UNIVERSITY OF NORTH TEXAS

DISCOVERY PARK D170 LAB FIT-OUT

ISSUE FOR CONSTRUCTION

APRIL 1, 2025

TREANOR

G000

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TREANOR

UNT UNIVERSITY OF NORTH TEXAS

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BID OPTIONS SUMMARY

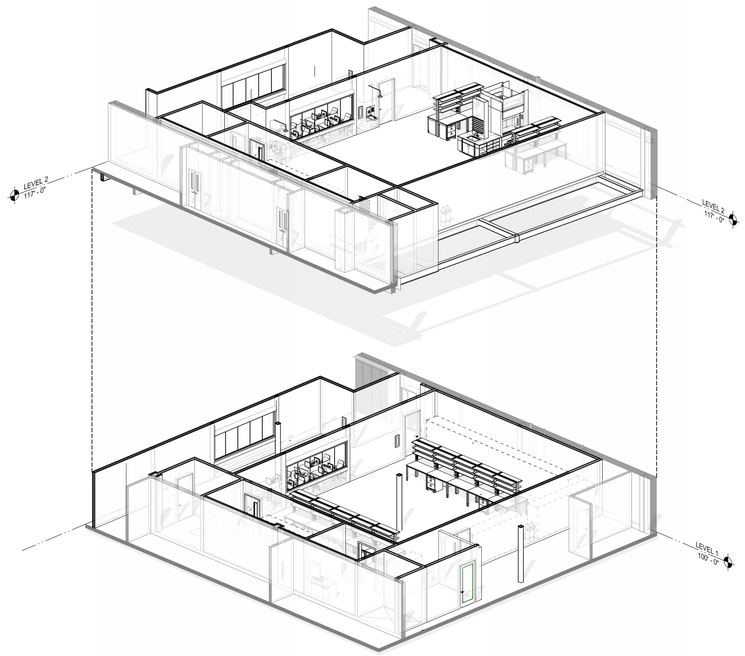
BASE BID CONDITION: PARTIAL LAB CASEWORK AND (2) FUME HOODS ON LEVEL 2, WITH FULL INFRASTRUCTURE TO SUPPORT FUTURE EXPANSION AS INDICATED ON THE DRAWINGS.

ALTERNATE 1
FULL BUILD-OUT OF WET LAB SUPPORT ROOM ON LEVEL 1 CONTAINING (1) FLOOR-MOUNTED CHEMICAL FUME HOOD. REFER TO SHEET A811A. SINK, FIXED CASEWORK, AND MECHANICAL, ELECTRICAL, AND PLUMBING INFRASTRUCTURE TO SUPPORT FUTURE BUILD-OUT IN ROOM D173 WET SUPPORT IS CONSIDERED BASE BID.

ALTERNATE 2
(2) ADDITIONAL CHEMICAL FUME HOODS WITH FIXED LAB CASEWORK IN D270 WET LAB, FOR A TOTAL OF (4) FUME HOODS ON LEVEL 2. REFER TO SHEET A812A.

ALTERNATE 3
FULL FURNISHING OF MOBILE LAB CASEWORK ON LEVEL 1 AND LEVEL 2. REFER TO SHEETS A811A AND A812A.

ALTERNATE 4
FULL BUILD-OUT OF AUTOCLAVE ROOM ON LEVEL 2 CONTAINING (1) STAINLESS STEEL SCULLERY SINK, AN AUTOCLAVE, AND AN UNDERCOUNTER GLASS WASHER. REFER TO SHEET A812A. MECHANICAL, ELECTRICAL, AND PLUMBING INFRASTRUCTURE TO SUPPORT FUTURE BUILD-OUT IN ROOM D271 IS CONSIDERED BASE BID.



PROJECT INFORMATION

Project Address:

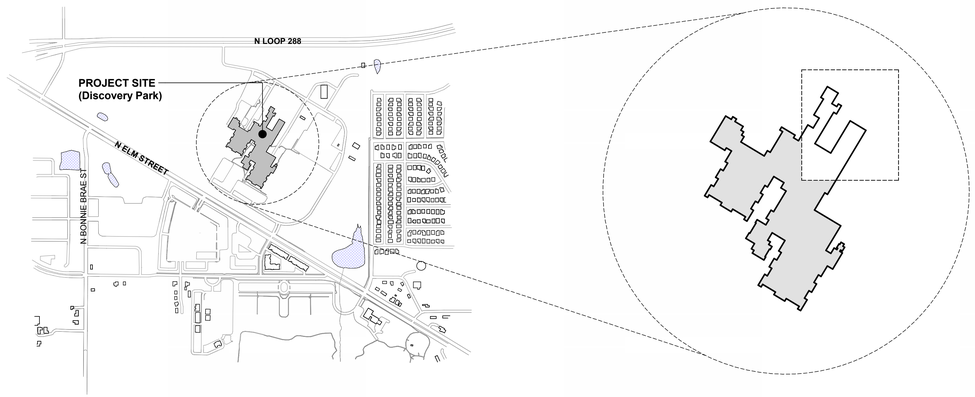
3940 N Elm Street
Denton, TX 76207

Scope of Work:

Design and Construction Administration services for the partial remodel of UNT Discovery Park D170. Extents of the partial remodel involve converting the existing two-story high-bay research lab into two floors of wet research and dry research laboratories in accordance with the February 2024 feasibility study.

Scope includes architectural design, laboratory planning, structural engineering, civil engineering, rough-in for technology systems, MEP engineering, fire protection engineering, and cost consulting. Telecom Design is excluded and will be completed by UNT.

VICINITY MAP



SHEET INDEX

REGISTERED ARCHITECT — JASON — STATE OF TEXAS

04/01/2025

G001

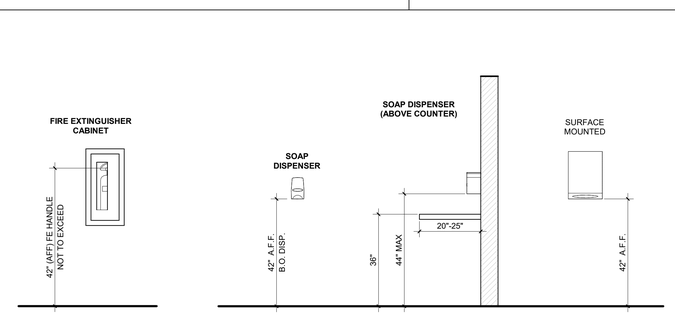
SITE VICINITY MAP, PROJECT TEAM, & SHEET INDEX

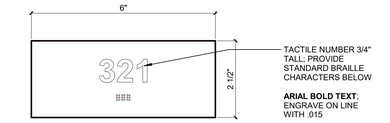
Treanor NO. HE0569.2402.00

GENERAL NOTES

A. DO NOT SCALE DRAWINGS.

B. ALL DIMENSIONS INDICATED ON THIS SHEET ARE TO FINISH FACE OF WALLS, FLOORS, AND CEILINGS.





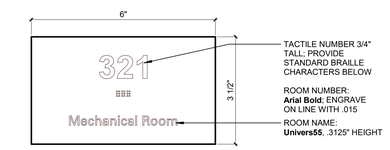
SIGNAGE TYPE "A"

TYPICAL - ROOM NUMBER ONLY

SUBSTRATE: ROWMARK (AVAILABLE AT JOHNSON PLASTICS)

COLOR: SATIN GREY / WHITE, 1/16" THICK (PN 122-32)

TACTILE APPLIQUE COLOR: WHITE 1/32" THICK (PN 311201A)



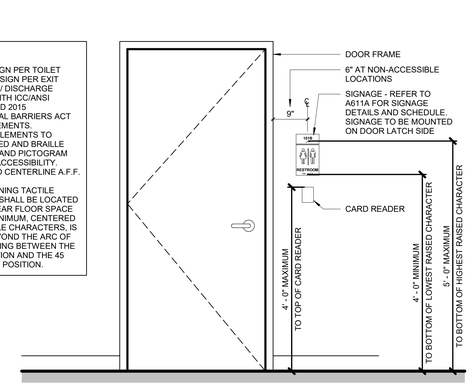
SIGNAGE TYPE "B"

TYPICAL - ROOM NUMBER ONLY

NOTE:

PROVIDE (1) SIGN PER TOILET ROOM AND (1) SIGN PER EXIT PASSAGEWAY / DISCHARGE COMPLYING WITH ICC/ANSI A117.1-2009 AND 2015 ARCHITECTURAL BARRIERS ACT (ABA) REQUIREMENTS. WAYFINDING ELEMENTS TO CONTAIN RAISED AND BRAILLE CHARACTERS AND PICTOGRAM SYMBOLS OF ACCESSIBILITY, MOUNT 5'-0" TO CENTERLINE A.F.F.

SIGNS CONTAINING TACTILE CHARACTERS SHALL BE LOCATED SO THAT A CLEAR FLOOR SPACE OF 18" X 18" MINIMUM, CENTERED ON THE TACTILE CHARACTERS, IS PROVIDED BEYOND THE ARC OF ANY DOOR SWING BETWEEN THE CLOSED POSITION AND THE 45 DEGREE OPEN POSITION.



TYPICAL SIGNAGE MOUNTING LOCATION AT DOOR

UNT STANDARD SIGNAGE A3

6" = 1'-0"

TYPICAL ROOM SIGNAGE, CARD READER A1

3/4" = 1'-0"

REGISTERED ARCHITECT JASON TREANOR STATE OF TEXAS
04/01/2025

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UNIVERSITY OF NORTH TEXAS DISCOVERY PARK D170 LAB FIT-OUT

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UNT UNIVERSITY OF NORTH TEXAS

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REVISIONS

NO	DESCRIPTION	DATE

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ACCESSIBILITY AND SIGNAGE STANDARDS

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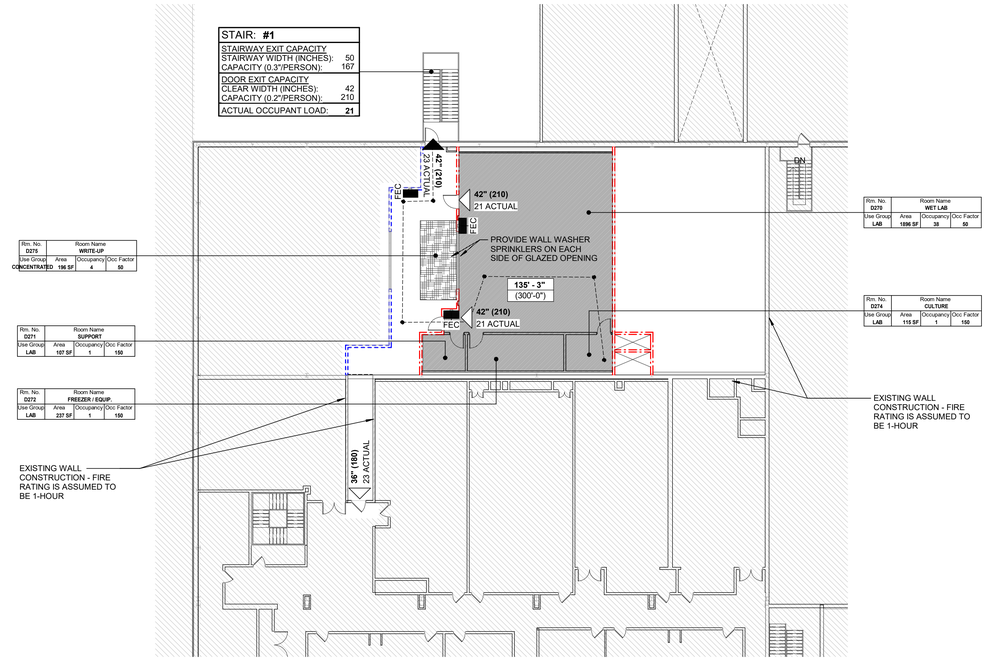
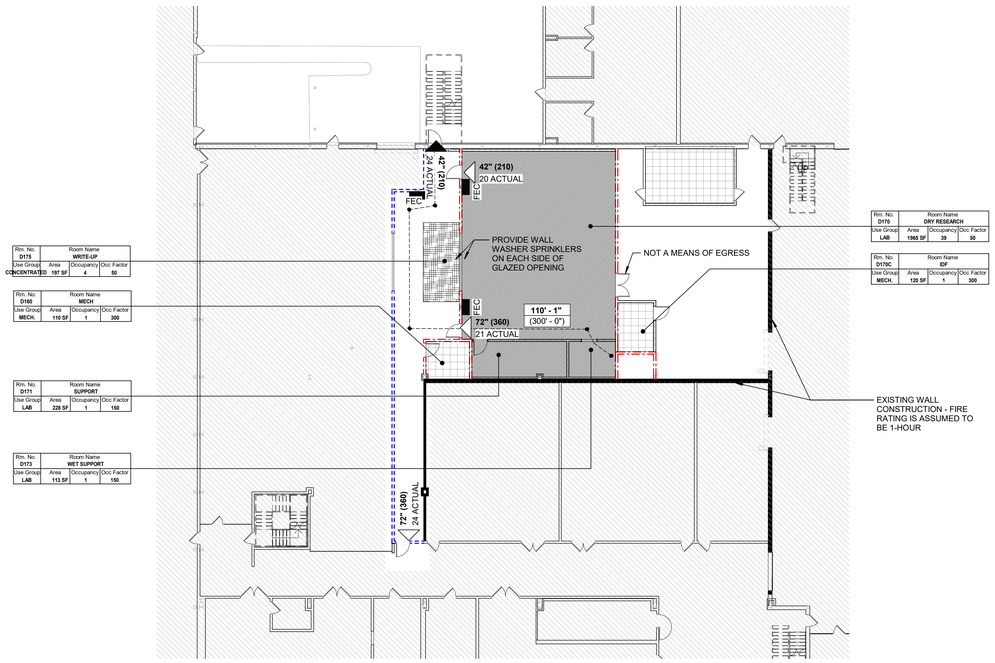


