.07 FOR MASONRY SCHEDULES AND DETAILS.
SEE SHEET S5.01 FOR TYPICAL SLAB-ON-GRADE DETAILS.

PLAN NOTES (UNLESS NOTED OTHERWISE):

1. TSE = 876'-0" UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION.
2. TYPICAL CONCRETE FLOOR CONSTRUCTION: 5" SLAB OVER 20" HIGH PAN (25" TOTAL DEPTH). TYPICAL PAN WIDTH: 53", UNLESS NOTED OTHERWISE.
3. TYPICAL SLAB REINFORCING SHALL BE #4 AT 12" OC PERPENDICULAR TO JOISTS PROVIDE #4 AT 18" OC PARALLEL TO JOIST WHERE NO TOP BAR IS SHOWN ON PLAN.
4. SEE PLAN AND SCHEDULES FOR COLUMN, WALL AND PIER INFORMATION.
5. VERIFY SIZE, LOCATION AND NUMBER OF ALL OPENINGS THROUGH FLOOR WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. SEE TYPICAL DETAILS AND FRAMING AT OPENINGS.
6. EMBEDDED ITEMS SHALL NOT INTERRUPT SPECIFIED REINFORCING.
7. NO MECHANICAL OR ELECTRICAL SLEEVES SHALL PENETRATE JOISTS OR BEAMS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL.
8. FOR REGION ABOVE CLEAN ROOM AND NOTED ON PLAN - PROVIDE SPECIAL FORM WORK FINISH AS NOTED.
9. SEE DETAILS ON s405 FOR CAST-IN ANCHORAGES FOR HOISTS AND OVERHEAD SERVICE CARRIERS. SEE LAB PLANNING DRAWINGS FOR LAYOUT AND CONFIGURATIONS OF HOISTS AND OVERHEAD SERVICE CARRIERS.
10. INDICATES 1/2" SLAB RECESS. SEE ARCHITECTURAL DRAWINGS FOR EXTENT.
11. PROVIDE 1/2" UPWARD CAMBER AT NON POST-TENSIONED JOISTS WITH SPAN GREATER THAN 25'-0", TYPICAL.
12. SEE 14/s7.01 FOR CONNECTIONS AT MECHANICAL SHAFT DIVIDER FRAMING.

KEYED NOTES:

1. PC WALL PANEL ABOVE DOOR / WINDOW OPENING. GRAVITY SUPPORT BY ADJACENT PC WALL PANELS. LATERAL SUPPORT BY STEEL STRUCTURE CONNECTIONS TO SUPPORTS BY PC SUPPLIER.
2. INDICATES 2 - HSS 12 x 10 x 3/8 GUIDE RAIL SUPPORTS.
3. PROVIDE "SMOOTH-RUBBED" CONCRETE FINISH (CONC-FIN 20) FOR BEAM, JOISTS AND SLABS IN REGION SHOWN. SEE SPECIFICATIONS FOR ADDITIONAL INFO.
4. JOIST BRIDGING AT 3 EQUAL SPACES. SEE TYPICAL JOIST BRIDGING SECTION ON s4.05.
5. 6k DESIGN LATERAL WIND FORCE TO PRECAST WALL PANELS.
6. 12k DESIGN LATERAL WIND FORCE TO PRECAST WALL PANELS.
7. BLOCKOUT FOR ELECTRICAL CONDUIT. PROVIDE 1 1/2" x 2" KEYWAY AT SLAB AND THREADED COUPLERS FOR SLAB REINFORCING SHOWN ON PLAN AND PLAN NOTES.
8. 1" DIA ROD (AESS) TO GIRT ABOVE.
9. APPROXIMATE LOCATION OF MANUAL RAIL CRANE BELOW. SEE PLAN NOTE FOR ADDITIONAL INFORMATION.
10. 25" DEEP CONCRETE MEMBER, WIDTH TO MATCH DISTANCE BETWEEN MECHANICAL SHAFTS. REINFORCE W/ 1 - #7 TOP AND BOTTOM AND #4 SINLGE LEG STIRRUPS AT 10" OC. EXTEND LONGITUDINAL REINFORCING 3'-0" BEYOND END OF BEAM. HOOK AT DISCONTINUOUS ENDS.
11. HSS6 x 4 x1/4 SHAFT DIVIDER BEAM. VERIFY LOCATION WITH ARCH AND MECHANICAL. SEE PLAN NOTE 12 THIS SHEET FOR ADDITIONAL INFORMATION. (1)

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas
Signature:
Date 02/24/2012 Reg. No. 44681

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Physics and Nanotechnology Building

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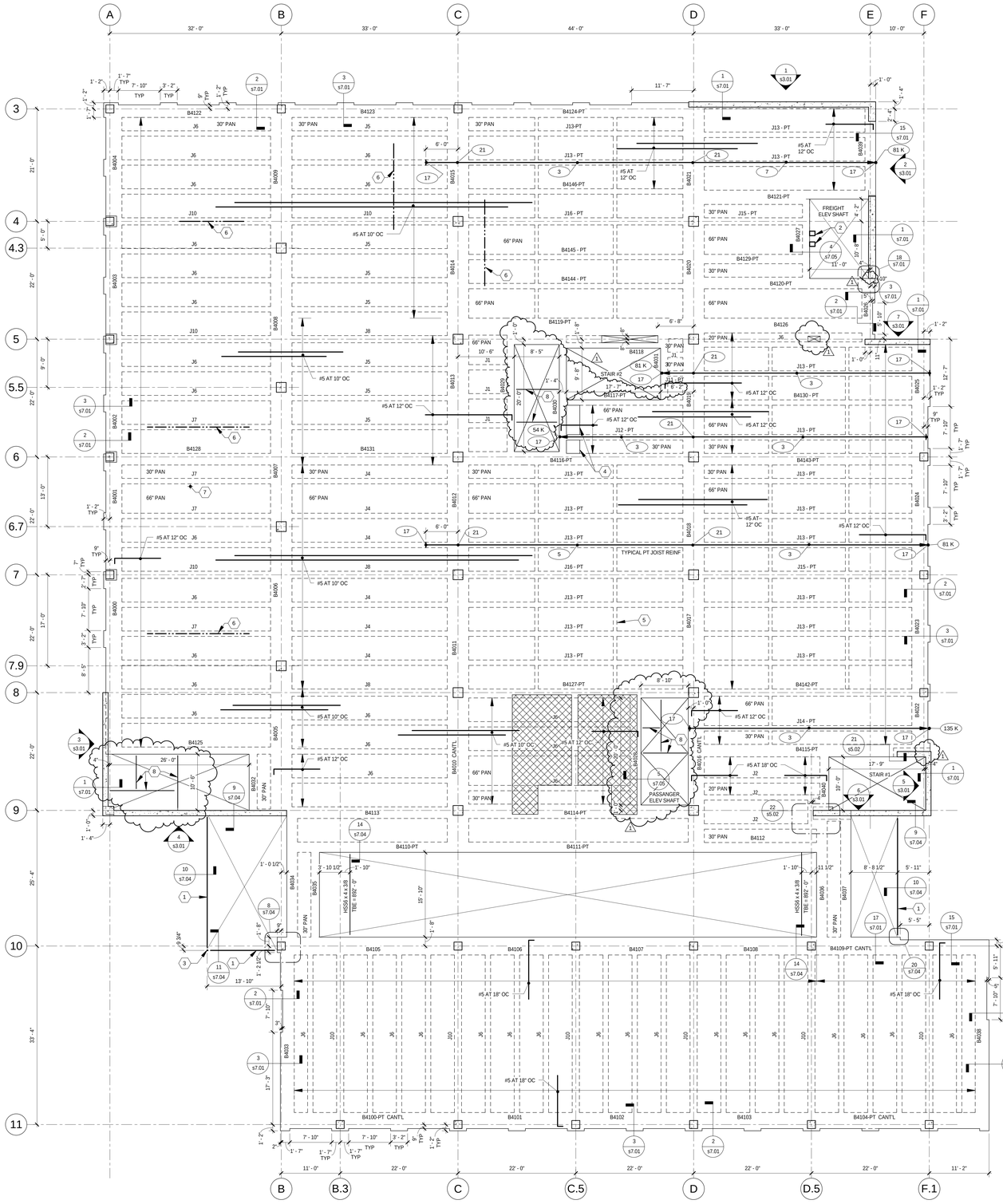
LEVEL 3 - FRAMING PLAN

s2.03



1 LEVEL 4 - FRAMING PLAN
1/8" = 1'-0"

REFERENCE NOTES:
SEE SHEET S3.01 FOR CONCRETE SHEAR WALL AND BRACED FRAME ELEVATIONS.
SEE SHEET S4.01 FOR DRILLED PIER SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.01 FOR GRADE BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.02 FOR COLUMN SCHEDULE.
SEE SHEET S4.03 FOR CONCRETE WALL REINFORCING SCHEDULE AND TYPICAL WALL AND COLUMN DETAILS.
SEE SHEET S4.04 SERIES DRAWINGS FOR BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE SLAB REINFORCING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE JOIST REINFORCING SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.06 FOR STEEL FRAMING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.07 FOR MASONRY SCHEDULES AND DETAILS.
SEE SHEET S5.01 FOR TYPICAL SLAB-ON-GRADE DETAILS.

PLAN NOTES (UNLESS NOTED OTHERWISE):
1. TSE = 892'-0", UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION.
2. TYPICAL CONCRETE FLOOR CONSTRUCTION: 5" SLAB OVER 20" HIGH PAN (25" TOTAL DEPTH). TYPICAL PAN WIDTH: 53", UNLESS NOTED OTHERWISE.
3. TYPICAL SLAB REINFORCING SHALL BE #4 AT 12" OC PERPENDICULAR TO JOISTS. PROVIDE #4 AT 18" OC PARALLEL TO JOIST WHERE NO TOP BAR IS SHOWN ON PLAN. PROVIDE LAP SPLICES AS NEEDED.
4. SEE PLAN AND SCHEDULES FOR COLUMN, WALL AND PIER INFORMATION.
5. VERIFY SIZE, LOCATION AND NUMBER OF ALL OPENINGS THROUGH FLOOR WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. SEE TYPICAL DETAILS AND FRAMING AT OPENINGS.
6. EMBEDDED ITEMS SHALL NOT INTERRUPT SPECIFIED REINFORCING.
7. NO MECHANICAL OR ELECTRICAL SLEEVES SHALL PENETRATE JOISTS OR BEAMS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL.
8. SEE DETAILS ON s4.05 FOR CAST-IN ANCHORAGES FOR HOISTS AND OVERHEAD SERVICE CARRIERS. SEE LAB PLANNING DRAWINGS FOR LAYOUT AND CONFIGURATIONS OF HOISTS AND OVERHEAD SERVICE CARRIERS.
9. INDICATES 1/2" SLAB RECESS. SEE ARCHITECTURAL DRAWINGS FOR EXTENT.
10. PROVIDE 1/2" UPWARD CAMBER AT NON POST-TENSIONED JOISTS WITH SPAN GREATER THAN 25'-0", TYPICAL.
11. SEE 14/s7.01 FOR CONNECTIONS AT MECHANICAL SHAFT DIVIDER FRAMING.

KEYED NOTES:
1. W8 x 31 (FLAT) GIRT (AESS) W/ HANGER CABLE AT CURTAINWALL MULLION LOCATIONS TO STRUCTURE ABOVE. VERIFY HANGER LOCATIONS WITH ARCHITECT. TBE = 891'-10 1/2".
2. INDICATES 2 - HSS 12 x 10 x 3/8 GUIDE RAIL SUPPORTS.
3. 1" DIA ROD (AESS) TO STRUCTURE ABOVE AND BELOW.
4. BLOCKOUT FOR ELECTRICAL CONDUIT. PROVIDE 1 1/2" x 2" KEYWAY AT SLAB AND THREADED COUPLERS FOR SLAB REINFORCING SHOWN ON PLAN.
5. JOIST BRIDGING AT 3 EQUAL SPACES. SEE TYPICAL JOIST BRIDGING SECTION ON s4.05.
6. APPROXIMATE LOCATION OF MANUAL RAIL CRANE BELOW. SEE PLAN NOTE FOR ADDITIONAL INFORMATION.
7. APPROXIMATE LOCATION OF 2-TON HOIST. SEE PLAN NOTE FOR ADDITIONAL INFORMATION.
8. HSS6 x 4 x1/4 SHAFT DIVIDER BEAM. VERIFY LOCATION WITH ARCH AND MECHANICAL. SEE PLAN NOTE 11 THIS SHEET FOR ADDITIONAL INFORMATION.

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Signature:

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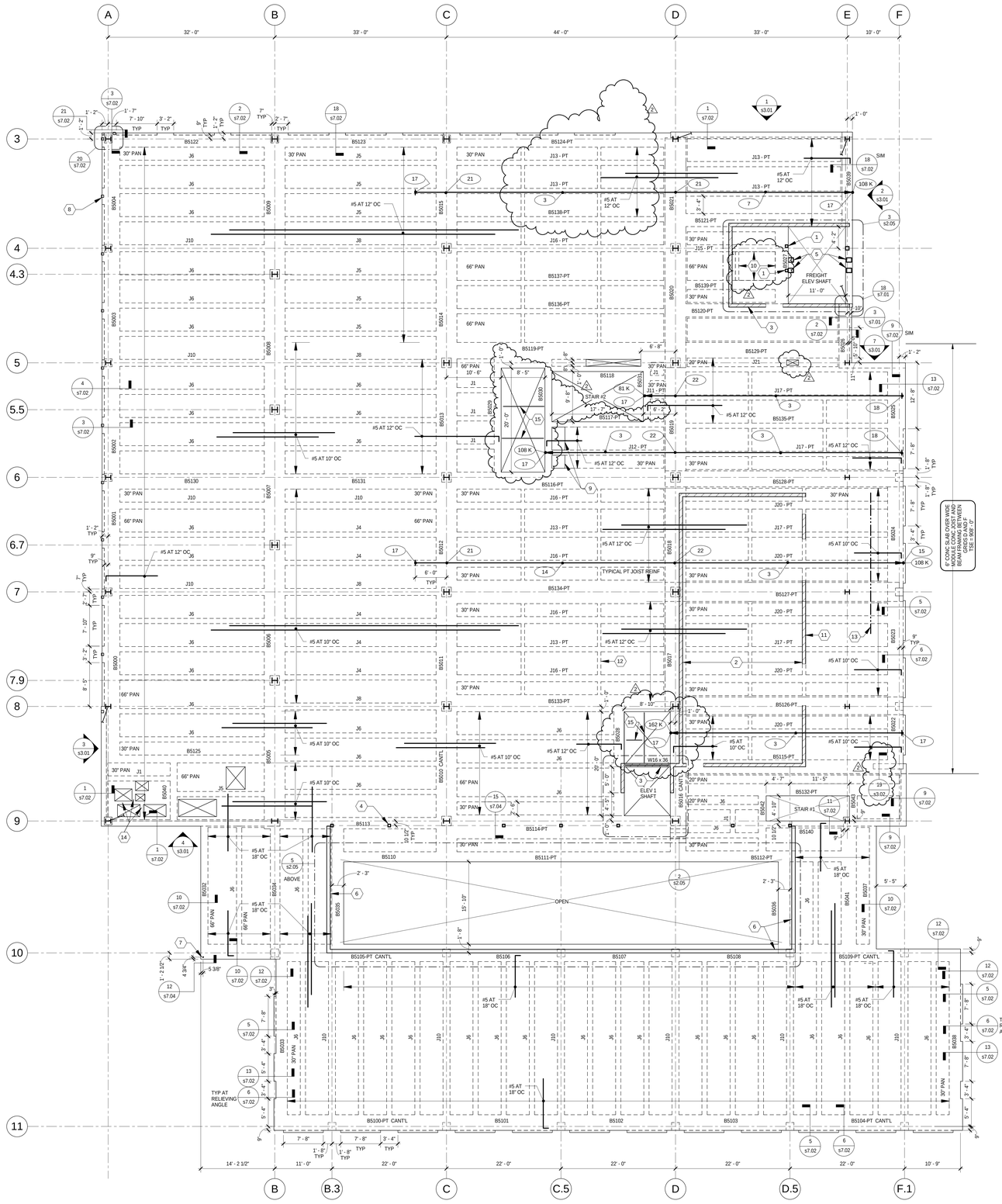
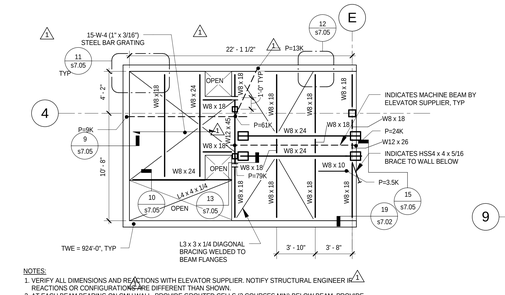
LEVEL 4 - FRAMING PLAN

s2.04

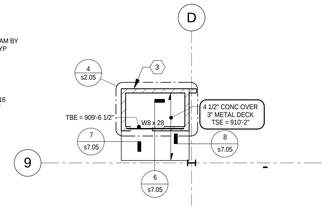


1 PENTHOUSE - FRAMING PLAN
1/8" = 1'-0"

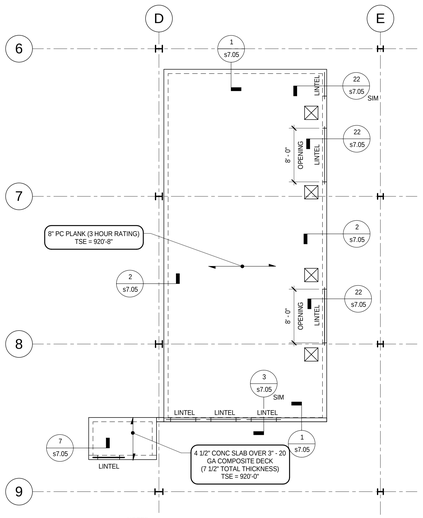


NOTES:
1. VERIFY ALL DIMENSIONS AND REACTIONS WITH ELEVATOR SUPPLIER. NOTIFY STRUCTURAL ENGINEER IF REACTIONS OR CONFIGURATIONS ARE DIFFERENT THAN SHOWN.
2. AT EACH BEAM BEARING ON CMU WALL, PROVIDE GROUTED CELLS (3 COURSES MIN) BELOW BEAM. PROVIDE BEARING PL1/2 x 5 x 1'-0" W/2 - 1/2" DIA x 0'-5" HEADED STUDS. GROUT AROUND BEAM AT CMU WALL BEARING.
3. TOP OF BAR GRATING ELEVATION = 923'-11".

3 PARTIAL PLAN AT ELEVATOR MACHINE SUPPORT FRAMING
3/16" = 1'-0"

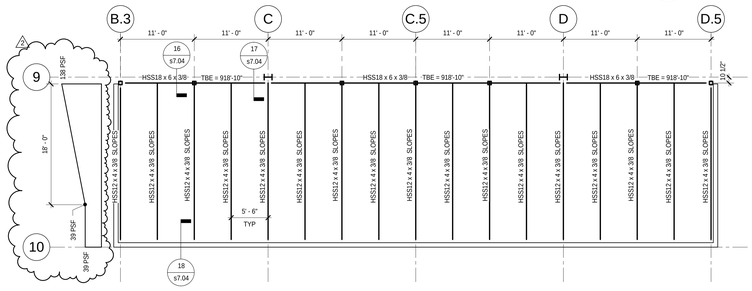


2 PENTHOUSE - FRAMING PLAN
1/8" = 1'-0"



NOTES:
1. VERIFY SIZE AND LOCATION OF MECHANICAL OPENINGS THROUGH PRECAST PLANK. PROVIDE HEADERS OR ADDITIONAL REINFORCING AS NECESSARY.
2. PROVIDE 8 x 16 CMU LINTEL WHERE NOTED ON PLAN. VERIFY LOCATION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. SEE DETAIL FOR REINFORCING.

4 PARTIAL PLAN AT TRANSFORMER VAULT AND MACHINE ROOM LID
1/8" = 1'-0"



NOTES:
1. ALL SLOPED HSS12 x 4 x 3/8 ARE TO BE AESS.
2. LOADS SHOWN ARE SNOWLOADS FOR SKYLIGHT DESIGN BY SKYLIGHT SUPPLIER. LOADS ARE TYPICAL ACROSS WIDTH OF SKYLIGHT.

5 PARTIAL ATRIUM SKYLIGHT FRAMING PLAN
1/8" = 1'-0"

REFERENCE NOTES:
SEE SHEET S3.01 FOR CONCRETE SHEAR WALL AND BRACED FRAME ELEVATIONS.
SEE SHEET S4.01 FOR DRILLED PIER SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.01 FOR GRADE BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.02 FOR COLUMN SCHEDULE.
SEE SHEET S4.03 FOR CONCRETE WALL REINFORCING SCHEDULE AND TYPICAL WALL AND COLUMN DETAILS.
SEE SHEET S4.04 SERIES DRAWINGS FOR BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE SLAB REINFORCING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE JOIST REINFORCING SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.06 FOR STEEL FRAMING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.07 FOR MASONRY SCHEDULES AND DETAILS.
SEE SHEET S5.01 FOR TYPICAL SLAB-ON-GRADE DETAILS.

PLAN NOTES (UNLESS NOTED OTHERWISE):
1. TSE = 908'-0" UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION.
2. TYPICAL CONCRETE FLOOR CONSTRUCTION: 5" SLAB OVER 20" HIGH PAN (25" TOTAL DEPTH). TYPICAL PAN WIDTH: 53" UNLESS NOTED OTHERWISE.
3. TYPICAL SLAB REINFORCING SHALL BE #4 AT 12" OC PERPENDICULAR TO JOISTS. PROVIDE #4 AT 18" OC PARALLEL TO JOIST WHERE NO TOP BAR IS SHOWN ON PLAN
4. SEE PLAN AND SCHEDULES FOR COLUMN, WALL AND PIER INFORMATION.
5. VERIFY SIZE, LOCATION AND NUMBER OF ALL OPENINGS THROUGH FLOOR WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. SEE s4.04 FOR TYPICAL DETAILS AND FRAMING AT OPENINGS.
6. EMBEDDED ITEMS SHALL NOT INTERRUPT SPECIFIED REINFORCING.
7. NO MECHANICAL OR ELECTRICAL SLEEVES SHALL PENETRATE JOISTS OR BEAMS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL.
8. FOR LAYOUT OF CONCRETE HOUSEKEEPING PADS - SEE MECH / ARCH DRAWINGS. REINFORCE 4" PADS W/ #4 BARS AT 18" OC EACH WAY.
9. SEE DETAILS ON s4.05 FOR CAST-IN ANCHORAGES FOR HOISTS AND OVERHEAD SERVICE CARRIERS. SEE LAB PLANNING DRAWINGS FOR LAYOUT AND CONFIGURATIONS OF HOISTS AND OVERHEAD SERVICE CARRIERS.
10. PROVIDE 1/2" UPWARD CAMBER AT NON POST-TENSIONED JOISTS WITH SPAN GREATER THAN 25'-0".
11. SEE 14/s7.01 FOR CONNECTIONS AT MECHANICAL SHAFT DIVIDER FRAMING.

KEYED NOTES:

1. INDICATES HSS5 x 5 x 3/8 MACHINE BEAM SUPPORT COLUMN WITH BASE PL3/4 x 5 x 1'-0" WITH 2 - 3/4" ANCHOR RODS (9" EMBED).
2. 8" SOLID GROUTED CMU WALLS AT TRANSFORMER VAULT - REINF W/ #5 VERTS AT 32" OC.
3. 8" PARTIALLY GROUTED CMU WALLS AT ELEVATOR MACHINE ROOM - REINF W/ #5 AT 32" OC.
4. HSS 6 x 6 x 3/8 POST. TYPICAL AT SKYLIGHT.
5. INDICATES 2 - HSS 12 x 10 x 3/8 GUIDE RAIL AND MACHINE ROOM BEAM SUPPORT COLUMNS.
6. 8" WIDE x 36" TALL CONCRETE CURB REINFORCED WITH #5 HOOKED VERTS AT 12" OC AND #5 HORIZ AT 12" OC.
7. 1" DIA ROD (AESS) TO GIRT BELOW.
8. HSS 6 x 6 x 5/16 LOUVER SUPPORT AT 11'-0" MAX W/ EMBED CONNECTION TO STRUCTURE. LOCATE HSS VERTS AT MID-WIDTH OF BRICK PIERS BELOW - SEE ARCH FOR DIMENSIONS.
9. BLOCKOUT FOR ELECTRICAL CONDUIT. PROVIDE 1 1/2" x 2" KEYWAY AT SLAB AND THREADED COUPLERS FOR SLAB REINFORCING SHOWN ON PLAN AND PLAN NOTES.
10. 12" SLAB AT ELEVATOR MACHINE WITH #7 AT 10" OC TOP AND BOTTOM NORTH-SOUTH AND #5 AT 12" OC TOP AND BOTTOM EAST-WEST. EXTEND 18" MIN BEYOND ELEVATOR MACHINE. VERIFY EXTENT WITH ELEVATOR SUPPLIER.
11. PROVIDE TYPICAL BRIDGING JOISTS BELOW CMU WALL, TYPICAL.
12. JOIST BRIDGING AT 3 EQUAL SPACES. SEE TYPICAL JOIST BRIDGING SECTION ON s4.05.
13. APPROXIMATE LOCATION OF MANUAL RAIL CRANE BELOW. SEE PLAN NOTE FOR ADDITIONAL INFORMATION.
14. 25" DEEP CONCRETE MEMBER. WIDTH TO MATCH DISTANCE BETWEEN MECHANICAL SHAFTS. REINFORCE W/ 1 - #7 TOP AND BOTTOM AND #4 SINLGE LEG STIRRUPS AT 10" OC. EXTEND LONGITUDINAL REINFORCING 3'-0" BEYOND END OF BEAM. HOOK AT DISCONTINUOUS ENDS.
15. HSS6 x 4 x1/4 SHAFT DIVIDER BEAM. VERIFY LOCATION WITH ARCH AND MECHANICAL. SEE PLAN NOTE 11 THIS SHEET FOR ADDITIONAL INFORMATION.

NORTH

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Project

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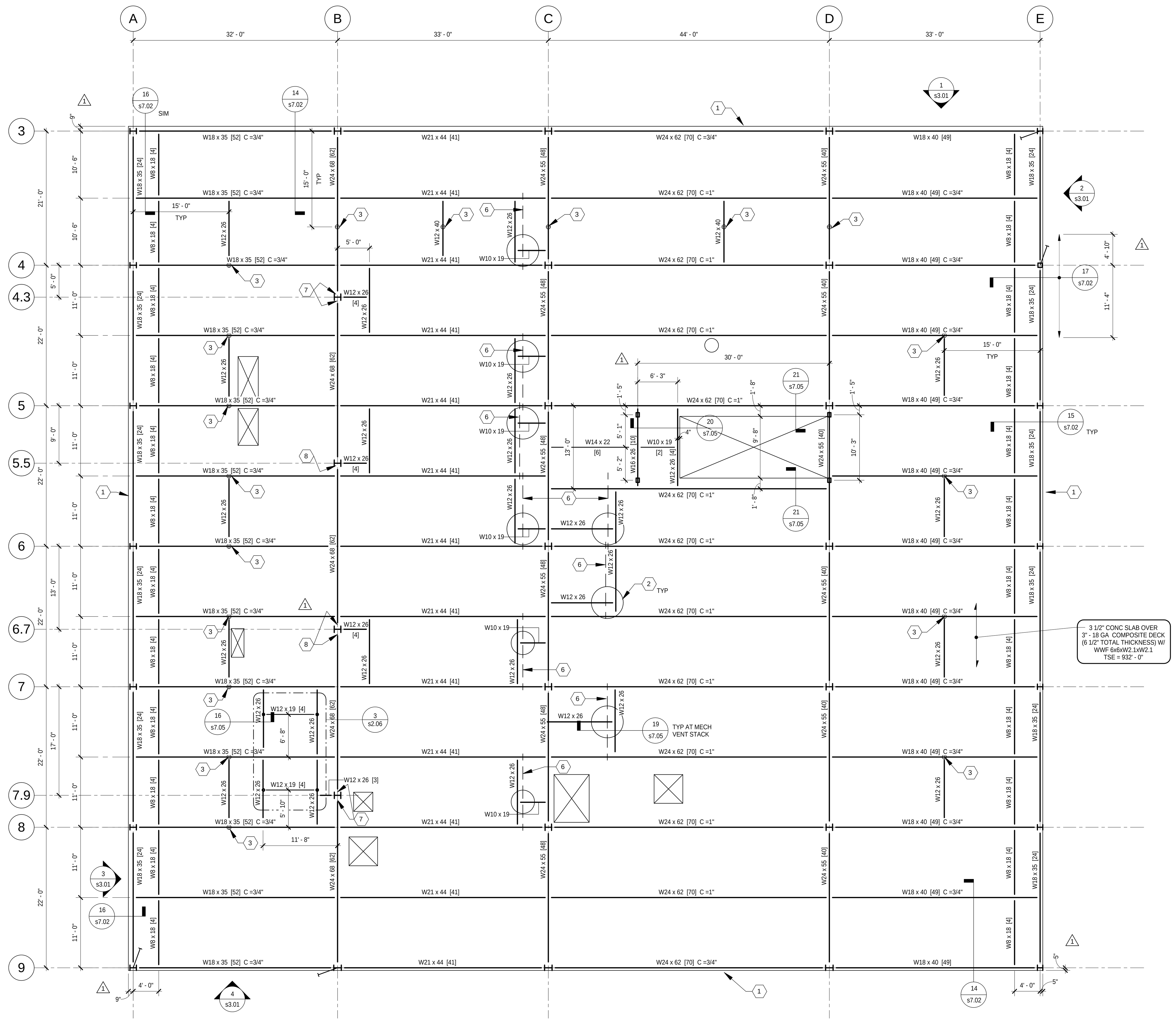
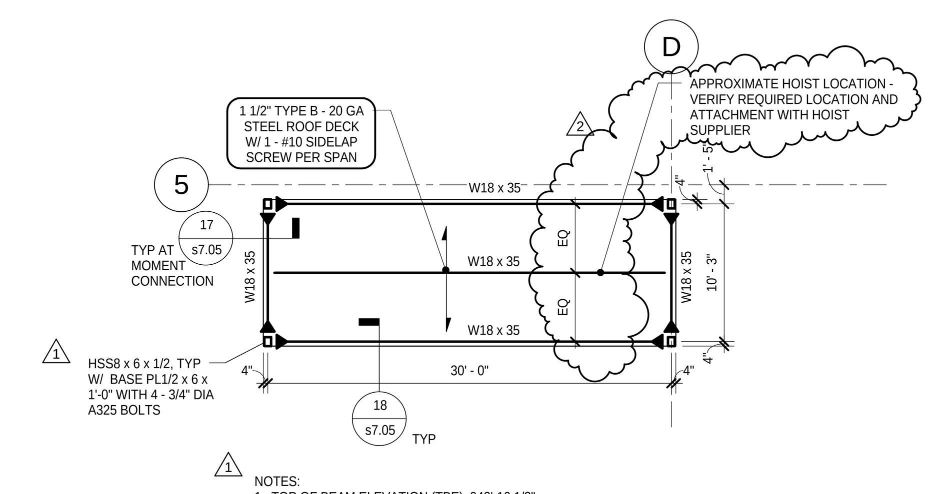
PENTHOUSE - FRAMING PLAN

s2.05



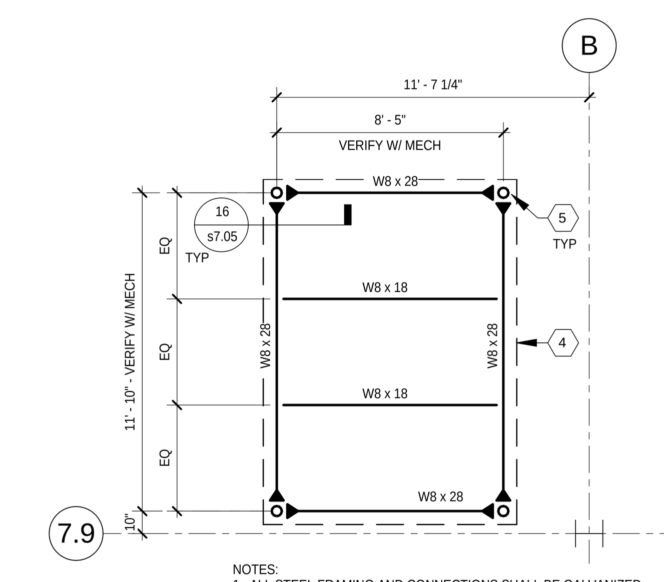
1 ROOF - FRAMING PLAN
1/8" = 1'-0"

NORTH



NOTES:
1. TOP OF BEAM ELEVATION (TBE): 943'-10 1/2"

2 STAIR ENCLOSURE ROOF
1/8" = 1'-0"



NOTES:
1. ALL STEEL FRAMING AND CONNECTIONS SHALL BE GALVANIZED.
2. PROVIDE SHEAR PLATE CONNECTION AT W8 x 18. SEE s4.06.
3. TBE = 936'-0", UNLESS NOTED OTHERWISE.

3 MECHANICAL EQUIPMENT PLATFORM
1/4" = 1'-0"

REFERENCE NOTES:
SEE SHEET S3.01 FOR CONCRETE SHEAR WALL AND BRACED FRAME ELEVATIONS.
SEE SHEET S4.01 FOR DRILLED PIER SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.01 FOR GRADE BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.02 FOR COLUMN SCHEDULE.
SEE SHEET S4.03 FOR CONCRETE WALL REINFORCING SCHEDULE AND TYPICAL WALL AND COLUMN DETAILS.
SEE SHEET S4.04 SERIES DRAWINGS FOR BEAM SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE SLAB REINFORCING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.05 FOR CONCRETE JOIST REINFORCING SCHEDULE AND TYPICAL DETAILS.
SEE SHEET S4.06 FOR STEEL FRAMING SCHEDULES AND TYPICAL DETAILS.
SEE SHEET S4.07 FOR MASONRY SCHEDULES AND DETAILS.
SEE SHEET S5.01 FOR TYPICAL SLAB-ON-GRADE DETAILS.

PLAN NOTES (UNLESS NOTED OTHERWISE):
1. HEADED STUDS SHOWN FOR BEAMS AND GIRDERS ARE 3/4" DIA x 0'-5" LONG, TYP. SEE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS FOR PLACEMENT REQUIREMENTS.
2. SEE THE GENERAL STRUCTURAL NOTES AND SPECIFICATION FOR STEEL BEAM CONNECTION REQUIREMENTS. PROVIDE TYPICAL SHEAR PLATE CONNECTION FOR BEAM TO BEAM CONNECTIONS. PROVIDE TYPICAL DOUBLE ANGLE CONNECTION FOR BEAM TO COLUMN CONNECTIONS. SEE THE TYPICAL CONNECTION SCHEDULES AND DETAILS FOR ADDITIONAL INFORMATION.
3. VERIFY SIZE, LOCATION AND NUMBER OF ALL OPENINGS THROUGH ROOF WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. SEE TYPICAL DETAILS FOR REQUIRED FRAMING AT OPENINGS.
4. MECHANICAL EQUIPMENT WEIGHING GREATER THAN 100 POUNDS PER SQUARE FOOT SHALL BE SUPPORTED ON SUPPORT CURBS DESIGNED BY THE SUPPLIER TO SPAN TO THE PRIMARY STRUCTURAL BEAM FRAMING.

KEYED NOTES:
1. PROVIDE 5/16" BENT PLATE AT PERIMETER OR ROOF W/ 1/2" x 6" HEADED STUDS AT 16" OC - TYP AT PERIMETER.
2. VENT STACK - VERIFY SIZE AND LOCATION WITH MECHANICAL.
3. ROOF DAVIT OR TIE OFF LOCATION. VERIFY LOCATION WITH ARCHITECTURAL DRAWINGS. SEE S4.06 FOR DESIGN INFORMATION AND CONNECTION DETAILS.
4. MECHANICAL UNIT; OPERATING WEIGHT: 6850 LBS.
5. 6" DIA STANDARD PIPE.
6. 6 - #5 x 12'-0" AT 12" OC TOP AND BOTTOM. PLACE BOTTOM BARS IN LOW FLUTE.
7. 6 ROW DOUBLE ANGLE CONNECTION.
8. 7 ROW DOUBLE ANGLE CONNECTION.

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas
Signature:
Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
1 ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
2 Project Directive No. 3	05-11-2012

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Drawn DJL, RKH
Checked MET
Date 12/16/2011
Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
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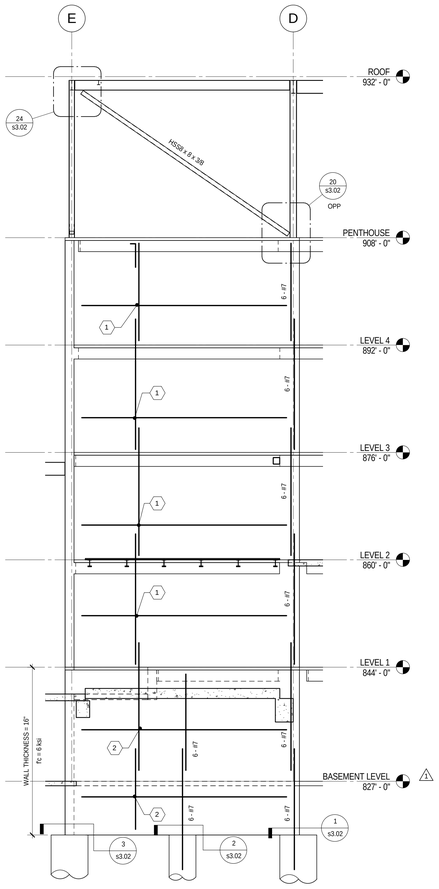
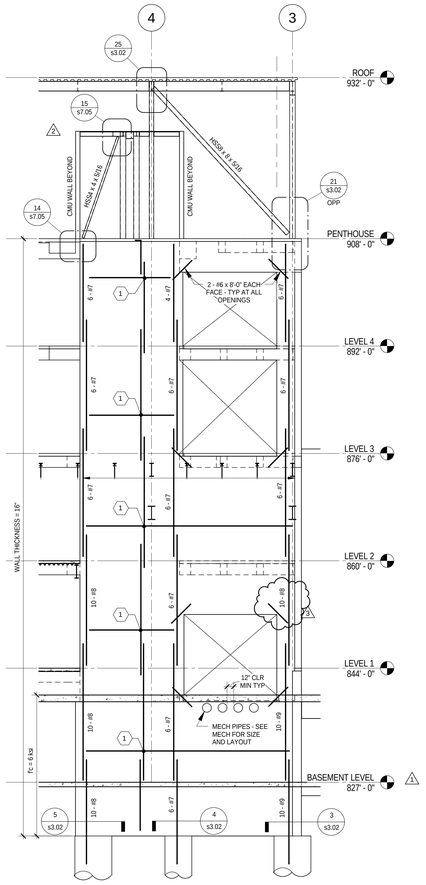
ROOF - FRAMING PLAN

s2.06



1 SHEAR WALL ELEVATION - GRID 3
1/8" = 1'-0"



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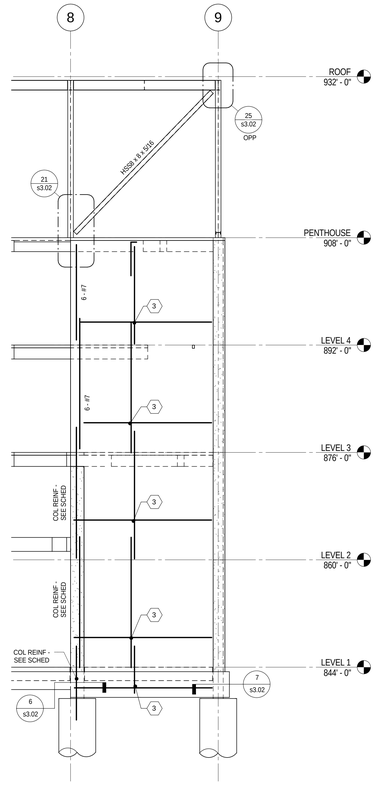
1/8" = 1'-0"



3 SHEAR WALL ELEVATION - GRID A
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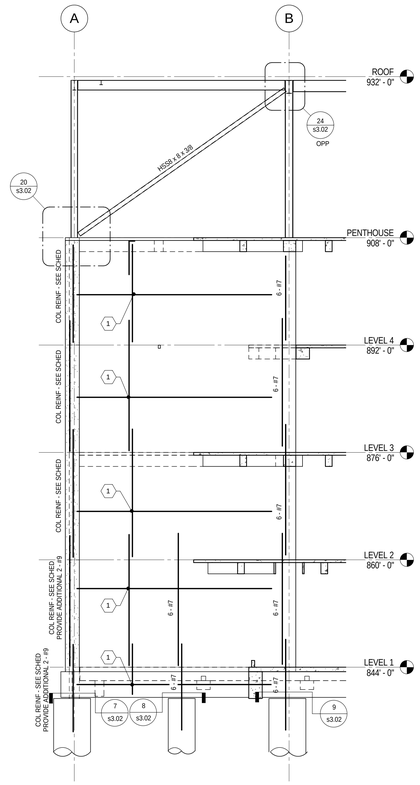
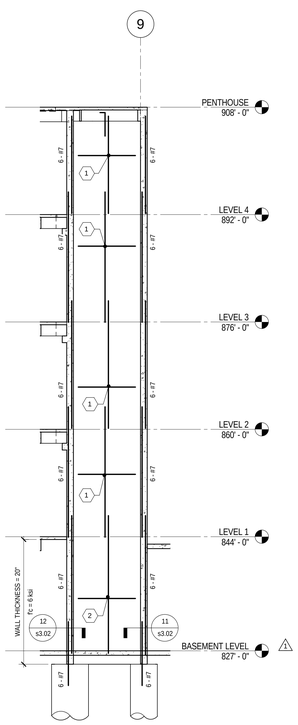


4 SHEAR WALL ELEVATION - GRID 9
1/8" = 1'-0"



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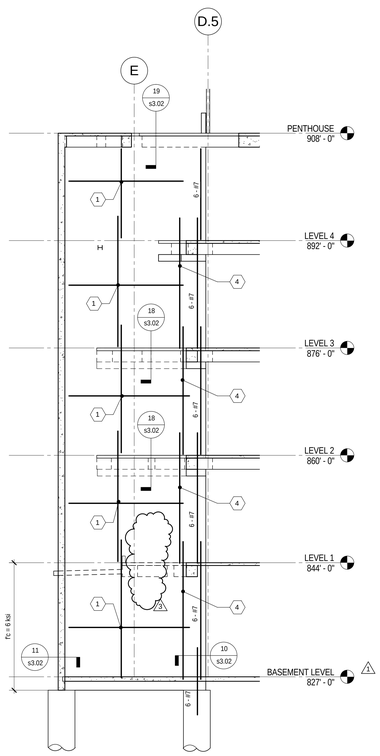
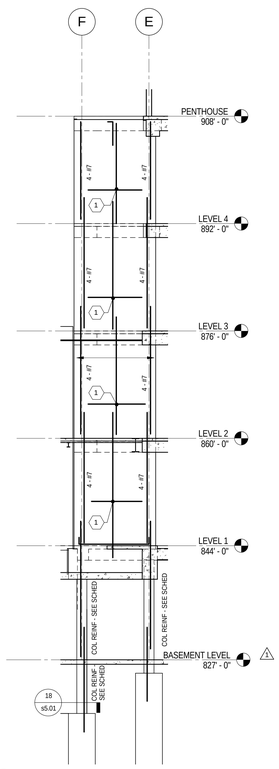


6 SHEAR WALL ELEVATION - GRID 9
1/8" = 1'-0"



7 SHEAR WALL ELEVATION - GRID 5
1/8" = 1'-0"

SHEAR WALL REFERENCE NOTES:

1. SEE PLAN FOR SHEAR WALL DIMENSIONS NOT SHOWN IN ELEVATIONS.
2. WALL THICKNESS = 12" UNLESS NOTED OTHERWISE.
3. PROVIDE CLASS 'B' LAP SPLICES ALL SHEAR WALL REINFORCING UNLESS NOTED OTHERWISE. SEE REINFORCING BAR LAP SPLICE SCHEDULE.
4. SEE TYPICAL ADDITIONAL BAR PLACING DETAIL FOR WALL OPENING ON SHEET S4.03 FOR REINFORCING AROUND DUCT / PIPING OPENINGS LESS THAN 24" IN ANY DIRECTION.
5. PROVIDE DOWELS TO DRILLED PIER TO MATCH VERTICAL WALL REINF SIZE AND SPACING.
6. HORIZONTAL REINFORCEMENT SHALL BE THE OUTERMOST LAYER OF REINFORCING UNLESS NOTED OTHERWISE.
7. CONCRETE STRENGTH f'c SHALL MATCH CONCRETE COLUMN STRENGTHS AT EACH LEVEL UNLESS NOTED OTHERWISE IN ELEVATION.
8. SEE s3.02 FOR TYPICAL SHEAR WALL REINFORCING DETAILS AND BRACE FRAME DETAILS.

KEYED NOTES - SHEAR WALL FIELD REINFORCING:

1. #5 AT 12" OC VERTICAL REINFORCING EACH FACE
   #5 AT 12" OC HORIZONTAL REINFORCING EACH FACE
2. #7 AT 12" OC VERTICAL REINFORCING INSIDE FACE - OUTERMOST LAYER
   #5 AT 12" OC VERTICAL REINFORCING OUTSIDE FACE - OUTERMOST LAYER
   #5 AT 12" OC HORIZONTAL REINFORCING EACH FACE - INNERMOST LAYER
3. #6 AT 12" OC VERTICAL REINFORCING EACH FACE
   #5 AT 12" OC HORIZONTAL REINFORCING EACH FACE
4. 3 - #7 AT 12" OC VERTICAL REINFORCING EACH FACE IN ADDITION TO END OF WALL REINFORCING AT LOCATIONS WHERE BEAM FRAMES TO SOUTH FACE OF WALL

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Signature:

Date 02/24/2012 Reg. No. 44681

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Project Directive No. 2	03-14-2012
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Drawn DJL, RKH

Checked MET

Date 10-14-2011

Project

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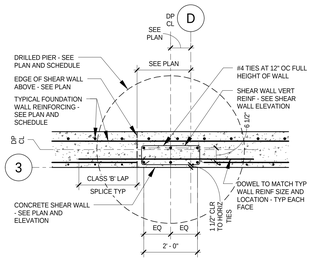
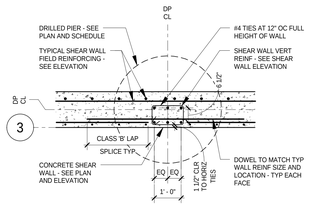
SHEAR WALL AND BRACE FRAME ELEVATIONS

s3.01



1 SHEAR WALL DETAIL
NO SCALE



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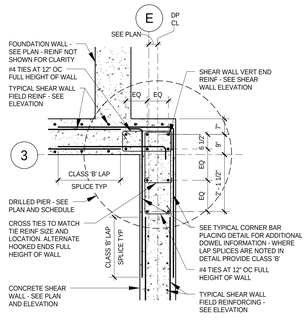

3 SHEAR WALL CORNER DETAIL
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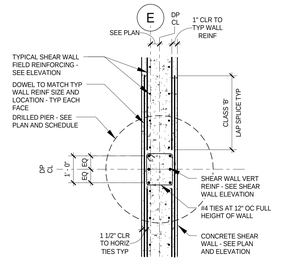

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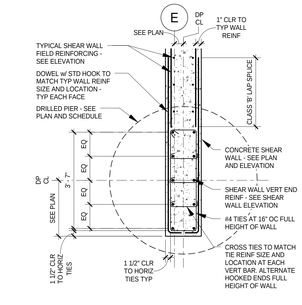

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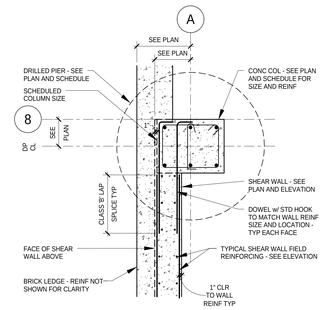

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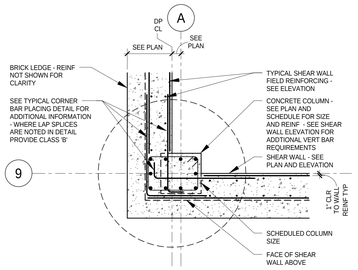

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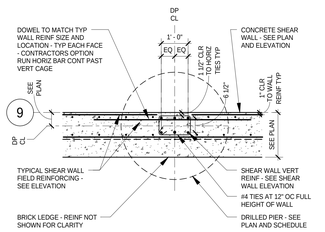

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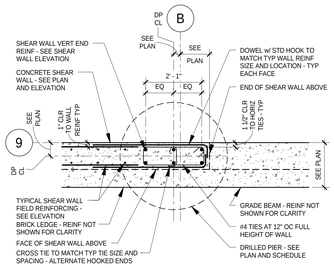

9 SHEAR WALL DETAIL
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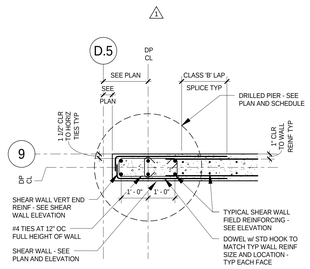

10 SHEAR WALL END DETAIL
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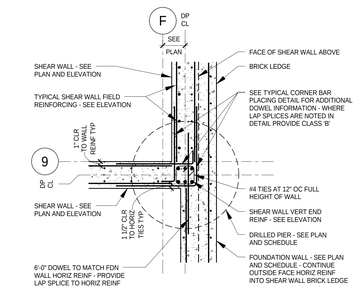

11 SHEAR WALL CORNER DETAIL
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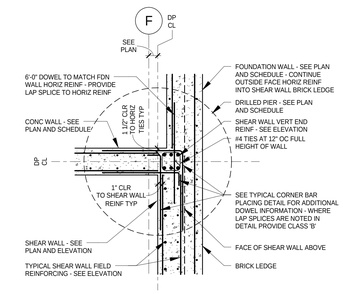

12 SHEAR WALL END DETAIL
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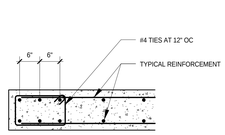

13 TYPICAL SHEAR WALL END
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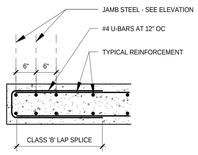
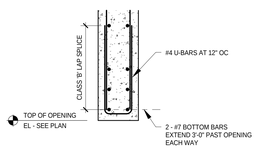


14 TYPICAL SHEAR WALL JAMB DETAIL
NO SCALE



15 TYPICAL SHEAR WALL HEADER
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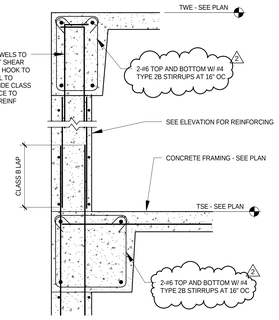
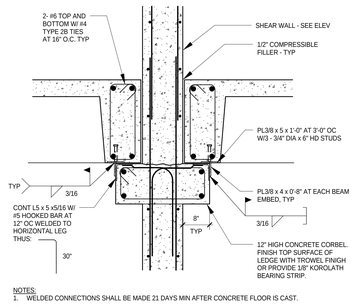
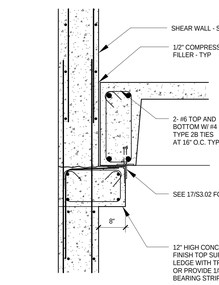


16 TYPICAL SECTION AT SHEAR WALL
NO SCALE



NOTES:
1. WELDED CONNECTIONS SHALL BE MADE 21 DAYS MIN AFTER CONCRETE FLOOR IS CAST.

17 SECTION AT WALL
NO SCALE



18 SECTION AT WALL
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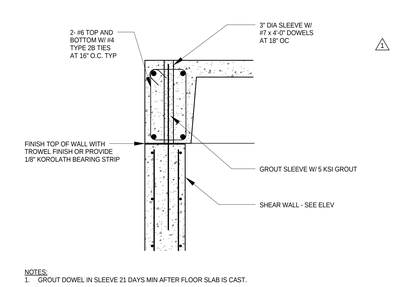
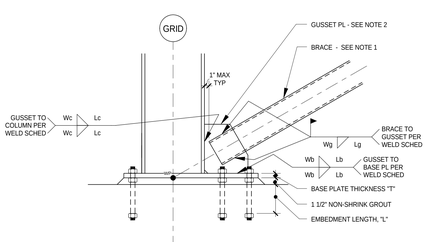


NOTES:
1. GROUT DOWEL IN SLEEVE 21 DAYS MIN AFTER FLOOR SLAB IS CAST.

19 SECTION AT WALL
NO SCALE



NOTES:
1. SEE BRACED FRAME COLUMN BASE PLATE AND ANCHOR ROD SCHEDULE FOR ADDITIONAL INFORMATION.

20 TYPICAL BRACED FRAME COLUMN BASE PLATE DETAIL - BFBP2
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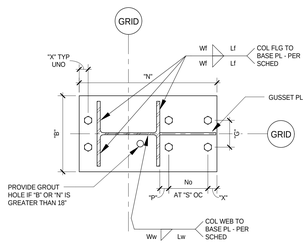
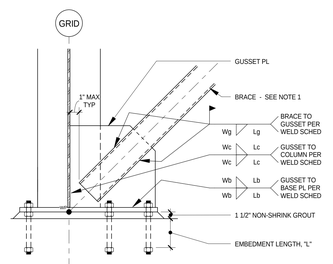
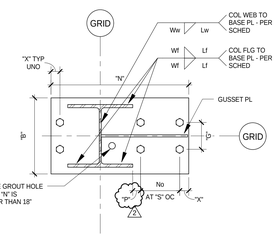




NOTES:
1. SEE BRACED FRAME COLUMN BASE PLATE AND ANCHOR ROD SCHEDULE FOR ADDITIONAL INFORMATION.

21 TYPICAL BRACED FRAME COLUMN BASE PLATE DETAIL - BFBP1 AND BFBP3
NO SCALE

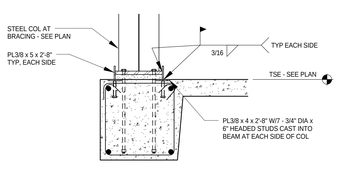


BRACED FRAME COLUMN BASE PLATE AND ANCHOR ROD SCHEDULE

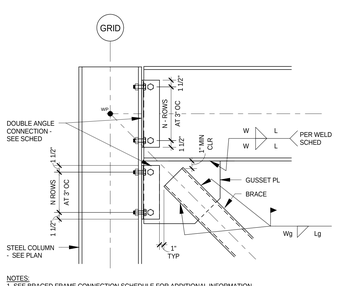
MARK	BASE PLATE CONNECTION											GUSSET CONNECTION					BRACE TO GUSSET CONNECTION	
	BASE PL SIZE					WELD SIZE		ANCHOR RODS				GUSSET PL THICKNESS	WELD SIZE	WELD LENGTH	WELD SIZE	WELD LENGTH	WELD SIZE	WELD LENGTH
	"N"	"B"	"T"	"X"	"S"	"Wb"	"Wf"	No	DIA	"L"	"S"	"G"	"T"	"Wc"	"Lc"	"Wg"	"Lb"	"Wg"	"Lg"
BFBP1	25	14	1.5	1.5	1.5	3/16	1/4	2	3/4	22	6	8	1/2	3/16	14.5	3/16	15	5/16	10
BFBP2	32	14	1.5	1.5	1.5	3/16	1/4	2	3/4	22	11	8	1/2	3/16	15	3/16	14	5/16	10
BFBP3	25	12	1.5	1.5	1.5	3/16	1/4	2	3/4	22	6	8	1/2	3/16	14.5	3/16	15	5/16	10

NOTES (UNO):
1. ANCHOR RODS SHALL BE ASTM F1554, GRADE 36.
2. BASE PLATES SHALL BE ASTM A36.
3. MILL COLUMN BASE AND/OR BASE PLATE AS NECESSARY FOR FULL CONTACT.
4. BASE PLATE THICKNESS INDICATED IS MINIMUM THICKNESS AFTER MILLING.
5. ANCHOR RODS SHALL NOT BE SET INTO CONCRETE AFTER CONCRETE IS CAST.
6. ANCHOR ROD HOLE DIA SHALL BE 5/16" LARGER THAN THE BOLT DIA FOR 1" DIA RODS AND SMALLER AND SHALL BE 1/2" LARGER FOR ANCHOR RODS LARGER THAN 1" DIA.

22 BRACED FRAME COLUMN BASE PLATE AND ANCHOR ROD SCHEDULE
NO SCALE

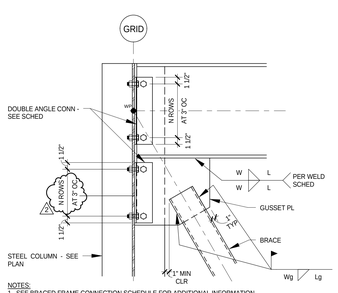


23 TYPICAL BRACED FRAME BASE PLATE DETAIL
NO SCALE



NOTES:
1. SEE BRACED FRAME CONNECTION SCHEDULE FOR ADDITIONAL INFORMATION.

24 TYPICAL BRACE TO COLUMN CONNECTION DETAIL
NO SCALE



NOTES:
1. SEE BRACED FRAME CONNECTION SCHEDULE FOR ADDITIONAL INFORMATION.

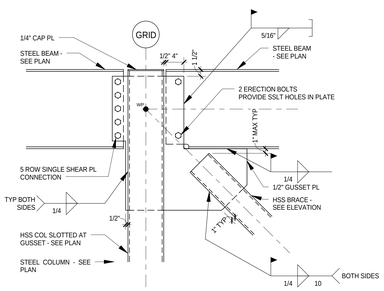
25 TYPICAL BRACE TO COLUMN CONNECTION DETAIL
NO SCALE

BRACED FRAME CONNECTION SCHEDULE

CONNECTION MARK	GUSSET TO COLUMN CONNECTION					BEAM TO COLUMN CONNECTION		BRACE TO GUSSET CONNECTION	
	GUSSET PLATE THICKNESS "T"	WELD SIZE "W"	WELD LENGTH "L"	ANGLE SIZE	N BOLT ROWS	ANGLE SIZE	N BOLT ROWS	WELD SIZE "Wg"	WELD LENGTH "Lg"
24/S3.02	1/2	1/4	30	4x4x1/2	4	4x4x1/2	4	5/16	10
25/S3.02	1/2	1/4	36	4x4x5/16	4	4x4x5/16	4	5/16	10

NOTES:
1. ALL DIMENSIONS ARE IN INCHES.
2. SEE TYPICAL BRACE TO COLUMN CONNECTION DETAILS FOR CONFIGURATIONS.
3. BOLTS SHALL BE 3/4" DIA ASTM A325N (OR F1853).
4. PROVIDE SSLT (SHORT-SLOT LOAD TRANSVERSE) HOLES IN OUTSTANDING LEG (DSL) OF ANGLES.

26 BRACED FRAME CONNECTION SCHEDULE
NO SCALE



27 TYPICAL BRACE TO COLUMN CONNECTION DETAIL
NO SCALE

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature: Matt Thomas

Date 02/24/2012 Reg. No. 44681

Issued for	Date
Bid Package No. 1	10-14-2011
1 100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
Project Directive No. 2	03-14-2012
2 Project Directive No. 3	05-11-2012

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Comm. No. 10.375.0
Drawn DJL, RKH
Checked MET
Date 10-14-2011
Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
Driven to Discover℠

SHEAR WALL AND BRACE FRAME DETAILS

s3.02

CONCRETE REINFORCING BAR LAP SPLICE SCHEDULE								
BAR SIZE	f'c = 3,000 PSI		f'c = 4,000 PSI		f'c = 5,000 PSI		f'c ≥ 6,000 PSI	
	CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B
#3	18"	22"	16"	20"	14"	18"	12"	16"
#4	22"	30"	20"	26"	18"	22"	16"	20"
#5	28"	36"	24"	32"	22"	28"	20"	26"
#6	34"	44"	30"	38"	26"	34"	24"	32"
#7	48"	64"	42"	54"	38"	50"	34"	44"
#8	56"	72"	48"	62"	44"	56"	40"	52"
#9	62"	82"	54"	70"	48"	64"	44"	58"
#10	70"	92"	62"	80"	54"	70"	50"	64"
#11	78"	102"	68"	88"	60"	78"	56"	72"

NOTES:
1. REINFORCING BAR LAP SPLICE SCHEDULE APPLIES TO UNCOATED, GRADE 60 REINFORCING BARS IN NORMAL WEIGHT CONCRETE.
2. PROVIDE CLASS A LAP UNLESS NOTED OTHERWISE.
3. FOR EPOXY COATED BAR, MULTIPLY THE ABOVE LENGTHS BY 1.5.
4. FOR LIGHT WEIGHT CONCRETE, MULTIPLY THE ABOVE LENGTHS BY 1.3.
5. MAXIMUM SPACING OF BARS BEING LAPPED IS ONE FIFTH THE LAP SPLICE LENGTH, NOT TO EXCEED 6".

EPOXY-COATED REINFORCING BAR LAP SPLICE SCHEDULE								
BAR SIZE	f'c = 3,000 PSI		f'c = 4,000 PSI		f'c = 5,000 PSI		f'c ≥ 6,000 PSI	
	CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B
#3	26"	32"	22"	28"	20"	26"	18"	24"
#4	34"	44"	30"	38"	26"	34"	24"	32"
#5	42"	54"	36"	48"	32"	42"	30"	38"
#6	50"	64"	44"	56"	40"	50"	36"	46"
#7	72"	94"	64"	82"	56"	74"	52"	66"
#8	84"	108"	72"	94"	64"	84"	60"	76"
#9	94"	122"	82"	106"	72"	94"	66"	86"
#10	106"	136"	92"	118"	82"	106"	74"	96"
#11	116"	151"	102"	132"	90"	118"	82"	108"

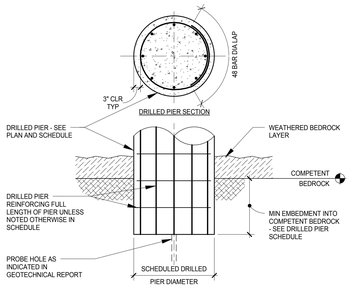
NOTES:
1. EPOXY-COATED REINFORCING BAR LAP SPLICE SCHEDULE APPLIES TO EPOXY-COATED, GRADE 60 REINFORCING BARS IN NORMAL WEIGHT CONCRETE.
2. PROVIDE CLASS A LAP UNLESS NOTED OTHERWISE.
3. FOR UNCOATED BAR, MULTIPLY THE ABOVE LENGTHS BY 0.7
4. FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE ABOVE LENGTHS BY 1.3
5. MAXIMUM SPACING OF BARS BEING SPLICED IS ONE FIFTH THE LAP SPLICE LENGTH, NOT TO EXCEED 6".

1 REINFORCING BAR LAP SPLICE SCHEDULES
NO SCALE

DRILLED PIER SCHEDULE					
MARK	SHAFT DIAMETER	REINFORCING		MINIMUM EMBED IN BEDROCK	COMMENTS
		VERTICAL BARS	CIRCULAR TIES		
DP1	3' - 0"	6 - #9	#4 AT 16" OC		REINFORCE FULL LENGTH
DP2	4' - 0"	6 - #10 x 20'-0"	#4 AT 16" OC		
DP3	5' - 6"	10 - #10 x 20'-0"	#4 AT 16" OC		
DP4	6' - 0"	10 - #10 x 20'-0"	#4 AT 16" OC		
DP5	5' - 6"	10 - #10	#4 AT 16" OC	2'-0"	REINFORCE FULL LENGTH

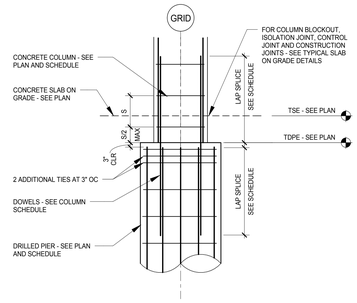
NOTES:
1. SEE TYPICAL DRILLED PIER DETAILS FOR ADDITIONAL INFORMATION.
2. VERTICAL REINFORCING AND TIES SHALL EXTEND THE FULL LENGTH OF THE PIER UNLESS NOTED OTHERWISE.
3. WHERE VERTICAL BAR LENGTHS ARE DESIGNATED IN THE SCHEDULE, VERTICAL REINFORCING AND TIES SHALL EXTEND THE SCHEDULED LENGTH FROM THE TOP OF THE PIER.
4. ANY LAP SPLICES IN VERTICAL REINFORCING OF THE PIER SHALL BE CLASS 'B' LAP SPLICE, TYPICAL.
5. MINIMUM EMBEDMENT LENGTH INTO BEDROCK SHALL BE UNCASED CONCRETE.
6. PIERS SHALL BE FOUNDED ON OR INTO COMPETENT BEDROCK. THE GEOTECHNICAL ENGINEER SHALL INSPECT AND APPROVE EACH DRILLED PIER LOCATION PRIOR TO INSTALLATION. REFER TO THE GEOTECHNICAL REPORT FOR ADDITIONAL DRILLED PIER REQUIREMENTS AND CONTRACT DOCUMENTS FOR UNIT PRICE ADJUSTMENTS.

2 DRILLED PIER SCHEDULE
NO SCALE

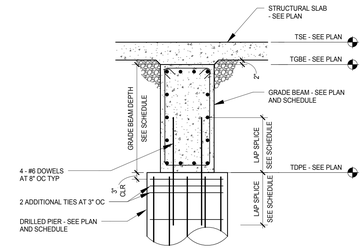


NOTES:
1. SEE GEOTECHNICAL REPORT FOR BID ELEVATION OF COMPETENT BEDROCK.
2. EXACT ELEVATION OF BOTTOM OF DRILLED PIER TO BE DETERMINED IN THE FIELD BY THE PROJECT GEOTECHNICAL ENGINEER.

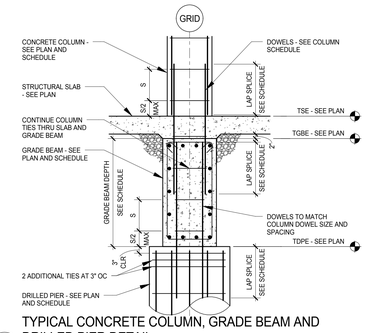
3 TYPICAL DRILLED PIER DETAIL
NO SCALE



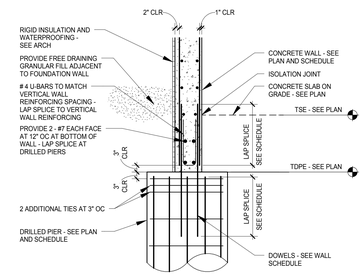
4 TYPICAL CONCRETE COLUMN AND DRILLED PIER DETAIL
NO SCALE



5 TYPICAL GRADE BEAM AND DRILLED PIER DETAIL
NO SCALE

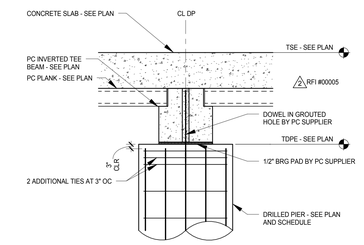


6 TYPICAL CONCRETE COLUMN, GRADE BEAM AND DRILLED PIER DETAIL
NO SCALE



NOTES:
1. INTERIOR SLAB ON GRADE AND STRUCTURAL SLABS AT OR BELOW EXTERIOR GRADE MUST BE IN PLACE WITH POSITIVE CONNECTION TO WALL AND CURED A MINIMUM OF 72 HOURS BEFORE BACKFILL IS PLACED ABOVE LOWEST LEVEL OF INTERIOR CONCRETE SLAB.

7 TYPICAL CONCRETE WALL AND DRILLED PIER DETAIL
NO SCALE

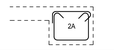
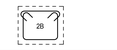
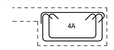
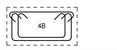
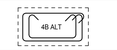
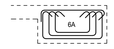
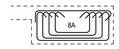
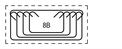
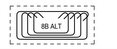


8 SECTION
NO SCALE

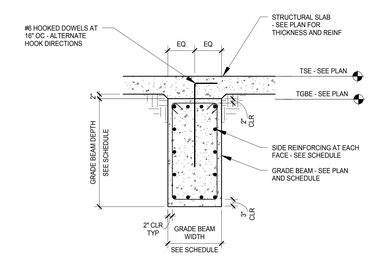
GRADE BEAM SCHEDULE									
	SIZE		LONGITUDINAL REINFORCING			STIRRUPS			
MARK	WIDTH	HEIGHT	TOP	BOTTOM	SIDE	SIZE	SPACING	TYPE	COMMENTS
GB1	1'-4"	3'-4"	3 - #6	3 - #6	#5 AT 10" OC	#4	18"	2B	
GB2	2'-0"	3'-2"	5 - #8	4 - #8	#5 AT 10" OC	#4	16"	2B	
GB3	2'-0"	3'-6"	2 - #6	4 - #10	#5 AT 10" OC	#4	18"	2B	
GB4	2'-4"	3'-6"	3 - #10	6 - #6	#5 AT 10" OC	#4	16"	2B	CONT BARS INTO CANTILEVER WITH HOOKED ENDS
GB5	2'-0"	2'-11"	2 - #6	4 - #6	#5 AT 10" OC	#4	24"	2B	
GB6	3'-0"	2'-11"	2 - #6	6 - #6	#5 AT 10" OC	#4	24"	2B	
GB7	1'-1"	2'-11"	3 - #6	3 - #6	#5 AT 10" OC	#4	24"	2B	
GB8	2'-0"	4'-4"	6 - #6	6 - #6	#5 AT 10" OC	#4	24"	2B	
GB9	1'-8"	3'-10"	2 - #6	4 - #8	#5 AT 10" OC	#4	18"	2B	
GB10	1'-6"	3'-2"	4 - #8	4 - #8	#5 AT 10" OC	#4	16"	2B	
GB11	2'-0"	3'-10"	2 - #6	4 - #6	#5 AT 10" OC	#4	24"	2B	
GB12	2'-6"	4'-0"	2 - #6	8 - #10	#5 AT 10" OC	#4	16"	2B	USE #4 STIRRUPS AT 6" OC FOR 9'-0" FROM EACH END
GB13	4'-0"	5'-0"	4 - #6	13 - #10	#5 AT 10" OC	#4	20"	4B	USE #4 STIRRUPS AT 6" OC FOR 12'-0" FROM EACH END
GB14	2'-8"	3'-6"	4 - #10	6 - #6	#5 AT 10" OC	#4	16"	2B	

NOTES:
1. ALL BARS DESIGNATED IN SCHEDULE ARE CONTINUOUS, UNO.
2. SEE TYPICAL GRADE BEAM SECTION, GRADE BEAM STIRRUP TYPE SCHEMATIC, AND TYPICAL GRADE BEAM DETAILS FOR ADDITIONAL INFORMATION.
3. SPLICE TOP BARS AT MIDPSAN AS NEEDED. SPLICE BOTTOM BARS OVER SUPPORTS AS NEEDED.
4. WHERE ADJACENT GRADE BEAMS HAVE DIFFERENT TOP BAR REINFORCING SCHEDULED PROVIDE THE GREATER AREA OF REINFORCING OVER THE SUPPORT.
5. PROVIDE STANDARD HOOK AT TOP AND BOTTOM REINF AT DISCONTINUOUS ENDS OF GRADE BEAMS.

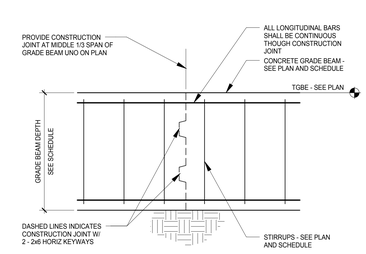
9 GRADE BEAM SCHEDULE
NO SCALE

CONCRETE GRADE BEAM STIRRUP TYPE SCHEDULE			
	BEAM CONFINED BY SLAB ON ONE OR BOTH SIDES	BEAM NOT CONFINED BY A SLAB ON BOTH SIDES AND/OR TORSION PRESENT	
TWO LEGS			
FOUR LEGS			
SIX LEGS			
EIGHT LEGS			
NOTES	AT LOCATIONS WHERE THE GRADE BEAM IS CONFINED ON ONE SIDE ONLY - PLACE 90 DEG HOOKED END OF THE TOP TIE BAR ON THE SIDE WHERE THE SLAB IS PRESENT.	CONTRACTORS OPTION TO USE ALT STIRRUP TYPE	

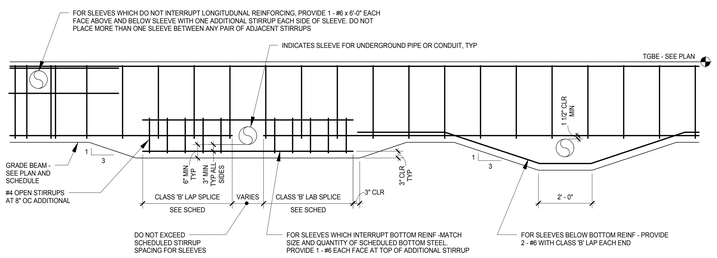
10 CONCRETE GRADE BEAM STIRRUP TYPE SCHEDULE
NO SCALE



11 TYPICAL GRADE BEAM SECTION
NO SCALE



12 TYPICAL GRADE BEAM CONSTRUCTION JOINT
NO SCALE



NOTES:
1. THIS INFORMATION IS GIVEN FOR BIDDING PURPOSES ONLY. VERIFY EXACT SIZE, LOCATION AND INVERT ELEVATION OF PIPE PENETRATIONS WITH MECHICAL AND ELECTRICAL CONTRACTOR PRIOR TO CONCRETE PLACEMENT.
2. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR THE APPROXIMATE SIZE AND LOCATION OF PIPE AND UNDERGROUND ELECTRICAL CONDUIT PENETRATIONS THROUGH GRADE BEAMS.
3. SLEEVES FOR PENETRATIONS ARE NOT PERMITTED TO INTERFERE WITH TOP REINFORCING.
4. LATER CORE DRILLING OF SLEEVES THROUGH INSTALLED GRADE BEAMS IS NOT PERMITTED WITHOUT THE WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
4. SEE MECHANICAL AND ELECTRICAL SPECIFICATIONS FOR COMPRESSIBLE MATERIAL AT SLEEVE AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE A STANDARD PIPE SLEEVE HAVING THE REQUIRED CLEAR DIAMETER FOR PIPES AND ADJACENT COMPRESSIBLE MATERIAL.
6. CONTRACTOR SHALL PROVIDE A METHOD OF SUPPORTING PIPE SLEEVE IN FORM WORK TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT.