LIFE SAFETY PLAN - LEVEL 2 B1
1/16" = 1'-0"



LIFE SAFETY PLAN - LEVEL 1 A1
1/16" = 1'-0"

PROJECT CODE SUMMARY

PROJECT NAME
Discovery Park D170 Lab Fit-Out

ADDRESS
3940 N Elm Street
Denton, TX 76207

OWNER
University of North Texas

PROJECT DESCRIPTION

Design and Construction Administration Services for the partial remodel Discovery Park D170. Scope includes renovation of an existing high-bay laboratory into 2 levels of research laboratories. Services include Architectural Design, Laboratory Planning, Structural Engineering, Civil Engineering, Rough-in for Technology Systems (IT / Data), Mechanical, Electrical, Plumbing and Fire Protection Engineering, and Cost Consulting. Landscape Architecture, FFE Design and Procurement, and Telecom Design are excluded and will be completed by UNT.

SQUARE FOOTAGE IN SCOPE

Level 1	3,864 sf
Level 2	3,692 sf
Total	**7,556 sf**

GOVERNING CODES & STANDARDS

The following codes and standards have been adopted by UNT. This list is not all-inclusive.

- NFPA 1 Fire Code (2020)
- NFPA 101 Life Safety Code (2020)
- NFPA 70 National Electrical Code (2020)
- NFPA 72 National Fire Alarm Signaling Code (2020)
- 2021 International Building Code (IBC)
- 2021 International Mechanical Code (IMC)
- 2021 International Plumbing Code (IPC)
- 2021 International Fire Code (IFC)
- 2012 Texas Accessibility Standard (TAS)
- 2018 International Energy Conservation Code
- ASHRAE 90.1 (2013)

CONSTRUCTION TYPE

Type II-B Construction

FIRE RESISTANCE RATINGS - BUILDING ELEMENTS

Primary Structural Frame	1-hr
Exterior Bearing Walls	1-hr
Interior Bearing Walls	1-hr
Nonbearing Walls & Partitions	0-hr
Mechanical Shafts	1-hr
Floor Construction	1-hr
Roof Construction	1-hr

ALLOWABLE BUILDING HEIGHTS & AREAS

Business: 55'-0", 4 stories, 76,000 SF

ACTUAL BUILDING HEIGHTS & AREAS

Height: 36'-6", 2 stories

REQUIRED OCCUPANCY SEPARATIONS

1-hr Separation - Lab Areas
1-hr Separation - Mechanical

FIRE PROTECTION SYSTEM

AUTOMATIC SPRINKLER SYSTEM
The building shall be equipped throughout with a Fully-Automatic Fire Sprinkler System in accordance with NFPA 13 and Section 903.3.1.1.

FIRE EXTINGUISHERS
Provided throughout per NFPA 10. Maximum travel distance to the nearest fire extinguisher location = 75'-0".

MEANS OF EGRESS

NUMBER OF REQUIRED EXITS:

MINIMUM NUMBER OF EXITS PER STORY

1 - 500	2
501 - 1,000	3
> 1,000	4

NUMBER OF PROVIDED EXITS:

LEVEL	*OCCUPANTS*	*EXITS PROVIDED*
1	48	2
2	45	2

TOTAL CALCULATED OCCUPANT LOAD

93

REMOTE LOCATIONS OF EXITS:
Where two exits or exit access doorways are required from any portion of the exit access, the exit doors or exit access doorways shall be placed a distance apart equal to or not less than *one-half* of the length of the maximum overall diagonal dimension of the building or area to be served, measured in a straight line between exit doors or exit access doorways. Interlocking or scissor stairs shall be counted as one exit stairway. (1015.2)

EXCEPTIONS:
1. Where interior exit stairways are interconnected by a 1-hour fire resistance-rated corridor conforming to the requirements of [Section 1018], the required exit separation shall be measured along the shortest direct line of travel within the corridor.
2. Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1, the separation distance of the exit doors or exit access doorways shall not be less than *one-third* of the length of the maximum overall diagonal dimension of the area served.

COMMON PATH OF TRAVEL:
100-ft (B Occupancy), 75-ft (A Occupancy)

TOTAL TRAVEL DISTANCE:
300-ft (B Occupancy), 250-ft (A Occupancy)

NFPA 45 STANDARD ON FIRE PROTECTION FOR LABORATORIES

NFPA 45 6.1.1
All laboratory units shall be provided with fire protection appropriate to the fire hazard, as follows:
1. Portable Fire Extinguishers (Section 6.4)
2. Fire Alarm Systems (Section 6.5)
3. Evacuation & Emergency Plans (6.6.3)

NFPA 45 6.4.1
Portable fire extinguishers shall be installed, located, and maintained in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*.

NFPA 45 6.4.2
For purposes of sizing and placement of fire extinguishers for Class B fires (see NFPA 10, Table 6.3.1.1), Class A laboratory units shall be rated as "Extra-High Hazard." Class B, Class C, & Class D laboratory units shall be rated as "Ordinary (Moderate) Hazard."

LABORATORY UNIT FIRE HAZARD CLASSIFICATION
Laboratory units shall be classified as Class A (High Fire Hazard), Class B (Moderate Fire Hazard), Class C (Low Fire Hazard), or Class D (Minimal Fire Hazard), according to the quantities of flammable and combustible liquids specified in Table 9.1.1(A) and Table 9.1.1(B).
(NFPA 45 Section 4.2.1.1)

PORTABLE FIRE EXTINGUSHERS:
For both Use Groups A & B, portable fire extinguishers are required to be located so that the maximum travel distance to an extinguisher is 75-feet. (NFPA 101, Table 6.2.1.1 and Table 6.3.1.1)

LIFE SAFETY LEGEND

USE DESIGNATION COLOR LEGEND

- BUSINESS AREA
- CONCENTRATED BUSINESS
- ASSEMBLY - UNCONCENTRATED TABLES & CHAIRS
- ACCESSORY STORAGE / MECHANICAL
- OTHER (PLACEHOLDER FOR ADDITIONAL USES)
- OTHER (PLACEHOLDER FOR ADDITIONAL USES)
- OTHER (PLACEHOLDER FOR ADDITIONAL USES)

FIRE RATING DESIGNATIONS

- 0 HR FRR "SMOKE PARTITION"
- 1 HR FRR "FIRE BARRIER"
- 1 HR FRR "SMOKE BARRIER"
- 2 HR FRR "FIRE BARRIER"
- 2 HR FRR "FIRE WALL"
- 2 HR FRR "SMOKE BARRIER"
- 3 HR FRR "FIRE BARRIER"
- 3 HR FRR "FIRE WALL"

EGRESS COMPONENT CAPACITY

ACTUAL EXIT WIDTH (CAPACITY) / ACTUAL OCCUPANT LOAD — EXTERIOR EXIT/ EXIT INFORMATION

ACTUAL EXIT WIDTH (CAPACITY) / ACTUAL OCCUPANT LOAD — INTERIOR EXIT/ EXIT INFORMATION

USE DESIGNATION / OCCUPANT LOAD TAG

Use Designation: ASSEMBLY (W/O FIXED) | Occupancy: B | Area (SF): 5,000 | Occupants: 334 | SF / Person: 15
- USE DESIGNATION
- OCCUPANT LOAD FACTOR
- CALCULATED OCCUPANT LOAD
- AREA PER USE (TOTAL)
- BUILDING OCCUPANCY CLASSIFICATION

FEC — FIRE EXTINGUISHER & CABINET

FE — FIRE EXTINGUISHER & WALL MOUNTING BRACKET

KNOX BOX - FIRE DEPARTMENT KEEPS KEYS

FEC

EXIT ACCESS TRAVEL DISTANCE
COMMON PATH OF TRAVEL DECISION POINT
42' - 6" (300' - 0") — TOTAL TRAVEL DISTANCE / ALLOWABLE DISTANCE
25' - 0" (75' - 0") — COMMON PATH DISTANCE / MAX. COMMON PATH

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REVISIONS

NO	DESCRIPTION	DATE

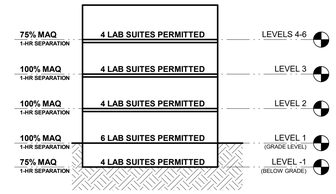
G101

CODE AND LIFE SAFETY PLANS

Treanor NO. HE0569.2402.00

MODIFICATIONS & GENERAL NOTES

1. HIGHER EDUCATION LABORATORY SUITES ARE SEPARATED BY A 1-HOUR FIRE BARRIER, U.N.O.
2. ALL QUANTITIES OF CHEMICALS FOR EACH LAB OCCUPANT MUST BE VERIFIED AND COORDINATED WITH LIMITS ESTABLISHED IN THE ADJACENT TABLE.
3. TOTAL ALLOWABLE QUANTITIES FOR COMBINED STORAGE AND IN-USE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE QUANTITIES FOR STORAGE.
4. ADJUSTED MAQ PER HIGHER EDUCATION LABORATORY SUITE (IBC) OR LAB AREA (NFPA) DOES NOT REFLECT THE ALLOWABLE INCREASE DUE TO STORAGE OF MATERIALS IN APPROVED CONTAINERS. IF APPROVED CONTAINERS ARE USED, MAQ MAY BE INCREASED IN ACCORDANCE WITH IBC TABLE 301.1(1) ITEM 'E'.
5. WHERE QUANTITY REQUIREMENTS DIFFER BETWEEN NFPA AND IBC, THE MOST STRINGENT REQUIREMENT APPLIES.
6. TABLE INDICATES QUANTITIES ALLOWED TO BE STORED. REFER TO APPLICABLE TABLES FOR MAXIMUM ALLOWABLE QUANTITIES IN USE IN BOTH OPEN AND CLOSED SYSTEMS.
7. "MAXIMUM ALLOWABLE QUANTITIES SHALL BE INCREASED 100 PERCENT IN BUILDINGS EQUIPPED THROUGHOUT WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1." (IBC TABLE 307.1(2))
8. "MAXIMUM QUANTITIES ARE PERMITTED TO BE INCREASED 100 PERCENT IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13." NFPA 400 TABLE 5.2.1.1.2.