13 TYPICAL GRADE BEAM PENETRATION DETAIL
NO SCALE

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

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Date 10-14-2011

Project

Physics and Nanotechnology Building

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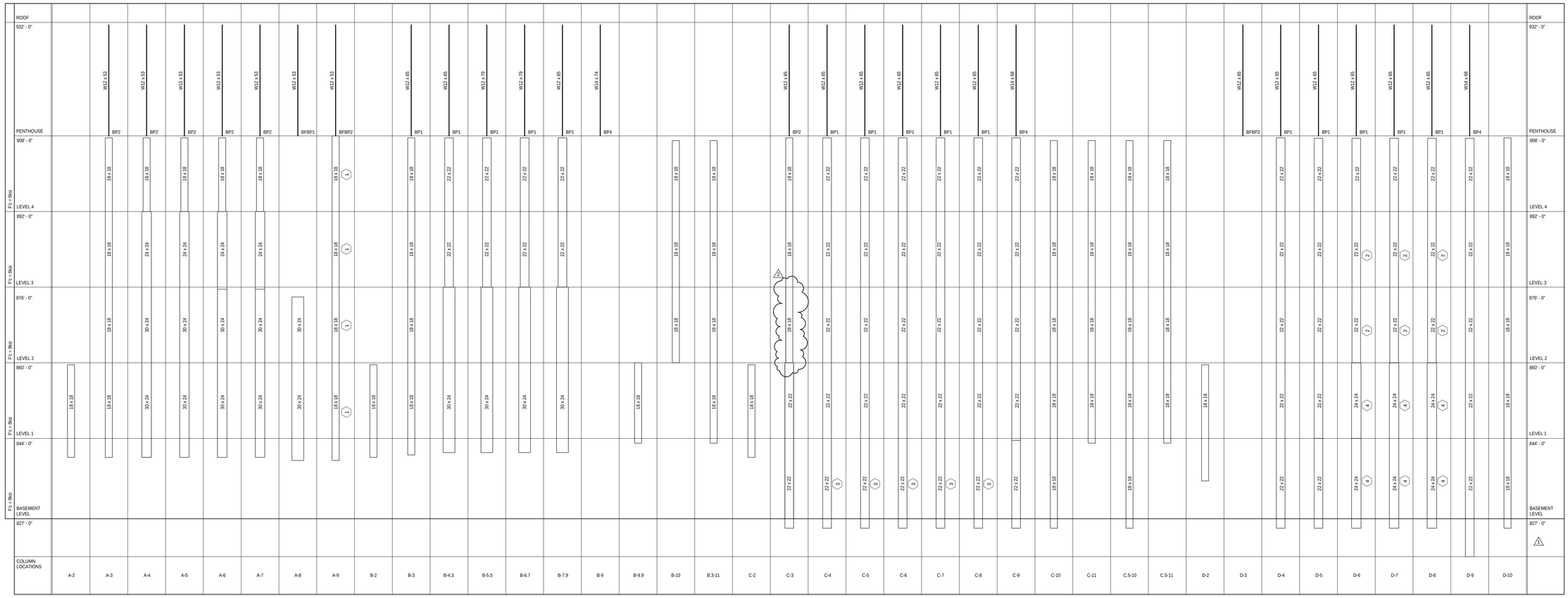
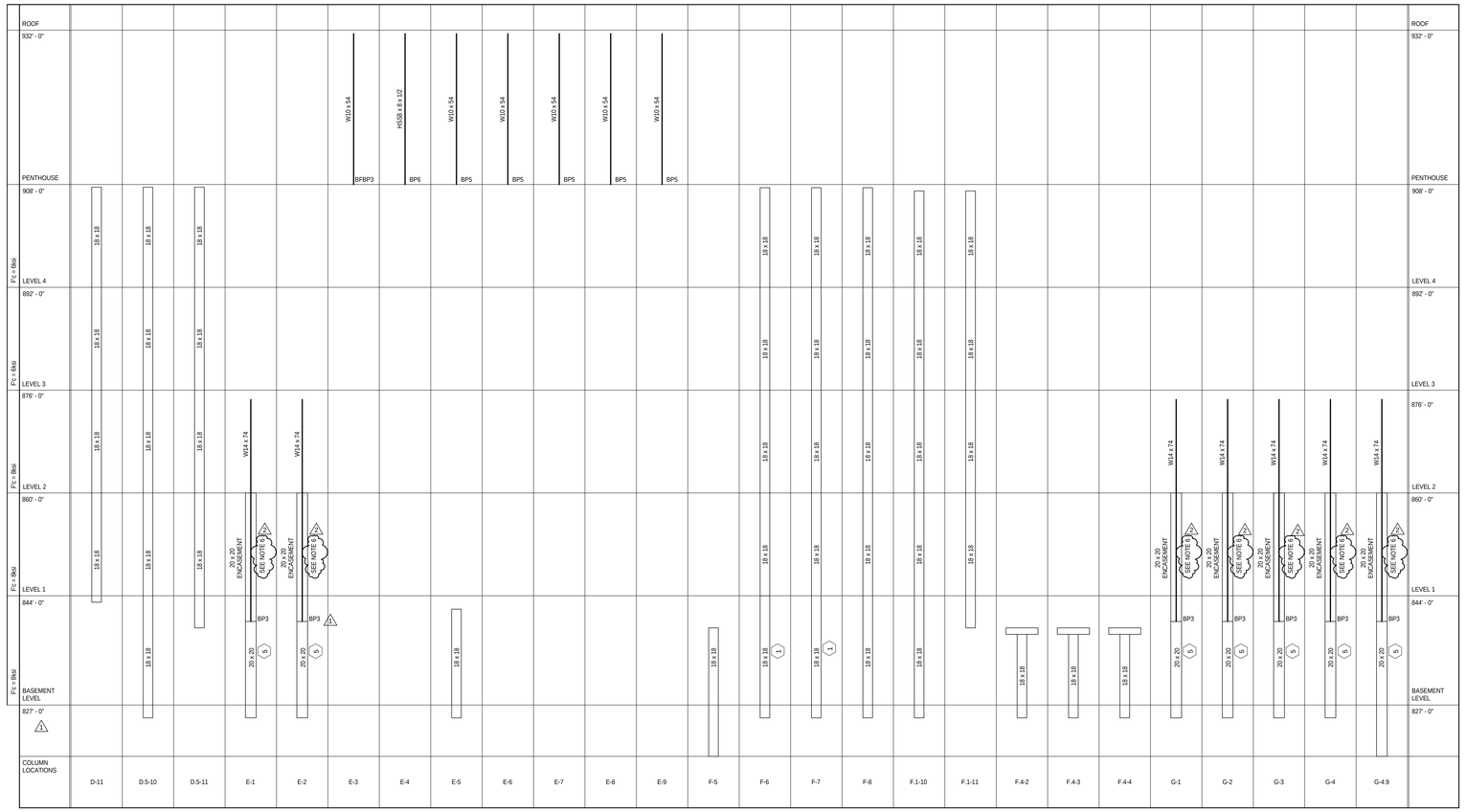
SCHEDULES

s4.01





NOTES:
1. SEE PLANS FOR FOUNDATION ELEVATIONS.
2. SEE CONCRETE COLUMN REINFORCING SCHEDULE FOR REINFORCING REQUIREMENTS.
3. CONCRETE STRENGTH OF ALL COLUMNS POURED INTEGRAL WITH WALLS SHALL MATCH WALL CONCRETE STRENGTH.
4. SEE TYPICAL CONCRETE COLUMN DETAILS FOR ADDITIONAL INFORMATION.
5. SEE BASE PLATE SCHEDULE AND BRACE FRAME COLUMN BASE PLATE SCHEDULE FOR BASE PLATE DETAILS AND ANCHOR BOLT REQUIREMENTS.
6. CONCRETE ENCASEMENT OF STEEL COLUMNS SHALL BE F'c = 4 KSI. ENCASEMENT TO EXTEND 20' 0" FROM HIGH BAY TOP OF SLAB ELEVATION.

1 ELEVATED COLUMN SCHEDULE
NO SCALE

CONCRETE COLUMN REINFORCING SCHEDULE

SIZE	REINFORCING VERTICAL	REINFORCING TIES	COMMENTS
18 x 18	4 - #9	#4 AT 18" OC	
20 x 20	4 - #6	#4 AT 20" OC	CONCRETE ENCASEMENT OF STEEL COLUMN
22 x 22	4 - #10	#4 AT 18" OC	
24 x 24	4 - #11	#4 AT 18" OC	
30 x 24	6 - #10	#4 AT 18" OC	
1 18 x 18	8 - #9	#4 AT 18" OC	
2 22 x 22	8 - #10	#4 AT 18" OC	
3 22 x 22	12 - #11	#4 AT 18" OC	
4 24 x 24	8 - #9	#4 AT 18" OC	
5 20 x 20	4 - #9	#4 AT 18" OC	#6 DOWELS TO DRILLED PIERS

NOTES:
1. COLUMNS SHALL BE REINFORCED AS INDICATED IN SCHEDULE UNLESS NOTED OTHERWISE.
2. PROVIDE STRAIGHT DOWELS TO FOUNDATION TO LAP WITH VERTICAL COLUMN REINFORCING. MATCH SIZE AND NUMBER OF VERTICAL COLUMN REINFORCING BARS.
3. CONCRETE COLUMN REINFORCING SHALL BE SPLICED ONLY AT STRUCTURAL LEVELS.
4. SEE CONCRETE COLUMN BAR AND TIE LAYOUT FOR TIE REQUIREMENTS.

2 CONCRETE COLUMN REINFORCING SCHEDULE
NO SCALE

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1

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
Bid Package No. 1	10-14-2011
1 100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
Project Directive No. 2	03-14-2012
2 Project Directive No. 3	05-11-2012

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Comm. No. 10.375.0
Drawn DJL, RKH
Checked MET
Date 10-14-2011

Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
Driven to Discover℠

ELEVATED COLUMN SCHEDULE

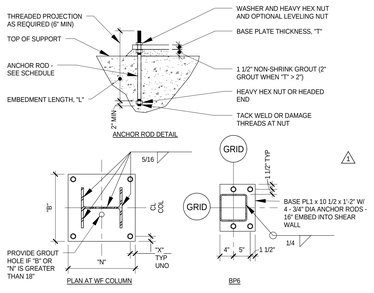
s4.02

COLUMN BASE PLATE AND ANCHOR ROD SCHEDULE								
	BASE PLATE SIZE (IN)			ANCHOR RODS				
MARK	"N"	"B"	"T"	"X"	NO.	DIA (IN)	EMBED "L"	COMMENTS:
BP1	18	18	3/4	1.5	4	3/4	0'-9"	
BP2	13	13	3/4	4	4	3/4	0'-9"	
BP3	16	16	3/4	4	4	3/4	0'-9"	
BP4	15	11	3/4	4	4	3/4	0'-9"	
BP5	11	11	3/4	4	4	3/4	0'-9"	
BP6								SEE DETAIL 2/S4.03

NOTES (UNO):
1. ANCHOR RODS SHALL BE ASTM F1554, GRADE 36.
2. BASE PLATES SHALL BE ASTM A36.
3. MILL COLUMN BASE AND/OR BASE PLATE AS NECESSARY FOR FULL CONTACT.
4. BASE PLATE THICKNESS INDICATED IS MINIMUM THICKNESS AFTER MILLING.
5. ANCHOR RODS SHALL NOT BE SET INTO CONCRETE AFTER CONCRETE IS CAST.
6. ANCHOR ROD HOLE DIA SHALL BE 5/16" LARGER THAN THE BOLT DIA FOR 1" DIA RODS AND SMALLER AND SHALL BE 1/2" LARGER FOR ANCHOR RODS LARGER THAN 1" DIA.

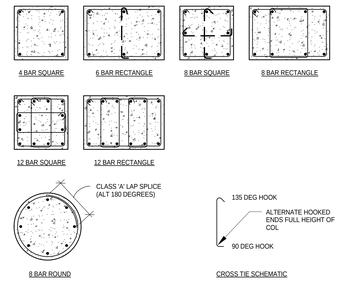
1

1 COLUMN BASE PLATE AND ANCHOR ROD SCHEDULE
NO SCALE



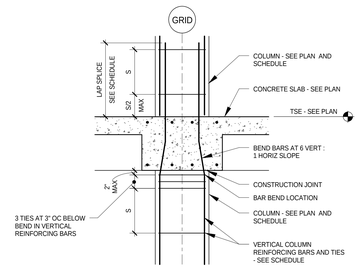
NOTES:
1. SEE SCHEDULE FOR BASE PLATE AND ANCHOR ROD DIMENSIONS.
2. DIMENSION "N" IS PARALLEL TO WF WEB OR LONGER HSS DIMENSION.

2 COLUMN BASE PLATE DETAIL
NO SCALE

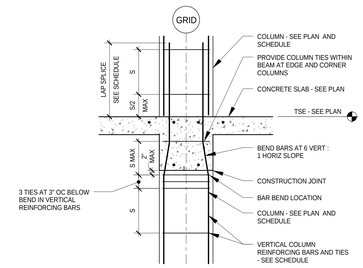


NOTES:
1. IF CLEAR SPACING BETWEEN VERTICAL BARS IS GREATER THAN 6", PROVIDE ADDITIONAL CROSS TIES, SHOWN DASHED.

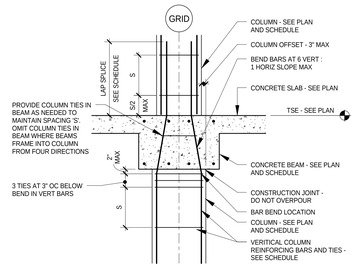
3 CONCRETE COLUMN BAR AND TIE LAYOUT
NO SCALE



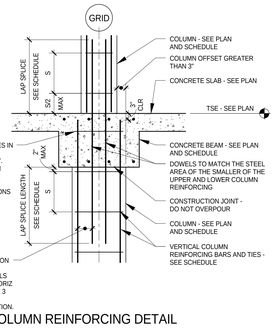
4 TYPICAL COLUMN REINFORCING DETAIL WITH BEAMS AT FOUR SIDES
NO SCALE



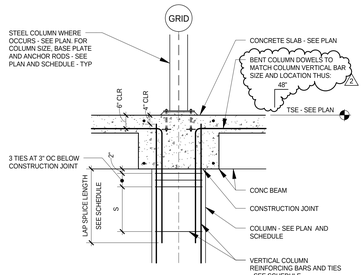
5 TYPICAL COLUMN REINFORCING DETAIL WITH BEAM
NO SCALE



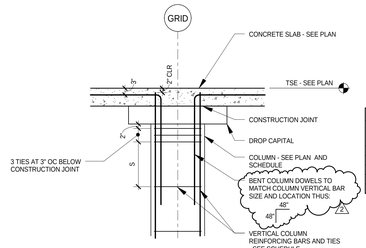
6 TYPICAL COLUMN REINFORCING DETAIL COLUMN OFFSET 3" MAX
NO SCALE



7 TYPICAL COLUMN REINFORCING DETAIL COLUMN OFFSET GREATER THAN 3"
NO SCALE



8 TYPICAL COLUMN REINFORCING DETAIL NO CONCRETE COLUMN ABOVE
NO SCALE

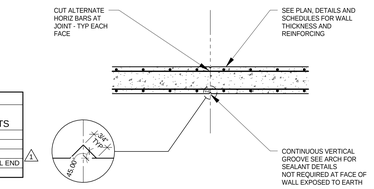


NOTES:
1. SEE TYPICAL WALL DETAILS FOR ADDITIONAL INFORMATION.
2. PROVIDE DOWELS TO DRILLED PIERS WHERE SUFFICIENT COVER CAN BE ACHIEVED. DOWELS TO MATCH SIZE AND SPACING OF VERTICAL WALL REINFORCING.
3. PROVIDE #5 VERTICAL DOWELS TO DRILLED PIER AT W4

9 TYPICAL COLUMN REINFORCING DETAIL WITH DROP CAPITAL
NO SCALE

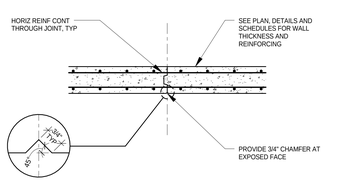
CONCRETE WALL SCHEDULE							
		INSIDE FACE		OUTSIDE FACE			
MARK	THICKNESS	HORIZ	VERT	HORIZ	VERT	COMMENTS	
W1	16"	#5 AT 12" OC	#7 AT 12" OC	#4 AT 12" OC	#4 AT 12" OC		
W2	20"	#5 AT 12" OC	#7 AT 12" OC	#5 AT 12" OC	#5 AT 12" OC		
W3	24"	#6 AT 14" OC	#7 AT 12" OC	#6 AT 14" OC	#5 AT 12" OC		
W4	12"	#4 AT 12" OC	#6 AT 12" OC	#4 AT 12" OC	#6 AT 12" OC	13\s3.02 AT WALL END	1
W5	14"	#5 AT 12" OC	#8 AT 12" OC	#4 AT 12" OC	#4 AT 12" OC		

10 CONCRETE WALL SCHEDULE
NO SCALE



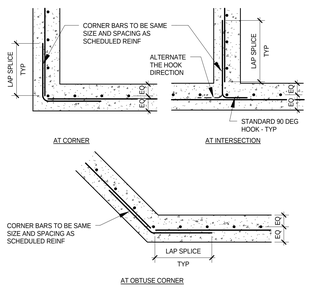
NOTES:
1. SUBMIT PROPOSED JOINT LOCATIONS FOR APPROVAL IF NOT SHOWN ON DRAWINGS.
2. MAXIMUM SPACING OF CONTROL JOINTS IS 20 FT ON CENTER OR 1 1/2 TIMES THE WALL HEIGHT ON CENTER, WHICHEVER IS LESS.
3. DO NOT USE THIS DETAIL FOR SHEAR WALLS OR WALLS THAT SPAN HORIZONTALLY.

11 TYPICAL VERTICAL CONTROL JOINT FOR CONCRETE WALLS
NO SCALE

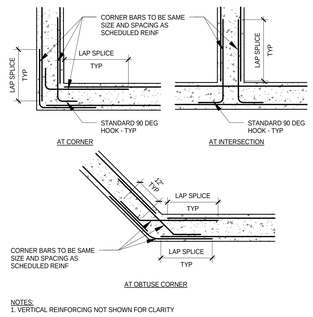


NOTES:
1. SUBMIT PROPOSED JOINT LOCATIONS FOR APPROVAL.
2. JOINTS SHALL BE LOCATED NO CLOSER THAN 5'-0" FROM WALL CORNERS OR PILASTERS.
3. JOINTS SHALL BE SPACED A MAXIMUM OF 60 FT OC.
4. WHERE WALL SPANS HORIZONTALLY, LOCATE JOINT WITHIN THE MIDDLE THIRD SPAN, UNO.
5. USE 2X4 KEYWAY (1 1/2" x 3 1/2") FOR WALLS UP TO 16" THICK. USE 2x6 KEYWAY (1 1/2" x 5 1/2") FOR WALLS >16" TO 24" THICK.

12 TYPICAL VERTICAL CONSTRUCTION JOINTS FOR CONCRETE WALLS
NO SCALE

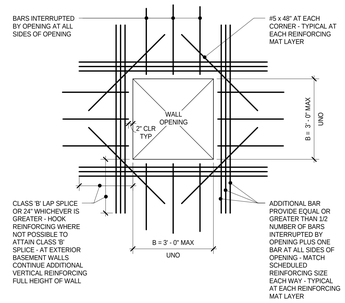


13 TYPICAL CORNER BAR PLACING DETAIL
NO SCALE

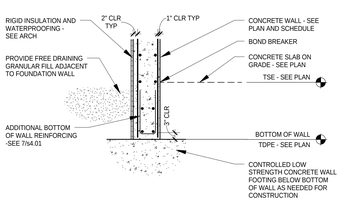


NOTES:
1. VERTICAL REINFORCING NOT SHOWN FOR CLARITY

14 TYPICAL CORNER BAR PLACING DETAIL
NO SCALE

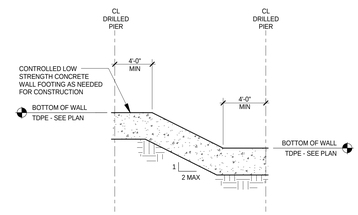


15 TYPICAL ADDITIONAL BAR PLACING DETAIL FOR WALL OPENING
NO SCALE



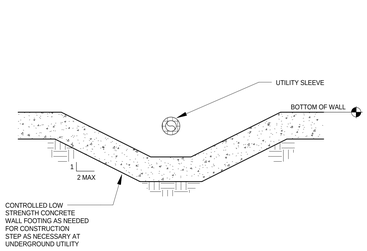
NOTES:
1. SLAB ON GRADE MUST BE IN PLACE AND STRUCTURAL SLAB AT TOP OF WALL MUST BE IN PLACE WITH POSITIVE CONNECTION TO TOP OF WALL AND CURED A MINIMUM OF 72 HOURS BEFORE BACKFILL IS PLACED ABOVE LEVEL OF CONCRETE SLAB ON GRADE.

16 TYPICAL CONCRETE WALL AND FOOTING DETAIL
NO SCALE



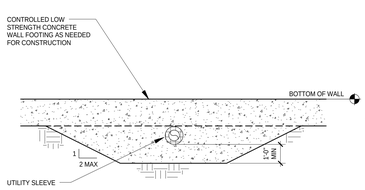
NOTES:
1. BEND BOTTOM TWO HORIZONTAL LAYERS OF WALL REINFORCING TO MATCH BOTTOM OF WALL PROFILE.

17 TYPICAL WALL FOOTING STEP
NO SCALE



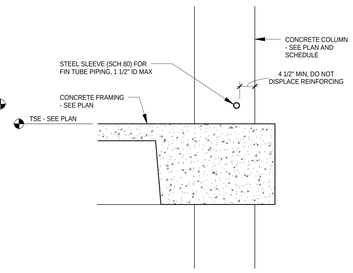
NOTES:
1. SEE TYPICAL WALL FOOTING STEP DETAIL FOR ADDITIONAL INFORMATION
2. UTILITY SLEEVE DIAMETER TO BE 2" GREATER THAN UTILITY PIPE OUTSIDE DIAMETER. INSULATE WITH 1" COMPRESSIBLE MATERIAL BETWEEN SLEEVE AND UTILITY.

18 TYPICAL UTILITY OPENING THRU FOUNDATION WALL
NO SCALE



NOTES:
1. CONTRACTOR ALTERNATE FOR PIPES BELOW BOTTOM OF WALL FOOTING. PROVIDE SLEEVE AND THICKEN CONCRETE FOOTING AS SHOWN.
2. SEE TYPICAL WALL FOOTING STEP FOR ADDITIONAL INFORMATION.
3. UTILITY SLEEVE DIAMETER TO BE 2" GREATER THAN UTILITY PIPE OUTSIDE DIAMETER. PROVIDE 1" COMPRESSIBLE MATERIAL BETWEEN SLEEVE AND UTILITY.

19 ALTERNATE UTILITY OPENING THRU WALL FOOTING
NO SCALE



NOTES:
1. SLEEVE SHALL BE INSTALLED PRIOR TYP CONCRETE PLACEMENT. CORE-DRILLING IS NOT PERMITTED.
2. SEE MEP AND ARCH DRAWINGS FOR PIPING EXTENT AND ELEVATION.
3. EXTERIOR DETAILS NOT SHOWN FOR CLARITY. SEE EXTERIOR SECTIONS.

1

20 HORIZONTAL SLEEVE THROUGH COLUMN DETAIL
NO SCALE

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature: Matt Thomas

Date 02/24/2012 Reg. No. 44681

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Drawn DJL, RKH

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WALL SCHEDULE AND TYPICAL WALL AND COLUMN DETAILS

s4.03

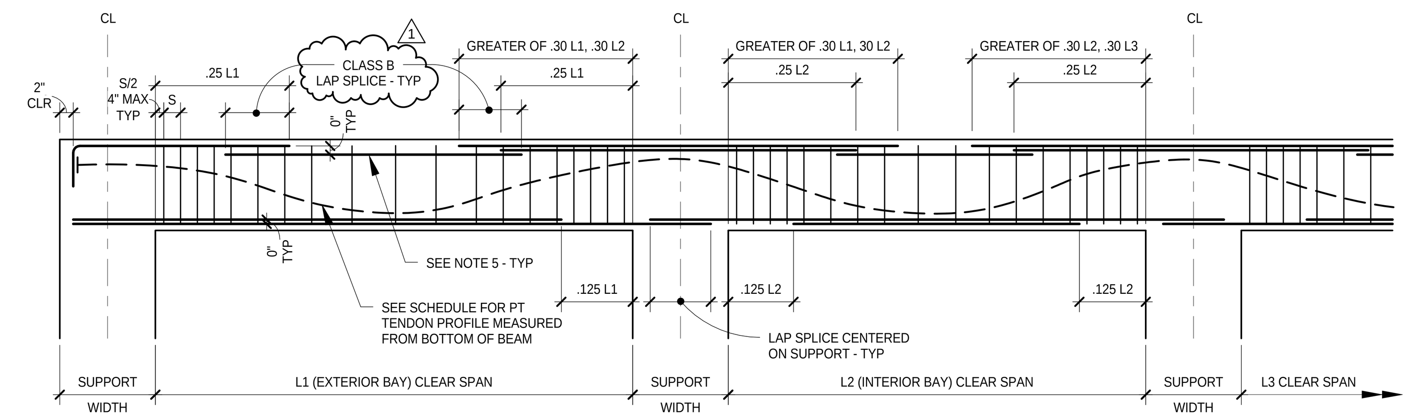
CONCRETE BEAM SCHEDULE

BEAM MARK	WIDTH (IN)	DEPTH (IN)	POST-TENSIONED REINFORCING: EFFECTIVE PT FORCE (KIPS)	TENDON PROFILE (CGS) (IN): WEST-SOUTH	MID	EAST-NORTH	LONGITUDINAL REINFORCING: BAR QTY AND SIZE	TOP	BOTTOM	SIDE	SCHEMATIC LABEL (WEST OR SOUTH – BEAM – EAST OR NORTH)	STIRRUPS: SIZE	4"	6"	8"	10"	12"	16"	18"	24"	TYPE	COMMENTS
B1000	36	25					6 - #10	X				#4			5						4A	EAST SIDE TOP BARS
							7 - #9		X			#4				R					2A	
							9 - #9	X														
B1001	48	25					2 - #9	X				#4			5						4A	WEST SIDE TOP BARS
							7 - #9		X			#4				R					2A	
							9 - #9	X														
B1002	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B1003	48	25					7 - #9		X			#4			5						4A	
							9 - #10	X				#4				R					2A	
B1004	48	25					9 - #9		X			#4	12								6A	SOUTH END
							9 - #11	X				#4				R					2A	SOUTH END
												#4			6						4A	NORTH END
												#4				R					2A	NORTH END
B1005	48	78					12 - #5			X		#4					9				4A	1/2 EACH FACE, MAX 12" SPACING
							9 - #11		X			#4					R				2A	
							9 - #11	X														
B1006	24	25					3 - #8	X			6'-0"	#4				9			R		2A	
							4 - #10		X													
							3 - #8	X			6'-0"											
B1007	16	25					3 - #7	X			5'-8"	#4				9			R		2A	
							3 - #9		X													
							3 - #7	X			5'-8"											
B1008	16	25					3 - #7	X			6'-0"	#4				13			R		2B	
							4 - #11		X													
							3 - #7	X			6'-0"											
B1009	16	25					3 - #7	X			5'-8"	#4				6			R		2A	
							3 - #7		X													
							3 - #7	X			5'-8"											
B1010	24	60					5 - #9	X				#4					9				4A	
							8 - #5			X		#4					R				2A	1/2 EACH FACE, MAX 12" SPACING
							5 - #9		X													
							5 - #9	X														
B1011	44	25					7 - #7	X			6'-0"	#4				7			R		2A	
							7 - #7		X													
							7 - #7	X														
B1012	12	25					3 - #7	X			6'-0"	#4				7			R		2A	
							3 - #8		X													
							3 - #7	X														
B1013	24	60					5 - #9	X				#4					9				4A	
							8 - #5			X		#4					R				2A	1/2 EACH FACE, MAX 12" SPACING
							5 - #9		X													
							5 - #9	X														
B1014	24	25					5 - #7	X			6'-0"	#4				6			R		2A	
							5 - #8		X													
							2 - #9	X														WEST SIDE, TOP BARS
							3 - #9	X														EAST SIDE, TOP BARS
B1015	16	58					8 - #5			X		#4					9				4A	1/2 EACH FACE, MAX 12" SPACING
							3 - #9		X			#4					R				2A	
							3 - #9	X														
B1016	27	60					4 - #10	X			SEE DETAIL	#4					5				4A	
							8 - #5			X		#4					R				2A	1/2 EACH FACE, MAX 12" SPACING
							4 - #10		X													
B1017	27 1/2	25					5 - #7	X			6'-0"	#4				5			R		2A	
							5 - #8		X													
							5 - #7	X														
B1018	20	25					3 - #7	X				#4				4			R		2A	
							3 - #7		X													
							3 - #7	X			6'-2"											
B1019	16	25					3 - #10	X				#4				R					2A	
							3 - #9		X													
							3 - #10	X														
B1100	38	25					5 - #7	X				#4				9			R		2A	
							5 - #9		X													
							5 - #9	X														
B1101	38	25					5 - #7		X			#4				9			R		2A	
							5 - #9	X														
B1102	38	25					5 - #7		X			#4				9			R		2A	
							5 - #9	X														
B1103	38	26					5 - #7		X			#4				9			R		2A	
							5 - #10	X														
B1104	38	25					5 - #10		X			#4				12			R		2A	
							5 - #9	X														
B1105-PT	33	25	425	17	3	21	3 - #8	X				#4				20			R		2A	
							3 - #8		X													
							5 - #8	X														
B1106-PT	33	25	425	21	17	17	3 - #8		X			#4				10			R		2A	
							3 - #8	X														TOP BARS CONT
B1107-PT	30/26	25	375	14	3	21	3 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8		X													
							3 - #8	X														
B1108-PT	12	25	125	16	13	21	3 - #8	X				#4				10			R		2A	
							3 - #8		X													BOTTOM BARS CONT
							3 - #8	X														
B1109	12	25					2 - #7	X				#4				7			R		2B	
							2 - #8		X													
							2 - #7	X			4'-0"											
B1110-PT	VARIES	25	500	14	3	21	5 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													
							5 - #8	X														
B1111-PT	27	60	400	33	3	33	7 - #8	X			15'-0"	#4							R		2A	
							7 - #8		X													
							7 - #8	X			15'-0"											
							6 - #6			X												EACH SIDE
B1112	18	60	SEE BEAM ELEVATION ON SHEET s7.01																			
B1113	12	25					2 - #7	X				#4				3			R		2A	
							2 - #5			X												1/2 EACH FACE, MID HEIGHT
							2 - #7		X													
							2 - #7	X														
B1114-PT	20/21	25	275	21	11	15	5 - #8		X			#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8	X														
B1115	48	78/30	SEE BEAM ELEVATION ON SHEET s7.01																			
B1116	12	25					2 - #7	X			6'-0"	#4				2			R		2A	
							2 - #5			X												1/2 EACH FACE, MID HEIGHT
							2 - #7		X													
							2 - #7	X			6'-0"											
B1117-PT	28	25	275	15	3	15	3 - #8	X				#4				20			R		2A	
							3 - #8		X													
							3 - #8	X														
B1118-PT	22/20	25	250	15.5	3	21	3 - #8	X				#4				20			R		2A	WIDTH VARIES AT OPENING - SEE PLAN
							5 - #8		X													
							5 - #8	X														
B1119	28	25					5 - #7		X			#4				4			R		2A	
							5 - #7	X														
B1120-PT	26	26	500	21	14	14	3 - #8		X			#4				10			R		2A	
							3 - #8	X														
B1121-PT	16	25	250	21	12	16.5	3 - #8		X			#4				18			R		2A	
							3 - #8	X														
B1122-PT	26	26	375	21	13	14	3 - #8		X			#4				8			R		2A	
							3 - #8	X														

TYPICAL CONVENTIONAL BEAM SCHEDULE NOTES:
1. SEE TYPICAL BEAM REINFORCING SCHEMATIC, TYPICAL BEAM SECTION SCHEMATIC, TYPICAL STIRRUP TYPE SCHEMATIC AND TYPICAL BEAM DETAILS FOR DETAILING INFORMATION.
2. BAR LENGTHS NOTED ON THE SCHEDULE DO NOT INCLUDE HOOKS. HOOKS ARE TO BE ACI STANDARD HOOKS.
3. WHEN DIMENSIONS ARE NOT NOTED IN THE BAR SCHEMATIC REFER TO THE TYPICAL CONCRETE BEAM REINFORCING SCHEMATIC.
4. STIRRUPS ARE TO BE SPACED CONSECUTIVELY FROM THE FIRST STIRRUP SHOWN ON THE BEAM REINFORCING SCHEMATIC.
5. WHEN 'R' IS NOTED IN A STIRRUP SPACING THE REMAINDER OF THE BEAM SPAN IS TO BE PROVIDED STIRRUPS AT THAT SPACING.
6. THE MINIMUM CONCRETE COVER TO CONVENTIONAL REINFORCING SHALL NOT BE DISPLACED BY INSERTS.