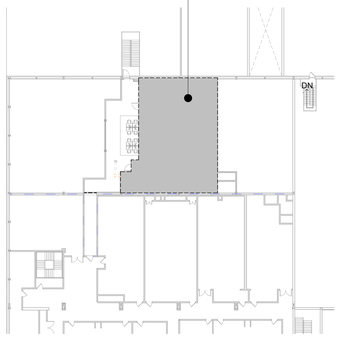


DESIGN AND NUMBER OF LABORATORY SUITES PER FLOOR
IBC TABLE 428.3

MAXIMUM ALLOWABLE QUANTITIES (MAQ)		NFPA 400 Table 5.2.1.1.3 / NFPA 45 Table 9.1.1(b)						IBC - TABLE 307.1(1)					
		LEVEL 1 LABORATORY UNIT 1 (CLASS B)			LEVEL 2 LABORATORY UNIT 2 (CLASS B)			LEVEL 1 HIGHER EDUCATION LABORATORY SUITE 1			LEVEL 2 HIGHER EDUCATION LABORATORY SUITE 2		
MATERIAL	CLASS	SOLID POUNDS	LIQUID GALLONS (lb)	GAS ft3 (lb)	SOLID POUNDS	LIQUID GALLONS (lb)	GAS ft3 (lb)	SOLID POUNDS	LIQUID GALLONS (lb)	GAS ft3 (lb)	SOLID POUNDS	LIQUID GALLONS (lb)	GAS ft3 (lb)
FLAMMABLE & COMBUSTIBLE LIQUIDS PER LAB UNIT	I I,II,IIIA Total	- -	248 400	- -	- -	261 400	- -	- -	- -	- -	- -	- -	- -
COMBUSTIBLE LIQUID	II IIIA IIIB	- - -	240 660 13200	- - -	- - -	240 660 13200	- - -	- - -	240 660 NL	- - -	- - -	240 660 NL	- - -
FLAMMABLE LIQUID	IA IB and IC	- -	60 240	- -	- -	60 240	- -	- -	60 240	- -	- -	60 240	- -
CRYOGENIC FLUID	FLAMMABLE OXIDIZING INERT	- - -	45 90 NL	- - -	- - -	45 90 NL	- - -	- - -	90 90 -	- - NL	- - -	90 90 -	- - NL
FLAMMABLE GAS	GASEOUS LIQUEFIED	- -	- -	2000 (300)	- -	- -	2000 (300)	- -	- (300)	2000 -	- -	- (300)	2000 -
FLAMMABLE SOLID	-	250	-	-	250	-	-	250	-	-	250	-	-
INERT GAS	GASEOUS LIQUIFIED	- -	- -	NL NL	- -	- -	NL NL	- -	- -	NL NL	- -	- -	NL NL
ORGANIC PEROXIDE	UD I IIA IIB III IV V	1 32 200 400 1680 NL NL	(1) (32) (200) (400) (1680) NL NL	- - - - - - -	1 32 200 400 1680 NL NL	(1) (32) (200) (400) (1680) NL NL	- - - - - - -	1 10 100 100 250 NL NL	(1) (10) (100) (100) (250) NL NL	- - - - - - -	1 10 100 100 250 NL NL	(1) (10) (100) (100) (250) NL NL	- - - - - - -
OXIDIZER	4 3 2 1	1 20 500 4000	(1) (20) (500) (4000)	- - - -	1 20 500 4000	(1) (20) (500) (4000)	- - - -	1 20 500 4000	(1) (20) (250) (4000)	- - - -	1 20 500 4000	(1) (20) (250) (4000)	- - - -
OXIDIZING GAS	GASEOUS LIQUIFIED	- -	- -	3000 (300)	- -	- -	3000 (300)	- -	- (300)	3000 -	- -	- (300)	3000 -
PYROPHORIC	-	4	(4)	-	4	(4)	-	4	(4)	50	4	(4)	50
PYROPHORIC GAS	GASEOUS LIQUEFIED	- -	- -	50 (4)	- -	- -	50 (4)	- -	- -	- -	- -	- -	- -
UNSTABLE (REACTIVE)	4 3 2 1	1 10 100 NL	(1) (10) (50) NL	- - - -	1 10 100 NL	(1) (10) (50) NL	- - - -	1 10 100 NL	(1) (10) (100) NL	10 100 1500 NL	1 10 100 NL	(1) (10) (100) NL	10 100 1500 NL
UNSTABLE (REACTIVE) GAS	GASEOUS (4 or 3 DET.) GASEOUS (3 NONDET.) GASEOUS (2) GASEOUS (1) LIQUIFIED (4 or 3 DET.) LIQUIFIED (3 NONDET.) LIQUIFIED (2) LIQUIFIED (1)	- - - - - - - -	- - - - - - - -	10 100 1500 NL (2) (4) (300) NL	- - - - - - - -	- - - - - - - -	10 100 1500 NL (2) (4) (300) NL	- - - - - - - -	- - - - - - - -	- - - - - - - -	- - - - - - - -	- - - - - - - -	- - - - - - - -
WATER (REACTIVE)	3 2 1	10 100 NL	(10) (100) NL	- - -	10 100 NL	(10) (100) NL	- - -	10 100 NL	(10) (100) NL	- - -	10 100 NL	(10) (100) NL	- - -
CORROSIVE	-	10000	1000	-	10000	1000	-	10000	1000	-	10000	1000	-
CORROSIVE GAS	GASEOUS LIQUEFIED	- -	- -	1620 (300)	- -	- -	1620 (300)	- -	- -	1620 (300)	- -	- -	1620 (300)
HIGHLY TOXIC	-	20	-	20	20	-	20	20	(20)	-	20	(20)	-
HIGHLY TOXIC GAS	GASEOUS LIQUEFIED	- -	- -	40 (8)	- -	- -	40 (8)	- -	- -	40 (8)	- -	- -	40 (8)
TOXIC	-	1000	(1000)	-	1000	(1000)	-	1000	(1000)	-	1000	(1000)	-
TOXIC GAS	GASEOUS LIQUEFIED	- -	- -	1620 (300)	- -	- -	1620 (300)	- -	- -	1620 (300)	- -	- -	1620 (300)

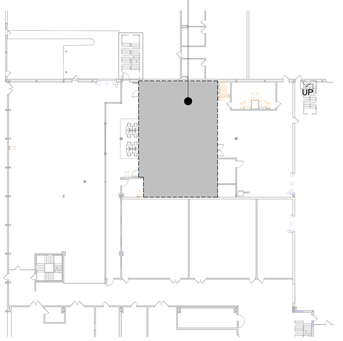
LABORATORY UNIT 2 ('CLASS B')
2,608 SF

MAQ in use/storage (NFPA 45, Table 9.1.1(b))
Class I - 261 gallons
Class 1, II, IIIA - 400 gallons



LABORATORY UNIT 1 ('CLASS B')
2,476 SF

MAQ in use/storage (NFPA 45, Table 9.1.1(b))
Class I - 248 gallons
Class I, II, IIIA - 400 gallons



LAB UNIT PER NFPA 45, TABLE 5.1.1

CONTROL AREA SEPARATION (1-HR)

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CODE AND LIFE SAFETY (MAX ALLOWABLE QUANTITIES)

Treanor NO. HE0569.2402.00

Site Demolition Plan Notes:

1. EXISTING TOPOGRAPHIC SURVEY AND LOCATION OF PHYSICAL FEATURES WERE OBTAINED FROM A TOPOGRAPHIC SURVEY PERFORMED BY **JQ ENGINEERING** DATED **08/28/2024**.
2. NO DEMOLITION ACTIVITIES SHALL COMMENCE UNTIL ALL PERMITS ARE OBTAINED AND PERIMETER EROSION CONTROL MEASURES ARE IN PLACE.
3. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UNDERGROUND UTILITIES WITHIN THE AREA OF CONSTRUCTION.
4. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC. WITHIN THE AREA OF CONSTRUCTION.
5. EXISTING SANITARY SEWER AND WATER UTILITY LINES ARE TO REMAIN IN SERVICE AT ALL TIMES. CONTRACTOR TO MAKE PROVISIONS TO KEEP THESE UTILITIES IN SERVICE. ALL PROPOSED SHUT DOWNS OF UTILITIES MUST BE COORDINATED WITH THE OWNER.
6. ALL TRAFFIC CONTROL MEASURES, BARRICADES AND PROJECT SIGNS WITHIN THE PUBLIC RIGHT-OF-WAY SHALL CONFORM TO THE LATEST EDITION OF TEXAS DEPARTMENT OF TRANSPORTATION MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE LOCAL GOVERNING AGENCY REQUIREMENTS.
7. PROVIDE EROSION AND SEDIMENTATION CONTROLS AS SHOWN ON THE DRAWINGS AND MAINTAIN FOR THE DURATION OF THE PROJECT. PROVIDE ROUTINE MAINTENANCE AS REQUIRED BY THE SWPPP PLAN TO MAINTAIN THE INTEGRITY OF CONTROLS AND PROTECTION MEASURES AND REMOVE ANY ACCUMULATIONS OF MUD, SILT AND DEBRIS, WHICH WOULD JEOPARDIZE THE INTEGRITY OF THE CONTROL MEASURES. REFER TO DRAWINGS FOR DETAILS
8. CONTRACTOR SHALL EXERCISE CARE DURING OPERATIONS TO CONFINE DUST TO THE IMMEDIATE WORK AREA AND SHALL EMPLOY DUST CONTROL MEASURES TO ENSURE ADEQUATE DUST CONTROL THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS.
9. EXPOSED SUBGRADE BENEATH PAVED AREAS SHALL BE PROOF ROLLED TO DETECT WEAK SOIL SUPPORT AREAS. THESE AREAS WILL BE REMOVED AND REPLACED WITH SITE EXCAVATED MATERIALS OR IMPORTED MATERIALS HAVING THE SAME PROPERTIES AS SITE MATERIALS.
10. THE CONTRACTOR SHALL NOT DAMAGE ANY FENCES, DRIVES, PAVEMENT, UTILITIES OR OTHER EXISTING FACILITIES INTENDED TO REMAIN. DAMAGE TO ADJOINING PROPERTY OUTSIDE THE LIMITS OF DISTURBANCE OR OTHER ITEMS INTENDED TO REMAIN SHALL BE REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR.
11. THE CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH ALL REGULATIONS GOVERNING AGENCIES REGARDING THE DEMOLITION, REMOVAL, TRANSPORTATION AND DISPOSAL OF ALL DEMOLITION DEBRIS.
12. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY ON-SITE TRASH, DEBRIS, OR DEMOLITION MATERIALS. DISPOSAL OF ALL DEMOLITION MATERIALS OR PRE-EXISTING ON-SITE TRASH AND DEBRIS SHALL NOT BE ITEMIZED AND PAID FOR AS SEPARATE ITEMS BUT SHALL BE SUBSIDIARY TO THE CONTRACT PRICE.
13. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL PROPERTY CORNER MONUMENTS, BENCHMARKS, CONTROL POINTS, ETC, AND SHALL HAVE, AT HIS EXPENSE, ALL CORNER MONUMENTS REPLACED WHICH ARE DISTURBED BY CONSTRUCTION ACTIVITIES.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING DISCONNECTION OF ALL UTILITIES SERVING THE EXISTING SITE WITH THE APPROPRIATE UTILITY COMPANY, AND SHALL OBTAIN APPROVAL FROM SAME TO COMMENCE DEMOLITION ACTIVITIES.
15. THE CONTRACTOR SHALL LOCATE AND REMOVE ALL UNDERGROUND UTILITY PIPING, CONDUIT, AND CABLES, REGARDLESS OF DEPTH, IN THE AREA OF THE PROPOSED BUILDING(S) FOUNDATIONS. (UNLESS NOTED OTHERWISE)
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLUGGING, CAPPING, OR OTHERWISE TERMINATING UTILITY SERVICE LINES AT THE PROPERTY LINE; OR AT THE UTILITY MAIN AS REQUIRED BY THE UTILITY OWNER.
17. REFER TO LANDSCAPE DRAWINGS FOR TREE DEMOLITION AND PROTECTION.
18. REFER TO DEMOLITION ITEMS WITHIN OTHER DISCIPLINES' DOCUMENTS FOR COORDINATION NOTES.

Paving Plan Notes:

1. UNLESS OTHERWISE NOTED, REFER TO SPECIFICATION DETAILS FOR SUBGRADE COMPACTION AND MOISTURE CONTENT REQUIREMENTS.
2. REFER TO THE MOST RECENT GEOTECHNICAL REPORT FOR REQUIREMENTS REGARDING FILL COMPACTION AND MOISTURE CONTENT.
3. INSTALLATION AND PLACEMENT OF IRRIGATION SLEEVES AND UTILITY CONDUITS SHALL BE IN ACCORDANCE TO THE ARCHITECT'S LANDSCAPE PLANS AND/OR MEP PLANS. NEW IRRIGATION SLEEVES SHOWN HEREON ARE FOR REFERENCE ONLY AND SHOULD BE CONSIDERED APPROXIMATE. (REFER TO LANDSCAPE DRAWINGS FOR EXACT LOCATIONS.)
4. ALL PARKING STRIPING SHALL BE 4" WIDE UNLESS OTHERWISE NOTED.
5. INSTALL ACCESSIBLE PARKING STALLS, AISLES, SYMBOLS, SIGNAGE AND WHEELSTOPS IN ACCORDANCE WITH ADA/TAS STANDARDS. STRIPING WILL BE COLORED PER TAS APPROVED COLOR PAINT
6. SIDEWALKS SHALL HAVE A RUNNING SLOPE NOT GREATER THAN 5% AND A CROSS SLOPE NOT GREATER THAN 2%, UNLESS OTHERWISE NOTED.
7. SAWED JOINTS SHALL BE SPACED AT INTERVALS OF 15 FEET MAXIMUM AND AT ALL RADIUS RETURNS. SAWED JOINTS SHALL BE PERPENDICULAR TO ALL CURVES. JOINTS SHALL BE SAWED WITHIN 12 HOURS AFTER CONCRETE IS POURED.
8. SAWED JOINTS SHALL MATCH THE EXISTING PAVEMENT JOINT PATTERN WHERE NEW PAVEMENT IS CONSTRUCTED ADJACENT TO EXISTING CONCRETE PAVEMENT.
9. ALL MANHOLES, INLETS, LIGHT BASES, AND OTHER STRUCTURES SHALL BE ISOLATED FROM THE NEW PAVEMENT WITH PREFORMED ASPHALTIC EXPANSION MATERIAL.
10. ADJUST EXISTING TOP OF MANHOLE RIMS AND EXISTING WATERLINE VALVE BOXES TO FINISHED GRADE ELEVATIONS.
11. FOR PAVING PATTERNS, FINISHES AND MATERIALS REFER TO ARCHITECTURAL OR LANDSCAPE DRAWINGS.
12. NEW IRRIGATION SLEEVES SHOWN HEREON ARE FOR REFERENCE ONLY AND SHOULD BE CONSIDERED APPROXIMATE. REFER TO LANDSCAPE DRAWINGS FOR EXACT LOCATIONS.
13. CARE SHALL BE TAKEN NOT TO PLACE CONCRETE DURING INCLEMENT WEATHER. CONCRETE AGGREGATE THAT HAS BEEN EXPOSED DUE TO RAINFALL BEFORE THE CONCRETE HAS SET-UP SHALL NOT BE ACCEPTED AND MUST BE REPLACED.
14. EXPOSED SUBGRADE BENEATH PAVED AREAS SHALL BE PROOF ROLLED TO DETECT WEAK SOIL SUPPORT AREAS. WEAK AREAS WILL BE REMOVED AND REPLACED WITH SITE EXCAVATED MATERIALS OR IMPORTED MATERIALS HAVING THE SAME PROPERTIES AS SITE MATERIALS.

Site Plan General Notes:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY CONSTRUCTION STANDARDS AND SPECIFICATIONS. FOR ANY WORK NOT GOVERNED BY CITY DETAILS. THE LATEST EDITION OF THE STANDARDS AND SPECIFICATIONS, NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG) STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION SHALL APPLY.
2. THE CONTRACTOR MUST BE FAMILIAR WITH OWNER & CITY CONSTRUCTION STANDARDS AND OTHER PROCEDURES PRIOR TO BIDDING AND CONSTRUCTION. IGNORANCE OF CONSTRUCTION SPECIFICATIONS SHALL NOT BE A BASIS FOR CHANGE ORDERS, WORK DELAYS, OR ADDITIONAL COMPENSATION.
3. ALL MATERIAL REQUIRED TO COMPLETE THE WORK AS SHOWN OR IMPLIED IN THE CONSTRUCTION PLANS AND AS SPECIFIED IN THE CONTRACT DOCUMENTS THAT ARE NOT LISTED AS A PAY ITEM IN THE PROPOSAL SHALL BE CONSIDERED SUBSIDIARY.
4. THE LOCATION, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED FROM FIELD MARKINGS, PHYSICAL APPURTENANCES AND UTILITY COMPANY RECORDS AND ARE CONSIDERED APPROXIMATE. THE ENGINEER DOES NOT CERTIFY THAT ALL UTILITIES ARE SHOWN. THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS, SIZES AND DEPTHS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION BY CONTACTING TEXAS811 AND RELEVANT UTILITY COMPANIES 48 HOURS PRIOR TO LOCATING EXISTING UTILITIES OR CONSTRUCTION ACTIVITIES.
5. THE CONTRACTOR SHALL PROTECT ALL ADJACENT ON & OFF-SITE PAVING, UTILITIES, TREES AND OTHER EXISTING STRUCTURES FROM DAMAGE PRIOR TO & DURING CONSTRUCTION. ANY DAMAGE THAT OCCURS FROM CONSTRUCTION OPERATIONS SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.
6. THE CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, EMISSIONS, TRENCHING, SHORING, AND SITE SAFETY.
7. THE CONTRACTOR SHALL SUBMIT A CONSTRUCTION SEQUENCE TO THE ENGINEER PRIOR TO BEGINNING WORK.
8. THE CONTRACTOR SHALL PROTECT ALL PAVEMENT INCLUDING SIDEWALKS THAT ARE OUTSIDE THE LIMITS OF DISTURBANCE FROM DAMAGE ESPECIALLY AT CONSTRUCTION ENTRANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY DAMAGED PAVEMENT.
9. THE CONTRACTOR MAY REMOVE ALL FENCING WITHIN THE LIMITS OF DISTURBANCE THAT INTERFERE WITH CONSTRUCTION OPERATIONS, EXCEPT IN AREAS WHERE LIVESTOCK IS PRESENT. WHERE TEMPORARY FENCING IS REQUIRED, IT SHALL BE OF SUFFICIENT DESIGN TO KEEP LIVESTOCK PENNED. ANY LOOSE LIVESTOCK THAT RESULT FROM INADEQUATE FENCING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
10. POSITIVE DRAINAGE MUST BE MAINTAINED FOR ALL DRAINAGE SWALES, CULVERTS AND CREEKS INCLUDING INTERMITTENT STREAMS AFFECTED BY CONSTRUCTION OPERATIONS. ANY WORK NECESSARY TO DAM OR DIVERT EXISTING DRAINAGE WAYS TO COMMENCE CONSTRUCTION SHALL BE CONSIDERED SUBSIDIARY.
11. ALL EXCAVATION IS UNCLASSIFIED AND SHALL INCLUDE ALL MATERIALS ENCOUNTERED TO INCLUDE BUT NOT BE LIMITED TO ROCK, RUBBLE, DEBRIS, TRASH, ETC. UNUSABLE EXCAVATED MATERIAL AND ALL WASTE RESULTING FROM SITE CLEARING AND GRUBBING SHALL BE DISPOSED OF OFF SITE AT THE CONTRACTOR'S EXPENSE. SPOILS MAY BE DISPOSED OF ON-SITE ONLY WITH PRIOR APPROVAL FROM THE ENGINEER AND ONLY IN LOCATIONS APPROVED BY THE ENGINEER.
12. AT SUBSTANTIAL COMPLETION, THE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DEBRIS, EXCESS MATERIAL, FORM-WORK, TRASH, EQUIPMENT, OR ANY OTHER SUPERFLUOUS OR WASTE MATERIAL FROM THE SITE, INCLUDING EROSION CONTROL DEVICES (SEE EROSION CONTROL AND SOIL MANAGEMENT NOTES).
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WORK INVOLVING FRANCHISE UTILITIES WITH UTILITY OWNERS.
14. IF A TRAFFIC CONTROL PLAN HAS NOT BEEN PROVIDED BY THE ENGINEER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL INCLUDING THE USE OF ALL TRAFFIC CONTROL DEVICES USED TO WARN MOTORISTS OF THE CONSTRUCTION ACTIVITY. ALL TRAFFIC CONTROL MUST CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AS PUBLISHED BY THE TEXAS DEPARTMENT OF TRANSPORTATION.
15. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO AND THROUGHOUT CONSTRUCTION.
16. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN NEAT AND ACCURATE CONSTRUCTION RECORDS FOR THE OWNER/CITY'S USE. THE CONTRACTOR SHALL PROVIDE THE CITY & OWNER CLEAN AND ACCURATE FULL SIZE REPRODUCIBLE RECORD DRAWINGS WHICH CLEARLY DESCRIBE ALL CONSTRUCTION AND ANY DEVIATIONS FROM THE PLANS.
17. THE CONTRACTOR SHALL TAKE ALL AVAILABLE PRECAUTIONS TO CONTROL DUST. CONTRACTOR SHALL CONTROL DUST BY SPRINKLING WATER, OR BY OTHER MEANS THAT ARE APPROVED BY THE CITY AND ENGINEER.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED CONSTRUCTION SURVEYING, QUALITY CONTROL, AND MATERIALS TESTING.
19. ALL EFFORTS SHALL BE MADE TO AVOID DAMAGE TO EXISTING TREES THAT ARE TO REMAIN. TREES SHALL BE TRIMMED AND PAINTED ONLY IF NECESSARY FOR THE SAFE MANEUVERING OF CONSTRUCTION EQUIPMENT. CONTRACTOR SHALL REQUEST APPROVAL FROM THE OWNER FOR REMOVAL OF ANY TREES. WHEN EXCAVATING AROUND A TREE, THE ROOTS SHALL BE CLEAN CUT PRIOR TO ANY EXCAVATION WORK. DO NOT SNAG AND TEAR TREE ROOTS.
20. THE CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS AND SUBMITTALS REQUIRED TO BE SUBMITTED BY THE CONTRACT SPECIFICATIONS. ANY WORK PERFORMED OR MATERIALS USED THAT ARE REQUIRED TO BE SUBMITTED BUT HAVE NOT BEEN REVIEWED AND ACCEPTED BY THE OWNER'S REPRESENTATIVE SHALL NOT BE PAID FOR OR SHALL BE PAID FOR AT A REDUCED RATE. ALL SHOP DRAWINGS AND SUBMITTALS SHALL BE PROOFREAD AND REVIEWED BY THE GENERAL CONTRACTOR FOR APPROVAL PRIOR TO SUBMITTAL TO THE ENGINEER. SUBCONTRACTOR / GENERAL CONTRACTOR SHALL CLEARLY INDICATE, MARK, HIGHLIGHT, AND PROPERLY CLARIFY PRODUCTS TO BE CONSIDERED FOR APPROVAL. SUBMITTALS NOT PROOFREAD OR REVIEWED OR CLARIFIED PROPERLY SHALL BE RETURNED UNREVIEWED. CONTRACTOR SHALL RESUBMIT SHOP DRAWINGS AND ALLOW FOR SUITABLE REVIEW TIME. SUITABLE REVIEW TIME SHALL BE NO MORE TEN (10) WORKING DAYS.

Grading Plan Notes:

1. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE DISTURBED AREAS OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
2. NO ABRUPT CHANGE OF GRADE SHALL OCCUR IN THE DRIVEWAYS, PARKING AREAS OR SIDEWALKS.
3. UTILITIES SHOWN ON THE PLANS ARE FROM THE BEST INFORMATION SOURCES AVAILABLE AT THE TIME OF DESIGN BUT MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, TYPE, GRADE AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM THE PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS OWN EXPENSE.
4. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
5. ALL CONSTRUCTION AREAS WITHIN THE SITE SHALL BE STRIPPED OF VEGETATION AND LOOSE TOPSOIL. ANY POCKETS OF DEBRIS ENCOUNTERED SHOULD ALSO BE REMOVED.
6. REFER TO THE MOST RECENT GEOTECHNICAL REPORT FOR FILL COMPACTION AND MOISTURE CONTENT REQUIREMENTS.
7. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS (USE OF SILT FENCES, ETC.) TO KEEP DRAINAGE AND SILT FROM WASHING OFFSITE AND ONTO ADJACENT PROPERTY OR CROSSING ADJACENT STREETS. CONTRACTOR SHALL IMMEDIATELY REMOVE SILT/DEBRIS THAT WASHES OFFSITE OR INTO EXISTING STORM DRAIN SYSTEMS.
8. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC. WITHIN THE AREA OF CONSTRUCTION. THEY MUST BE ADJUSTED TO PROPERTY LINE AND GRADE BY THE CONTRACTOR PRIOR TO AND AFTER THE PALCEMENT OF PAVING AND GRADING AT NO ADDITIONAL COST TO THE OWNER.
9. SIDEWALKS SHALL HAVE A RUNNING SLOPE NOT GREATER THAN 5% AND A CROSS SLOPE NOT GREATER THAN 2%, UNLESS OTHERWISE NOTED.

Dimension Control Notes:

1. EXISTING TOPOGRAPHIC SURVEY AND LOCATION OF PHYSICAL FEATURES, BENCHMARKS, MONUMENTS, ETC. WERE OBTAINED FROM A TOPOGRAPHIC SURVEY PERFORMED BY **JQ ENGINEERING** DATED **08/28/2024**.
2. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND MAINTAINING ALL SIGNS, BARRICADES, AND LIGHTING OR WARNING DEVICE(S) USED/REQUIRED WITH THIS WORK.
4. ALL UNLABELED CURB RADII SHALL BE 2.0 FEET TYPICAL.
5. ALL DIMENSIONS ARE FROM EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.
6. ALL BUILDING DIMENSIONS ARE TO FACE OF BUILDING. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSION INFORMATION.
7. REFER TO LANDSCAPE ARCHITECT PLANS FOR DETAILS AND DIMENSIONS OF LANDSCAPE HARDSCAPE AREAS.

Erosion Control Plan Notes:

1. THE CONTRACTOR SHALL COMPLY WITH FEDERAL, STATE AND LOCAL REGULATIONS REGARDING STORM WATER DISCHARGE AND EROSION & SEDIMENT CONTROL.
2. FOR ALL EROSION CONTROL IN THE PUBLIC RIGHT-OF-WAY, CONTRACTOR SHALL MAKE REFERENCE TO THE CITY OF **08/28/2024** DETAILS AND/OR CONSTRUCTION MANUAL FOR ACCEPTABLE CONSTRUCTION CONTROL GUIDELINES AND DETAILS NOT PROVIDED.
3. EROSION CONTROL MEASURES MUST BE IN PLACE BEFORE BEGINNING SOILS DISTURBING ACTIVITIES.
4. CONTRACTOR TO PROVIDE ADDITIONAL EROSION CONTROL AREAS ON SITE THAT MAY NEED TO BE DISTURBED FOR LAY DOWN AREA, STAGING, ETC...