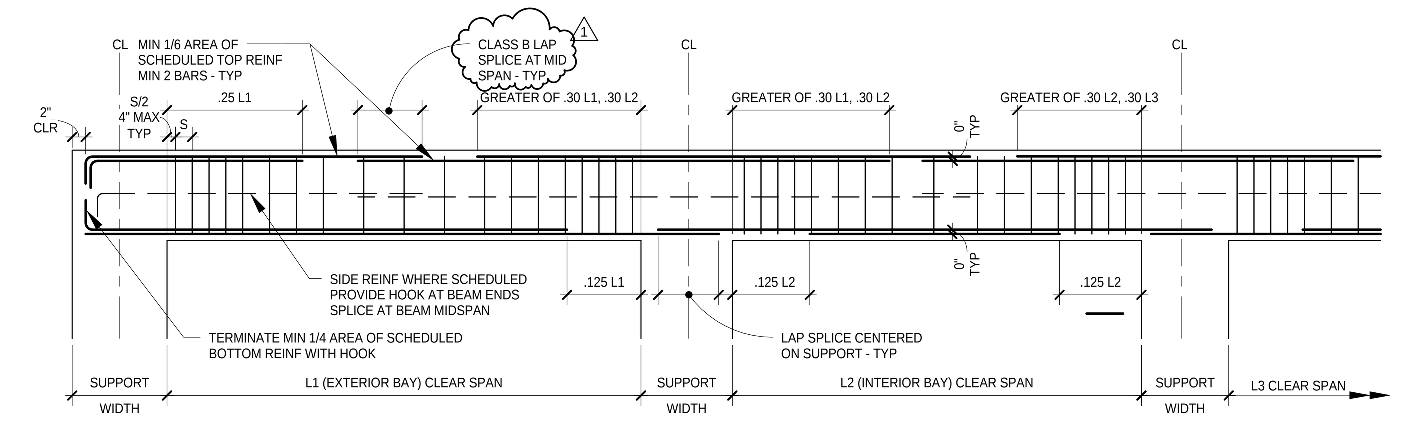
CONCRETE BEAM SCHEDULE

BEAM MARK	WIDTH (IN)	DEPTH (IN)	POST-TENSIONED REINFORCING: EFFECTIVE PT FORCE (KIPS)	TENDON PROFILE (CGS) (IN): WEST-SOUTH	MID	EAST-NORTH	LONGITUDINAL REINFORCING: BAR QTY AND SIZE	TOP	BOTTOM	SIDE	SCHEMATIC LABEL (WEST OR SOUTH – BEAM – EAST OR NORTH)	STIRRUPS: SIZE	4"	6"	8"	10"	12"	16"	18"	24"	TYPE	COMMENTS
B1123-PT	12	26	125	21	3	17	2 - #8		X			#4				20			R		2A	BOTTOM BARS CONT
							3 - #8	X														
B1124-PT	20	25	275	15	11	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B1125	12	25					2 - #7	X			6'-0"	#4				4			R		2A	
							2 - #7		X													
							2 - #7	X														
B2000	24	25	---	--	--	--	3 - #7	X				#4				R					2C	
							3 - #7		X													
							3 - #7			X												EACH FACE
B2001	24	25					3 - #7		X			#4				R					2C	
							3 - #7	X														
							3 - #7			X												EACH FACE
B2002	24	25					3 - #7		X			#4				R					2C	
							3 - #7	X														
							3 - #7			X												EACH FACE
B2003	24	25					3 - #7		X			#4				R					2C	
							3 - #7	X														
							3 - #7			X												EACH FACE
B2004	24	25					3 - #7		X			#4				R					2C	
							3 - #7	X														
							3 - #7			X												EACH FACE
B2005	24	25					3 - #7		X			#4				R					2C	
							3 - #7	X														
							3 - #7			X												EACH FACE
B2006 CANT'L	36	25					5 - #9	X				#4				5			R		2A	
							5 - #9		X													
							5 - #9	X														
B2007	36	25					5 - #9		X			#4				7			R		2A	
							5 - #9	X														
B2008	36	25					5 - #9		X			#4				5			R		2A	
							5 - #9	X														
B2009	36	25					5 - #9		X			#4				5			R		2A	
							5 - #9	X														
B2010	36	25					5 - #9		X			#4	12								4A	SOUTH END
							5 - #9	X				#4				7			R		2A	SOUTH END
												#4				12			R		2A	NORTH END
B2011	36	25					5 - #9		X			#4				7			R		2A	
							5 - #9	X														
B2012 CANT'L	36	25					9 - #9	X				#4				9					2A	CANT'L
							7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B2013	48	25					2 - #9	X				#4			5						4A	WEST SIDE TOP BARS
							7 - #9		X			#4				R					2A	
							9 - #9	X														
B2014	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B2015	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B2016	48	25					7 - #9		X			#4	12								6A	SOUTH END
							9 - #9	X				#4				6			R		2A	SOUTH END
												#4				11			R		2A	NORTH END
B2017	48	25					9 - #9		X			#4			5						4A	
							3 - #9	X				#4				R					2A	WEST SIDE TOP BARS
							4 - #9	X														EAST SIDE TOP BARS
B2018	18	25					3 - #8		X			#4				4			R		2A	
							3 - #8	X														
B2019	36	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							7 - #9	X														
B2020	36	25					7 - #7		X			#4				8			R		2A	
							7 - #9	X														
B2021	36	25					7 - #7		X			#4				8			R		2A	
							7 - #9	X														
B2022	36	25					7 - #9		X			#4				11			R		2A	
							7 - #7	X														
B2023	24	25					3 - #8	X				#4				6			R		6A	
							3 - #8		X													
							3 - #8	X			SEE DETAIL											
B2024	16	25					3 - #7	X			5'-4"	#4				5			R		2A	
							3 - #7		X													
							3 - #7	X			5'-4"											
B2025	24	25					3 - #8	X			6'-0"	#4				9			R		2A	
							4 - #10		X													
							3 - #8	X			6'-0"											
B2026	16	25					3 - #7	X			5'-8"	#4				7			R		2A	
							3 - #9		X													
							3 - #7	X			5'-8"											
B2027	16	25					3 - #7	X			5'-8"	#4				11			R		2B	
							4 - #10		X													
							3 - #7	X			5'-8"											
B2028	16	25					3 - #7	X			5'-8"	#4				6			R		2A	
							3 - #7		X													
							3 - #7	X			5'-8"											
B2029	25 1/2	25					5 - #7	X				#4				6			R		2A	
							5 - #7		X													
							5 - #7	X														
B2030	31	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							5 - #7	X														
B2031	48	48	SEE BEAM ELEVATION ON SHEET s7.01																			SEE DETAIL - f'c = 8000 PSI
B2032	20 1/2	25					5 - #7	X			6'-0"	#4				9			R		2A	
							5 - #7		X													
							5 - #7	X			6'-0"											
B2033	28	25					7 - #11		X			#4			15						2A	EACH END
							5 - #7	X														
							5 - #7	X														
B2034	26	25					5 - #7	X			6'-0"	#4				4			R		2A	
							5 - #7		X													
							5 - #7	X														
B2035	31	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							5 - #7	X														
B2036	20	25					3 - #7					#4				4			R		2A	
							3 - #7		X													
							3 - #7	X			6'-2"											



NOTES:
1. SEE CONCRETE BEAM SCHEDULE FOR LONGITUDINAL REINFORCING, STIRRUPS AND STIRRUP SPACING.
2. BAR CUT OFFS SHOWN ABOVE ARE FOR TYPICAL CONDITIONS, LENGTHS INDICATED IN CONCRETE BEAM SCHEDULE SUPERCEDE THIS DETAIL.
3. DIMENSIONS TO LONGITUDINAL REINFORCING INDICATE BAR CUT OFF LOCATIONS. CUT OFF NO MORE THAN 50% OF SCHEDULED AREA OF REINFORCING STEEL AT ANY ONE LOCATION. MAINTAIN ONE BAR IN EACH STIRRUP CORNER.
4. WHERE MORE THAN ONE BAR SIZE IS SPECIFIED FOR BOTTOM BEAM REINFORCEMENT, ONLY THE SMALLER BARS SHALL BE CUT OFF.
5. WHERE NO TOP REINFORCING IS SCHEDULED, PROVIDE 4 - #6 CONTINUOUS AT BEAMS GREATER THAN 26" WIDE, 2 - #6 CONTINUOUS OTHERWISE.
6. SEE TYPICAL BEAM SECTIONS FOR ADDITIONAL INFORMATION.
7. PROVIDE ALL ADDITIONAL SUPPORT REINFORCING NECESSARY TO PREVENT THE DISPLACEMENT OF SCHEDULED STEEL PRIOR TO PLACEMENT OF CONCRETE.
8. POST-TENSIONED TENDONS SHALL BE PLACED WITH A SMOOTH PARABOLIC PROFILE WITH SUPPORTS AS FOLLOWS: FOR BEAMS LESS THAN 40" WIDE: PROVIDE #4 PT TENDON SUPPORT BARS AT 48" OC MAXIMUM WITH 90 DEG HOOKS AND TIED TO STIRRUP REINFORCING. FOR BEAMS 40" WIDE OR GREATER: PROVIDE #5 PT TENDON SUPPORT BARS AT 48" OC MAXIMUM WITH 90 DEG HOOKS AND TIED TO STIRRUP REINFORCING.
9. PROVIDE #4 BACKUP BARS AT PT TENDON ANCHORS AND 4 - #4 CLOSED STIRRUPS (TYPE 4B) AT 3" OC IMMEDIATELY IN FRONT OF TENDON ANCHORS.

1 TYPICAL NON-PERIMETER CONCRETE BEAM REINFORCING SCHEMATIC
NO SCALE



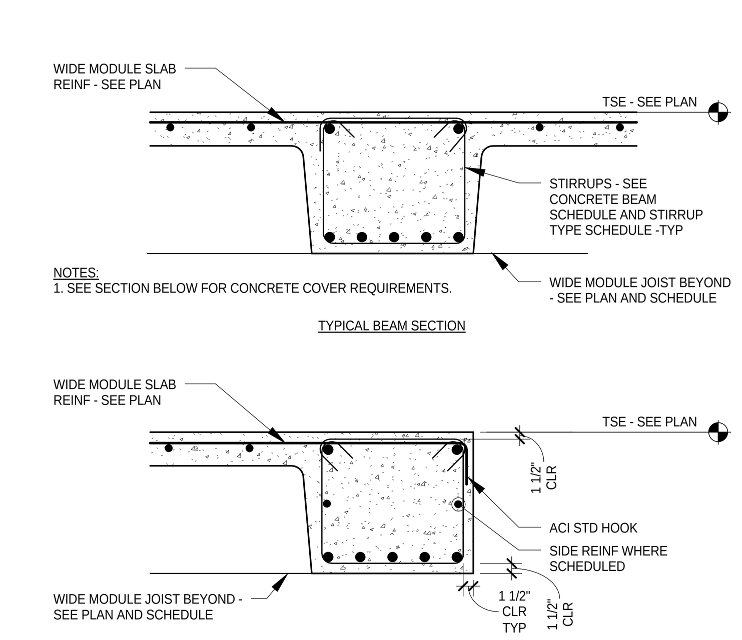
NOTES:
1. SEE CONCRETE BEAM SCHEDULE FOR LONGITUDINAL REINFORCING, STIRRUPS AND STIRRUP SPACING.
2. BAR CUT OFFS SHOWN ABOVE ARE FOR TYPICAL CONDITIONS, LENGTHS INDICATED IN CONCRETE BEAM SCHEDULE SUPERCEDE THIS DETAIL.
3. DIMENSIONS TO LONGITUDINAL REINFORCING INDICATE BAR CUT OFF LOCATIONS. CUT OFF NO MORE THAN 50% OF SCHEDULED AREA OF REINFORCING STEEL AT ANY ONE LOCATION. MAINTAIN ONE BAR IN EACH STIRRUP CORNER.
4. WHERE MORE THAN ONE BAR SIZE IS SPECIFIED FOR BOTTOM BEAM REINFORCEMENT, ONLY THE SMALLER BARS SHALL BE CUT OFF.
5. WHERE NO TOP REINFORCING IS SPECIFIED, PROVIDE 4 - #6 CONTINUOUS FOR BEAMS GREATER THAN 26" WIDE, 2 - #6 CONTINUOUS OTHERWISE
6. SEE TYPICAL BEAM SECTIONS FOR ADDITIONAL INFORMATION.
7. PROVIDE ALL ADDITIONAL SUPPORT REINFORCING NECESSARY TO PREVENT THE DISPLACEMENT OF SCHEDULED STEEL PRIOR TO PLACEMENT OF CONCRETE.
8. SEE TYPICAL NON-PERIMETER CONCRETE BEAM REINFORCING SCHEMATIC FOR NOTES REGARDING POST-TENSIONING.

2 TYPICAL PERIMETER CONCRETE BEAM REINFORCING SCHEMATIC
NO SCALE

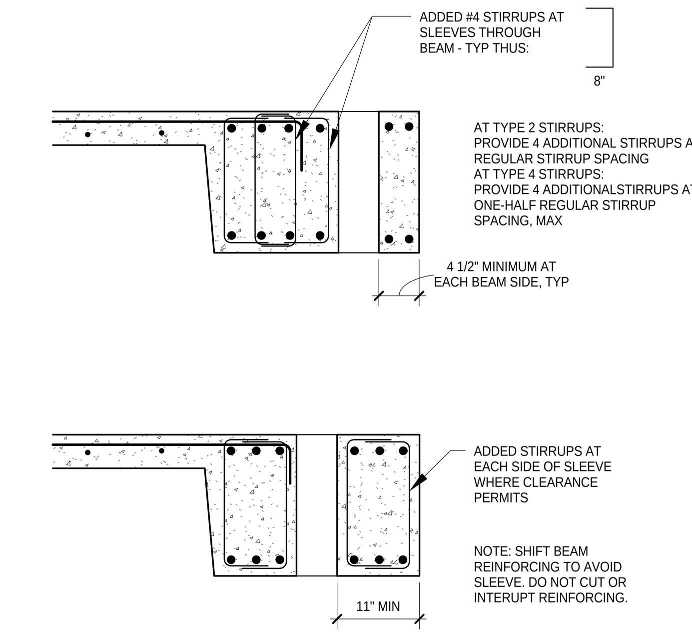
CONCRETE BEAM STIRRUP TYPE SCHEDULE

	BEAM CONFINED BY SLAB ON ONE OR BOTH SIDES	BEAM NOT CONFINED BY A SLAB ON BOTH SIDES AND/OR TORSION PRESENT	
TWO LEGS	2A	2B	2C
FOUR LEGS	4A	4B	4C
SIX LEGS	6A	6B	6C
EIGHT LEGS	8A	8B	8C
NOTES	AT LOCATIONS WHERE THE BEAM IS CONFINED ON ONE SIDE ONLY - PLACE 90 DEG HOOKED END OF THE TOP TIE BAR ON THE SIDE WHERE THE SLAB IS PRESENT.	PROVIDE STIRRUPS AS INDICATED IN CONCRETE BEAM SCHEDULE. TYPE C STIRRUPS MAY BE USED AS AN ALTERNATE FOR TYPE B STIRRUPS.	

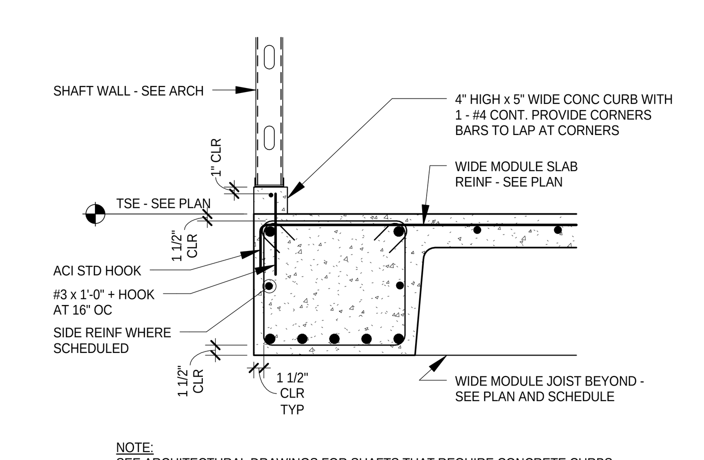
3 CONCRETE BEAM STIRRUP TYPE SCHEDULE
NO SCALE



4 TYPICAL CONCRETE BEAM SECTION
NO SCALE

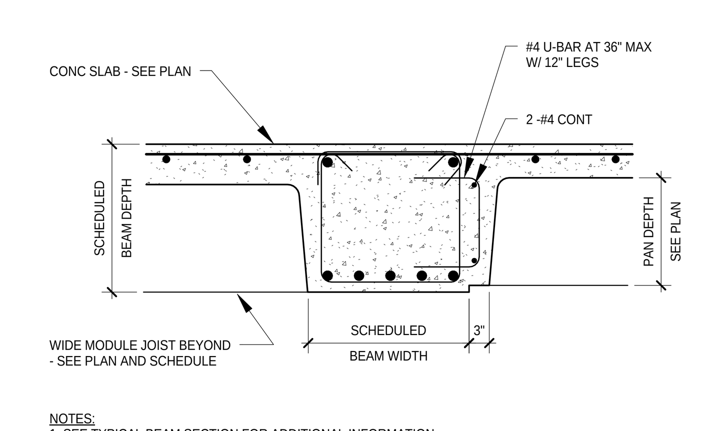


5 TYPICAL ADDED STIRRUPS AT SLEEVES THROUGH BEAMS
NO SCALE



NOTE:
SEE ARCHITECTURAL DRAWINGS FOR SHAFTS THAT REQUIRE CONCRETE CURBS.

6 TYPICAL CONCRETE CURB DETAIL
NO SCALE



NOTES:
1. SEE TYPICAL BEAM SECTION FOR ADDITIONAL INFORMATION.

7 TYPICAL CONCRETE BEAM AT SLAB THICKNESS STEP
NO SCALE

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas
Signature:
Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
1 Project Directive No. 3	05-11-2012

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Date 12/16/2011
Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
Driven to Discover℠

CONCRETE BEAM SCHEDULE AND TYPICAL DETAILS

s4.04a

CONCRETE BEAM SCHEDULE

BEAM MARK	WIDTH (IN)	DEPTH (IN)	POST-TENSIONED REINFORCING: EFFECTIVE PT FORCE (KIPS)	TENDON PROFILE (CGS) (IN): WEST-SOUTH	MID	EAST-NORTH	LONGITUDINAL REINFORCING: BAR QTY AND SIZE	TOP	BOTTOM	SIDE	WEST OR SOUTH — BEAM — EAST OR NORTH	STIRRUPS: SIZE	4"	6"	8"	10"	12"	16"	18"	24"	TYPE	COMMENTS
B2100-PT CANT'L	36	25	700	21	16	17.5	3 - #8	X			CANT'L	#4				10			R		2A	PT CGS 17.5" AT CANT END. CONTINUE PT 1'-0" PAST COL AT EAST END.
							3 - #8		X		CANT'L	#4				R					2A	STIRRUPS AT CANT'L BOTT BARS CONT.
							3 - #8	X														
B2101	36	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B2102	36	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B2103	36	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B2104-PT CANT'L	36	25	700	17.5	16	21	3 - #8		X		CANT'L	#4				10			R		2A	PT CGS 17.5" AT CANT END. CONTINUE PT 1'-0" PAST COL AT WEST END. BOTT BARS CONT.
							3 - #8	X			CANT'L	#4				R					2A	STIRRUPS AT CANT'L
B2105-PT CANT'L	34 1/2 /40	25	800	20	14	17	5 - #8	X			CANT'L 10'-0"	#4				R					2A	PT CGS 17" AT CANT END. CONTINUE PT 1'-0" PAST COL AT EAST END.
							3 - #8		X		CANT'L	#4				R					2A	STIRRUPS AT CANT'L BOTT BARS CONT.
							5 - #8	X														
B2106	40	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B2107	40	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B2108	40	25					5 - #7		X			#4				7			R		2A	
								X														
B2109-PT CANT'L	40/34	25	850	18.5	16	21	3 - #8		X		CANT'L	#4				R					2A	PT CGS 17.5" AT CANT ENDS. CONTINUE PT 1'-0" PAST COL AT WEST END. BOTT BARS CONT.
							3 - #8	X			CANT'L	#4				R					2A	STIRRUPS AT CANT'L
B2110	20 (1)	25					3 - #8	X			10'-0"	#4				7			R		2A	
							3 - #8		X													
							3 - #8	X														
B2111-PT	20	25	115	15	3	21	3 - #8		X			#4				10			R		2A	
							3 - #8	X														
B2112-PT	16	25	115	21	14	14	3 - #8		X			#4				10			R		2A	
							3 - #8	X			10'-0"											
B2113	38 (1)	25					5 - #7	X				#4				12			R		2A	
							5 - #9		X													
							5 - #7	X			10'-0"											
B2114-PT	27	25	350	14.5	3	14.5	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B2116-PT	30/26	25	350	14	3	21	3 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													
							3 - #8	X														
B2117-PT	12	25	125	15.5	13	21	3 - #8	X				#4				10			R		2A	TOP BARS CONT
							3 - #8		X													BOTTOM BARS CONT
							3 - #8	X														
B2118	12	25					2 - #7	X				#4				7			R		2B	
							2 - #8		X													
							2 - #7	X			4'-0"											
B2119-PT	VARIES	25	450	14	3	21	5 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													
							5 - #8	X														
B2120-PT	26/23	25	225	21	9	15.5	5 - #8		X			#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8	X														
B2121-PT	32/20	25	225	21	9	15.5	5 - #8		X			#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8	X														
B2122	18	30					5 - #7	X				#4				12			R		2A	
							5 - #9		X													
							5 - #9	X														
B2123	18	30					5 - #9		X			#4				12			R		2A	
							5 - #9	X														
B2124-PT	38	25	475	17	3	17	7 - #8	X			16'-0"	#4				25			R		2A	
							5 - #8		X													BOTTOM BARS CONT
							7 - #8	X			16'-0"											
B2125	33	25					5 - #7	X				#4				4			R		2A	
							5 - #9		X													
							5 - #9	X														
B2126	33	25					5 - #9		X			#4				4			R		2A	
							5 - #9	X														
B2127-PT	33	25	400	16.5	3	16.5	5 - #8		X			#4				20			R		2A	CONTINUE PT 1'-0" PAST COL AT WEST END
							7 - #8	X														
B2128-PT	12	25	125	21	6	17	3 - #8		X			#4				R					2A	
							3 - #8	X														
B2129-PT	28/16	25	350	14.5	4	14.5	3 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													BOTTOM BARS CONT
							3 - #8	X														
B2130-PT	12	25	150	17	6	21	3 - #8	X				#4				R					2A	
							3 - #8		X													BOTTOM BARS CONT
							3 - #8	X														TOP BARS CONT
B2131-PT	33 (1)	25	450	21	14	14	3 - #8		X			#4				10			R		2A	
							5 - #8	X														TOP BARS CONT
B2132-PT	22/20	25	325	15.5	6	21	3 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8		X													
							3 - #8	X														
B2133-PT	16	25	325	21	14	16.5	3 - #8		X			#4				R					2A	
							3 - #8	X														
B2134-PT	26	25	350	21	13	14	3 - #8		X			#4				10			R		2A	
							3 - #8	X														
B2135-PT	12	25	225	17.5	11	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B2136-PT	12	25	225	17.5	11	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B2137-PT	21	25	150	21	15	15.5	3 - #8		X			#4				R					2A	BOTTOM BARS CONT
							3 - #8	X														TOP BARS CONT

CONCRETE BEAM SCHEDULE

BEAM MARK	WIDTH (IN)	DEPTH (IN)	POST-TENSIONED REINFORCING: EFFECTIVE PT FORCE (KIPS)	TENDON PROFILE (CGS) (IN): WEST-SOUTH	MID	EAST-NORTH	LONGITUDINAL REINFORCING: BAR QTY AND SIZE	TOP	BOTTOM	SIDE	WEST OR SOUTH — BEAM — EAST OR NORTH	STIRRUPS: SIZE	4"	6"	8"	10"	12"	16"	18"	24"	TYPE	COMMENTS
B3000	36	25	---	--	--	--	7 - #7	X			EXTEND TO BEAM END	#4				17			R		2A	SOUTH END
							5 - #9		X			#4				10			R		2A	NORTH END
							5 - #9	X														
B3001	36	25					5 - #7		X			#4				8			R		2A	
							5 - #9	X														
B3002	36	25					7 - #7		X			#4				8			R		2A	
							5 - #9	X														
B3003	36	25					7 - #7		X			#4				8			R		2A	
							5 - #9	X														
B3004	36	25					7 - #7		X			#4				9			R		2A	
							7 - #7	X														
B3005	48	25					3 - #9	X				#4		13							4A	WEST SIDE TOP BARS
							3 - #9	X				#4				R					2A	EAST SIDE TOP BARS
							9 - #11		X													
							9 - #11	X														
B3006	48	25					9 - #9		X			#4			5						4A	
							9 - #10	X				#4				8			R		2A	
B3007	48	25					9 - #9		X			#4			5						4A	
							9 - #10	X				#4				8			R		2A	
B3008	48	25					9 - #9		X			#4			5						4A	
							9 - #11	X				#4				8			R		2A	
B3009	48	25					9 - #10		X			#4			10						4A	
							9 - #9	X				#4				R					2A	
B3010 CANT'L	48	25					9 - #10	X				#4				9					2A	CANT'L
							9 - #9		X			#4			6						4A	
							9 - #10	X				#4				R					2A	
B3011	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				6			R		2A	
B3012	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				6			R		2A	
B3013	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				6			R		2A	
B3014	48	25					7 - #9		X			#4	12								4A	SOUTH END
							9 - #9	X				#4				7			R		2A	SOUTH END
												#4				12			R		2A	NORTH END
B3015	48	25					9 - #9		X			#4			5						4A	
							7 - #9	X				#4				R					2A	
B3016 CANT'L	36	25					9 - #9	X				#4				9					2A	CANT'L
							7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B3017	48	25					2 - #9	X				#4			5						4A	WEST SIDE TOP BARS
							7 - #9		X			#4				R					2A	
							9 - #9	X														
B3018	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B3019	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B3020	48	25					7 - #9		X			#4	12								6A	SOUTH END
							9 - #9	X				#4				6			R		2A	SOUTH END
												#4				11			R		2A	NORTH END
B3021	48	25					9 - #9		X			#4			5						4A	
							7 - #9	X				#4				R					2A	
B3022	36	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							7 - #9	X														
B3023	36	25					7 - #7		X			#4				8			R		2A	
							7 - #9	X														
B3024	36	25					7 - #7		X			#4				8			R		2A	
							7 - #9	X														
B3025	36	25					7 - #9		X			#4				11			R		2A	
							7 - #7	X														
B3026	24	25					3 - #8	X				#4				6			R		6A	
							3 - #8		X													
							3 - #8	X			SEE DETAIL											
B3027	16	25					3 - #7	X			5'-4"	#4				5			R		2A	
							3 - #7		X													
							3 - #7	X			5'-4"											
B3028	24	25					3 - #8	X			6'-0"	#4				9			R		2A	
							4 - #10		X													
							3 - #8	X			6'-0"											
B3029	16	25					3 - #7	X			5'-8"	#4				7			R		2A	
							3 - #9		X													
							3 - #7	X			5'-8"											
B3030	16	25					3 - #7	X			5'-8"	#4				11			R		2B	
							4 - #10		X													
							3 - #7	X			5'-8"											
B3031	16	25					3 - #7	X			5'-8"	#4				6			R		2A	
							3 - #7		X													
							3 - #7	X			5'-8"											
B3032	16 1/2	25					3 - #7	X				#4				6			R		2A	
							3 - #8		X													
							3 - #7	X														
B3033	26	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							5 - #7	X														
B3034	22	25					3 - #8	X				#4				4			R		2A	
							3 - #8		X													
							3 - #9	X														
B3035	29	25					5 - #7	X			6'-0"	#4				9			R		2A	
							5 - #7		X													
							5 - #7	X			6'-0"											
B3036	23	25					3 - #8	X			6'-0"	#4				4			R		2A	
							3 - #8		X													
							3 - #8	X			6'-0"											
B3037	28	25					5 - #7	X			6'-0"	#4				4			R		2A	
							5 - #7		X													
							5 - #7	X														
B3038	26	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							5 - #7	X														
B3039	23	25					3 - #8	X			6'-0"	#4				10			R		2A	
							3 - #9		X													
							3 - #8	X														
B3040	20	25					3 - #7	X				#4				4			R		2A	
							3 - #7		X													
							3 - #7	X			6'-2"											

CONCRETE BEAM SCHEDULE

BEAM MARK	WIDTH (IN)	DEPTH (IN)	POST-TENSIONED REINFORCING: EFFECTIVE PT FORCE (KIPS)	TENDON PROFILE (CGS) (IN): WEST-SOUTH	MID	EAST-NORTH	LONGITUDINAL REINFORCING: BAR QTY AND SIZE	TOP	BOTTOM	SIDE	WEST OR SOUTH — BEAM — EAST OR NORTH	STIRRUPS: SIZE	4"	6"	8"	10"	12"	16"	18"	24"	TYPE	COMMENTS
B3100-PT CANT'L	36	25	700	21	16	17.5	3 - #8	X			CANT'L	#4				10			R		2A	PT CGS 17.5" AT CANT END. CONTINUE PT 1'-0" PAST COL AT EAST END.
							3 - #8		X		CANT'L	#4				R					2A	STIRRUPS AT CANT'L BOTT BARS CONT.
							3 - #8	X														
B3101	36	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B3102	36	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B3103	36	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B3104-PT CANT'L	36	25	700	17.5	16	21	3 - #8		X		CANT'L	#4				10			R		2A	PT CGS 17.5" AT CANT END. CONTINUE PT 1'-0" PAST COL AT WEST END. BOTT BARS CONT.
							3 - #8	X			CANT'L	#4				R					2A	STIRRUPS AT CANT'L
B3105-PT CANT'L	34 1/2 / 40	25	800	20	14	17	5 - #8	X			CANT'L 10'-0"	#4				R					2A	PT CGS 17" AT CANT END. CONTINUE PT 1'-0" PAST COL AT EAST END.
							3 - #8		X		CANT'L	#4				R					2A	STIRRUPS AT CANT'L BOTT BARS CONT.
							5 - #8	X														
B3106	40	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B3107	40	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B3108	40	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B3109-PT	40 / 34	25	850	18.5	16	21	3 - #8		X		CANT'L	#4				R					2A	PT CGS 17.5" AT CANT END. CONTINUE PT 1'-0" PAST COL AT WEST END. BOTT BARS CONT.
							3 - #8	X			CANT'L	#4				R					2A	STIRRUPS AT CANT'L
B3110	23	25					3 - #8	X				#4				4			R		2A	
							3 - #8		X													
							3 - #8	X														
B3111-PT	23	25	115	15	3	21	3 - #8		X			#4				10			R		2A	
							3 - #8	X														
B3112-PT	22	25	115	21	14	14	3 - #8		X			#4				10			R		2A	
							3 - #8	X														
B3113	26	25					5 - #11	X			EXTEND TO BEAM END	#4				34			R		2A	WEST END
							5 - #11		X			#4				16			R		2A	EAST END
							5 - #11	X														
B3114-PT	32 / 30	25	350	14.5	3	14.5	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B3115-PT	VARIES	25	450	14	3	21	5 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													
							5 - #8	X														
B3116-PT	33	25	450	21	14	14	3 - #8		X			#4				10			R		2A	
							5 - #8	X														TOP BARS CONT
B3117-PT	12	25	125	15.5	13	21	3 - #8	X				#4				10			R		2A	TOP BARS CONT
							3 - #8		X													BOTTOM BARS CONT
							3 - #8	X														
B3118	12	25					2 - #7	X				#4				7			R		2B	
							2 - #8		X													
							2 - #7	X			4'-0"											
B3119-PT	28 / 16	25	350	14.5	4	14.5	3 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													BOTTOM BARS CONT
							3 - #8	X														
B3120-PT	26 / 23	25	225	21	9	15.5	5 - #8		X			#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8	X														
B3121-PT	32 / 20	25	225	21	9	15.5	5 - #8		X			#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8	X														
B3122	28	25					5 - #7	X				#4				7			R		2A	
							7 - #7		X													
							7 - #7	X														
B3123	28	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B3124-PT	28	25	250	13.5	3	13.5	3 - #8		X			#4				10			R		2A	WIDTH VARIES - SEE PLAN
							3 - #8	X			15'-0"											
B3125	12	25					3 - #9		X			#4				15			R		2A	
B3126-PT	21	25	150	21	15	15.5	3 - #8		X			#4				R					2A	BOTTOM BARS CONT
							3 - #8	X														TOP BARS CONT
B3127-PT	20	25	325	15.5	6	21	3 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8		X													
							3 - #8	X														
B3128-PT	16	25	325	21	14	16.5	3 - #8		X			#4				R					2A	
							3 - #8	X														
B3129	26	25					5 - #8	X				#4				10			R		2A	
							5 - #8		X													
							5 - #8	X														
B3130	26	25					5 - #8	X				#4				10			R		2A	
							5 - #8		X													
B3131-PT	30 / 26	25	350	14	3	21	3 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													
							3 - #8	X														
B3132-PT	26	25	350	21	13	14	3 - #8		X			#4				10			R		2A	
							3 - #8	X														
B3133-PT	12	25	125	21	6	17	3 - #8		X			#4				R					2A	
							3 - #8	X														
B3145-PT	12	25	225	17.5	11	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B3146-PT	12	25	150	17	6	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B3147-PT	12	25	225	17.5	11	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature: Matt Thomas

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
1 Project Directive No. 3	05-11-2012

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Drawn DJL, RKH

Checked MET

Date 12/16/2011

Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
Driven to Discover℠

CONCRETE BEAM SCHEDULE

s4.04b

CONCRETE BEAM SCHEDULE

BEAM MARK	WIDTH (IN)	DEPTH (IN)	POST-TENSIONED REINFORCING: EFFECTIVE PT FORCE (KIPS)	TENDON PROFILE (CGS) (IN): WEST-SOUTH	MID	EAST-NORTH	LONGITUDINAL REINFORCING: BAR QTY AND SIZE	TOP	BOTTOM	SIDE	WEST OR SOUTH — BEAM — EAST OR NORTH	STIRRUPS: SIZE	NUMBER OF STIRRUPS AT EACH END AT INDICATED SPACING: 4"	6"	8"	10"	12"	16"	18"	24"	TYPE	COMMENTS
B4000	36	25	---	--	--	--	5 - #7	X			EXTEND TO BEAM END	#4				22			R		2A	SOUTH END
							7 - #7		X			#4				9			R		2A	NORTH END
							7 - #7	X														
B4001	36	25					5 - #7		X			#4				6			R		2A	
							7 - #7	X														
B4002	36	25					5 - #7		X			#4				6			R		2A	
							7 - #7	X														
B4003	36	25					5 - #7		X			#4				6			R		2A	
							7 - #7	X														
B4004	36	25					7 - #7		X			#4				8			R		2A	
							5 - #7	X														
B4005	48	25					7 - #9	X				#4			5						4A	
							9 - #10		X			#4				R					2A	
							9 - #10	X														
B4006	48	25					7 - #9		X			#4				11			R		2A	
							9 - #10	X														
B4007	48	25					7 - #9		X			#4				11			R		2A	
							9 - #10	X														
B4008	48	25					7 - #9		X			#4				11			R		2A	
							9 - #10	X														
B4009	48	25					9 - #10		X			#4			5						4A	
							7 - #9	X				#4				R					2A	
B4010 CANT'L	48	25					7 - #10	X				#4				9					2A	CANT'L
							7 - #10		X			#4			5						4A	
							7 - #10	X				#4				R					2A	
B4011	48	25					7 - #8		X			#4				10			R		2A	
							7 - #10	X														
B4012	48	25					7 - #8		X			#4				10			R		2A	
							7 - #10	X														
B4013	48	25					7 - #8		X			#4				10			R		2A	
							7 - #10	X														
B4014	48	25					7 - #8		X			#4	12								4A	SOUTH END
							7 - #10	X				#4				6			R		2A	SOUTH END
												#4				11			R		2A	NORTH END
B4015	48	25					7 - #10		X			#4			5						4A	
							7 - #8	X				#4				R					2A	
B4016 CANT'L	36	25					9 - #9	X				#4				9					2A	CANT'L
							7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B4017	48	25					2 - #9	X				#4			5						4A	WEST SIDE TOP BARS
							7 - #9		X			#4				R					2A	
							9 - #9	X														
B4018	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B4019	48	25					7 - #9		X			#4			5						4A	
							9 - #9	X				#4				R					2A	
B4020	48	25					7 - #9		X			#4	12								6A	SOUTH END
							9 - #9	X				#4				6			R		2A	SOUTH END
												#4				11			R		2A	NORTH END
B4021	48	25					9 - #9		X			#4			5						4A	
							7 - #9	X				#4				R					2A	
B4022	36	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							7 - #9	X														
B4023	36	25					7 - #7		X			#4				8			R		2A	
							7 - #9	X														
B4024	36	25					7 - #7		X			#4				8			R		2A	
							7 - #9	X														
B4025	36	25					7 - #9		X			#4				11			R		2A	
							7 - #7	X														
B4026	24	25					3 - #8	X				#4				6			R		2A	
							3 - #8		X													
							3 - #8	X			SEE DETAIL											
B4027	16	25					3 - #7	X			5'-4"	#4				5			R		2A	
							3 - #7		X													
							3 - #7	X			5'-4"											
B4028	24	25					3 - #8	X			6'-0"	#4				9			R		2A	
							4 - #10		X													
							3 - #8	X			6'-0"											
B4029	16	25					3 - #7	X			5'-8"	#4				7			R		2A	
							3 - #9		X													
							3 - #7	X			5'-8"											
B4030	16	25					3 - #7	X			5'-8"	#4				11			R		2B	
							4 - #10		X													
							3 - #7	X			5'-8"											
B4031	16	25					3 - #7	X			5'-8"	#4				6			R		2A	
							3 - #7		X													
							3 - #7	X			5'-8"											
B4032	18	25					3 - #7	X				#4				4			R		2A	
							3 - #7		X													
							3 - #7	X			4'-9"											
B4033	26	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							5 - #7	X														
B4034	24	25					3 - #8	X			6'-0"	#4				9			R		2A	
							3 - #9		X													
							3 - #8	X			6'-0"											
B4035	19	25					3 - #7	X			6'-0"	#4				4			R		2A	
							3 - #7		X													
							3 - #7	X			6'-0"											
B4036	24	25					3 - #8	X			6'-0"	#4				10			R		2A	
							3 - #8		X													
							3 - #8	X														
B4037	23	25					3 - #7	X			6'-0"	#4				4			R		2A	
							3 - #8		X													
							3 - #7	X														
B4038	26	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							5 - #7	X														
B4039	24	25					3 - #8	X			SEE DETAIL	#4		6							4A	SOUTH END
							3 - #8		X			#4				4			R		2A	SOUTH END
							3 - #8	X				#4				7			R		2A	NORTH END
B4040	20	25					3 - #7	X				#4				4			R		2A	
							3 - #7		X													
							3 - #7	X			6'-0"											