CONTROL POINT DETAILS

1.
"X" CUT SET
NORTHING=7143355.78
EASTING=2381271.26
ELEVATION=713.48'

2.
"X" CUT SET
NORTHING=7143165.62
EASTING=2381155.70
ELEVATION=711.81'

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shaping the built environment

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DALLAS, TEXAS 75201
972.393.7340
REGIST NO. 434351-66 TBPE FIRM 7986

04-01-2025

UNIVERSITY OF NORTH TEXAS DISCOVERY PARK D170 LAB FIT-OUT

3940 N Elm Street
Denton, TX 76207

UNT UNIVERSITY OF NORTH TEXAS

Issued For: ISSUE FOR CONSTRUCTION

Date: 04.01.2025

REVISIONS

NO	DESCRIPTION	DATE

C0.01

GENERAL NOTES

Treanor NO. HE0569.2402.00

GRAPHIC SCALE

0 10 20

(IN FEET)
1 inch = 10 ft.

LEGEND

- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- CANOPY - COVERED AREA
- CONCRETE SIDEWALK TO BE REMOVED
- CONTROL POINT
- BOLLARD POST
- CONDUIT
- CREPE MYRTLE
- SUPPORT POST
- ELECTRIC JUNCTION BOX
- IRRIGATION CONTROL VALVE
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- STORM SEWER/INLET LID
- SANITARY SEWER MANHOLE
- LIGHT POLE
- PVC POLYVINYL CHLORIDE PIPE
- RCP REINFORCED CONCRETE PIPE
- RD ROOF DRAIN
- EL ELEVATION

NOTES:

1. THE HORIZONTAL DATUM IS REFERENCED TO THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE (4202), NORTH AMERICAN DATUM 1983 (2011), BASED UPON GPS OBSERVATIONS OF THE ALLTERRA CENTRAL VIRTUAL REFERENCE NETWORK, EPOCH 2011.
2. ELEVATION ESTABLISHED BY GPS OBSERVATIONS OF THE ALLTERRA CENTRAL VIRTUAL REFERENCE NETWORK, NAV88, GEOID 18 (CONUS.)
3. THE SURFACE ADJUSTMENT FACTOR FOR THIS PROJECT IS 1.00015063. COORDINATES SHOWN ARE IN SURFACE.
4. FLOOD STATEMENT: THIS SITE IS SITUATED WITHIN NON-SHADED ZONE "X", (OUTSIDE AREAS OF 0.2% ANNUAL CHANCE FLOOD, MINIMAL FLOOD HAZARD), IN DENTON COUNTY, TEXAS, ACCORDING TO FEMA MAP NUMBER 48121C0220G, DATED APRIL 18, 2011. THIS STATEMENT DOES NOT IMPLY THAT THE PROPERTY AND/OR THE STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.
5. TREE SYMBOLS AND THEIR APPARENT DRIP LINES SHOWN HEREON ARE APPROXIMATE IN SIZE.
6. DATE OF SURVEY: AUGUST 2024

CONTROL POINT DETAILS

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STATE OF TEXAS
WILLIAM M. GIPSON
111707
LICENSED
PROFESSIONAL
SURVEYOR
04-01-2025

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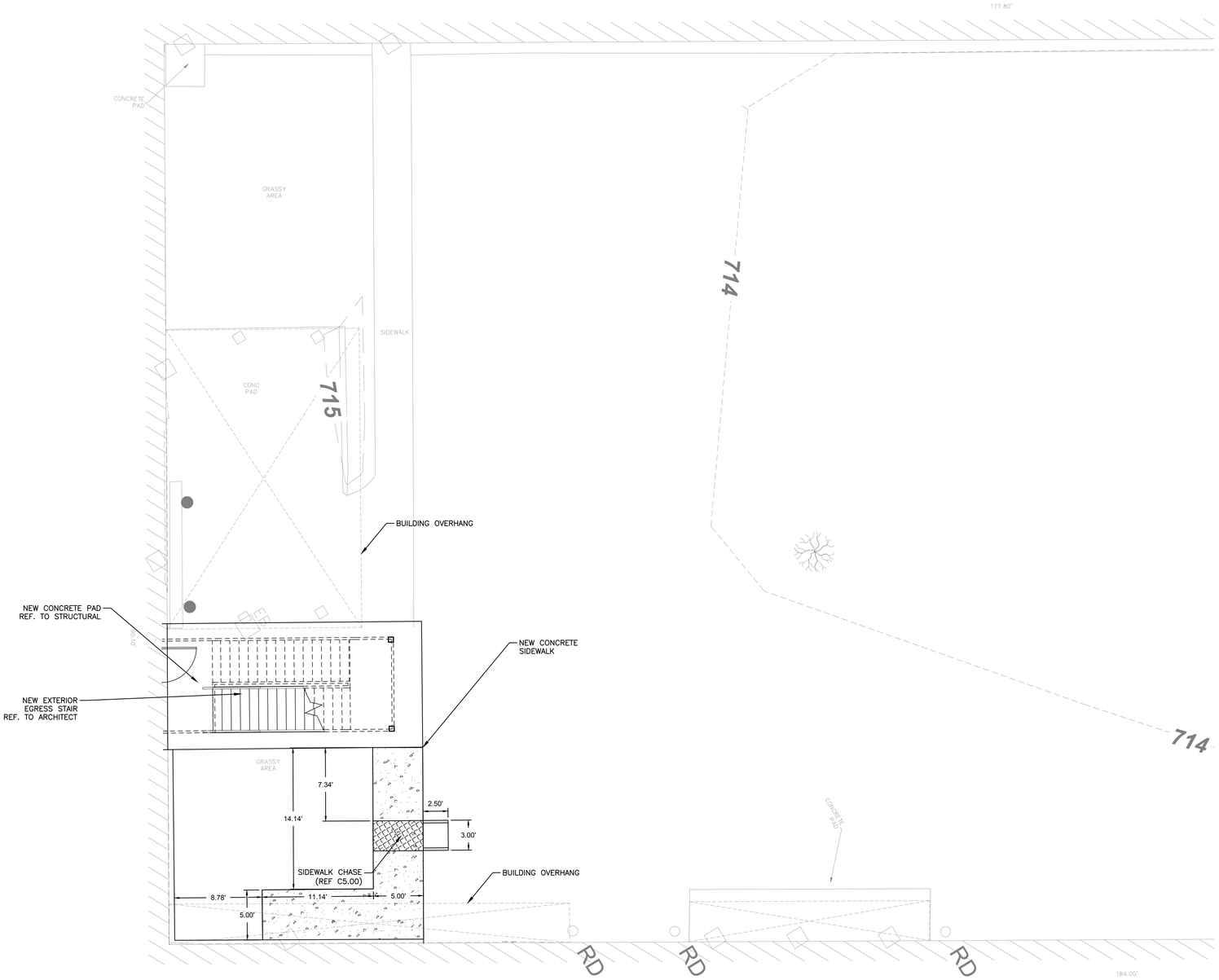
REVISIONS

NO	DESCRIPTION	DATE

C1.00

EXISTING CONDITIONS & DEMOLITION PLAN

Treanor NO. HE0569.2402.00



GRAPHIC SCALE

0 5 10

(IN FEET)
1 inch = 5 ft.

Site Plan Legend

- PROPOSED BUILDING
- EXISTING OR PROPOSED SIGN
- NEW 4" CONCRETE SIDEWALK
- FULL DEPTH SAWCUT

CONTROL POINT DETAILS

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STATE OF TEXAS
WILLIAM M. GIBBS
111707
LICENSED
PROFESSIONAL ENGINEER
04-01-2025

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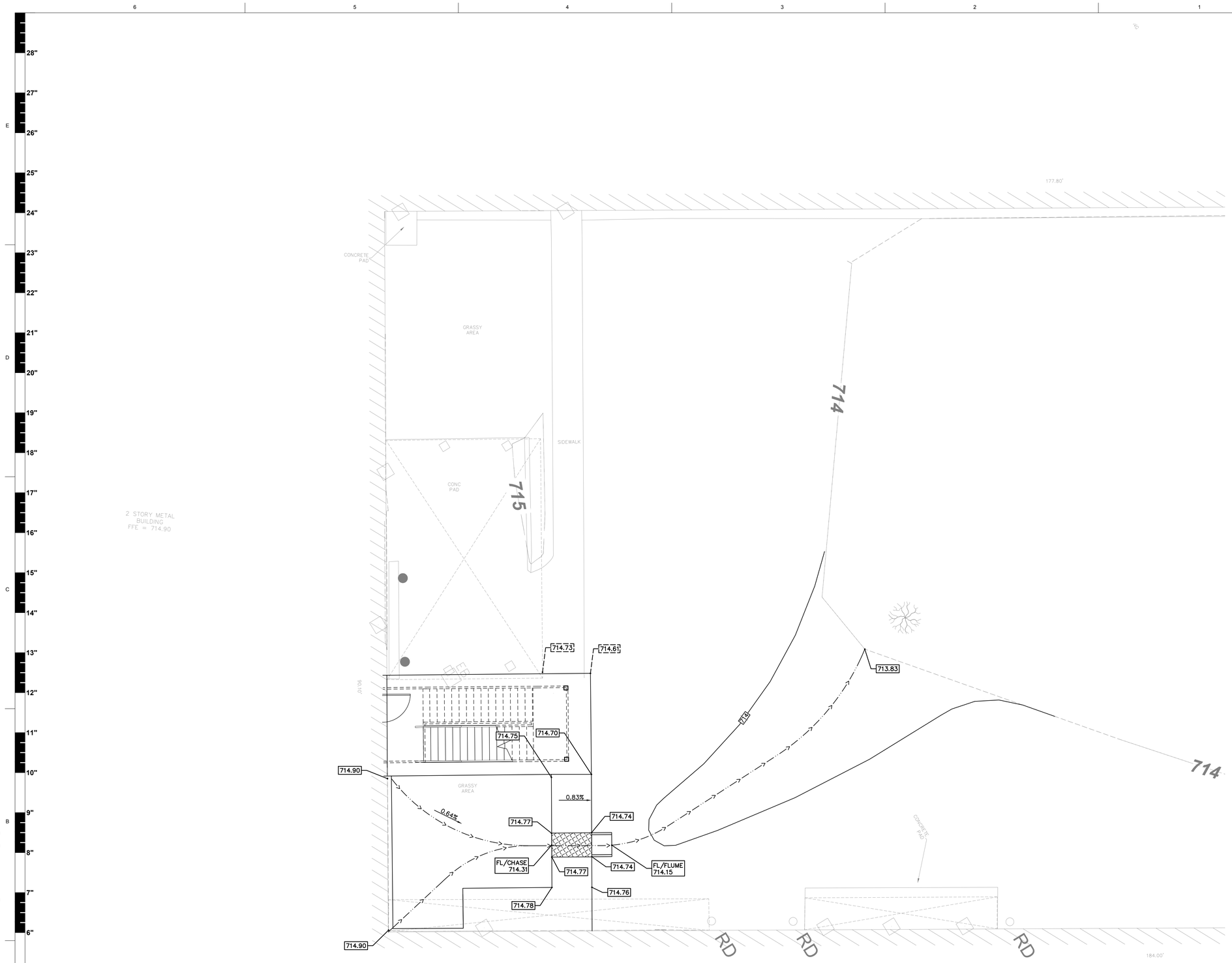
C2.00

ENGINEERING SITE PLAN

Treanor NO. HE0569.2402.00



GRAPHIC SCALE

0 5 10

(IN FEET)
1 inch = 5 ft.

Legend

	MATCH EXISTING AT SAWCUT
	SWALE/LOW POINT FLOW DIRECTION
	PROPERTY LINE (RIGHT-OF-WAY LIMITS)
478	EXISTING CONTOUR AND ELEVATION
478	PROPOSED CONTOUR AND ELEVATION
477.09	MATCH EXISTING ELEVATION
477.09	PROPOSED SPOT GRADE
TC	TOP OF CURB ELEVATION
G	GUTTER ELEVATION
TP	TOP OF PAVEMENT
TG	TOP OF GRATE
TOP	TOP OF STRUCTURE
TW	TOP OF WALL AT GRADE
BW	BOTTOM OF WALL AT GRADE
TS	TOP OF STAIR ELEVATION
BS	BOTTOM OF STAIR ELEVATION
BC	BUILDING CORNER AT GRADE
FF	FINISHED FLOOR ELEVATION
NG	NATURAL GRADE
H. P. / L. P.	ELEVATION HIGH POINT / ELEVATION LOW POINT
0.0%	% SLOPE/GRADE
	FLOW DIRECTION
N: #### E: ####	LOCATION BY **STATE PLANE COORDINATES**

CONTROL POINT DETAILS

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NO	DESCRIPTION	DATE

C3.00

GRADING PLAN

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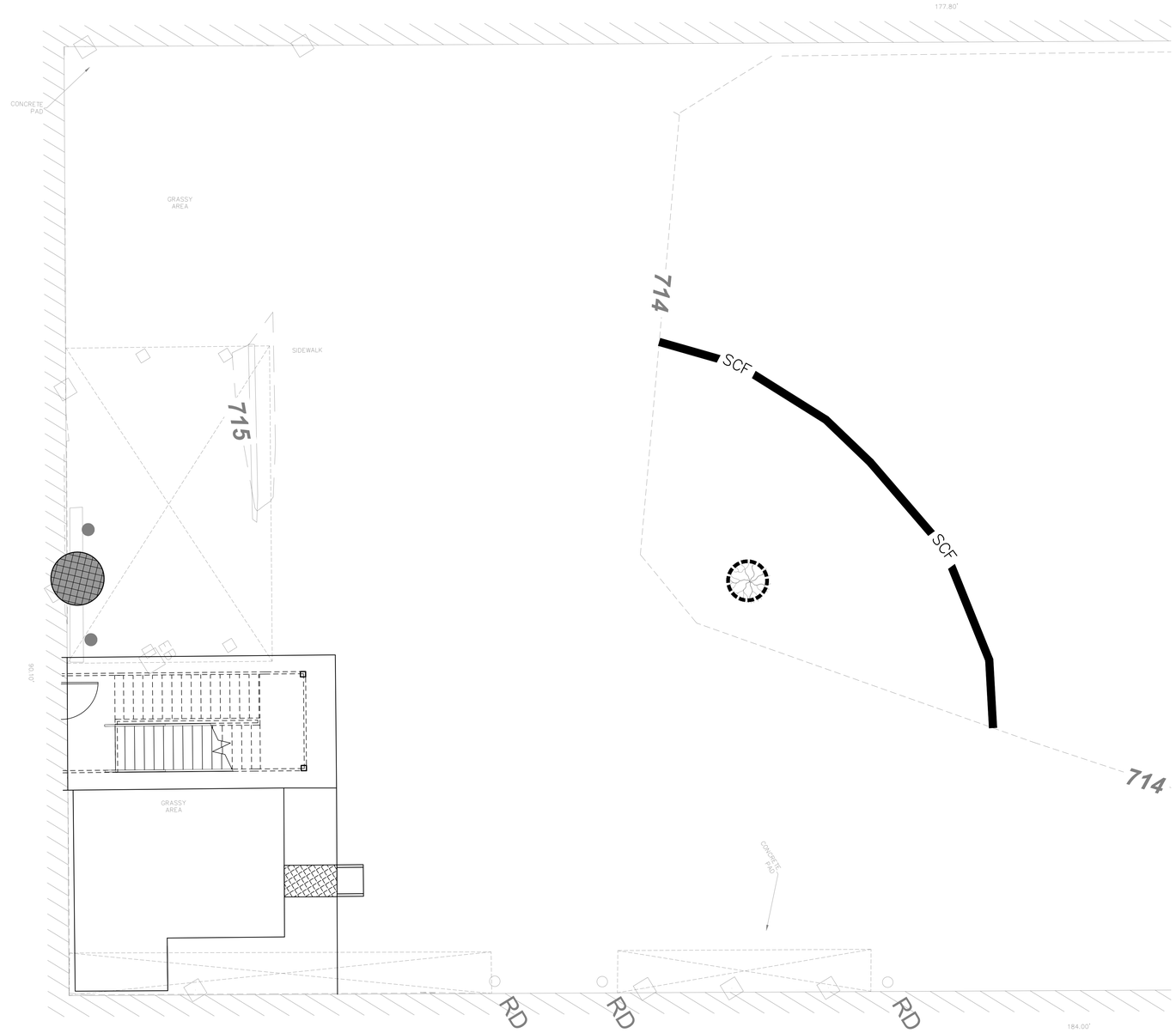

GRAPHIC SCALE

0 5 10

(IN FEET)
1 inch = 5 ft.

Legend

478	EXISTING CONTOUR AND ELEVATION
478	PROPOSED CONTOUR AND ELEVATION
SCF	SILT FENCE **(SEE DETAIL 02/C05.00)**
	INLET PROTECTION **(SEE DETAIL 03/C05.00)**
	TREE PROTECTION **(SEE DETAIL 06/C05.00)**

Note

1. CONTRACTOR TO LOCATE CONSTRUCTION ENTRANCE PER DETAIL 01 ON C05.00

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Denton, TX 76207

UNT UNIVERSITY OF NORTH TEXAS

Issued For: ISSUE FOR CONSTRUCTION

Date: 04.01.2025

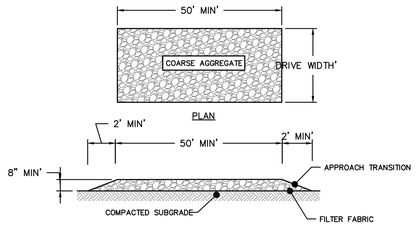
REVISIONS

NO	DESCRIPTION	DATE

C4.00

EROSION CONTROL PLAN

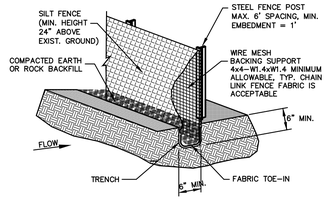
Treanor NO. HE0569.2402.00



CONSTRUCTION ENTRANCE NOTES

1. UNTIL PERMANENT PAVEMENT HAS BEEN PLACED WITHIN DESIGNATED CONSTRUCTION ENTRANCE AREA, CONTRACTOR SHALL PROVIDE AGGREGATE BASE AS PER THIS DRAWING.
2. STONE SIZE: 3" TO 5" OPEN GRADED ROCK; LENGTH: AS EFFECTIVE BUT NOT LESS THAN 50 FEET IN LENGTH.
3. FILTER FABRIC INSTALLED PRIOR TO INSTALLATION OF ROCK, ON TOP OF EXISTING SOIL OR COMPACTED BASE MATERIAL.
4. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, WATERCOURSE OR ROADWAY USING APPROVED METHODS.
5. MAINTENANCE: THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO A PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENT THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
6. DRAINAGE: EXIT MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
7. LOCATION OF SEDIMENT BASIN TO BE DETERMINED BY SLOPE OF AREA WHERE STABILIZED EXIT IS LOCATED, TO BE INSTALLED DOWNSTREAM OF STABILIZED CONSTRUCTION ENTRANCE.

01 CONSTRUCTION ENTRANCE
N.T.S.

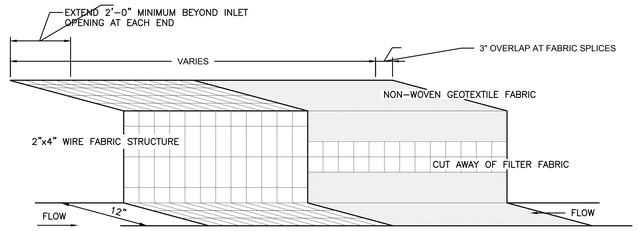


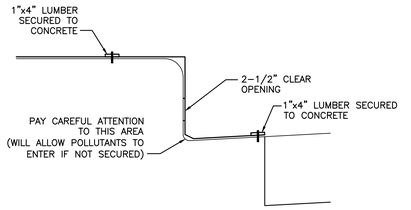
ISOMETRIC PLAN VIEW

SILT FENCE GENERAL NOTES

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE MADE EVERY TWO WEEKS AND AFTER EACH 1/2" RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

02 SILT FENCE INSTALLATION
N.T.S.

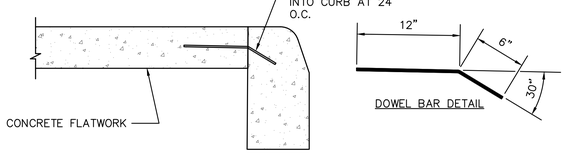




NOTES:

1. WHERE MINIMUM CLEARANCES CAUSE TRAFFIC TO DRIVE IN THE GUTTER, USE 1"x4" LUMBER SECURED WITH CONCRETE NAILS 3' O.C. NAILED INTO THE CONCRETE. IF PEDESTRIAN TRAFFIC ONLY THE USE OF 20# GRAVEL BAGS TO SECURE MATERIAL IS PERMITTED.
2. SECTIONS OF FILTER FABRIC SHALL BE REMOVED AS SHOWN IN THIS DETAIL. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
3. DAILY INSPECTION SHALL BE MADE SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
4. THE PERFORMANCE OF THE INLET PROTECTION SHALL BE MONITORED DURING EACH RAINFALL EVENT AND PROTECTION SHALL BE IMMEDIATELY REMOVED IF STORMWATER BEGINS TO OVERTOP THE CURB.
5. INLET PROTECTION SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

03 CURB INLET PROTECTION DETAIL
N.T.S.



CONCRETE CURB/CONCRETE FLATWORK JUNCTION
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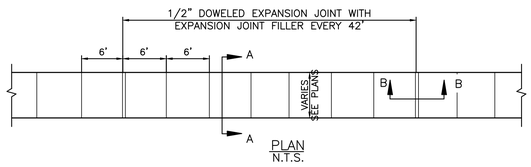

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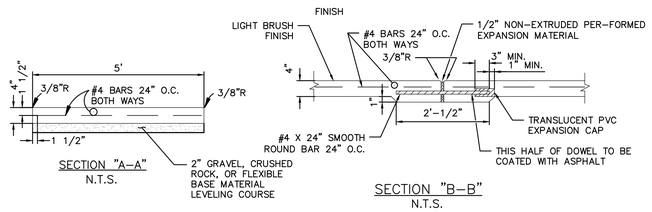

NOTE:

1. CROSS SLOPE OF SIDEWALK SHALL BE 1:50 MAXIMUM.
2. SEE PLANS FOR WIDTH.
3. SIDEWALK SHALL BE 4" 3000 PSI CONCRETE UNLESS OTHERWISE SPECIFIED BY OWNER.
4. ALL HONEYCOMB IN BACK OF CURB TO BE TROWEL-PLASTERED BEFORE POURING SIDEWALK.
5. LUG MAY BE FORMED BY SHAPING SUBGRADE TO APPROXIMATE DIMENSIONS SHOWN.
6. DOWEL INTO EXISTING SIDEWALK WITH NO.4 X 24" ON CENTER.
7. REFERENCE LANDSCAPE DRAWINGS FOR ADDITIONAL INFORMATION.
8. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
9. ALL JOINTS TO BE SEALED.

04 REINFORCED CONCRETE SIDEWALK
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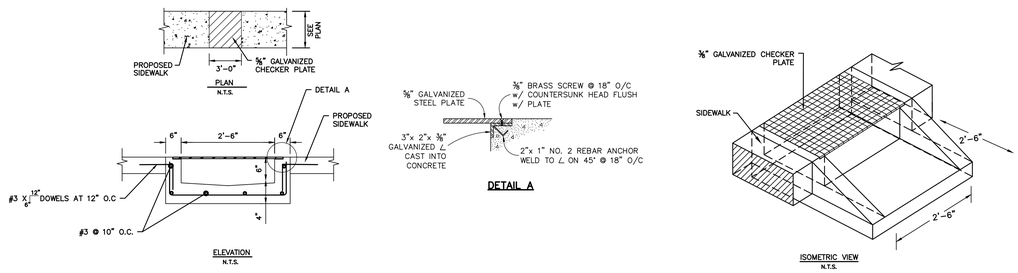

05 SIDEWALK CHASE DETAIL
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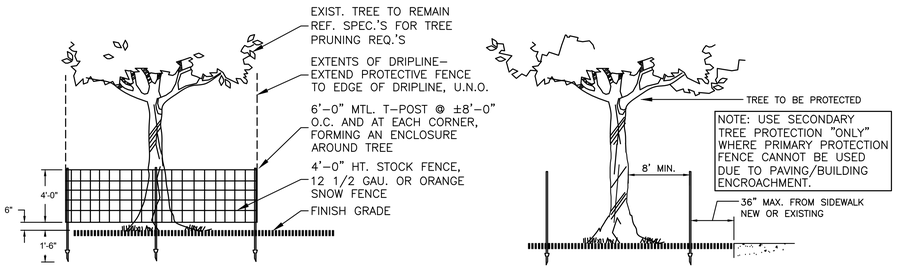

06 TREE PROTECTION
N.T.S.

TREANOR
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shaping the built environment
JQ INFRASTRUCTURE, LLC
325 GUS ETHRIDGE, SUITE 200, 972.363.7340, DALLAS, TEXAS 75201
REGIST NO. 4340166, TBPE FIRM 7986

04-01-2025

UNIVERSITY OF NORTH TEXAS
DISCOVERY PARK D170 LAB FIT-OUT
3940 N Elm Street
Denton, TX 76207

UNT UNIVERSITY OF NORTH TEXAS

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CIVIL DETAILS

Treanor NO. HE0569.2402.00

S T R U C T U R A L N O T E S

COORDINATION:

A. The contractor shall compare the architectural, structural, mechanical, electrical, plumbing, and other series drawings and report any discrepancies between each set of drawings and within each set of drawings prior to fabrication and installation of any structural members.