CONCRETE BEAM SCHEDULE

BEAM MARK	WIDTH (IN)	DEPTH (IN)	POST-TENSIONED REINFORCING: EFFECTIVE PT FORCE (KIPS)	TENDON PROFILE (CGS) (IN): WEST-SOUTH	MID	EAST-NORTH	LONGITUDINAL REINFORCING: BAR QTY AND SIZE	TOP	BOTTOM	SIDE	WEST OR SOUTH — BEAM — EAST OR NORTH	STIRRUPS: SIZE	NUMBER OF STIRRUPS AT EACH END AT INDICATED SPACING: 4"	6"	8"	10"	12"	16"	18"	24"	TYPE	COMMENTS
B4100-PT CANT'L	36	25	700	21	16	17.5	3 - #8	X			CANT'L	#4				10			R		2A	PT CGS 17.5' AT CANT END. CONTINUE PT 1'-0" PAST COL AT EAST END.
							3 - #8		X		CANT'L	#4				R					2A	STIRRUPS AT CANT'L BOTT BARS CONT.
							3 - #8	X														
B4101	36	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B4102	36	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B4103	36	25					5 - #7		X			#4				7			R		2A	
							7 - #7	X														
B4104-PT CANT'L	36	25	700	17.5	16	21	3 - #8		X		CANT'L	#4				10			R		2A	PT CGS 17.5' AT CANT END. CONTINUE PT 1'-0" PAST COL AT WEST END. BOTT BARS CONT.
							3 - #8	X			CANT'L	#4				R					2A	STIRRUPS AT CANT'L
B4105	40	25					7 - #9	X				#4			5						4A	
							7 - #10		X			#4				13			R		2A	
							7 - #11	X														
B4106	40	25					7 - #7		X			#4				4			R		2A	
							7 - #7	X														
B4107	40	25					7 - #7		X			#4				4			R		2A	
							7 - #7	X														
B4108	40	25					7 - #7		X			#4				4			R		2A	
							7 - #7	X														
B4109-PT CANT'L	40 / 34	25	800	17	16	21	3 - #8		X		CANT'L	#4				R					2A	PT CGS 17.5' AT CANT END. CONTINUE PT 1'-0" PAST COL AT WEST END. BOTT BARS CONT.
							3 - #8	X			CANT'L	#4				R					2A	STIRRUPS AT CANT'L
B4110	23	25					3 - #8	X				#4				10			R		2A	
							3 - #8		X													
							3 - #8	X														
B4111-PT	23	25	115	15	3	21	3 - #8		X			#4				10			R		2A	
							3 - #8	X														
B4112-PT	22	25	115	21	14	14	3 - #8		X			#4				10			R		2A	
							3 - #8	X														
B4113	26	25					3 - #7	X			4'-0"	#4				7			R		2A	NORTH SIDE TOP BARS
							2 - #7	X														SOUTH SIDE TOP BARS
							5 - #8		X													
							5 - #8	X														
B4114-PT	32 / 30	25	350	14.5	3	14.5	3 - #8		X			#4				R					2A	
							3 - #8	X														
B4115-PT	28 / 16	25	350	14.5	4	14.5	3 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													BOTTOM BARS CONT
							3 - #8	X														
B4116-PT	30 / 26	25	350	14	3	21	3 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													
							3 - #8	X														
B4117-PT	12	25	125	15.5	13	21	3 - #8	X				#4				10			R		2A	TOP BARS CONT
							3 - #8		X													BOTTOM BARS CONT
							3 - #8	X														
B4118	12	25					2 - #7	X				#4				7			R		2B	
							2 - #8		X													
							2 - #7	X			4'-0"											
B4119-PT	VARIES	25	450	14	3	21	5 - #8	X				#4				R					2A	WIDTH VARIES - SEE PLAN
							5 - #8		X													
							5 - #8	X														
B4120-PT	26 / 23	25	225	21	9	15.5	5 - #8		X			#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8	X														
B4121-PT	32 / 20	25	225	21	9	15.5	5 - #8		X			#4				R					2A	WIDTH VARIES - SEE PLAN
							3 - #8	X														
B4122	28	25					5 - #7	X				#4				4			R		2A	
							5 - #7		X													
							5 - #7	X														
B4123	28	25					5 - #7		X			#4				4			R		2A	
							5 - #7	X														
B4124-PT	28	25	250	13.5	3	13.5	3 - #8		X			#4				10			R		2A	WIDTH VARIES - SEE PLAN
							3 - #8	X			15'-0"											
B4125	16	25					3 - #7	X				#4				7			R		2A	
							3 - #9		X													
							3 - #9	X			6'-0"											
B4126-PT	33	25	450	21	14	14	3 - #8		X			#4				10			R		2A	
							5 - #8	X														TOP BARS CONT
B4127-PT	20	25	325	15.5	6	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B4128	26	25					5 - #8	X				#4				10			R		2A	
							5 - #8		X													
							5 - #8	X														
B4129-PT	21	25	150	21	15	15.5	3 - #8		X			#4				R					2A	BOTTOM BARS CONT
							3 - #8	X														TOP BARS CONT
B4130-PT	12	25	125	21	6	17	3 - #8		X			#4				R					2A	
							3 - #8	X														
B4131	26	25					5 - #8	X				#4				10			R		2A	
							5 - #8		X													
B4142-PT	16	25	325	21	14	16.5	3 - #8		X			#4				R					2A	
							3 - #8	X														
B4143-PT	26	25	350	21	13	14	3 - #8		X			#4				10			R		2A	
							3 - #8	X														
B4144-PT	12	25	225	17.5	11	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B4145-PT	12	25	150	17	6	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														
B4146-PT	12	25	225	17.5	11	21	3 - #8	X				#4				R					2A	
							3 - #8		X													
							3 - #8	X														

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Drawn DJL, RKH

Checked MET

Date 12/16/2011

Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
Driven to Discover℠

CONCRETE BEAM SCHEDULE

s4.04c

CONCRETE BEAM SCHEDULE

BEAM MARK	WIDTH (IN)	DEPTH (IN)	POST-TENSIONED REINFORCING: EFFECTIVE PT FORCE (KIPS)	TENDON PROFILE (CGS) (IN): WEST-SOUTH	MID	EAST-NORTH	LONGITUDINAL REINFORCING: BAR QTY AND SIZE	TOP	BOTTOM	SIDE	WEST OR SOUTH — BEAM — EAST OR NORTH	STIRRUPS: SIZE	NUMBER OF STIRRUPS AT EACH END AT INDICATED SPACING: 4"	6"	8"	10"	12"	16"	18"	24"	TYPE	COMMENTS
B5000	36	25	...	..	..	..	5 - #7	X			EXTEND TO BEAM END	#4				16		R		2A	SOUTH END
							5 - #9		X							9		R		2A	NORTH END
							5 - #9	X														
B5001	36	25					5 - #9		X			#4				8		R		2A	
							5 - #9	X														
B5002	36	25					5 - #9		X			#4				8		R		2A	
							5 - #9	X														
B5003	36	25					5 - #9		X			#4				8		R		2A	
							5 - #9	X														
B5004	36	25					5 - #9		X			#4				10		R		2A	
							5 - #7	X														
B5005	48	25					3 - #9	X				#4			5					4A	WEST SIDE TOP
							3 - #9	X				#4				R				2A	EAST SIDE TOP
							9 - #10		X												
							9 - #10	X														
B5006	48	25					7 - #9		X			#4				11		R		2A	
							9 - #10	X														
B5007	48	25					7 - #9		X			#4				11		R		2A	
							9 - #10	X														
B5008	48	25					7 - #9		X			#4				11		R		2A	
							9 - #10	X														
B5009	48	25					9 - #10		X			#4			5					4A	
							7 - #9	X				#4				R				2A	
B5010 CANT'L	48	25					7 - #10	X				#4				9				2A	CANT'L
							7 - #10		X			#4			5					4A	
							7 - #10	X				#4				R				2A	
B5011	48	25					7 - #8		X			#4				10		R		2A	
							7 - #10	X														
B5012	48	25					7 - #8		X			#4				10		R		2A	
							7 - #10	X														
B5013	48	25					7 - #8		X			#4				10		R		2A	
							7 - #10	X														
B5014	48	25					7 - #8		X			#4	12							4A	SOUTH END
							7 - #10	X				#4				6		R		2A	SOUTH END
												#4				11		R		2A	NORTH END
B5015	48	25					7 - #10		X			#4			5					4A	
							7 - #8	X				#4				R				2A	
B5016 CANT'L	36	26					9 - #11	X				#4			11					4A	CANT'L
							9 - #11		X			#4		10		R				4A	
							9 - #11	X														
B5017	48	26					2 - #11	X				#4		8						4A	WEST SIDE TOP
							9 - #11		X			#4				5		R		2A	
							11 - #11	X														
B5018	48	26					9 - #9		X			#4	5							4A	
							9 - #11	X				#4				5		R		2A	
B5019	48	26					9 - #9		X			#4	5							4A	
							9 - #11	X				#4				5		R		2A	
B5020	48	36					9 - #9		X			#4	12							8A	SOUTH END
							11 - #11	X				#4				R				4A	SOUTH END
												#4	9			R				4A	NORTH END
B5021	48	36					9 - #11		X			#4	9							4A	
							9 - #9	X				#4				5		R		2A	
B5022	36	26					5 - #9	X			6'-0"	#4				6		R		2A	
							7 - #9		X												
B5023	36	26					5 - #9	X				#4	5							4A	
							7 - #9		X			#4				8		R		2A	
							9 - #9	X														
B5024	36	26					5 - #9		X			#4				7		R		2A	
							9 - #9	X														
B5025	36	26					7 - #9		X			#4	5							4A	
							5 - #9	X				#4				8		R		2A	
B5026	24	36					5 - #7	X				#4				6		R		2A	
							5 - #7		X												
							5 - #7	X			SEE DETAIL										
B5027	30	25					5 - #7	X			5'-4"	#4		8		R				4A	
							7 - #11		X												
							5 - #7	X			5'-4"										
B5028	24	25					5 - #9	X			6'-0"	#4				R				4A	
							6 - #11		X												
							5 - #9	X			6'-0"										
B5029	16	25					3 - #7	X			5'-8"	#4				7		R		2A	
							3 - #9		X												
							3 - #7	X			5'-8"										
B5030	16	25					3 - #7	X			5'-8"	#4				11		R		2B	
							4 - #10		X												
							3 - #7	X			5'-8"										
B5031	16	25					3 - #7	X			5'-8"	#4				6		R		2A	
							3 - #7		X												
							3 - #7	X			5'-8"										
B5032	16 1/2	25					3 - #8	X				#4				4		R		2A	
							3 - #8		X												
							3 - #8	X													
B5033	26	25					5 - #7	X				#4				4		R		2A	
							5 - #7		X												
							5 - #7	X													
B5034	22	25					3 - #8	X				#4				4		R		2A	
							5 - #7		X												
							3 - #9	X													
B5035	29	25					5 - #7	X			5'-4"	#4				9		R		2A	
							5 - #7		X												
							5 - #7	X			5'-4"										
B5036	27	25					5 - #7	X			5'-4"	#4				4		R		2A	
							5 - #7		X												
							5 - #7	X			5'-4"										
B5037	16	25					3 - #7	X				#4				4		R		2A	
							3 - #7		X												
							3 - #7	X													
B5038	26	25					5 - #7	X				#4				4		R		2A	
							5 - #7		X												
							5 - #7	X													
B5039	24	25					5 - #7	X				#4				4		R		2A	
							5 - #7		X												
							5 - #7	X													
B5040	16	25					3 - #7	X				#4				R				2A	
							3 - #7		X												
							3 - #7	X			5'-4"										
B5041 (1)	36	25					5 - #9	X			6'-0"	#4				10		R		2A	
							7 - #9		X												
							2 - #9	X													WEST SIDE TOP
							3 - #9	X													EAST SIDE TOP
B5042	18	25					3 - #7	X				#4				R				2A	
							3 - #7		X												
							3 - #7	X			5'-4"										
B5043	18	25					3 - #7		X												
							3 - #7	X			5'-4"										

CONCRETE BEAM SCHEDULE

BEAM MARK	WIDTH (IN)	DEPTH (IN)	POST-TENSIONED REINFORCING: EFFECTIVE PT FORCE (KIPS)	TENDON PROFILE (CGS) (IN): WEST-SOUTH	MID	EAST-NORTH	LONGITUDINAL REINFORCING: BAR QTY AND SIZE	TOP	BOTTOM	SIDE	WEST OR SOUTH — BEAM — EAST OR NORTH	STIRRUPS: SIZE	NUMBER OF STIRRUPS AT EACH END AT INDICATED SPACING: 4"	6"	8"	10"	12"	16"	18"	24"	TYPE	COMMENTS
B5100-PT CANT'L	36	25	500	21	15	17.5	3 - #8	X			CANT	#4				10		R		2A	PT CGS 17.5" AT CANT END. CONTINUE PT 1'-0" PAST COL AT EAST END.
							3 - #8		X		CANT	#4				R				2A	STIRRUPS AT CANT'L. BOTT BARS CONT.
							5 - #7	X													
B5101	36	25					5 - #7		X			#4				7		R		2A	WEST END
							5 - #7	X													
B5102	36	25					5 - #7		X			#4				7		R		2A	
							5 - #7	X													
B5103	36	25					5 - #7		X			#4				7		R		2A	EAST END
							5 - #7	X													
B5104-PT CANT'L	36	25	500	17.5	15	21	3 - #8		X		CANT	#4				10		R		2A	PT CGS 17.5" AT CANT END. BOTT BARS CONT
							3 - #8	X			CANT	#4				R				2A	STIRRUPS AT CANT'L
B5105-PT CANT'L	34 1/2 / 40	25	750	20	8	17	5 - #8	X			CANT	#4				R				2A	PT CGS 17.5" AT CANT END. CONTINUE PT 1'-0" PAST COL AT EAST END.
							3 - #8		X		CANT	#4				R				2A	STIRRUPS AT CANT'L. BOTT BARS CONT.
							5 - #8	X													
B5106	40	25					5 - #7	X				#4				9		R		2A	EAST END
							5 - #7		X												
							5 - #8	X													
B5107	40	25					5 - #7		X			#4				9		R		2A	
							5 - #8	X													
B5108	40	25					5 - #7		X			#4				9		R		2A	
							5 - #7	X													
B5109-PT CANT'L	40 / 29	25	650	18	15	21	3 - #8		X		CANT	#4				R				2A	PT CGS 17.5" AT CANT ENDS CONTINUE PT 1'-0" PAST COL AT WEST END. BOTT BARS CONT.
							3 - #8	X			CANT	#4				R				2A	STIRRUPS AT CANT'L
B5110	23	25					3 - #8	X				#4				4		R		2A	
							3 - #8		X												
							3 - #8	X													
B5111-PT	23	25	216	16	7	21	3 - #8		X			#4				R				2A	
							3 - #8	X													
B5112-PT	25	25	216	21	4	16	5 - #8		X			#4				R				2A	
							3 - #8	X													
B5113	26	25					2 - #11	X			6'-0" EXTEND INTO WALL	#4			R					4A	NORTH SIDE TOP BARS
							3 - #11	X													SOUTH SIDE TOP BARS
							6 - #11		X												
							5 - #8	X													
B5114-PT	55/53	25	750	14	4*	14	11 - #8		X			#4				R				4A	BEAM WIDTH VARIES. CONT PT 1'-0" PAST COL AT WEST END. * DENOTES LOW POINT OF DRAPE. 26'-6" FROM GRID C
							5 - #8	X													TOP BARS CONT
							2 - #8	X													SOUTH SIDE TOP BARS
B5115-PT	32	26	350	13	3	13	3 - #8	X				#4				R					RUN PT FLAT AT CGS 13" OVER WALL AT EAST END.
							3 - #8		X												
							3 - #8	X													
B5116-PT (3)	39 / 48	25	425	14	6	21	3 - #8		X			#4				R				2A	CONT PT 1'-0" PAST COL AT WEST END. BOTT BARS CONT.
							5 - #8	X													
B5117-PT	12	25	150	15.5	15	21	3 - #8	X				#4				10		R		2A	TOP BARS CONT
							3 - #8		X												BOTTOM BARS CONT
							3 - #8	X													
B5118	12	25					2 - #7	X				#4				7		R		2B	
							2 - #8		X												
							2 - #7	X			4'-0"										
B5119-PT	VARIES	25	450	14	3	21	5 - #8	X				#4				R				2A	WIDTH VARIES - SEE PLAN
							5 - #8		X												
							5 - #8	X													
B5120-PT	30	36	270	30	8	23	4 - #9	X				#4			R					4A	
							8 - #11		X												
							6 - #9	X													
B5121-PT	30	36	324	30	11	23	4 - #9	X				#4			R					4A	
							8 - #11		X												
							6 - #9	X													
B5122	28	25					5 - #7	X				#4				6		R		2A	
							5 - #7		X												
							5 - #8	X													
B5123	28	25					5 - #8		X			#4				7		R		2A	
							5 - #7	X													
B5124-PT	28	25	250	13.5	3	13.5	3 - #8		X			#4				10		R		2A	
							3 - #8	X													
B5125	18	25					3 - #7	X				#4				R				2A	
							5 - #9		X												
							5 - #9	X			6'-9"										
B5126-PT	41	36	375	32	3	20	7 - #8		X			#4				10		R		2A	WIDTH VARIES BELOW PAN - SEE DETAIL
							6 - #8	X													
B5127-PT	44	36	475	32	4	20	5 - #8		X			#4				10		R		2A	WIDTH VARIES BELOW PAN - SEE DETAIL
							5 - #8	X													
B5128-PT	37	36	425	32	6	20	5 - #8		X			#4				10		R		2A	WIDTH VARIES BELOW PAN - SEE DETAIL
							5 - #8	X													
B5129-PT (1)	36	26	450	21	14	14	3 - #8		X			#4				6		R		2A	WIDTH VARIES BELOW PAN - SEE DETAIL
							5 - #8	X													TOP BARS CONT
B5130	26	25					5 - #8	X				#4				10		R		2A	
							5 - #8		X												
							5 - #8	X													
B5131	26	25					5 - #8	X				#4				10		R			
							5 - #8		X												
B5132-PT	28	25	350	13	3	13	3 - #8	X				#4				R				2A	
							5 - #8		X												
							3 - #8	X													
B5133-PT	39	25	375	14.5	3	21	5 - #8	X				#4				R				2A	TOP BARS AT WEST END IN ADD TO CONT TOP BARS FROM ADJACENT JOIST. CONT PT 1'-0" PAST COL AT WEST END.
							3 - #8		X												
							9 - #8	X													
B5134-PT	54	25	475	13.5	8	21	5 - #8	X				#4						R		2A	TOP BARS AT WEST END IN ADD TO CONT TOP BARS FROM ADJACENT JOIST. CONT PT 1'-0" PAST COL AT WEST END.
							5 - #8		X												
							5 - #8	X													
B5135-PT	12	26	150	22	6	18	3 - #8	X				#4				R				2A	
							3 - #8		X												
B5136-PT	12	25	108	17	10	19	3 - #8	X				#4				R				2A	
							3 - #8		X												
							2 - #9	X													
B5137-PT	12	25	150	17	6	21	3 - #8	X				#4				R				2A	
							3 - #8		X												BOTTOM BARS CONT
							3 - #8	X													TOP BARS CONT
B5138-PT	12	25	108	17	10	19	3 - #8	X				#4				R				2A	
							3 - #8		X												
							2 - #9	X													
B5139-PT	21	25	150	21	15	15.5	3 - #8		X			#4				R				2A	BOTTOM BARS CONT
							3 - #8	X													TOP BARS CONT
B5140 (4)	16	25					3 - #8	X			6'-0"	#4				5		R		2A	
							3 - #8		X												
							3 - #8	X			EXTEND TO WALL END										

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Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
(1) Project Directive No. 3	05-11-2012

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Drawn DJL, RKH

Checked MET

Date 12/16/2011

Project

Physics and Nanotechnology Building

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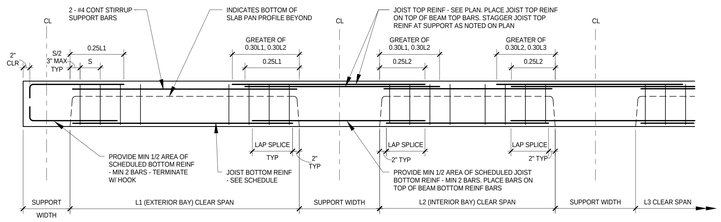
CONCRETE BEAM SCHEDULE

s4.04d

CONCRETE JOIST SCHEDULE								
	SIZE		REINFORCING					
			LONG	STIRRUPS				
MARK	WIDTH (IN)	DEPTH (IN)	BOTTOM BARS	Q'TY	SIZE	SPACING FROM EACH END	TYPE	COMMENTS
J1	12	25	2 - #7	R	#3	10" OC	A	STIRRUPS FULL LENGTH
J2	12	25	2 - #7	8	#3	10" OC	A	
J3	12	25	2 - #7	11	#3	10" OC	A	
J4	12	25	2 - #7	14	#3	10" OC	A	
J5	12	25	2 - #8	17	#3	10" OC	A	
J6	12	25	2 - #9	18	#3	10" OC	A	36" DEPTH AT SIM. 1
J7	12	25	3 - #8	18	#3	10" OC	A	
J8	16	25	3 - #7	13	#3	10" OC	A	
J9	16	25	3 - #7	16	#3	10" OC	A	
J10	16	25	3 - #8	18	#3	10" OC	A	
J11-PT	12	25	2 - #7	R	#3	16" OC	A	PROVIDE STIRRUPS FULL LENGTH
J12-PT	12	25	2 - #7	4	#3	16" OC	A	
J13-PT	12	25	2 - #7	14	#3	16" OC	A	
J14-PT	12	25	2 - #9	17	#3	16" OC	A	
J15-PT	16	25	2 - #7	12	#3	16" OC	A	
J16-PT	16	25	2 - #9	13	#3	16" OC	A	
J17-PT	12	26	2 - #7	14	#3	16" OC	A	
J18-PT	12	26	2 - #9	13	#3	16" OC	A	
J19-PT	16	26	2 - #7	14	#3	16" OC	A	
J20-PT	18	26	2 - #9	11	#3	16" OC	A	
J21	12	26	2 - #9	18	#3	10" OC	A	

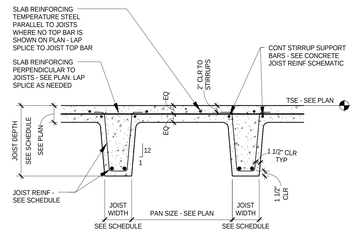
NOTES:
1. SEE TYPICAL JOIST REINFORCING SCHEMATIC, TYPICAL JOIST SECTIONS AND JOIST DETAILS FOR ADDITIONAL INFORMATION.
2. SEE PLAN FOR PT JOIST REINFORCMENT FORCES AND PROFILES.
3. ALL JOISTS ARE TO HAVE A MINIMUM OF 2 - #6 BOTTOM BARS ALL LOCATIONS AND 4 - #3 STIRRUPS AT EACH END.
4. WHERE EDGE OF OPENING IS 4" OR LESS FROM JOIST, PROVIDE TYPE 'B' STIRRUPS IN JOIST FULL LENGTH OF OPENING AT SCHEDULED SPACING.
5. CAMBER JOISTS SO THAT THE CAMBER IN THE CENTER OF THE SPAN IS 1/4" PER 10'-0" OF CLEAR SPAN OR AS NOTED ON PLAN. SUBMIT JOIST CAMBER PLAN AS SHOP DRAWING SEPARATE FROM FORMWORK SUBMITTAL.
6. NO MECHANICAL OPENINGS OR SLEEVES ARE TO PENETRATE JOISTS WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER UNLESS NOTED OTHERWISE ON DRAWINGS.

JOIST STIRRUP TYPES

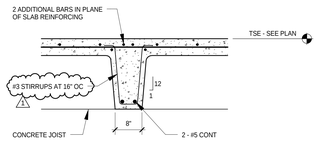


NOTES:
1. SEE CONCRETE JOIST SCHEDULE FOR LONGITUDINAL BOTTOM REINFORCING, STIRRUPS AND STIRRUP SPACING.
2. BAR CUT OFFS SHOWN ABOVE ARE FOR TYPICAL CONDITIONS. LENGTHS INDICATED ON PLAN SUPERCEDE THIS DETAIL.
3. REINFORCING LENGTHS INDICATED ON PLAN DO NOT INCLUDE HOOKS. HOOKS ARE TO BE 90 DEGREE ACI STANDARD HOOKS.
4. SEE TYPICAL JOIST SECTIONS FOR ADDITIONAL INFORMATION.
5. PROVIDE ALL ADDITIONAL SUPPORT REINFORCING NECESSARY TO PREVENT THE DISPLACEMENT OF SCHEDULED STEEL PRIOR TO PLACEMENT OF CONCRETE.
6. CONCRETE BEAM AND PAN SLAB REINFORCING NOT SHOWN FOR CLARITY.
7. AT TENDON ANCHORS IN POST TENSIONED JOISTS, PROVIDE 4 - #3 CLOSED TIES TYPE 2A AT 3" OC.

1 TYPICAL CONCRETE JOIST REINFORCING SCHEMATIC
NO SCALE

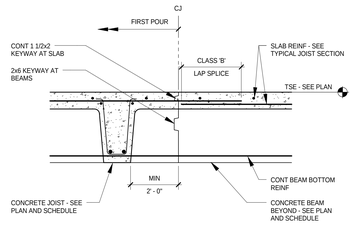


2 TYPICAL CONCRETE JOIST SECTION
NO SCALE



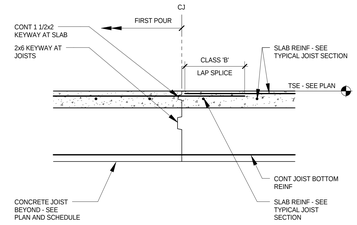
NOTE:
SEE PLAN FOR BRIDGING JOIST LOCATIONS.

3 TYPICAL BRIDGING JOIST SECTION
NO SCALE



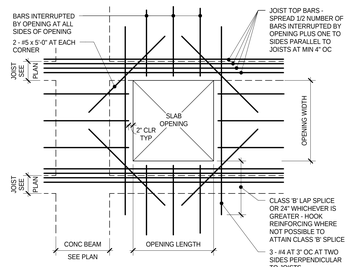
NOTES:
1. PRIOR TO SECOND POUR, REMOVE CONCRETE LAITANCE BY WIRE BRUSH OR OTHER MEANS. COAT THE JOINT WITH A CONCRETE BONDING AGENT JUST PRIOR TO PLACING CONCRETE.
2. CONSTRUCTION JOINT TO BE IN MIDDLE 1/3 OF BEAM SPAN.
3. ALL CONSTRUCTION JOINT LOCATIONS IN STRUCTURAL FLOORS ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL.
4. ALL REINFORCING STEEL TO BE CONTINUOUS THROUGH CONSTRUCTION JOINT. MINIMUM STEEL PROJECTION TO BE CLASS 'B' LAP SPLICE.

4 TYPICAL CONSTRUCTION JOINT PARALLEL TO JOIST DETAIL
NO SCALE



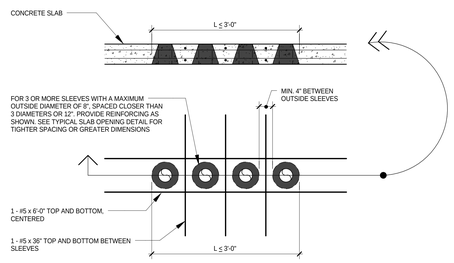
NOTES:
1. PRIOR TO SECOND POUR, REMOVE CONCRETE LAITANCE BY WIRE BRUSH OR OTHER MEANS. COAT THE JOINT WITH A CONCRETE BONDING AGENT JUST PRIOR TO PLACING CONCRETE.
2. CONSTRUCTION JOINT TO BE PLACED IN MIDDLE 1/3 OF JOIST SPAN.
3. ALL CONSTRUCTION JOINT LOCATIONS IN STRUCTURAL FLOORS ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL.
4. ALL REINFORCING STEEL TO BE CONTINUOUS THROUGH CONSTRUCTION JOINT. MINIMUM STEEL PROJECTION TO BE CLASS 'B' LAP SPLICE.
5. VERIFY ALL OPENING SIZES WITH ARCHITECTURE AND MECHANICAL.

5 TYPICAL CONSTRUCTION JOINT PERPENDICULAR TO JOIST DETAIL
NO SCALE



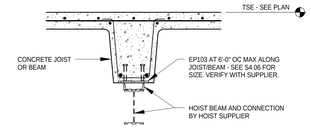
NOTES:
1. WHERE EDGE OF OPENING IS 4" OR LESS FROM JOIST, PROVIDE TYPE B STIRRUPS IN JOIST FOR FULL LENGTH OF OPENING.
2. HOOK ALL SLAB REINFORCING INTERRUPTED BY OPENING AT FACE OF OPENING.
3. VERIFY ALL OPENING SIZES WITH ARCHITECTURE AND MECHANICAL.

6 TYPICAL REINFORCING SCHEMATIC AT SLAB OPENING
NO SCALE



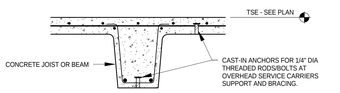
NOTE:
1. SHIFT REINFORCING TO MISS SLEEVES. DO NOT CUT OR INTERRUPT REINFORCING.
2. REINFORCING SHOWN IS IN ADDITION TO REINFORCING SHOWN IN PLAN AND SCHEDULE.

7 TYPICAL ADDITIONAL REINFORCING AROUND SLEEVES THROUGH STRUCTURAL SLAB
NO SCALE



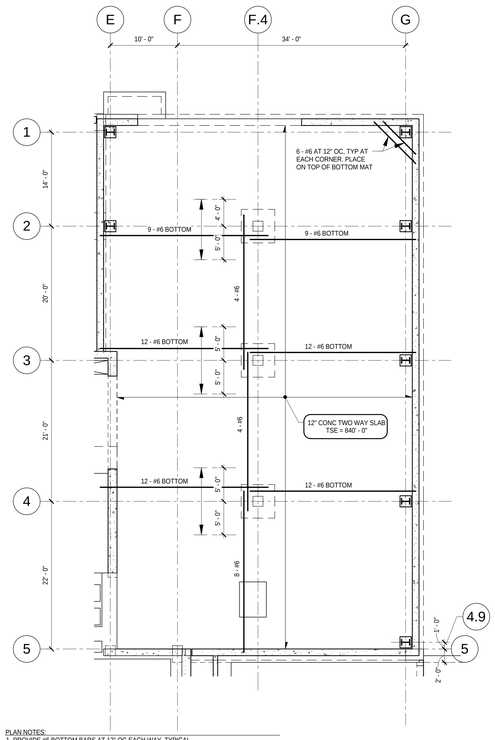
NOTES:
1. MAXIMUM LOAD: 5,000 LBS.

8 SECTION AT LAB HOIST SUPPORT
NO SCALE



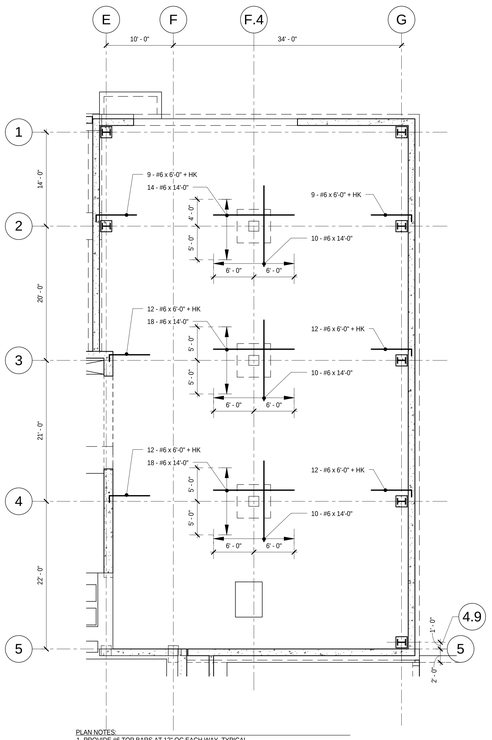
NOTES:
1. REFER TO LAB PLANNING DRAWINGS FOR SERVICE CARRIER LAYOUT AND DETAILS AND REQUIRED SPACING.

9 SECTION AT SERVICE CARRIER SUPPORT
NO SCALE



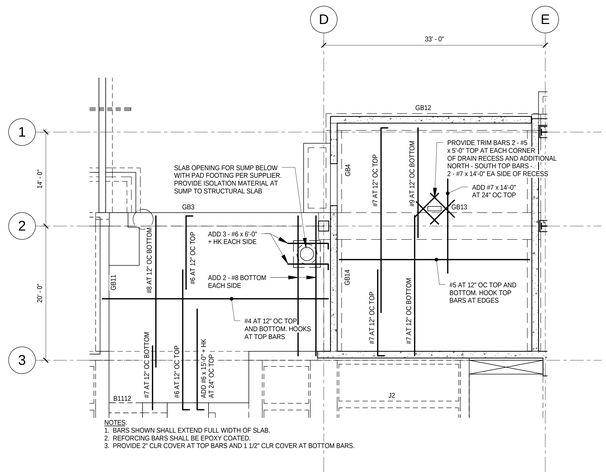
PLAN NOTES:
1. PROVIDE #6 BOTTOM BARS AT 12" OC EACH WAY, TYPICAL.
2. ADDITIONAL REINFORCING SHOWN SHALL BE SPACED EVENLY OVER WIDTHS SHOWN AND IN THE SAME LAYERS AS THE TYPICAL BOTTOM MAT.
3. LAP BOTTOM BARS AT SUPPORT LINES.

10 HIGH BAY REINFORCING PLAN - BOTTOM STEEL
1/8" = 1'-0"



PLAN NOTES:
1. PROVIDE #6 TOP BARS AT 12" OC EACH WAY, TYPICAL.
2. ADDITIONAL REINFORCING SHOWN SHALL BE SPACED EVENLY OVER WIDTHS SHOWN AND IN THE SAME LAYERS AS THE TYPICAL TOP MAT.
3. LAP TOP BARS AT MIDSPAN LOCATIONS. LAP BOTTOM BARS AT GRIDLINES
4. TOP AND BOTTOM COVER = 1" CLR

11 HIGH BAY REINFORCING PLAN - TOP STEEL
1/8" = 1'-0"



NOTES:
1. BARS SHOWN SHALL EXTEND FULL WIDTH OF SLAB.
2. REFORCING BARS SHALL BE EPOXY COATED.
3. PROVIDE 2" CLR COVER AT TOP BARS AND 1 1/2" CLR COVER AT BOTTOM BARS.

12 REINFORCING PLAN - TOP AND BOTTOM STEEL
1/8" = 1'-0"

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Signature: Matt Thomas

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
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1 Project Directive No. 3	05-11-2012

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Comm. No.	10.375.0
Drawn	DJL, RKH
Checked	MET
Date	12/16/2011

Project

Physics and Nanotechnology Building

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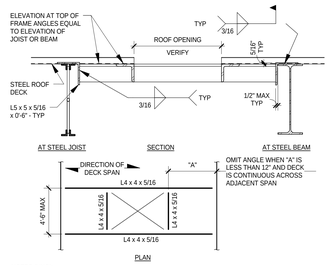
CONCRETE JOIST SCHEDULES AND TYPICAL DETAILS

s4.05

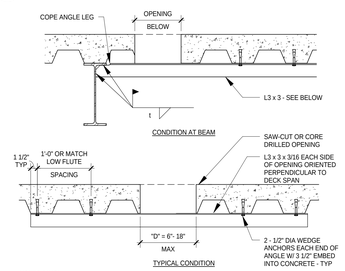
NOT USED

1 FLOOR AND ROOF DECK SCHEDULE
NO SCALE



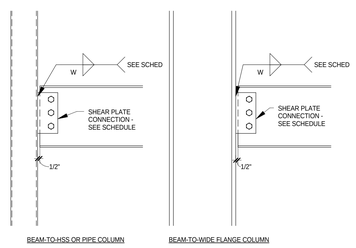
NOTES (UNO):
1. VERIFY OPENING SIZES AND LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO FABRICATION.
2. WELD DECK AT OPENING AT EACH FLUTE WITH PUDDLE WELDS, PER THE TYPICAL DECK ATTACHMENT DETAIL.
3. DO NOT CUT OPENING IN DECK UNTIL NECESSARY. CONTRACTOR TO COORDINATE.
4. THIS ROOF OPENING FRAME IS NOT DESIGNED TO SUPPORT THE WEIGHT OF ROOF TOP MECHANICAL EQUIPMENT WEIGHING OVER 400 LBS. EQUIPMENT SHALL BE SUPPORTED ON A STRUCTURAL CURB DESIGNED BY THE SUPPLIER TO SPAN TO THE PRIMARY STRUCTURAL FRAMING.

6 TYPICAL ROOF OPENING FRAME AT 1 1/2" ROOF DECK
NO SCALE



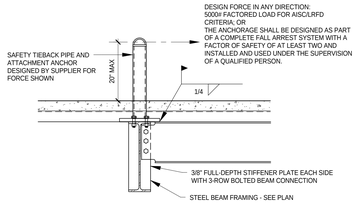
NOTES (UNO):
1. DO NOT OVER CUT CORNERS OF SQUARE OR RECTANGULAR OPENINGS.
2. CLUSTER OF OPENINGS CONSIDERED TO BE ONE OPENING. PROVIDE SUPPORT ANGLES IF OPENINGS LOCATED WITH LESS THAN TWO TIMES "D" CLEAR BETWEEN OPENING EDGES. "D" IS LARGEST OF ADJACENT OPENING DIMENSIONS.

11 TYPICAL OPENING (6"-24" MAX) THROUGH SLAB OVER METAL DECK
NO SCALE



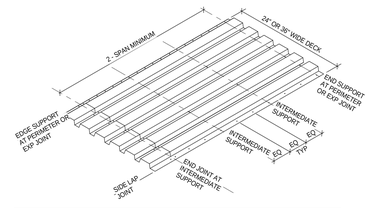
NOTES (UNO):
1. SEE TYPICAL SHEAR PLATE CONNECTION DETAIL AND SCHEDULE FOR PLATE DIMENSIONS AND NOTES.
2. PROVIDE THROUGH-PLATE WHERE HSS WALL THICKNESS IS LESS THAN 1/4".

16 SHEAR PLATE CONNECTION AT COLUMN
NO SCALE



NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF SAFETY TIEBACKS AND ROOFING DETAILS.

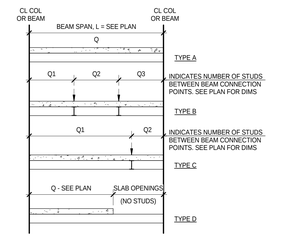
21 TYPICAL SAFETY TIEBACK DETAIL
NO SCALE



DECK SUPPORT CONDITION	DECK ATTACHMENT
END SUPPORT	PUDDLE WELDS AT EACH LOW FLUTE
EDGE SUPPORT	PUDDLE WELDS AT 12" OC
INTERMEDIATE SUPPORT	PUDDLE WELDS AT EACH LOW FLUTE
END JOINT AT INT SUPPORT	PUDDLE WELDS AT EACH LOW FLUTE, EACH SIDE
SIDE LAP JOINT	#10 TEK SCREWS OR 1 1/2" SEAM WELD AT 36" OC MAX

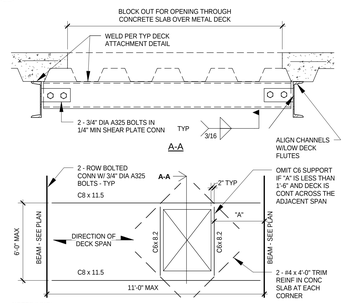
NOTES (UNO):
1. ALL PUDDLE (ARC-SPOT) WELDS SHALL BE 5/8" DIAMETER.
2. PROVIDE DECK ATTACHMENTS AT SPACING SHOWN UNLESS NOTED OTHERWISE ON DRAWINGS.
3. DECK SHEETS SHALL BE BUTTED AT END JOINTS. PROVIDE 1 1/2" MINIMUM BEARING.
4. HEADED STUD INSTALLED THROUGH THE DECK MAY BE SUBSTITUTED FOR PUDDLE WELD.

2 TYPICAL COMPOSITE STEEL DECK ATTACHMENT DETAIL
NO SCALE



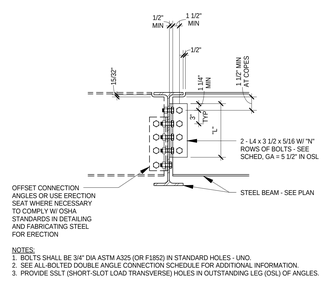
NOTES (UNO):
1. SEE TYPICAL DETAIL FOR STUD PLACEMENT INFORMATION.
2. Q = TOTAL NUMBER OF SHEAR CONNECTORS SCHEDULED FOR BEAM - SEE PLAN.

7 TYPICAL STUD DISTRIBUTION DETAIL
NO SCALE



NOTES (UNO):
1. DO NOT CUT DECK AT OPENINGS UNTIL CONC HAS ATTAINED ITS SPECIFIED COMPRESSIVE STRENGTH.
2. VERIFY OPENING DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND MECHANICAL TRADES.

12 TYPICAL FRAMING AT OPENINGS (OVER 24")
NO SCALE



NOTES:
1. BOLTS SHALL BE 3/4" DIA ASTM A325 (OR F1852) IN STANDARD HOLES - UNO.
2. SEE ALL-BOLTED DOUBLE ANGLE CONNECTION SCHEDULE FOR ADDITIONAL INFORMATION.
3. PROVIDE SSLT (SHORT-SLOT LOAD TRANSVERSE) HOLES IN OUTSTANDING LEG (OSL) OF ANGLES.

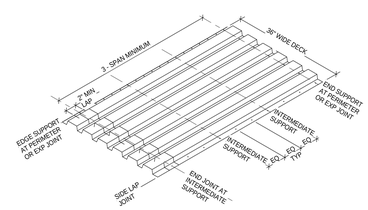
17 TYPICAL ALL-BOLTED DOUBLE ANGLE CONNECTION DETAIL
NO SCALE

EMBED PLATE SCHEDULE - MISCELLANEOUS						
MARK	PLATE LENGTH			STUD ROWS		COMMENTS
	"B"	"H"	"T"	"DIA"	"X"	LNGTH
EP101	8"	8"	3/8"	3/4"	1 1/2"	6"
EP102	12"	12"	3/8"	3/4"	1 1/2"	6"
EP103	9"	9"	3/4"	3/4"	1 1/2"	6"
EP104	8"	18"	3/8"	3/4"	1 1/2"	6"

EMBED PLATE

NOTES (UNO):
1. PROVIDE EMBED PLATES CORRESPONDING TO BEAM SIZES IN SCHEDULE, UNLESS NOTED OTHERWISE ON PLANS OR DETAILS.
2. PROVIDE HOLES AS NECESSARY FOR PLATE ATTACHMENT TO FORMWORK (5/16" DIA MAX).
3. COORDINATE CONCRETE REINFORCING BAR PLACEMENT WITH HEADED STUDS.
4. FIELD VERIFY EMBED PLATE PLACEMENT PRIOR TO BEAM ERECTION.

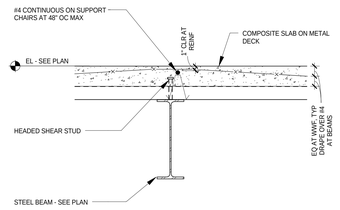
22 TYPICAL MISCELLANEOUS EMBED PLATE SCHEDULE
NO SCALE



DECK SUPPORT CONDITION	DECK ATTACHMENT
END SUPPORT	PUDDLE WELDS AT EACH LOW FLUTE
EDGE SUPPORT	PUDDLE WELDS AT 12" OC
INTERMEDIATE SUPPORT	PUDDLE WELDS IN 36/4 PATTERN
END LAP JOINT	PUDDLE WELDS AT EACH LOW FLUTE
SIDE LAP JOINT	#10 TEK SCREWS - SEE PLAN FOR SPACING

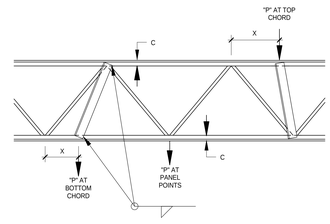
NOTES (UNO):
1. ALL PUDDLE (ARC-SPOT) WELDS SHALL BE 5/8" DIAMETER.
2. PROVIDE DECK ATTACHMENTS AT SPACING SHOWN UNLESS NOTED OTHERWISE ON DRAWINGS.
3. AT END LAP CONDITIONS, PUDDLE WELDS SHALL PROVIDE FUSION THROUGH BOTH DECK LAYERS.

3 TYPICAL 1 1/2" STEEL ROOF DECK ATTACHMENT DETAIL
NO SCALE



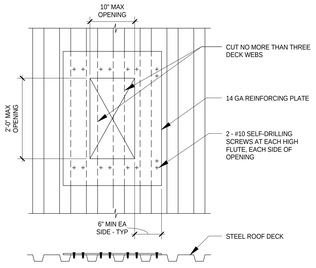
NOTES (UNO):
1. SEE TYPICAL DETAILS FOR DECK ATTACHMENT AND HEADED STUD INFORMATION.

TYPICAL SECTION AT COMPOSITE DECK PERPENDICULAR TO BEAM
NO SCALE



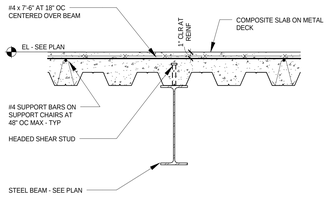
NOTES:
1. IF LOAD "P" IN POUNDS IS GREATER THAN 10 x JOIST DEPTH IN INCHES -VERIFY WITH ENGINEER.
2. IF JOIST HAS ROUND RODS FOR BOTTOM CHORD, EXTEND ANGLE PAST AND HANG LOAD FROM ANGLE NOT CHORD.
3. REINFORCING ANGLE IS REQUIRED FOR X > C + 2".
4. FOR JOIST DEPTH UP TO 24" USE L2 1/2 x 2 1/2 x 3/16. FOR JOIST DEPTH UP TO 5'-0" USE L3 x 3 x 1/4 OTHERWISE USE L4 x 4 x 5/16.

13 TYPICAL DETAIL AT JOIST POINT LOADS
NO SCALE



NOTES (UNO):
1. FOR OPENINGS THROUGH TWO OR MORE DECK FLUTES, PROVIDE TYPICAL ROOF OPENING FRAME DETAIL BEARING ON PRIMARY FRAMING.
2. AT GALVANIZED DECK, PROVIDE GALVANIZED REINFORCING PLATE.

4 TYPICAL ROOF DECK PENETRATION DETAIL - 1 1/2" DECK
NO SCALE



NOTES (UNO):
1. CUT HIGH DECK FLUTE WHEN IT OCCURS AT BEAM AND PROVIDE GIRDER FILLER DECK PIECE AS NECESSARY.
2. SEE TYPICAL DETAILS FOR DECK ATTACHMENT AND HEADED STUD INFORMATION.

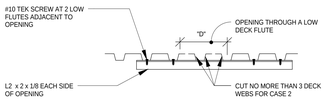
9 TYPICAL SECTION AT COMPOSITE DECK PARALLEL TO BEAM
NO SCALE

SHEAR PLATE CONNECTION SCHEDULE					
BEAM SIZE	NUMBER OF BOLTS "N"	PLATE LENGTH "L"	PLATE THICKNESS "T"	WELD SIZE "W"	REMARKS
W8 ,W10	2	6	3/8	1/4	
W12, W14	3	9	3/8	1/4	
W16	4	12	3/8	1/4	
W18	5	15	3/8	1/4	
W21	6	18	3/8	1/4	
W24	7	21	3/8	1/4	
W27	8	23 1/2	3/8	1/4	PROVIDE SSLT HOLES
W30	9	26 1/2	3/8	1/4	PROVIDE SSLT HOLES
W33	10	29 1/2	3/8	1/4	PROVIDE SSLT HOLES

NOTES (UNO):
1. SEE TYPICAL SHEAR PLATE CONNECTION DETAILS FOR CONFIGURATIONS.
2. WELD SIZE SHOWN IS THE FILLET WELD LEG DIMENSION FOR PERPENDICULAR JOINTS. AT SKEWED CONNECTION CONDITIONS, SEE THE SKEWED CONNECTION DETAIL FOR WELD REQUIREMENTS.
3. SSLT INDICATES SHORT SLOT LOAD TRANSVERSE.

14 TYPICAL SHEAR PLATE SCHEDULE
NO SCALE

CASE 1: FOR OPENINGS WHICH DO NOT CUT VERTICAL FLUTE WEBS - NO REINFORCING IS REQUIRED.

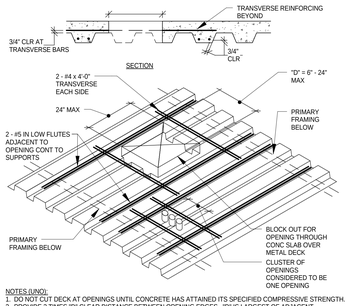


CASE 2: FOR OPENINGS THOUGH A LOW FLUTE PROVIDE REINFORCING AS NOTED.

CASE 3: FOR OPENINGS THROUGH TWO OR MORE DECK FLUTES PROVIDE TYPICAL ROOF OPENING FRAME DETAIL BEARING ON PRIMARY FRAMING.

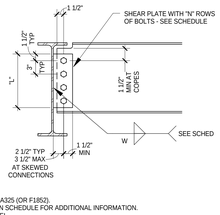
NOTES (UNO):
1. CLUSTER OF OPENINGS IS CONSIDERED TO BE ONE OPENING. PROVIDE DECK SUPPOR'ANGLES OR FRAME IF OPENINGS LOCATED WITH LESS THAN 2 TIMES "D" CLEAR BETWEEN OPENING EDGES. "D" IS LARGEST OF ADJACENT OPENING DIMENSIONS.

5 TYPICAL ROOF DECK PENETRATION DETAIL
NO SCALE



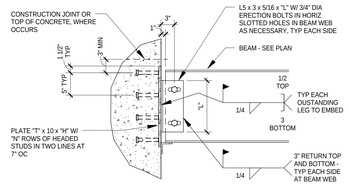
NOTES (UNO):
1. DO NOT CUT DECK AT OPENINGS UNTIL CONCRETE HAS ATTAINED ITS SPECIFIED COMPRESSIVE STRENGTH.
2. PROVIDE 2 TIMES "D" CLEAR DISTANCE BETWEEN OPENING EDGES. "D" IS LARGEST OF ADJACENT OPENING DIMENSIONS.

10 TYPICAL FRAMING AT OPENINGS (6"-24" MAX)
NO SCALE



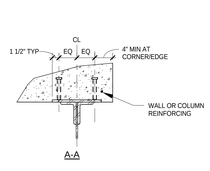
NOTES (UNO):
1. BOLTS SHALL BE 3/4" DIA ASTM A325 (OR F1852).
2. SEE SHEAR PLATE CONNECTION SCHEDULE FOR ADDITIONAL INFORMATION.
3. ALL PLATES ARE ASTM A36 STEEL.
4. PROVIDE STANDARD OR SHORT-SLOTTED (SHORT-SLOT LOAD TRANSVERSE) HOLES IN PLATE.
5. SEE TYPICAL DETAILS FOR CONNECTIONS TO COLUMNS.

15 TYPICAL SHEAR PLATE DETAIL
NO SCALE



NOTES (UNO):
1. SEE SCHEDULE FOR NOTES AND ADDITIONAL INFORMATION.
2. PROVIDE ERECTION SEAT AS NECESSARY.

19 TYPICAL EMBED PLATE - DOUBLE ANGLE CONNECTION
NO SCALE



ALL-BOLTED DOUBLE ANGLE CONNECTION SCHEDULE		
BEAM SIZE	MINIMUM ROWS OF BOLTS "N"	ANGLE LENGTH "L"
W8, W10	2	5 1/2"
W12, W14	3	8 1/2"
W16	3	8 1/2"
W18	4	11 1/2"
W21	4	11 1/2"
W24	5	14 1/2"
W27	6	17 1/2"
W30	7	20 1/2"
W33, W36	7	20 1/2"

NOTES:
1. SEE TYPICAL ALL-BOLTED DOUBLE ANGLE CONNECTION DETAIL FOR CONFIGURATION

18 ALL-BOLTED DOUBLE ANGLE CONNECTION SCHEDULE
NO SCALE

TYPICAL EMBED PLATE SCHEDULE					
MARK	STEEL BEAM SIZE	STUD ROWS "N"	PLATE LENGTH "H"	PLATE WIDTH "T"	ANGLE LENGTH "L"
EP2	W8, W10	2	8"	3/8"	5 1/2"
EP3	W12, W14	3	13"	3/8"	8 1/2"
EP4	W16	4	18"	3/8"	11 1/2"
EP5	W18	5	23"	3/8"	14 1/2"
EP6	W21	6	28"	3/8"	17 1/2"
EP7	W24	7	33"	3/8"	20 1/2"
EP8	W27	8	38"	3/8"	23 1/2"
EP9	W30	9	43"	3/8"	26 1/2"

NOTES (UNO):
1. PROVIDE EMBED PLATES CORRESPONDING TO BEAM SIZES IN SCHEDULE, UNLESS NOTED OTHERWISE ON PLANS OR DETAILS.
2. PROVIDE HOLES AS NECESSARY FOR PLATE ATTACHMENT TO FORMWORK (5/16" DIA MAX).
3. COORDINATE CONCRETE REINFORCING BAR PLACEMENT WITH HEADED STUDS.
4. FIELD VERIFY EMBED PLATE PLACEMENT PRIOR TO BEAM ERECTION.
5. SEE 22/s4.06 FOR MISCELLANEOUS EMBED PLATES WITHOUT A BEAM CONNECTION.
6. HEADED STUDS ARE 3/4" DIA x 0'-5"

20 TYPICAL EMBED PLATE SCHEDULE
NO SCALE

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature: Matt Thomas

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
1 ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Date 12/16/2011

Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
Driven to Discover℠

STEEL FRAMING SCHEDULES AND TYPICAL DETAILS

s4.06

NON-LOAD BEARING MASONRY WALL REINFORCEMENT SCHEDULE		
INTERIOR WALL THICKNESS	WALL HEIGHT	NUMBER AND SIZE OF FULL HEIGHT VERTICAL BARS PER CMU CELL
8" CMU	0' TO 15'	NO REINFORCEMENT REQUIRED
8" CMU	GREATER THAN 15' BUT LESS THAN 20'	1 - #5 FULL HEIGHT VERTICAL BAR LOCATED IN CENTER OF CMU CELL AT 4' - 0" OC
12" CMU	0' TO 20'	NO REINFORCEMENT REQUIRED
12" CMU	GREATER THAN 20' BUT LESS THAN 25'	1 - #5 FULL HEIGHT VERTICAL BAR LOCATED IN CENTER OF CMU CELL AT 6' - 0" OC
6" CMU	0' TO 12'	NO REINFORCEMENT REQUIRED
4" CMU	0' TO 9'	NO REINFORCEMENT REQUIRED

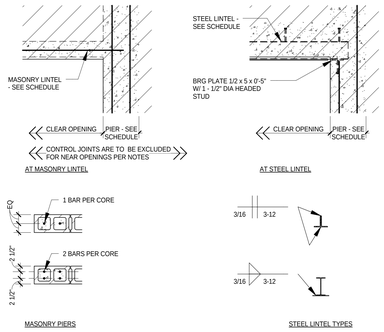
NOTES:
1. WALL HEIGHT IS DEFINED AS THE CLEAR HEIGHT OF THE MASONRY WALL BETWEEN POINTS OF SUPPORT (ie, CLEAR HEIGHT BETWEEN FLOORS OR CLEAR HEIGHT BETWEEN FLOOR AND ROOF STRUCTURE) THAT OFFER CONTINUOUS OR INTERMEDIATE LATERAL SUPPORT TO THE WALL. SEE 6/E.S-406.
2. VERTICAL REINFORCING BARS SHALL BE POSITIONED ACCURATELY AS SHOWN IN THE SCHEDULE OR AS NOTED AND SECURED RIGIDLY BY UTILIZING SPECIAL VERTICAL REINFORCING BAR TIES OR SPECIAL STEEL BAR POSITIONERS TO PREVENT BAR DISPLACEMENT DURING CONCRETE GROUTING. VERICAL SPACING OF STEEL BAR TIES AND/OR POSTIONERS SHALL NOT BE GREATER THAN 192 BAR DIAMETERS OF THE VERICAL REINFORCING BAR.
3. UNLESS NOTED OTHERWISE, HORIZONTAL MASONRY WALL JOINT REINFORCEMENT SHALL BE GALVANIZED, CONTINUOUS, AND SHALL BE SPACED NOT MORE THAN 16" OC VERTICALLY. REINFORCEMENT SHALL CONSIST OF 2 - #9 GAGE RODS WITH #9 GAGE CROSS RODS AT 16" OC OR LESS. HORIZONTAL MASONRY WALL JOINT REFORCEMENT SHALL BE DISCONTINUOUS AT VERTICAL CMU CONTROL JOINTS.
4. ALL MASONRY NON-LOAD BEARING WALLS SHALL BE LAID UP IN RUNNING BOND WITH VERTICAL REINFORCED CELLS AS INDICATED IN THE NOTES, DETAILS AND SCHEDULE ABOVE. FOR ALL OTHER NON-LOAD BEARING MASONRY WALLS NOT LAID UP IN RUNNING BOND, A CONTINUOUS BOND BEAM REINFORCED WITH 2 - #4 CONTINUOUS HORIZONTAL BAR SHALL BE PROVIDED AT VERTICAL SPACING OF NOT MORE THAN 48" OC IN ADDITION TO THE REQUIRED VERTICAL AND HORIZONTAL MASONRY WALL JOINT REINFORCEMENT.
5. REFER TO DETAILS FOR BRACING OF MASONRY WALLS AT TOP. SEE DETAILS FOR MASONRY WALL SUPPORT AT SLAB-ON-GRADE.

1 NON-LOAD BEARING MASONRY WALL REINFORCEMENT SCHEDULE
NO SCALE

NON-LOAD BEARING MASONRY PARTITION LINTEL SCHEDULE					
CMU WALL SIZE	BUILDING LOCATION	MAXIMUM OPENING	LINTEL	BEARING	JAMB PER LENGTH AND VERTICAL REINFORCING
6"	INTERIOR	4'-0"	1 - #4 BOTTOM	8"	8", 1 - #5
6"	INTERIOR	8'-0"	1 - #5 BOTTOM	8"	8", 1 - #5
6"	INTERIOR	4'-0"	2 - L3 1/2 x 2 1/2 x 5/16 LLV	8"	16", 2 - #5
6"	INTERIOR	8'-0"	2 - L5 x 3 1/2 x 5/16 LLV	8"	16", 2 - #5
8"	INTERIOR	4'-0"	2 - #4 BOTTOM	8"	8", 1 - #5
8"	INTERIOR	8'-0"	2 - #5 BOTTOM	8"	8", 1 - #5
8"	INTERIOR	4'-0"	2 - L3 1/2 x 3 1/2 x 5/16	8"	16", 2 - #5
8"	INTERIOR	8'-0"	2 - L6 x 3 1/2 x 5/16 LLV	8"	16", 2 - #5
12"	INTERIOR	4'-0"	2 - #4 BOTTOM	8"	8", 1 - #5
12"	INTERIOR	8'-0"	2 - #5 BOTTOM	8"	8", 1 - #5
12"	INTERIOR	4'-0"	W8 x 10 W/ 1/4" BOTTOM PLATE	8"	16", 2 - #5
12"	INTERIOR	8'-0"	W8 x 10 W/ 1/4" BOTTOM PLATE	8"	16", 2 - #5

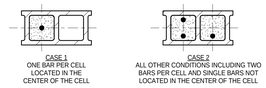
NOTES:
1. FOR MASONRY WALL OPENINGS UNDER THE FOLLOWING CONDITION, MASONRY LINTELS MAY BE USED:
   a. THE HEIGHT OF THE MASONRY ABOVE THE LINTEL IS EQUAL OR GREATER THAN THE CLEAR OPENING.
   b. THE LENGTH OF WALL FROM EACH JAMB (WITHOUT A CONTROL JOINT) IS EQUAL OR GREATER THAN THE CLEAR OPENING.
   FOR OPENINGS THAT DO NOT MEET THESE CONDITIONS USE STEEL LINTELS.
2. FOR MASONRY LINTELS USE 8" HIGH LINTEL BLOCKS GROUTED SOLID WITH MINIMUM 4 1/2" TOP COVER TO REINFORCING.
3. FOR STEEL WIDE FLANGE LINTELS, PROVIDE 5/16" END PLATES AND 5/8" x 6" DIAMETER HEADED STUDS AT 2'-0" ON CENTER
   AT TOP OF LINTEL (MINIMUM 2 PER SPAN) AND GROUT FIRST COURSE ABOVE SOLID. BOTTOM PLATE IS TO BE HELD BACK 1/2" FROM JAMB.

2 NON-LOAD BEARING MASONRY PARTITION LINTEL SCHEDULE
NO SCALE



CMU REINFORCING BAR LAP SPLICE SCHEDULE: f'm = 1500 PSI						
BAR SIZE	6" CMU	8" CMU		10" CMU		12" CMU	
	CASE 1	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2
#3	16"	16"	17"	16"	16"	16"	16"
#4	21"	21"	29"	21"	27"	21"	26"
#5	32"	26"	45"	26"	42"	26"	40"
#6	-	43"	54"	40"	54"	40"	54"
#7	-	60"	-	46"	63"	46"	66"
#8	-	-	-	71"	-	61"	72"

NOTES:
1. REINFORCING BAR DEVELEOPMENT LENGTH SCHEDULE APPLIES TO UNCOATED, GRADE 60 REINFORCING BARS IN ASTM C 90 HOLLOW UNITS.
2. CASE 1: ONE BAR PER CELL LOCATED IN THE CENTER OF THE CELL.
   CASE 2: ALL OTHER CONDITIONS, INCLUDING TWO BARS PER CELL AND SINGLE BARS NOT LOCATED IN THE CENTER OF THE CELL.
3. FOR EPOXY COATED BAR, MULTIPLY THE ABOVE LENGTHS BY 1.5.
4. MAXIMUM SPACING OF BARS BEING LAPPED IS ONE FIFTH THE LAP SPLICE LENGTH, NOT TO EXCEED 8".
5. REINFORCING BARS SHALL BE LAPPED IN THE SAME CMU CELL.
6. ALL BARS MUST BE PLACED IN FULLY GROUTED CELLS OR BOND BEAMS.

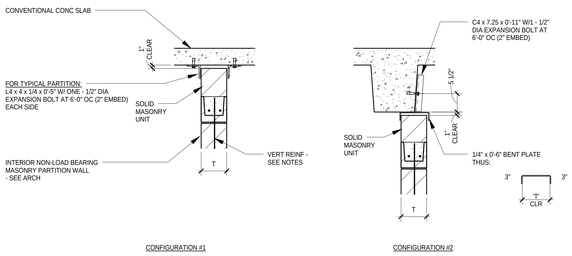


3 CMU REINFORCING BAR LAP SPLICE SCHEDULE
NO SCALE

LOAD BEARING MASONRY WALL REINFORCING SCHEDULE		
MARK	WALL THICKNESS	VERTICAL REINFORCING
MW1	8"	1 - #5 AT 32" OC
MW2	12"	1 - #5 AT 48" OC

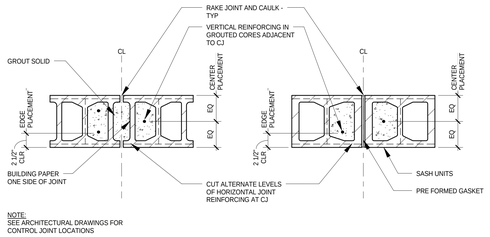
NOTES:
1. SEE 1/S4.07 FOR NOTES
2. SEE 2/S4.07 FOR LINTEL SCHEDULE AND NOTES. PROVIDE SCHEDULED LINTELS UNLESS NOTED OTHERWISE.
3. PROVIDE VERTICAL REINFORCING AT ENDS OF WALLS AND AT ALL CORNERS

4 LOAD BEARING MASONRY WALL REINFORCEMENT SCHEDULE
NO SCALE



NOTE:
1. PROVIDE CONTINUOUS BOND BEAM WITH 2 - #5 BARS AS SHOWN.
2. PROVIDE SOLID MASONRY UNIT WITH FULL MORTAR BED AT BRACING LOCATIONS, MINIMUM.

5 TYPICAL CONNECTION AT TOP OF NON-LOAD BEARING MASONRY PARTITIONS
NO SCALE



NOTE:
SEE ARCHITECTURAL DRAWINGS FOR CONTROL JOINT LOCATIONS

6 MASONRY WALL CONTROL JOINT OPTIONS
NO SCALE

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Stillwater, MN 55082
(651) 705-1242

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
Project Directive No. 3	05-11-2012

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Drawn DJL, RKH

Checked MET

Date 12/16/2011

Project

Physics and Nanotechnology Building

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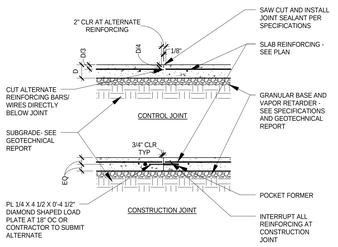
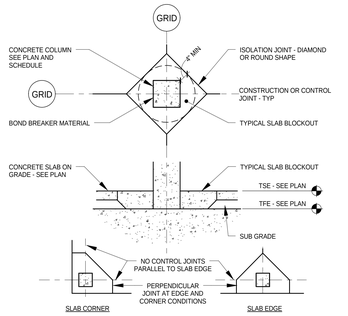
MASONRY SCHEDULE AND DETAILS

s4.07

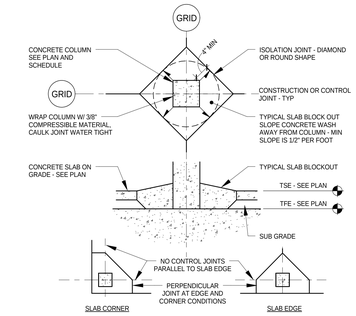


NOTES:
1. PROVIDE CHAIRS FOR SUPPORT OF REINFORCING.
2. AT EXTERIOR SLAB ON GRADE LOCATIONS, VAPOR BARRIER IS NOT REQUIRED.
3. PROVIDE DIAMOND SHAPED LOAD PLATE COMPLIANT WITH ACI 302.1 R.

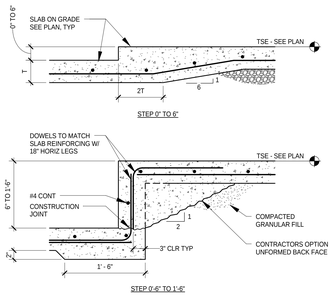
1 TYPICAL SLAB ON GRADE JOINTS
NO SCALE



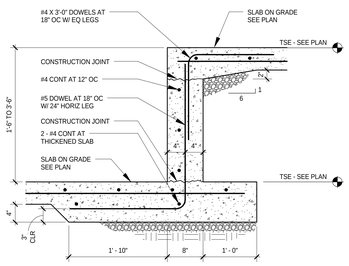
2 TYPICAL COLUMN ISOLATION JOINT
NO SCALE



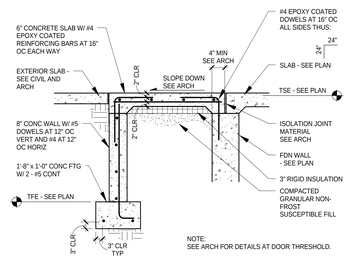
3 TYPICAL ISOLATION JOINT AT COLUMNS EXPOSED TO MOISTURE
NO SCALE



4 TYPICAL SECTION AT INTERIOR SLAB ON GRADE STEPS
NO SCALE

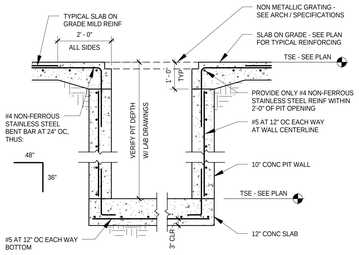


5 TYPICAL SECTION AT LARGE INTERIOR SLAB ON GRADE STEPS
NO SCALE



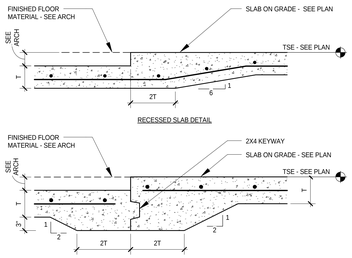
NOTE:
SEE ARCH FOR DETAILS AT DOOR THRESHOLD.

6 TYPICAL STOOP DETAIL
NO SCALE



NOTES:
1. ALL REINFORCING IN PIT SLAB AND WALLS SHALL BE NON-FERROUS STAINLESS STEEL.
2. SEE TYPICAL WALL DETAILS FOR CORNER BARS.

7 TYPICAL PIT SECTION
NO SCALE



8 TYPICAL RECESSED SLAB ON GRADE
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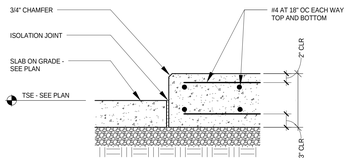
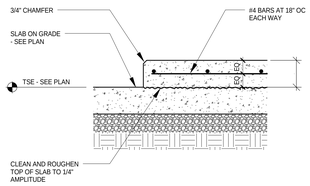
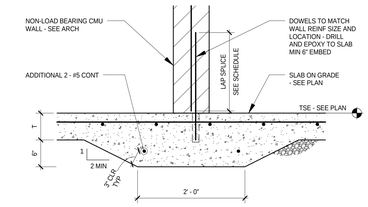


9 TYPICAL SECTION AT ISOLATED HOUSKEEPING PAD
NO SCALE

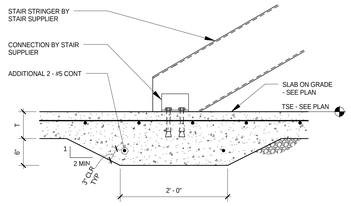


10 TYPICAL SECTION AT HOUSKEEPING PAD
NO SCALE



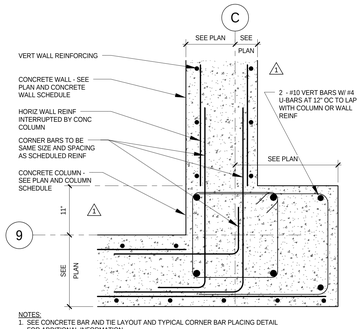
NOTES:
1. SEE NON-LOAD BEARING CMU WALL REINFORCING SCHEDULE FOR ADDITIONAL INFORMATION.
2. THICKENED SLAB SHALL BE CENTERED ON CMU WALL LOCATIONS, UNLESS NOTED OTHERWISE.
3. CONTRACTOR'S OPTION PROVIDE CAST-IN HOOKED DOWELS IN LIEU OF DRILL AND EPOXY DOWELS.

11 TYPICAL THICKENED SLAB ON GRADE AT INTERIOR NON-LOAD BEARING CMU WALL DETAIL
NO SCALE



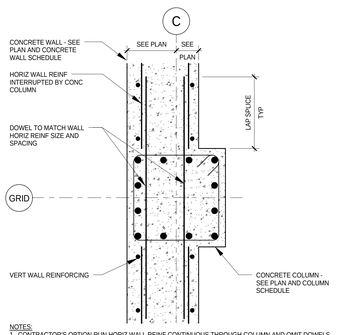
NOTES:
1. THICKENED SLAB SHALL BE CENTERED ON STAIR BEARING LOCATION. SEE ARCH FOR STAIR LOCATIONS.
2. EXTENT OF THICKENED SLAB TO BE 2'-0" WIDER THAN STAIR WIDTH.

12 TYPICAL THICKENED SLAB ON GRADE AT STEEL STAIR DETAIL
NO SCALE



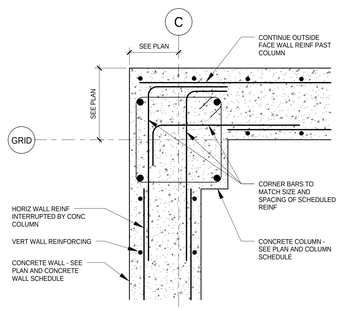
NOTES:
1. SEE CONCRETE BAR AND TIE LAYOUT AND TYPICAL CORNER BAR PLACING DETAIL FOR ADDITIONAL INFORMATION

13 COLUMN AND WALL REINFORCING PLAN DETAIL
NO SCALE



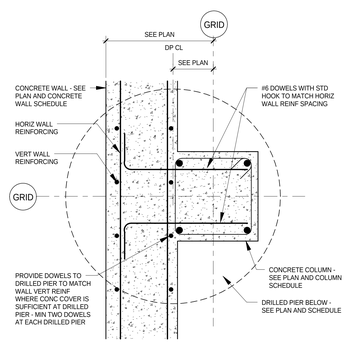
NOTES:
1. CONTRACTOR'S OPTION RUN HORIZ WALL REINF CONTINUOUS THROUGH COLUMN AND OMIT DOWELS.

14 COLUMN AND WALL REINFORCING PLAN DETAIL
NO SCALE



NOTES:
1. SEE CONCRETE COLUMN BAR AND TIE LAYOUT AND TYPICAL CORNER BAR PLACING DETAIL FOR ADDITIONAL INFORMATION.