B. Only larger sleeve openings and framed openings in structural framing component members are indicated on the structural drawings. However, all sleeves, inserts and openings, including frames and/or sleeves shall be provided for passage, provision and/or incorporation of the work of the contract, including but not limited to mechanical, electrical and plumbing work. This work shall include the coordination of sizes, alignment, dimensions, position, locations, elevations and grades as required to serve the intended purpose. Openings not indicated on the structural drawings, but required as noted above, shall be submitted to the engineer for review.

C. Refer to architectural, mechanical, electrical and plumbing drawings for floor elevations, slopes, drains and location of depressed and elevated floor areas.

D. Compatibility of the structure and provisions for building equipment supported on or from structural components shall be verified as to size, dimensions, clearances, accessibility, weights and reaction with the equipment for which the structure has been designed prior to submission of shop drawings and data for each piece of equipment and for structural components. Differences shall be noted on the submittals.

E. Shop drawings shall be prepared for all structural items and submitted for review by the engineer. Structural drawings shall not be reproduced and used as shop drawings. All items deviating from the structural drawings or from previously submitted shop drawings shall be clouded.

F. The details designated as "typical details" apply generally to the structural drawings in all areas where conditions are similar to those described in the details.

G. All dimensions and conditions of existing construction shall be verified at the job site prior to the preparation of shop drawings. Differences between existing construction and that shown on the structural drawings shall be referred to the architect. Differences shall also be clouded on the shop drawings.

H. All structural elements of the project have been designed by the engineer to resist the required code vertical and lateral forces that could occur in the final completed structure only. It is the responsibility of the contractor to provide all required bracing during construction to maintain the stability and safety of all structural elements during the construction process until the lateral-load resisting or stability-providing system is completely installed and the structure is completely tied together. Temporary supports shall not result in the overstress or damage of the elements to be braced nor any elements used as brace supports.

I. The contract structural drawings and specifications represent the finished structure, and except where specifically shown, do not indicate the means or methods of construction. The contractor and their sub-contractors shall supervise and direct the work and shall be solely responsible for all construction means, methods, procedures, techniques, sequences and safety measures including, but not limited to, adherences to all osha guidelines. The engineer shall not have control of, and shall not be responsible for, construction means, methods, techniques, sequences or procedures, for safety precautions and programs in connection with the work, for the acts or omissions of the contractor, subcontractors, or any other person performing any of the work, or for the failure of any of these persons to carry out the work in accordance with the structural contract documents.

J. Where conflict exists among the various parts of the structural contract documents, structural drawings, general notes, and specifications, the strictest requirements, as indicated by the engineer, shall govern.

K. Periodic site observation by field representatives of JQI is solely for the purpose of determining if the work is proceeding in accordance with the structural contract documents. This limited site observation is not intended to be a check of the quality or quantity of the work, but rather a periodic check in an effort to inform the owner against defects and deficiencies in the work of the contractor.

CODES & REFERENCED REPORTS:

A. The General Building Code used as the basis for the structural design is as follows:

1. International Building Code, 2021 Edition
2. International Existing Building Code, 2021 Edition

B. Structural Concrete: Building Code Requirements for Reinforced Concrete, American Concrete Institute, ACI 318, as referenced by the General Building Code.

C. Structural Steel: Manual of Steel Construction, American Institute of Steel Construction Inc., ANSI/AISC 360, as referenced by the General Building Code.

D. Geotechnical Report: Foundation elements have been designed in accordance with information provided in the following geotechnical report:

Geotechnical engineer:	UES
Report Number:	W243611-rev1
Date:	02.19.25

DESIGN LOADS:

A. Dead Loads include the self-weight of the structural elements and the following superimposed loads:

1. Ceiling and Mechanical at roof	10 psf
2. Ceiling and Mechanical at floors	5 psf
3. Roofing and rigid insulation	8 psf

B. Live Loads

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATE (lbs.)
1. Floors, Typical Unless Noted Otherwise	100	N/A
2. Mechanical rooms, typical	150	Equip. Wt
3. Roof - Unreduced (see Note 1)	20	N/A
4. Stairs and exits	100	300

Notes:
a. The roof structure has additionally been designed to support the weight of ponded water in accordance with AISC.
b. Notify Architect if the final roof slope is less than 1/4"per foot. Elevation difference between primary and overflow drains or scuppers shall not exceed 2".

C. Live Load Reduction
1. Floor live loads have been reduced in accordance with the General Building Code as follows:
a. The reduced Live Load has been taken as the Unreduced Live Load multiplied by (0.25 + 15/sqrt(Kll*At)) where Kll and At are the Live Load Element factor and Tributary area respectively and determined per Section 1607.9 of the General Building Code.

D. Snow loads
1. Ground snow load, Pg 5 psf

DESIGN LOADS (CONTINUED):

E. Wind loads
1. Wind lateral load on structural frame is based on ASCE 7-16 using the following:

a. Ultimate Design Wind Speed Vult	112 mph
b. Nominal Design Wind Speed Vasd	91 mph
c. Exposure	C
d. Internal Pressure Coefficient, Gcpi	+/-0.18
e. Risk Category	III

2. Components and cladding wind pressures:

Surface	(PSF)	Zone	Area At (ft2)
Exterior walls	+30.5	Interior and edge	10 or less
	-33.1	Interior	10 or less
	-40.7	Edge	10 or less
	+22.9	Interior and edge	500 or greater
	-25.4	Interior	500 or greater
	-25.4	Edge	500 or greater

- Pressures for Tributary Areas in between the listed values may be linearly interpolate
- Negative value signifies pressure acting away from the surface (suction).
- Edge and Corner zone distances shall be determined in accordance with referenced standard.
- Pressures on parapets shall be determined by combining positive and negative wall pressures or wall and roof pressures listed above in accordance with the referenced standard.
* Pressures are for gross uplift conditions.

F. Seismic Loads
1. The structure and structural components of the building have been designed in accordance with General Building Code with the following criteria:

a. Seismic Importance Factor, IE	1.25
b. Risk Category	III
c. Mapped Spectral Response Accelerations	
i. Ss	.123
ii. S1	.058
d. Site Class	C
e. Spectral Response Coefficients	
i. SDS	.107
ii. SD1	.058
f. Seismic Design Category	A
g. Basic Seismic-force-resisting system	
Steel System Not Specifically Detailed for Seismic Resistance	
h. Design Base shear, V	.01W
i. Seismic Response Coefficient(s), Cs	.01
j. Response Modification Factor(s), R	3
k. Analysis Procedure Used	ELF

G. Mechanical Equipment Loads
1. Loading for mechanical rooms are based on the weights of equipment and concrete pads as indicated on the Structural Drawings. The Contractor shall submit actual weights of equipment to be used in the project to the Structural Engineer for verification of loads used in the design at least three weeks prior to fabrication and construction of the supporting structure. Any revisions in equipment type, size, or quantity shall be reported to the Architect immediately for verification of the structural design.

BUILDING MOVEMENTS:

A. The building movements specified herein are anticipated to occur and shall be taken into account by the Contractor in the design, detailing, and installation of the building elements.

B. Spandrel beam deflections: Provisions shall be made in the building cladding for relative floor to floor vertical deflections of L/360.

C. Interior floor/roof deflections: Provisions shall be made in interior partitions and other elements supported by or attached to the floors or roofs for relative floor to floor vertical deflections of 1-inch.

D. Lateral building drift: Provisions shall be made in building cladding and other architectural finishes for relative floor to floor lateral deflections of story height/400.

BUILDING PAD PREPARATION WITH CHEMICAL INJECTION (EXTERIOR STAIR):

A. Non-expansive fill shall consist of either Select fill material or Flexible base material. Select fill shall have a plasticity index between 4 and 15, a liquid limit less than 35, and contain no more than 0.5 percent fibrous organic materials, by weight. Flexible base shall consist of material meeting the requirements of TxDOT Standard Specifications Item 247, Type A, B, C, or D, Grade 1-2 or 3.

B. Prior to placing fill material, remove all organic and other deleterious material from the existing subgrade for a distance of 3' 0" beyond building line. Remove additional material as required to place a minimum of 2 feet of non expansive fill material beneath the building slab.

C. Prior to placing non expansive material, the building pad shall be chemically injected to a depth of at least 10 feet. Chemical injection of the on-site soil shall extend throughout the entire building pad area, at least 5 feet beyond the perimeter of the building and below adjacent flatwork for which it is desired to reduce movements. At building entrances and outward swinging doors, chemical injection shall extend at least 10 feet beyond the building perimeter. If flatwork or paving is not planned adjacent to the structure (i.e. above the chemically injected soils), a moisture barrier consisting of a minimum of 10 mil plastic sheeting with 8 to 12 inches of soil cover shall be provided above the chemically injected soils. Chemically injected soils shallbe maintained in a moist condition prior to placement of the required non-expansive material or flatwork. The chemical injection contractor shall verify if plastic sheeting is required for maintenance of long term performance of chemical injection.

D. Chemical injection consists of injecting the clayey soils with a proprietary chemical specifically formulated for long-term reduction of shrink-swell capacity in expansive clayey soils. Appropriate documentation from the manufacturer indicating the chemical is environmentally safe and long lasting (effective for 10 years or more) is required. Verification that the chemical solution will not heave adjacent structures as a result of the injection process shall be obtained. Chemical injection proposals shall only be considered from contractors whose chemicals and processes have been studied to be effective by a major U.S. research University. Satisfactory completion of the injection process will have been achieved when the desired allowable percent free swell has been achieved in the injected soils. In order to reduce overall building pad movements to about 1 inch, the resulting measured free swell of the injected material shall not exceed 1 percent. Multiple passes with chemical injection may be required to meet this requirement. The performance of post-injection free swell testing by the project geotechnical engineer shall be employed as acceptance criteria in engineering analysis to examine accomplishment of the intended objectives of the injection treatment. Chemical injection contractor shall provide chemical injection process including acceptance criteria and warranties.

E. Select fill shall be placed in 8 inch loose lifts to final subgrade elevation, watered as required and compacted to a minimum of 95 percent of the maximum dry density as defined in ASTM D698 at a moisture content within the range of 1 percentage point below to 3 percentage points above the optimum moisture content. Flexible base shall be placed in 8 inch loose lifts to final subgrade elevation, watered as required and compacted to at least 95 percent of the maximum dry density as defined in ASTM D698 at a moisture content within the range of 2 percentage points below to 2 percentage points above the optimum moisture content.

F. Compaction and moisture content of subgrade and each lift of select fill shall be inspected and approved by a qualified engineering technician, supervised by a Geotechnical Engineer.

G. Non-expansive material shall not be placed beyond the limits of the exterior building structure.

H. Provide a vapor retarder that conforms to ASTM E1745, Class A or better with a maximum water vapor permeance of 0.03 [0.01] perms per ASTM E96. Vapor retarder shall be no less than 10 [15] mils thick.

I. The above recommendations have been prepared in accordance with the referenced geotechnical report.

CAST-IN-PLACE CONCRETE

A. CONCRETE MIX USAGE SCHEDULE:
All concrete shall conform to the requirements as specified in the table below, unless noted otherwise on the Structural Drawings:

Use	Strength psi	Agg. Type	Agg. Size	Max w/c	Exposure Class
Exterior Slab-on-Grade	4500	NWT	1"	0.45	F2
Exterior Equipment Pads	4500	NWT	1"	0.45	F2
Slab on Composite Metal Deck	4000	NWT	1"	----	F0
Topping Slabs and Housekeeping Pads	3000	NWT	1"	----	F0

1. "NWT" refers to normal concrete having air dry unit weight of approximately 145 PCF (ASCE C33 aggregate)
2. The w/c ratio shall be selected by the concrete provider to meet the strength requirements and shall not exceed w/c ratio = 0.55. Where the maximum w/c ratio is indicated in the table above, it shall not be exceeded.
3. "Strength" is required compressive cylinder strength at an age of 28 days.
4. Concrete slump for all floor slabs shall be between 4" - 6" slump.
5. Concrete slump shall be selected by concrete provider to meet strength requirements and workability required for the concrete placement. Slump shall not exceed 9" for any mix and meet the requirements of the ACI.

B. A maximum of 20% of the cementitious materials used in mix designs may be replaced with class C or F fly ash.

C. Provide 6 percent plus or minus 1 1/2 percent of entrained air in concrete permanently exposed to the weather and elsewhere at the contractor's option.