15 COLUMN AND WALL REINFORCING PLAN DETAIL
NO SCALE



16 COLUMN AND WALL REINFORCING PLAN DETAIL
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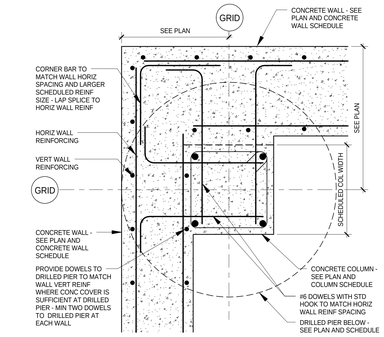

17 COLUMN AND WALL REINFORCING PLAN DETAIL
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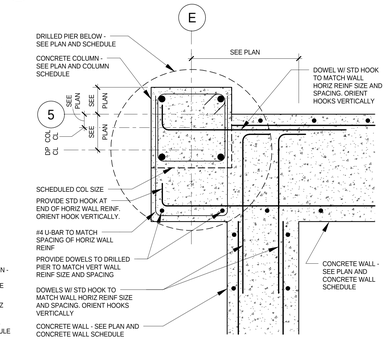
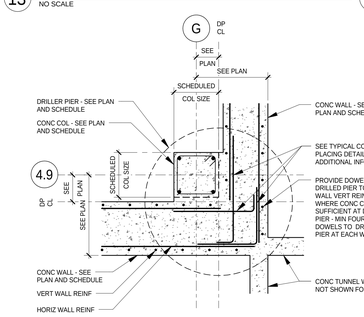
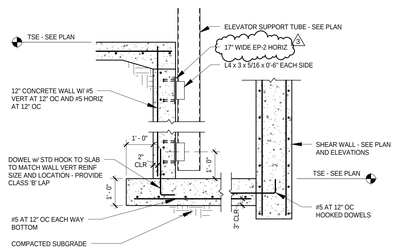


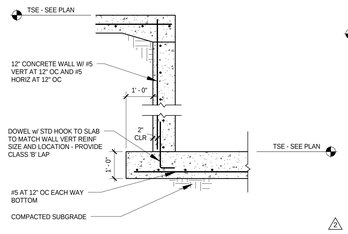
18 COLUMN AND WALL REINFORCING PLAN DETAIL
NO SCALE



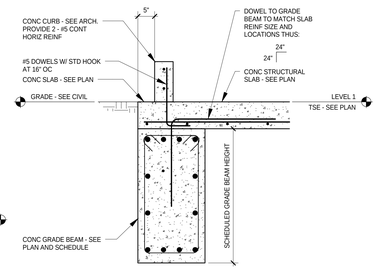
19 COLUMN AND WALL REINFORCING PLAN DETAIL
1/2" = 1'-0"



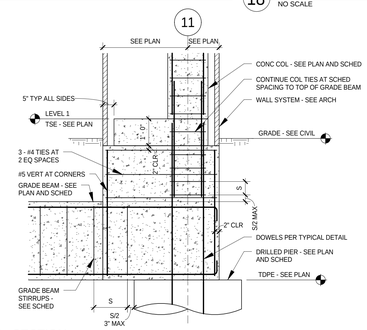
20 SECTION AT ELEVATOR
1/2" = 1'-0"



21 SECTION AT ELEVATOR
1/2" = 1'-0"



22 SECTION
NO SCALE



23 SECTION
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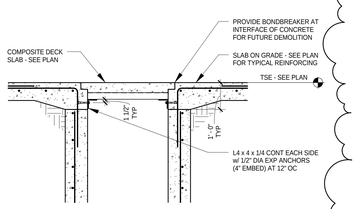
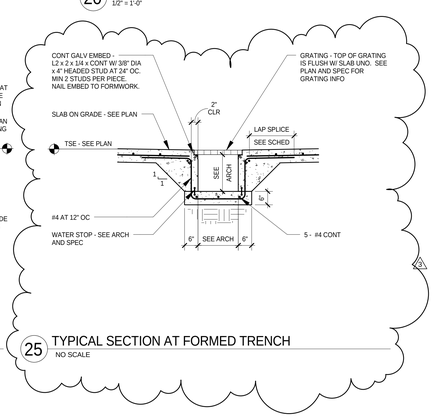


NOTE: SEE 7/s5.01 FOR LAB PIT CONSTRUCTION DETAILS

24 SECTION AT SLAB AT LAB PIT
1/2" = 1'-0"



25 TYPICAL SECTION AT FORMED TRENCH
NO SCALE

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Low Voltage Consultant
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(651) 705-1242

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature: Matt Thomas

Date 02/24/2012 Reg. No. 44681

Issued for	Date
Bid Package No. 1	10-14-2011
1 Project Directive No. 1	11-29-2011
2 100% CD Set	12-16-2011
Bid Package No. 2	02-24-2011
3 Project Directive No. 2	03-14-2012

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Drawn DJL, RKH

Checked MET

Date 10-14-2011

Project

Physics and Nanotechnology Building

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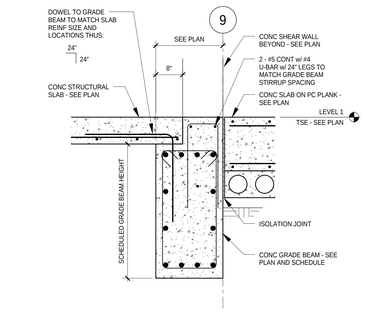
STRUCTURAL FOUNDATION DETAILS

s5.01



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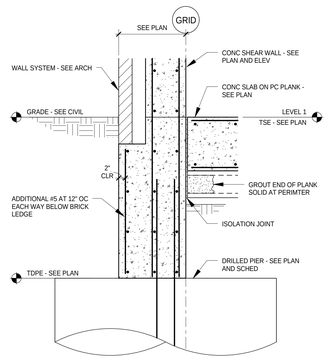

2 SECTION AT CLEAN ROOM
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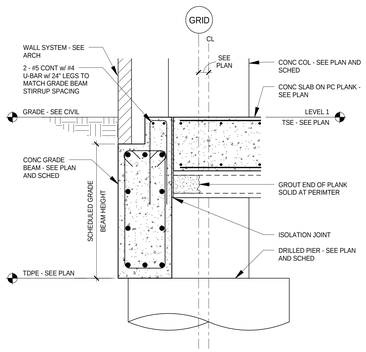

3 SECTION AT CLEAN ROOM
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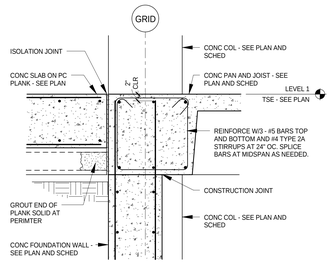

4 SECTION AT CLEAN ROOM
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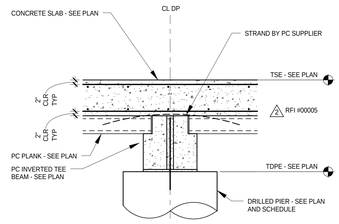

5 SECTION AT CLEAN ROOM SLAB
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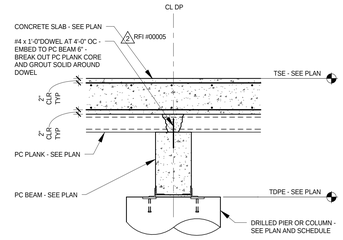

6 SECTION AT CLEAN ROOM SLAB
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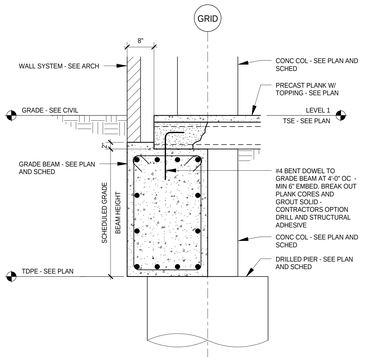

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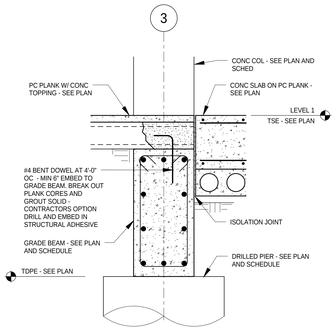

8 SECTION
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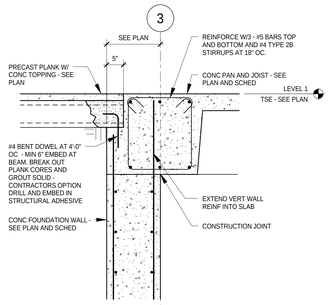

9 SECTION
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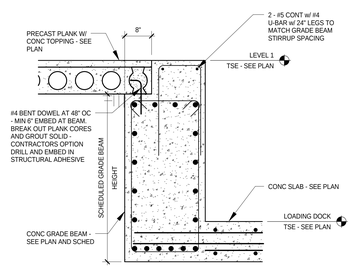

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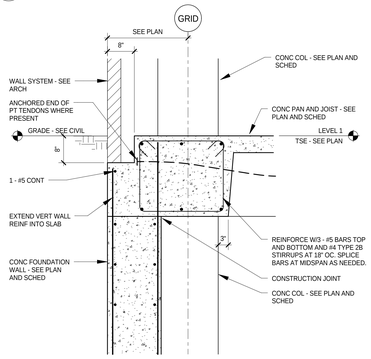

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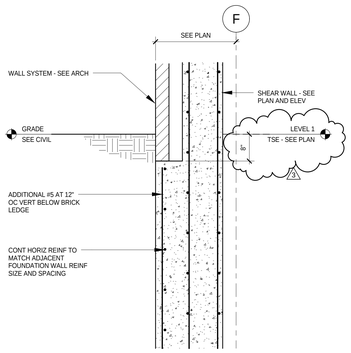

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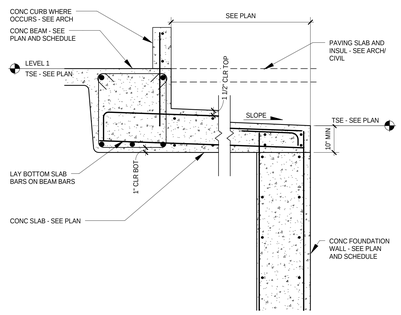

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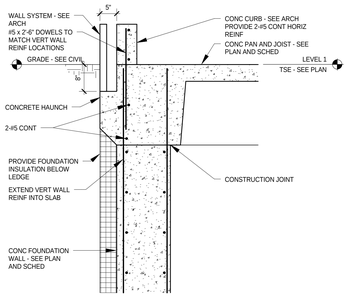

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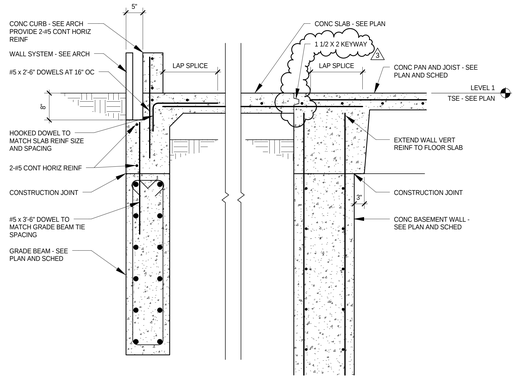

15 SECTION
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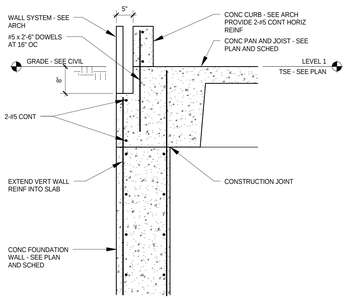

16 SECTION
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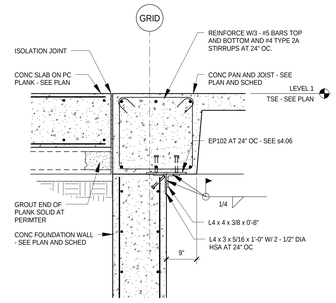
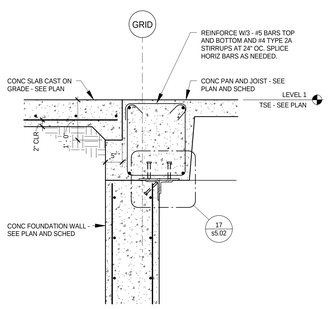
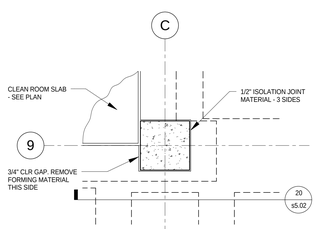


NOTE:
1. WELD ANGLE CONNECTION MINIMUM OF 14 DAYS AFTER FIRST FLOOR SLAB IS CAST
2. DO NOT BACKFILL WALL UNTIL WELDED CONNECTIONS ARE MADE.

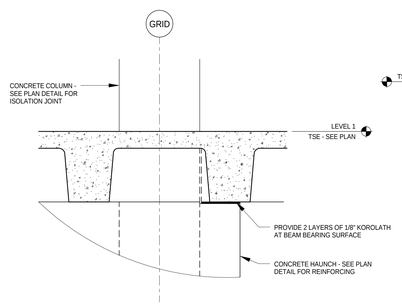
17 SECTION AT DELAYED WALL CONNECTION
NO SCALE



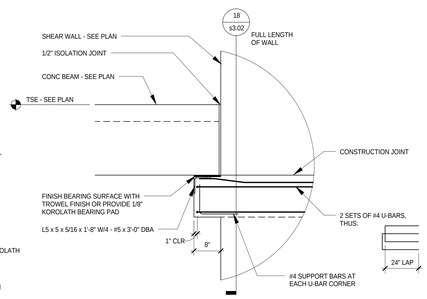
18 SECTION AT DELAYED WALL CONNECTION
NO SCALE



19 PLAN DETAIL AT COLUMN ISOLATION JOINT
NO SCALE

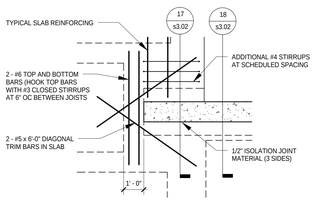


20 SECTION AT BEAM BEARING
NO SCALE



NOTE:
SHEAR WALL REINFORCING NOT SHOWN FOR CLARITY, SEE ELEVATIONS.

21 SECTION AT BEAM BEARING
NO SCALE



22 PLAN DETAIL AT WALL ISOLATION JOINT
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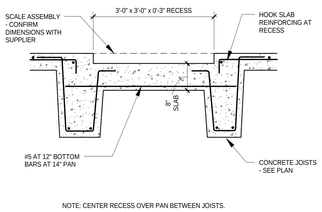

NOTE: CENTER RECESS OVER PAN BETWEEN JOISTS.

23 SECTION
NO SCALE

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(612) 455-2204

Low Voltage Consultant
Elert & Associates
140 Third Street South
Stillwater, MN 55082
(651) 705-1242

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
Bid Package No. 1	10-14-2011
1 100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
Project Directive No. 2	03-14-2012
3 Project Directive No. 3	05-11-2012

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Drawn DJL, RKH

Checked MET

Date 10-14-2011

Project

Physics and Nanotechnology Building

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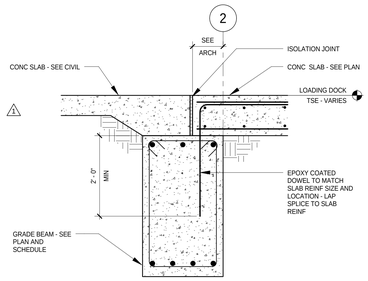
STRUCTURAL FOUNDATION DETAILS

s5.02



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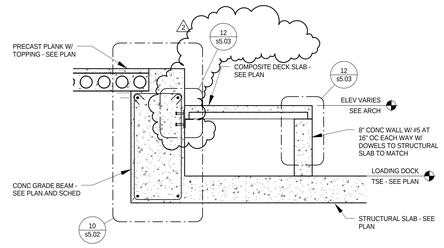
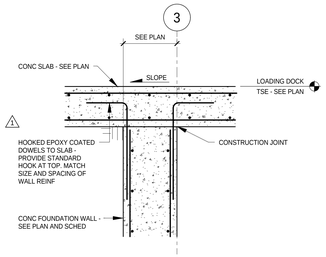


2 SECTION AT LOADING DOCK RAMP
NO SCALE



3 SECTION
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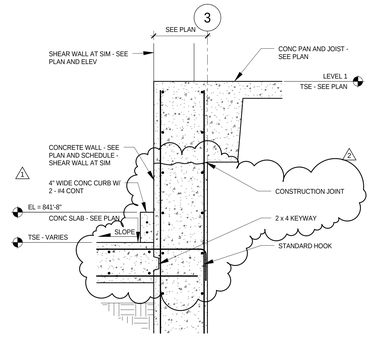

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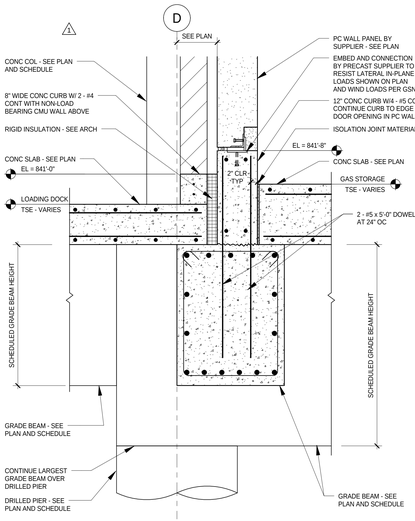

5 SECTION
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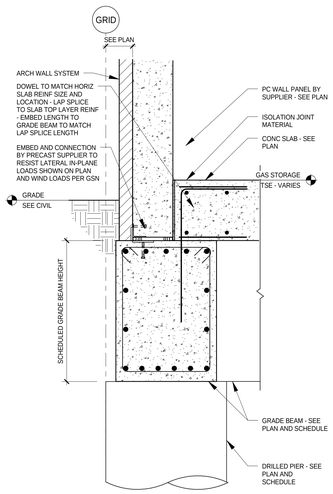

6 SECTION
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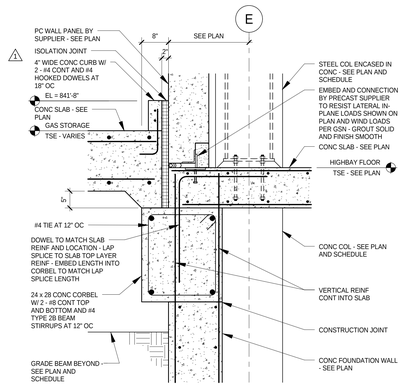
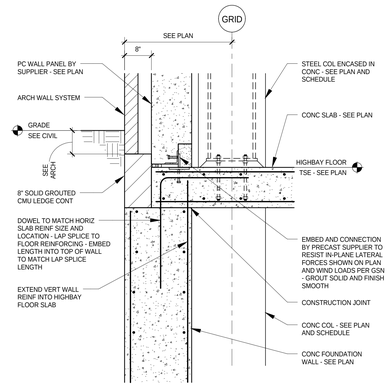


7 SECTION AT HIGHBAY
NO SCALE



8 SECTION AT HIGHBAY
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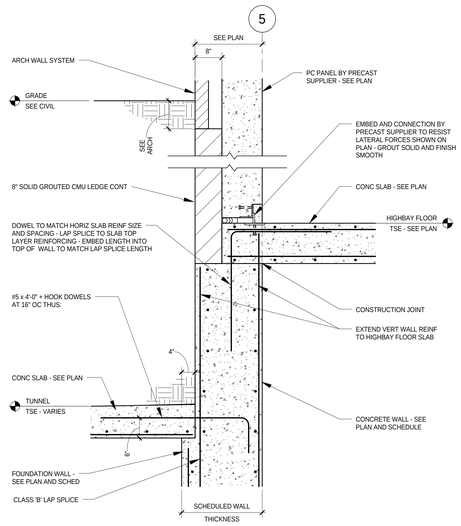

9 SECTION AT HIGHBAY
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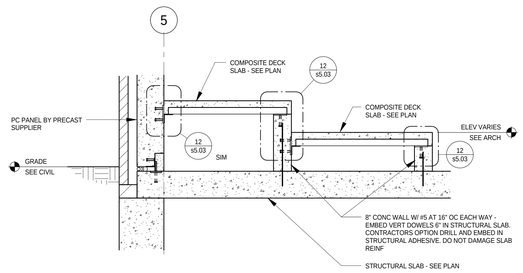

10 SECTION AT HIGHBAY RAMP
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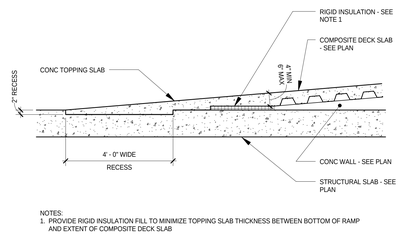
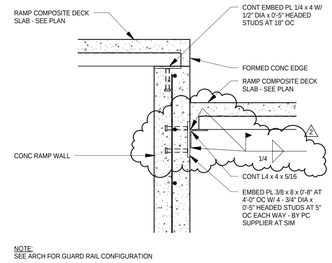


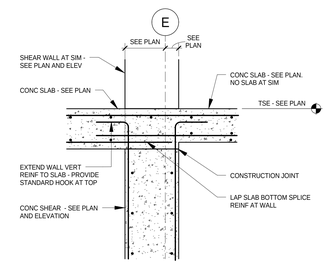
NOTES:
1. PROVIDE RIGID INSULATION FILL TO MINIMIZE TOPPING SLAB THICKNESS BETWEEN BOTTOM OF RAMP AND EXTENT OF COMPOSITE DECK SLAB

11 SECTION AT RAMP
NO SCALE



NOTE:
SEE ARCH FOR GUARD RAIL CONFIGURATION

12 SECTION AT RAMP
NO SCALE



13 SECTION
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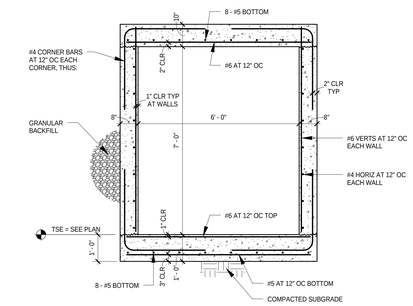
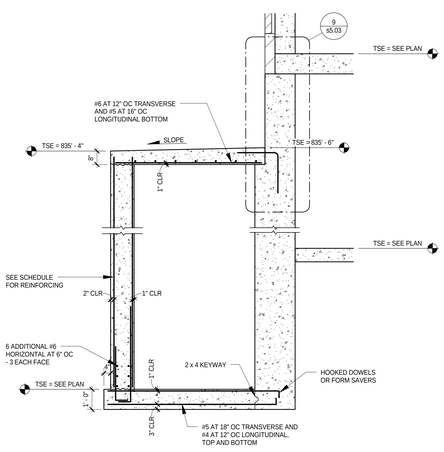
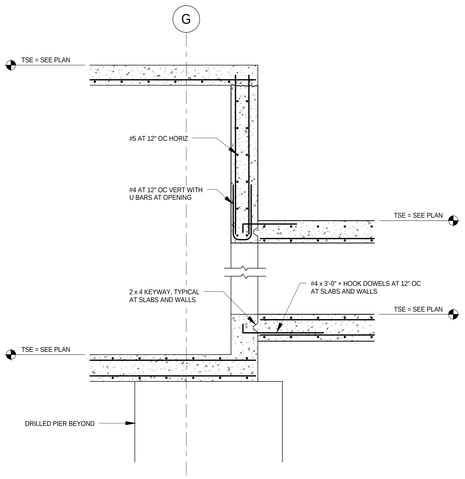


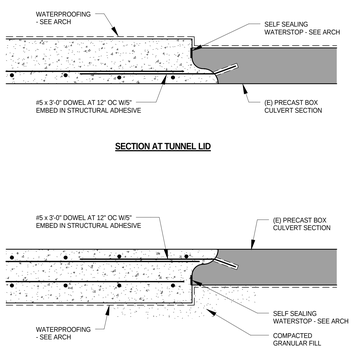
14 CAST IN PLACE TUNNEL SECTION
NO SCALE



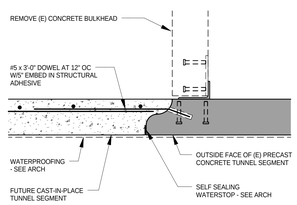
15 TUNNEL LINK SECTION
NO SCALE



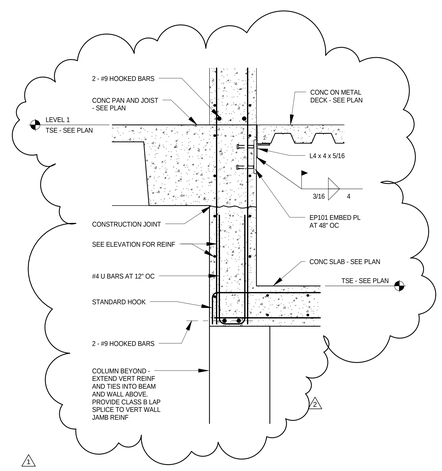
16 TUNNEL LINK SECTION
1/2" = 1'-0"



17 SECTION
1" = 1'-0"



18 DETAIL AT TUNNEL WALL
1" = 1'-0"



19 SECTION
3/4" = 1'-0"

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Elert & Associates
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Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

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Project Directive No. 2	03-14-2012
2 Project Directive No. 3	05-11-2012

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Drawn DJL, RKH

Checked MET

Date 10-14-2011

Project

Physics and Nanotechnology Building

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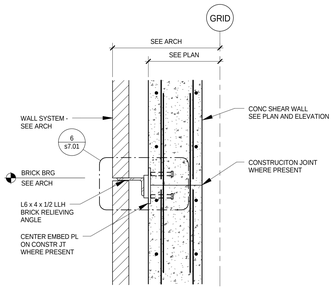
STRUCTURAL FOUNDATION DETAILS

s5.03



1 EXTERIOR SECTION
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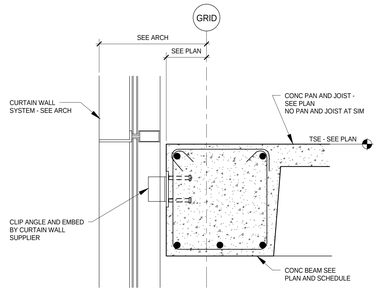
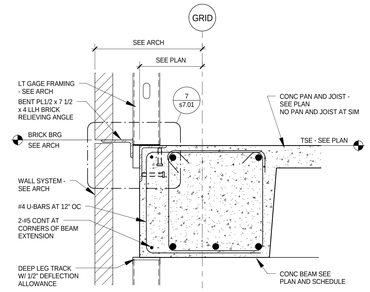


2 EXTERIOR SECTION
NO SCALE



3 EXTERIOR SECTION
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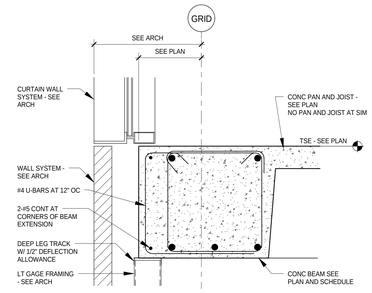

4 EXTERIOR SECTION
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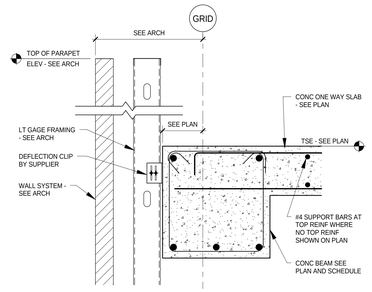

5 EXTERIOR SECTION
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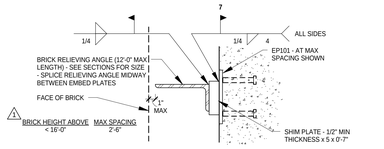
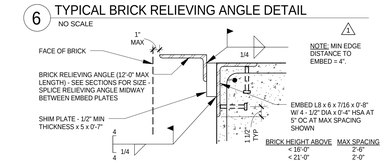
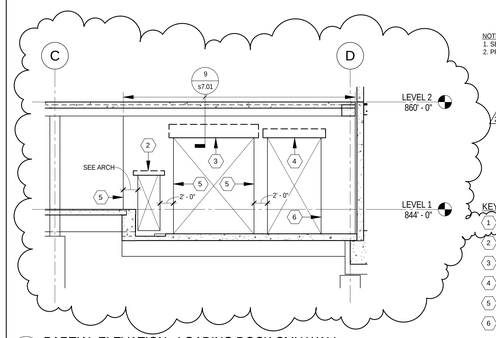


6 TYPICAL BRICK RELIEVING ANGLE DETAIL
NO SCALE



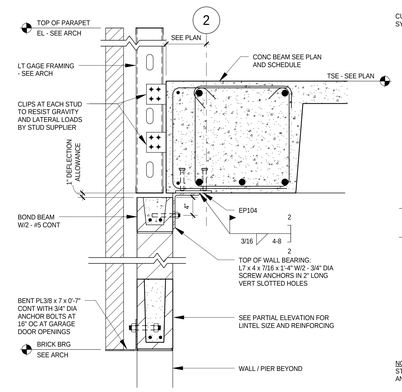
7 TYPICAL BRICK RELIEVING ANGLE DETAIL
NO SCALE



NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND ROUGH OPENING SIZES.
2. PROVIDE CMU WALL HEAD BRACING PER 9/s7.01 AT 3'-4" OC MAX AND AT EACH CMU PIER.

KEYED NOTES:
1. NOT USED
2. 12 x 8 LINTEL WITH 2 - #5 BOTTOM.
3. 12 x 24 LINTEL WITH 2 - #6 BOTTOM.
4. 12 x 16 LINTEL WITH 2 - #5 BOTTOM.
5. 24 x 12 CMU PIER FULL HEIGHT OF WALL WITH 6 - #6 VERTS - 3 EACH FACE.
6. 16 x 12 CMU PIER FULL HEIGHT OF WALL WITH 4 - #6 VERTS - 2 EACH FACE.

8 PARTIAL ELEVATION - LOADING DOCK CMU WALL
NO SCALE



9 EXTERIOR SECTION
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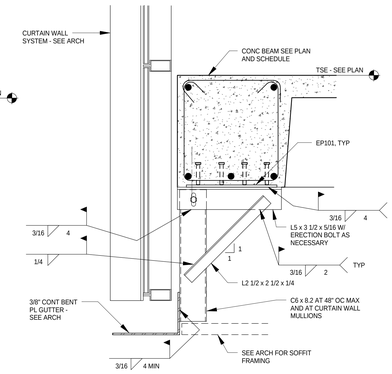
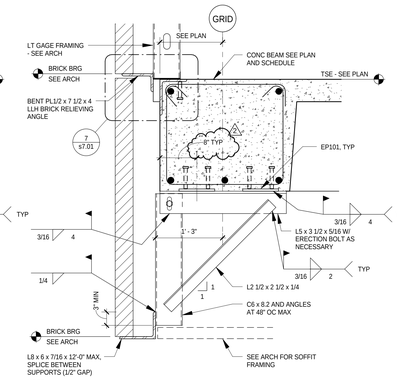


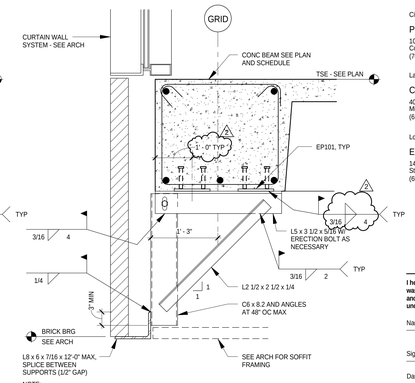
NOTE:
STEEL STUD FRAMING NOT SHOWN. PROVIDE STEEL STUDS AT 16" OC AND ANCHORED TO CONCRETE AND STEEL FRAMING AS NECESSARY.

10 EXTERIOR SECTION
NO SCALE



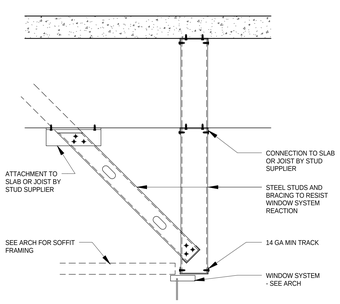
NOTE:
STEEL STUD FRAMING NOT SHOWN. PROVIDE STEEL STUDS AT 16" OC AND ANCHORED TO CONCRETE AND STEEL FRAMING AS NECESSARY.

11 EXTERIOR SECTION
NO SCALE



NOTE:
STEEL STUD FRAMING NOT SHOWN. PROVIDE STEEL STUDS AT 16" OC AND ANCHORED TO CONCRETE AND STEEL FRAMING AS NECESSARY.

12 EXTERIOR SECTION
NO SCALE



13 SECTION
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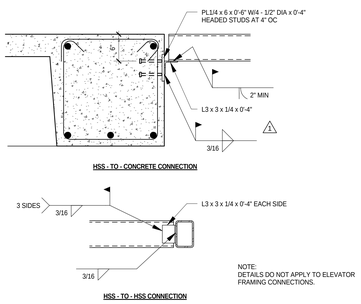
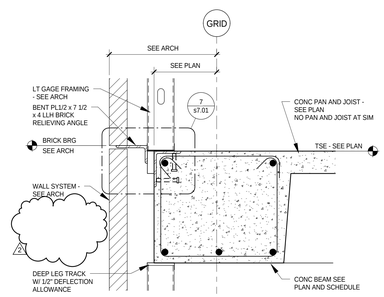


NOTE:
DETAILS DO NOT APPLY TO ELEVATOR FRAMING CONNECTIONS.

TYPICAL MECHANICAL SHAFT DIVIDER SUPPORT CONNECTIONS
14 NO SCALE



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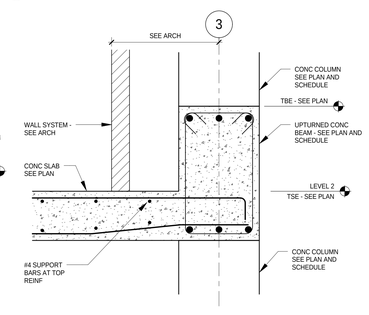

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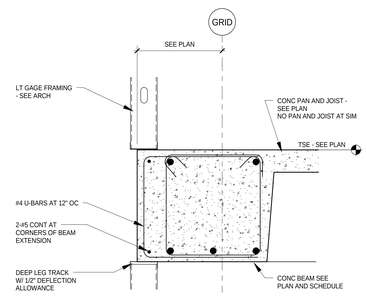

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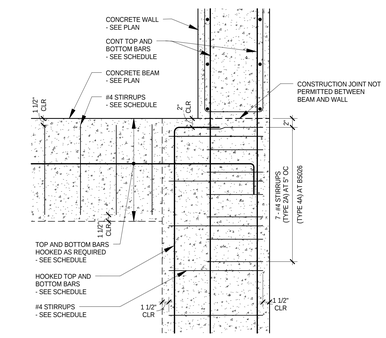

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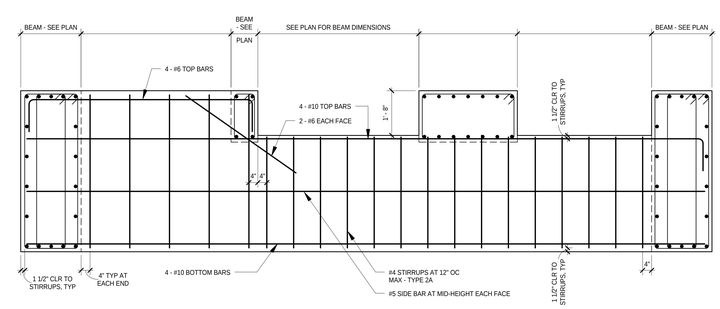

19 B1112 BEAM ELEVATION
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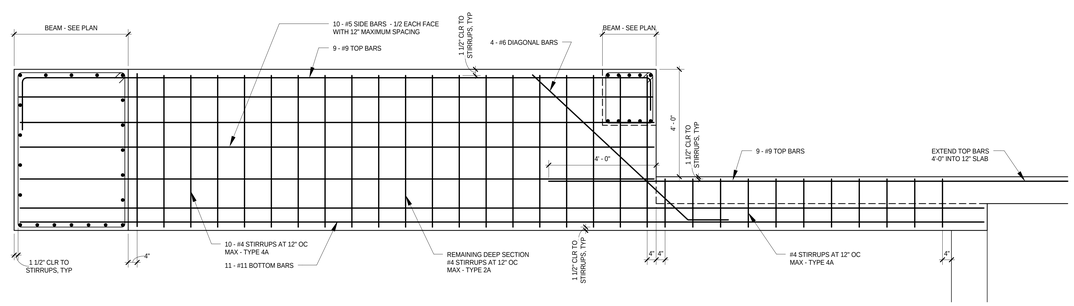

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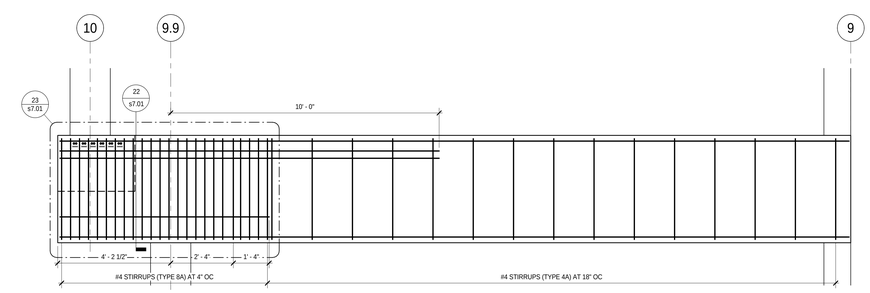

21 B2031 BEAM ELEVATION
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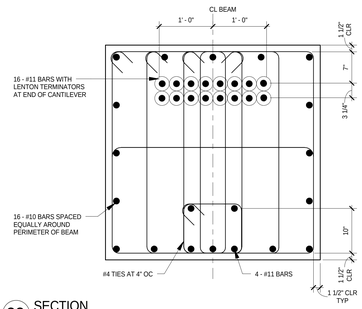

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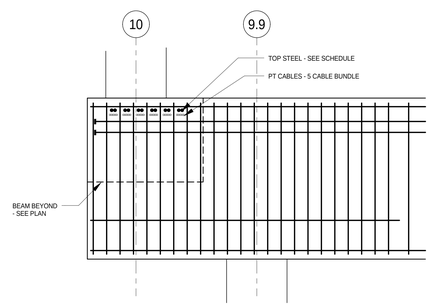

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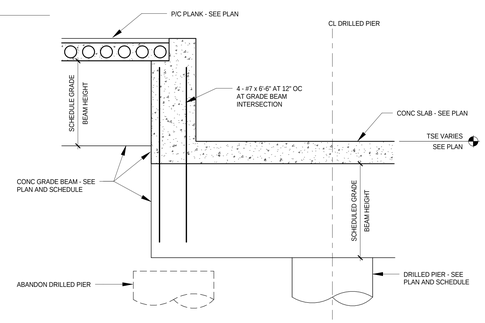

24 SECTION
NO SCALE

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Minneapolis, MN 55401
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Low Voltage Consultant
Elert & Associates
140 Third Street South
Stillwater, MN 55082
(651) 705-1242

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature: Matt Thomas

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
1 ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
2 Project Directive No. 3	05-11-2012

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Drawn DJL, RKH
Checked MET
Date 12/16/2011
Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
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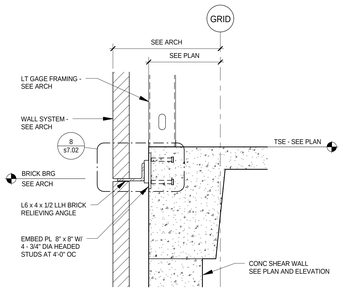
STRUCTURAL FRAMING DETAILS

s7.01



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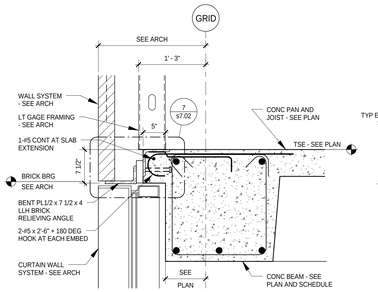

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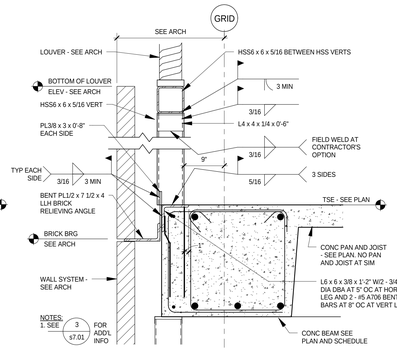

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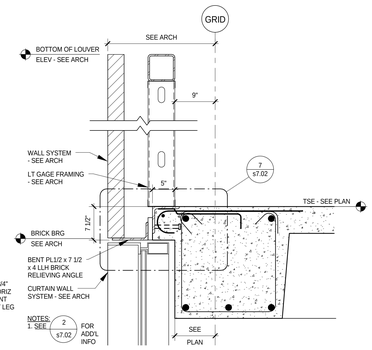

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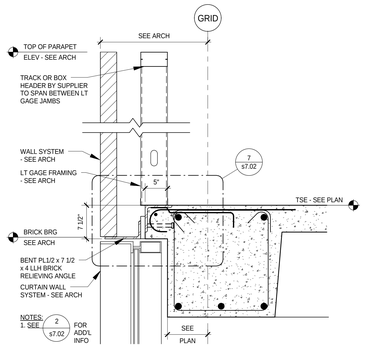

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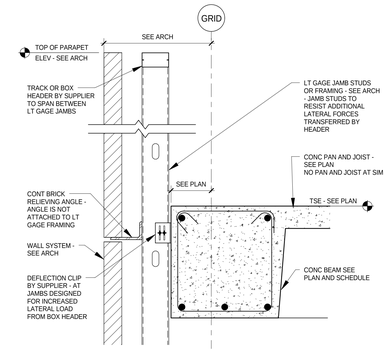

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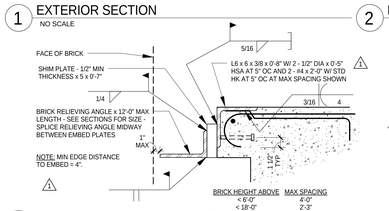

7 BRICK RELIEVING ANGLE DETAIL
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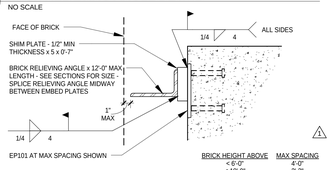

8 BRICK RELIEVING ANGLE DETAIL
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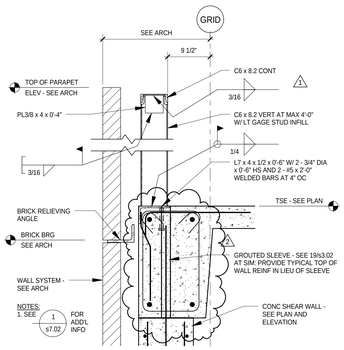

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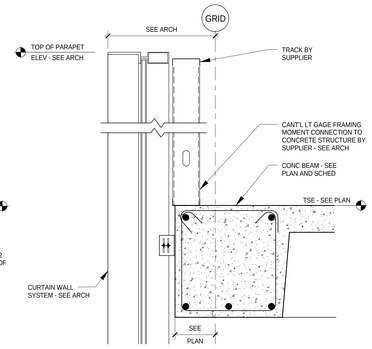

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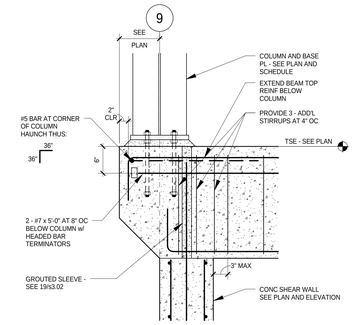

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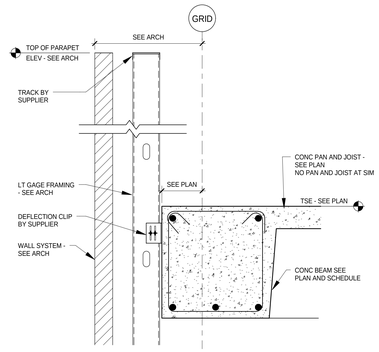

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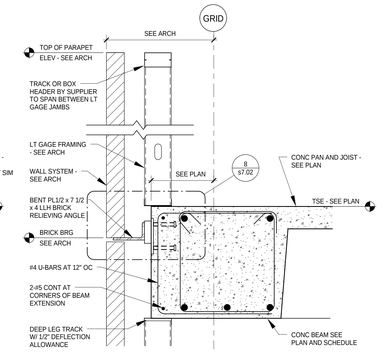

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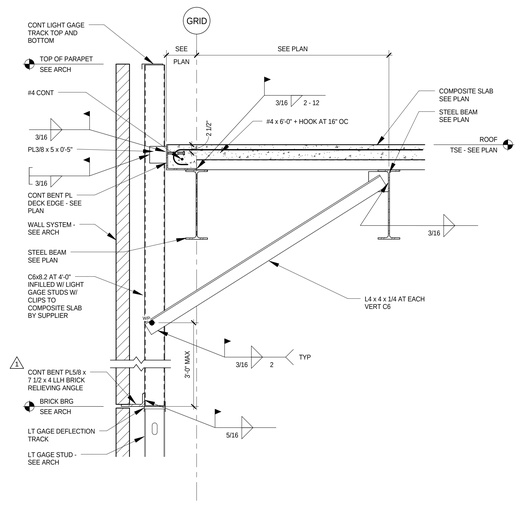

14 BRICK LEDGE DETAIL AT PENTHOUSE ROOF
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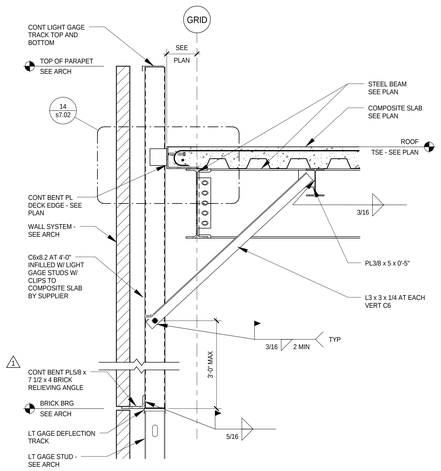

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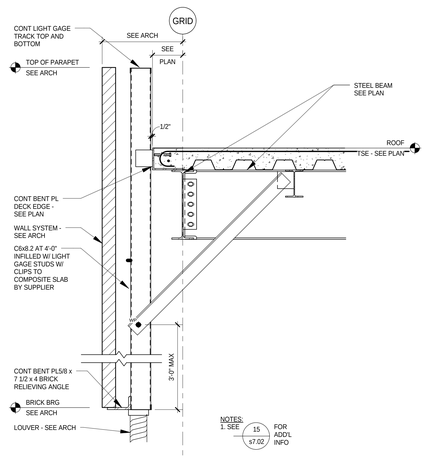

16 BRICK LEDGE DETAIL AT LOUVER
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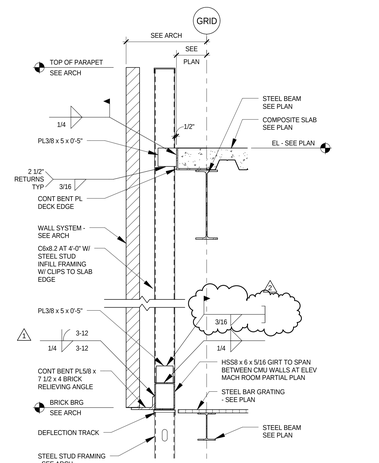

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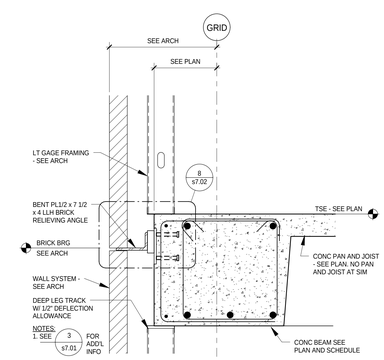

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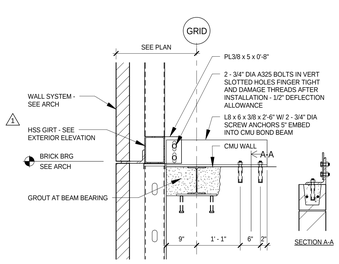

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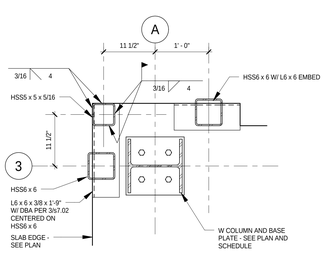

NOTE:
SEE 3/s7.02 FOR ADDITIONAL INFORMATION.

20 PLAN DETAIL
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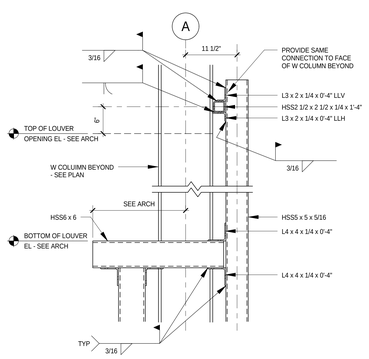

NOTES:
1. SEE 3/s7.02 FOR ADDITIONAL INFORMATION.
2. DO NOT CONNECT OUT OF PLANE HSS6 x 6 HORIZ TUBE TO HSS5 x 5 AT CORNER.

21 DETAIL AT LOUVER
NO SCALE

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature: Matt Thomas

Date 02/24/2012 Reg. No. 44681

Issued for	Date
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Bid Package No. 2	02-24-2012
2 Project Directive No. 3	05-11-2012

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Drawn DJL, RKH

Checked MET

Date 12/16/2011

Project

Physics and Nanotechnology Building

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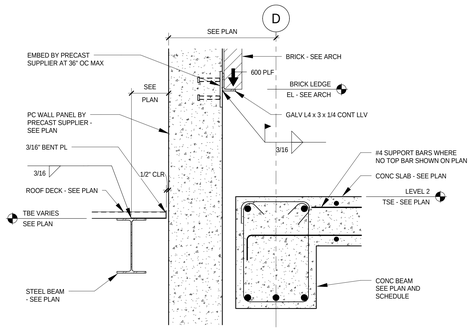
STRUCTURAL FRAMING DETAILS

s7.02



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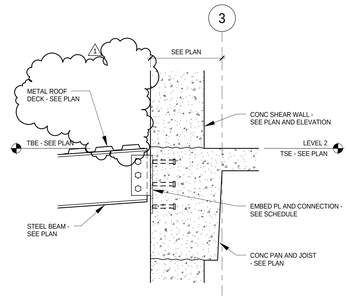

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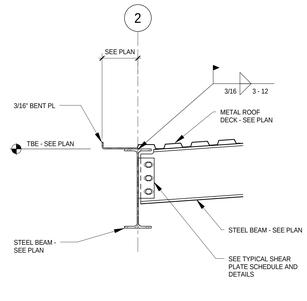

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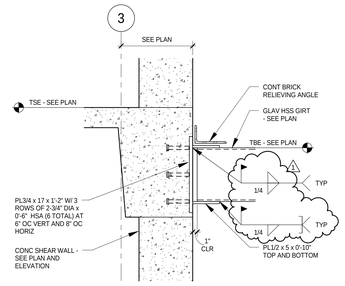

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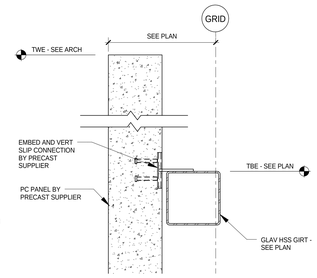

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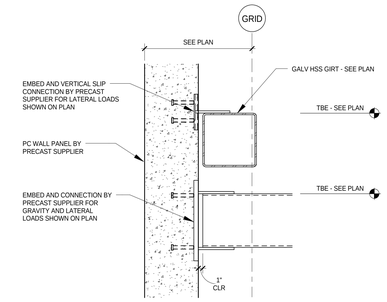

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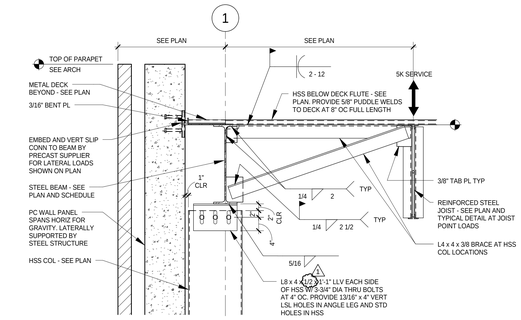

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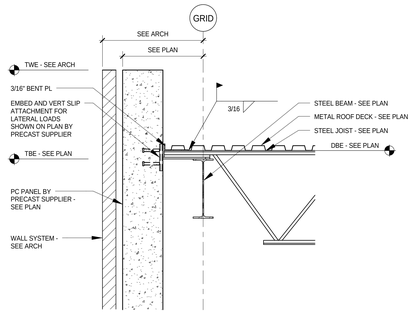

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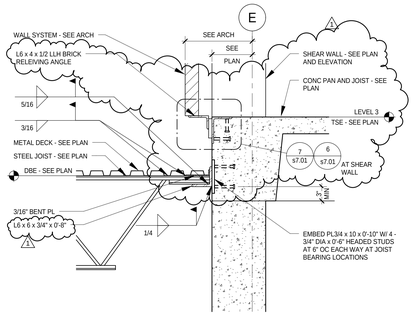

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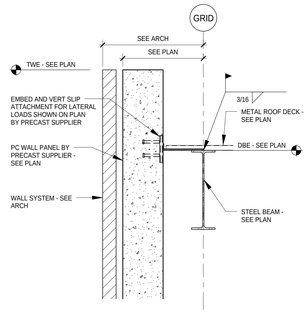

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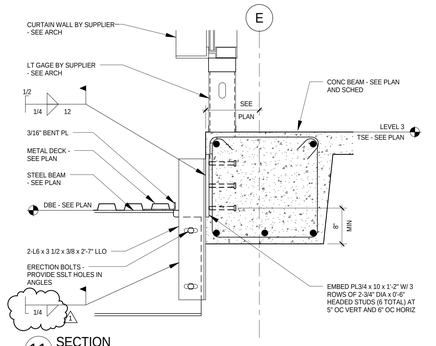

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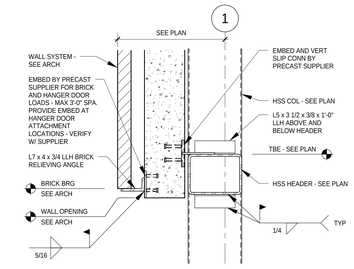

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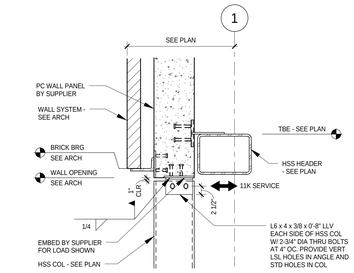

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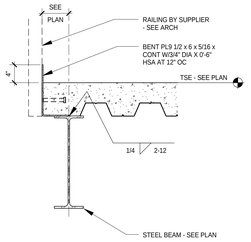

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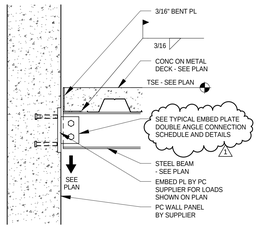

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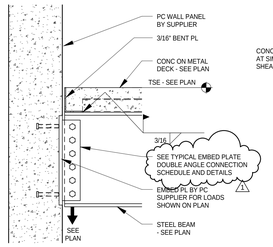

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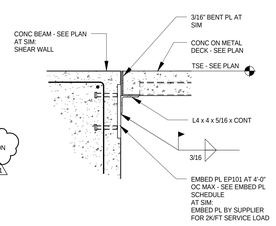

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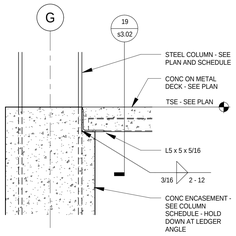

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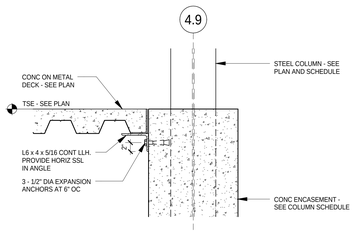

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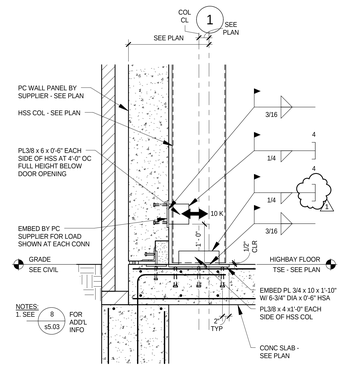

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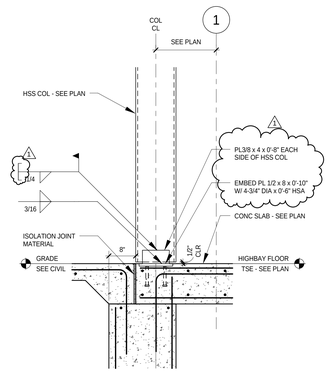

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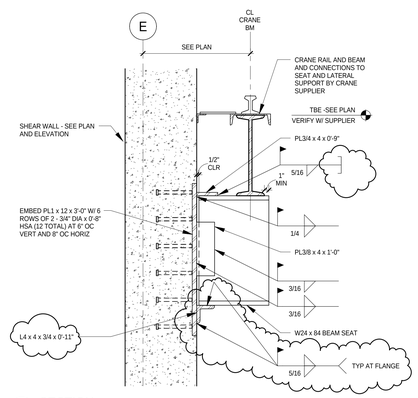

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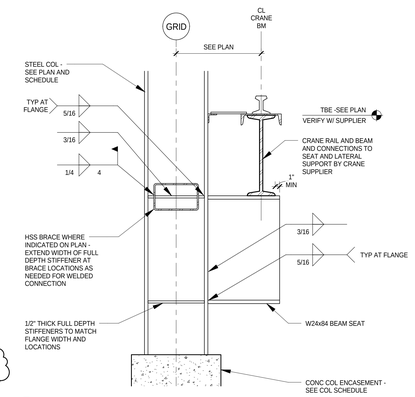

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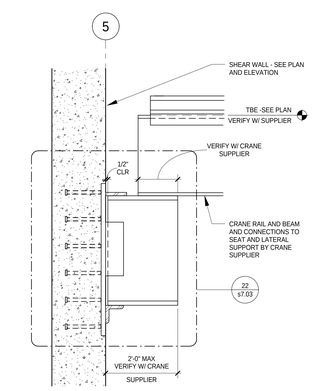

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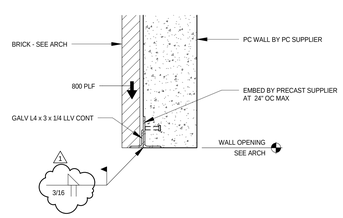

25 SECTION
NO SCALE

ARCHITECTURAL ALLIANCE
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ZIMMER GUNSUL FRASCA ARCHITECTS
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Civil Engineer
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Close Landscape Architecture
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Minneapolis, MN 55401
(612) 455-2204

Low Voltage Consultant
Elert & Associates
140 Third Street South
Stillwater, MN 55082
(651) 705-1242

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
1 Project Directive No. 3	05-11-2012

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Comm. No. 10.375.0

Drawn DJL, RKH

Checked MET

Date 12/16/2011

Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
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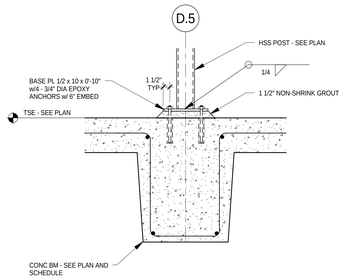
STRUCTURAL FRAMING DETAILS

s7.03



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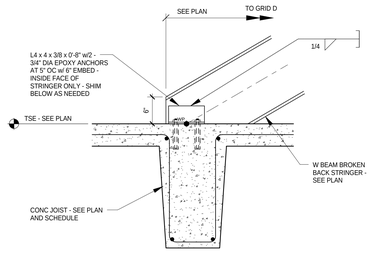

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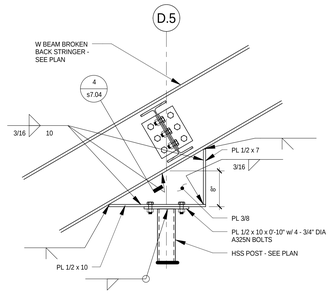

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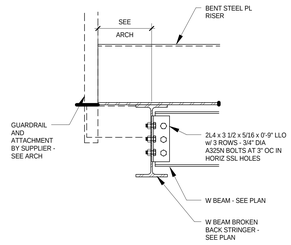

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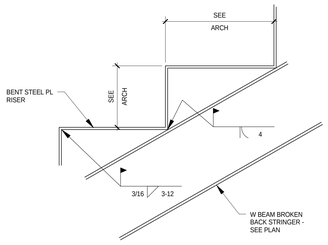

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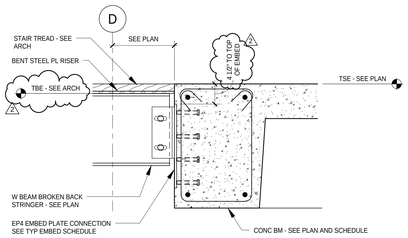

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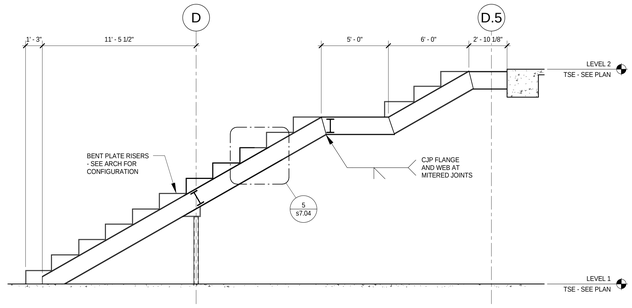

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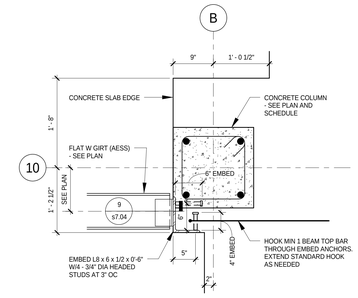

8 PLAN DETAIL AT WIND GIRT CONNECTION
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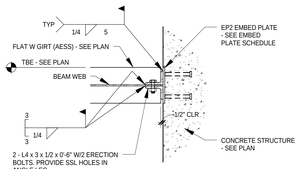

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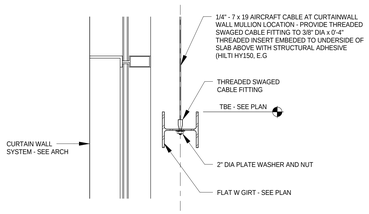

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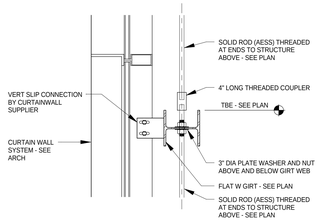

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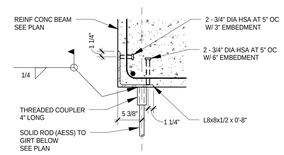

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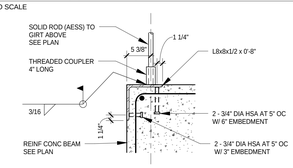

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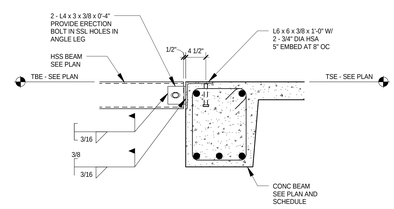

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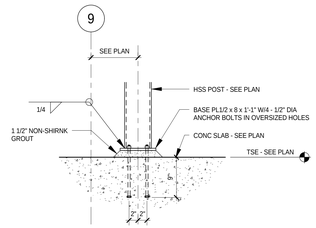

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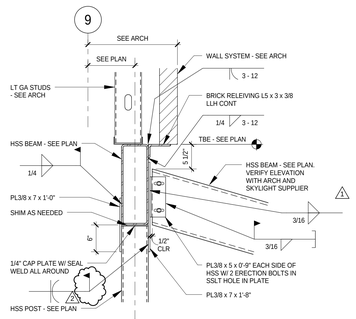

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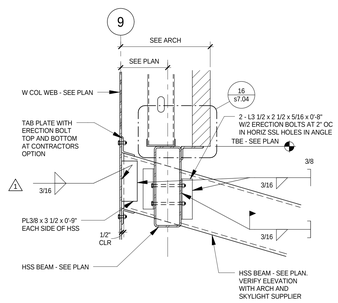

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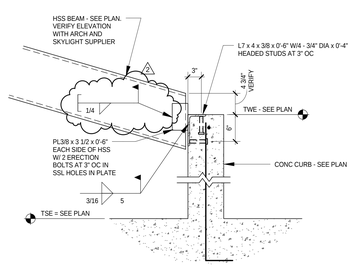

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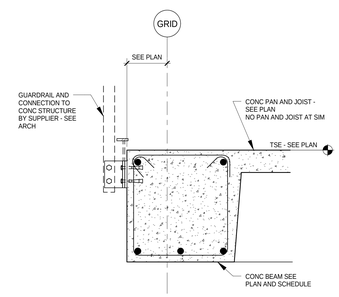

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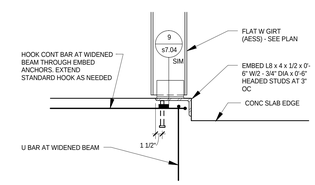

20 PLAN DETAIL AT WIND GIRT CONNECTION
NO SCALE

ARCHITECTURAL ALLIANCE
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400 Clifton Avenue South
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ZIMMER GUNSUL FRASCA ARCHITECTS
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Madison, WI 53719
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Lab Planner
Research Facilities Design
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San Diego, CA 92103
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Close Landscape Architecture
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Minneapolis, MN 55401
(612) 455-2204

Low Voltage Consultant
Elert & Associates
140 Third Street South
Stillwater, MN 55082
(651) 705-1242

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
1 ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
2 Project Directive No. 3	05-11-2012

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Comm. No. 10.375.0

Drawn DJL, RKH

Checked MET

Date 12/16/2011

Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
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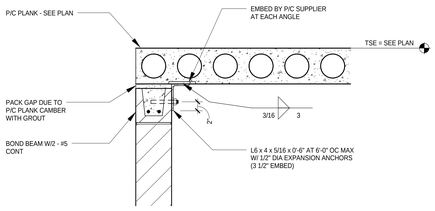
STRUCTURAL FRAMING DETAILS

s7.04



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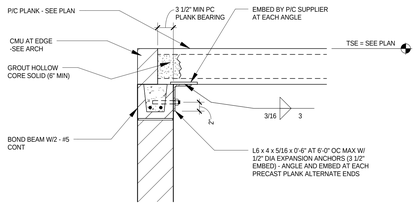

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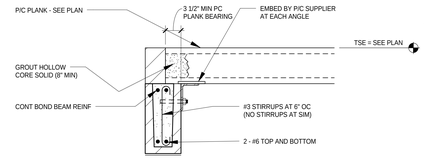
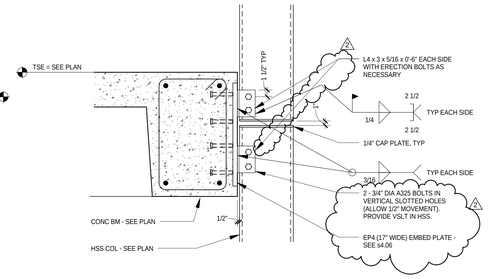


NOTES:
1. SEE 1/s7.05 FOR PRECAST ATTACHMENT TO CMU WALL.
2. PROVIDE 8" MINIMUM BEARING EACH END WITH JAMB REINFORCING PER NON-LOAD BEARING WALL SCHEDULE ON s4.07.

3 MASONRY LINTEL SECTION
NO SCALE



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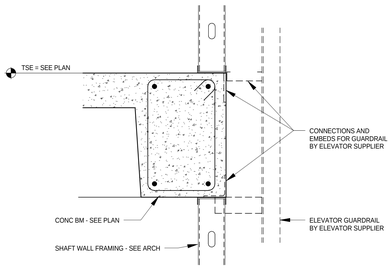

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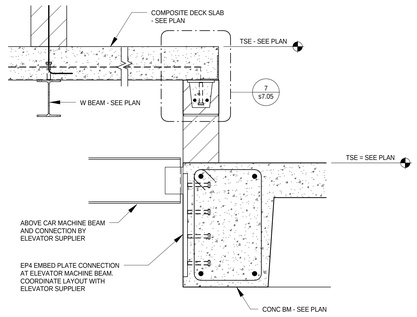

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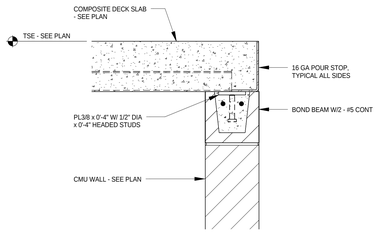

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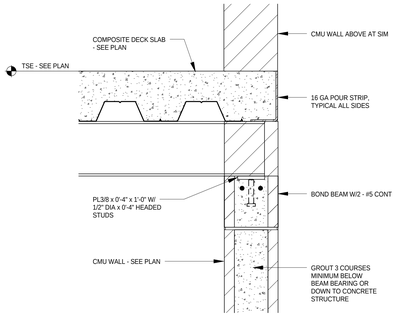

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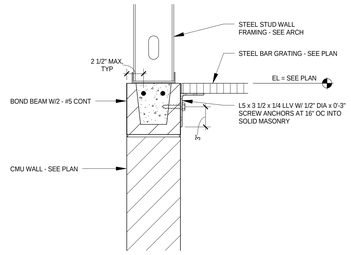

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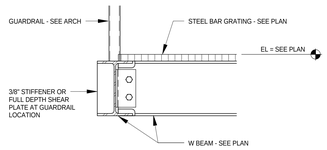

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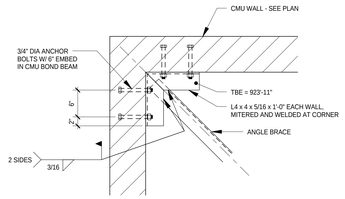

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11 BRACE CONNECTION PLAN DETAIL
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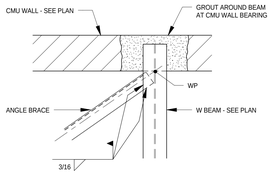

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12 BRACE CONNECTION PLAN DETAIL
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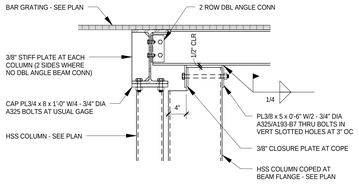

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13 SECTION
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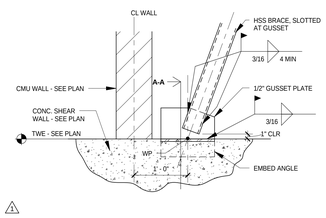

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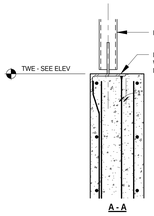

14 BRACE CONNECTION DETAIL
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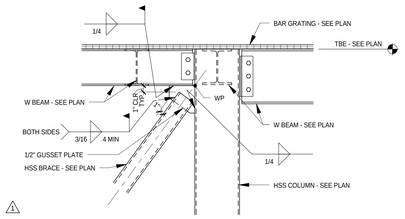

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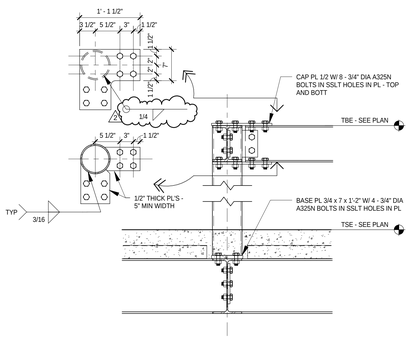

16 SECTION AT COOLING TOWER SUPPORT
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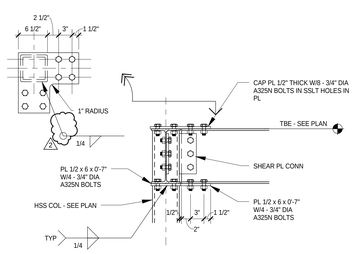

NOTE: BOLTS SHALL BE 3/4" DIAMETER A325

17 COINNECTION DETAIL
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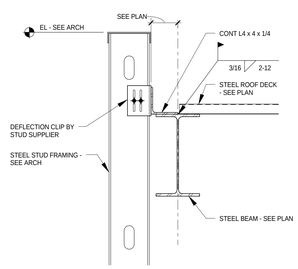

18 SECTION
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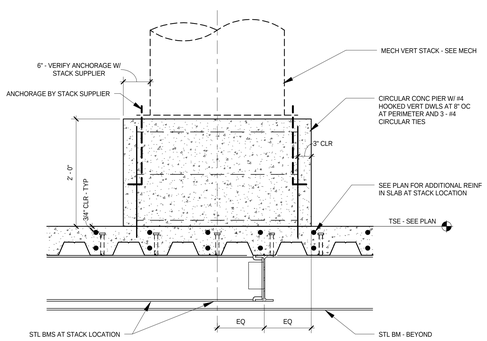

19 SECTION AT MECHANICAL STACK BASE
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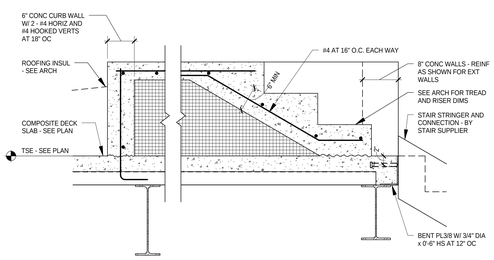

20 SECTION
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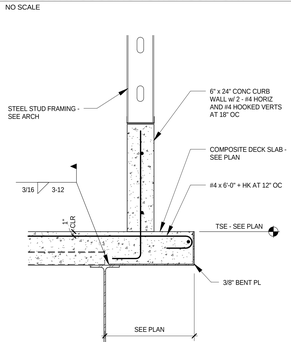

21 SECTION
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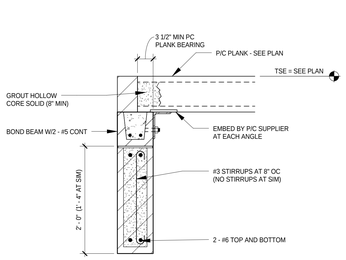

NOTES:
1. SEE 1/s7.05 FOR PRECAST ATTACHMENT TO CMU WALL.
2. PROVIDE 8" MINIMUM BEARING EACH END WITH JAMB REINFORCING PER NON-LOAD BEARING WALL SCHEDULE ON s4.07.
3. SEE 3/s7.05 FOR ADDITIONAL INFORMATION

22 MASONRY LINTEL SECTION
NO SCALE

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Name: Matthew E. Thomas

Signature:

Date 02/24/2012 Reg. No. 44681

Issued for	Date
100% CD Set	12-16-2011
1 ADDENDUM 1 TO MORTENSON BP #3	01-13-2012
Bid Package No. 2	02-24-2012
2 Project Directive No. 3	05-11-2012

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Drawn DJL, RKH

Checked MET

Date 12/16/2011

Project

Physics and Nanotechnology Building

UNIVERSITY OF MINNESOTA
Driven to Discover℠

STRUCTURAL FRAMING DETAILS

s7.05