D. Horizontal construction joints in concrete placements shall be permitted only where indicated on the Structural Drawings. All vertical construction joints shall be made in the center of spans in accordance with the typical details. Contractor shall submit proposed locations for construction joints not shown on the Structural Drawings for review by the Architect and Engineer. Additional construction joints may require additional reinforcing as specified by the Engineer which shall be provided by the contractor at no additional cost to the owner.

E. Embedded conduits, pipes, and sleeves shall meet the requirements of ACI 318, Section 26.8, including the following:
1. Conduits and pipes embedded within a slab, wall, or beam (other than those passing through) shall not be larger in outside dimension than 1/3 the overall thickness of the slab, wall or beam in which they are embedded.
2. Conduits, pipes and sleeves shall not be spaced closer than three diameters or widths on center.

F. Concrete sampling for quality assurance: Concrete that is pumped shall be sampled at the point of discharge from the truck for information, including slump; and shall be sampled at the point of placement for acceptance of slump and air content.

CONCRETE REINFORCING:

A. Concrete reinforcement for the project shall conform to the following:
1. All reinforcing steel shall be new billet steel in accordance ASTM A615, Grade 60, unless noted otherwise in the Structural Drawings or these notes.
2. Welded Reinforcing Steel. Provide reinforcing steel conforming to ASTM A706
3. Deformed Bar Anchors. ASTM A1064 minimum yield strength 70,000 psi as noted on the Structural Drawings. Reinforcing bars shall not be substituted for deformed bar anchors.
4. Welded wire reinforcement. Welded smooth wire reinforcement, ASTM A1064, yield strength 65,000 psi where noted on the Structural Drawings. Welded deformed wire reinforcement, ASTM A1064, yield strength 70,000 psi where noted on the Structural Drawings. Welded wire reinforcement to be provided in flat sheets.

B. Detailing of reinforcing steel shall conform to the American Concrete Institute 315 Detailing Manual and all hooks and bends in reinforcing bars shall conform to ACI detailing standards, unless noted otherwise on the Structural Drawings.

C. Welded Wire Reinforcement shall be continuous across the entire concrete surface and not interrupted by beams or girders and properly lapped one cross wire spacing plus 2".

D. Reinforcement in Housekeeping Pads shall be welded smooth wire reinforcement 6 x 6 W2.9 x W2.9 minimum in all housekeeping pads supporting mechanical equipment whether shown on the Structural Drawings or not unless heavier reinforcement is called for on the Structural Drawings.

E. In unscheduled grade beams, walls, and slabs, detail reinforcing as follows:
1. Class A lap beam top reinforcing bars at mid span.
2. Class A lap beam bottom reinforcing bars at the supports.
3. Provide Class B lap at other location pending Engineer's approval.
4. Provide standard hooks in top bars at cantilever and discontinuous ends of beams, walls and slabs.
5. Provide corner bars for all horizontal bars at the inside and outside faces of intersecting beams or walls. Corner bars are not required if horizontal bars are hooked.
6. Provide 2-#4 diagonal bars at all slab re-entrant corners placed under the top mat of steel.

F. Welding of reinforcing steel will not be permitted unless specifically shown on the Structural Drawings.

G. Heat shall not be used in the fabrication or installation of reinforcement.

H. Reinforcing steel clear cover shall be as follows:

1. Slab-on-Grade	1" top; 3" bottom

POST-INSTALLED ANCHORS AND DOWELS

A. Mechanical Anchors:
Note: Hilti products listed below shall be considered as basis of design, unless noted otherwise. Additional anchors listed below may be utilized if officially requested as a substitution by the Contractor and approved by JQI/IMEG for the specific applications. If a substitution request is submitted, the anchor size and/or spacing is subject to change. Additional cost for design services may apply.
1. Expansion Anchors:
a. In Concrete: Expansion Anchors shall have been tested and qualified in accordance with ACI 355.2 and ICC-ES AC 193. Qualifying anchors shall be one of the following:
1. Kwik Bolt TZ2 (ICC-ES ESR-4266), Hilti Inc.
2. Strong Bolt 2 (ICC-ES ESR-3037), Simpson Strong-Tie Co., Inc.
3. Power-Stud+SD2 (ICC-ES ESR-2502), DEWALT
b. Expansion anchors shall be installed per manufacturer's printed instructions using a calibrated torque-wrench, Hilti SI-AT-A22 Tool with Adaptive Torque, or method approved by ICC-ES Evaluation Report and approved by JQI/IMEG.
2. Screw Anchors:
a. In Concrete: Screw Anchors shall have been tested and qualified in accordance with ACI 355.2 and ICC-ES AC 193. Qualifying anchors shall be one of the following:
1. Kwik HUS-EZ, CRC, or SS (ICC-ES ESR-3027), Hilti Inc.
2. Titen HD (ICC-ES ESR-2713), Simpson Strong-Tie Co., Inc.
3. Screw Bolt+ (ICC-ES ESR-3889), DEWALT
b. In Grouted Masonry: (Installation permitted in both the top and face of wall) Screw Anchors shall have been tested and qualified in accordance with ICC-ES AC 106. Do not install anchors within 1 1/2" of a head joint, notify JQ if conflict occurs. Qualifying anchors shall be one of the following products:
1. Kwik HUS-EZ and HUS-EZ P (ICC-ESR-3056), Hilti Inc.
2. Titen HD (ICC-ES ESR-1056), Simpson Strong-Tie Co., Inc.
3. Screw Bolt+ (ICC-ES ESR-4042), DEWALT
3. Powder-Actuated Fasteners:
a. In Concrete: Powder-Actuated Fasteners shall have been tested and qualified in accordance with ICC-ES AC 70. Qualifying anchors shall be one of the following:
1. X-U (ICC-ES ESR-2269), Hilti Inc.
2. PDPA (ICC-ES ESR-2138), Simpson Strong-Tie Co., Inc.
3. 0.3" Ø Head Drive (ICC-ES ESR-2024), DEWALT

B. Adhesive Anchors:
Note: Hilti anchor rods & Hilti acrylic (epoxy) adhesive products listed below shall be considered as basis of design, unless noted otherwise. Additional anchors listed below may be utilized if officially requested as a substitution by the Contractor and approved by JQI/IMEG for the specific applications. If a substitution request is submitted, the anchor size and/or spacing is subject to change. Additional cost for design services may apply.
1. Adhesive Anchors with Threaded Rod:
a. In Concrete: Adhesive Anchors shall have been tested and qualified in accordance with ACI 355.4 and ICC-ES AC 308. Qualifying anchors shall be one of the following products, unless specifically noted otherwise on structural drawings:
1. Acrylic: HIT-HY 200 V3 SAFESET (-A\-R) (ICC-ES ESR-4878), Hilti Inc.
2. Acrylic: AT-3G (ICC-ES ESR-5026), Simpson Strong-Tie Co., Inc.
3. Acrylic: AC 200+ (ICC-ES ESR-4027), DEWALT
b. In Grouted Concrete Masonry: (Installation permitted in both the top and face of wall) Adhesive Anchors shall have been tested and qualified in accordance with ICC-ES AC 58. Qualifying anchors shall be one of the following:
1. Acrylic: HIT HY-270 SAFESET (ICC-ES ESR-4143), Hilti, Inc.
2. Epoxy: SET-3G (ICC-ES ESR-4844), Simpson Strong-Tie Co., Inc.
3. Acrylic: AC 100+Gold (ICC-ES ESR-3200), DEWALT
c. In Ungrouted Concrete Masonry with mesh screen tube:
1. Acrylic: HIT HY-270 (ICC-ES ESR-4143), Hilti, Inc.
2. Acrylic: AC 100+Gold (ICC-ES ESR-4105), DEWALT
3. Epoxy: SET-3G (ICC-ES ESR-4844), Simpson Strong-Tie Co., Inc.
d. Threaded anchor rod shall be one of the following:
1. Hilti adhesive: "HAS-V-36" (u.n.o), "HAS-E-55", "HAS-B-105" ASTM F1554 Threaded Rods
2. Simpson adhesive: Steel meeting the requirements of ASTM F1554, grade 36.
3. DEWALT adhesive: Steel meeting the requirements of ASTM A1554, grade 36.
4. Anchor rod shall have a chamfered end on one end to accept a nut and washer; it may have a 45-degree chisel point on the other end.
5. Nuts and washers shall have a proof load strength at least as strong as anchor rod. Stainless steel nuts and washers shall be provided with stainless steel rods.
2. Adhesive Rebar Dowelling:
a. Adhesive dowels are not permitted to be substituted for cast-in dowels unless authorized in advance by JQ for each specific location.
b. Adhesive doweling systems in concrete shall have been tested and qualified in accordance with ACI 355.4 and ICC-ES AC 308. Qualifying anchors shall be one of the following products, unless specifically noted otherwise on structural drawings:
1. Acrylic: HIT-HY 200 V3 SAFESET (-A\-R) (ICC-ES ESR-4878), Hilti, Inc.
2. Acrylic: AT-3G (ICC-ES ESR-5026), Simpson Strong-Tie Co., Inc.
3. Acrylic: AC 200+ (ICC-ES ESR-4027), DEWALT

C. Anchor and Dowel Installation Requirements
1. Anchors and dowels of the size and embedment shown on the Drawings shall be installed in accordance with the Contract Documents, the manufacturer's recommendations, and the manufacturer's current evaluation (ICC-ES or IAPMO-UES) report for the anchor. If conflicts exist between these referenced documents, the most stringent requirements shall govern.
2. The Contractor shall locate all existing reinforcing steel and other embedded items contained in the concrete using non-destructive methods and shall position anchor locations to avoid conflicts with existing embedded items. Anchor or dowel locations can be adjusted by a maximum of 1 1/2" from detailed locations to avoid conflicts, but shall neither change arrangement nor move closer to a concrete edge.
3. Based on field verified locations of reinforcing steel and embedded items, the Contractor shall create templates for each anchor group. Submit template dimensions for review prior to fabrication of connection plates.
4. Holes for anchors and dowels shall be drilled in a continuous operation using the drill-bit type and size recommended by the anchor manufacturer. Holes shall be drilled perpendicular to the concrete surface and shall not be enlarged or redirected at any point along its length. Holes shall be drilled using a hamme drill, coring shall not be allowed, unless noted otherwise.
5. Oil free compressed air shall be used to blow out the holes unless one of the approved systems noted below is utilized. Unapproved shop vacs, squeeze bulbs, etc. shall NOT be used. Refer to manufacturer's information for detailed cleaning instructions.
a. Hilti SAFESET system with Hilti Hollow Drill Bit and Vacuum System (VC150 or VC300) may be used to eliminate hole cleaning with adhesive anchors.
b. Simpson Speed Clean DXS system may be used to eliminate manual hole cleaning with adhesive anchors.
c. DEWALT Dust X system with hollow drill bit may be used to eliminate manual hole cleaning with adhesive anchors.
6. All abandoned holes shall be filled with non-metallic nonshrink grout capable of reaching a design compressive strength of 5,000 psi at 28 days.
7. Holes in connection plates shall be no more than 1/16" larger than the anchor diameter for 3/4" diameter anchors or less and holes in connection plates shall be no more than 1/8" larger than the anchor diameter for 1" diameter anchors or larger; Unless specified otherwise by the manufacturer. If larger holes are required for erection purposes, Contractor shall notify Engineer such that a plate washer size can be provided.
8. At the time of anchor installation, concrete shall have a minimum compressive strength of 2500 psi and an age of 21 days.
9. The following parameters were used in the determination of the bond stress for adhesive anchors. Contractor shall notify JQI/IMEG if any of these parameters are not met:
a. Drilled hole condition: Dry
b. No diamond core drilling
c. Substrate temperature range at the time of installation and conditioned per manufacturer requirements:

Concrete Anchors	Minimum (°F)	Maximum (°F)
Hilti HIT RE-500V3	23	104
HIT-HY 200 V3 (-A\-R)	14	104
Simpson SET-3G	40	100
Simpson AT-3g	23	104
DEWALT Pure 110+	41	104
DEWALT AC 200+	23	104

Masonry Anchors	Minimum (°F)	Maximum (°F)
Hilti HY-270	23	70
Simpson SET-3g	40	100
DEWALT AC 100+	14	70

d. Maximum short term substrate temperature after installation = 130°
e. Maximum long term substrate temperature after installation = 110°F

D. All post-installed anchors shall be installed by personnel trained by a manufacturer's field representative for each product to be used. A record of training shall be kept on site and be made available to the EOR as requested.

E. For adhesive anchors installed in a horizontal orientation subject to sustained tension loading and all upwardly inclined (including soffit installations) orientation:
1. Per ACI 318-14 (17.8.2.2): Installation shall be performed by personnel certified by ACI/CRSI "Adhesive Anchor Installer Certification Program." Certification shall include written and performance tests.

4/1/25
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NO	DESCRIPTION	DATE

S1.01

STRUCTURAL NOTES

Treanor NO. HE0569.2402.00

S T R U C T U R A L N O T E S

STRUCTURAL STEEL

A. Material
1. "All hot rolled steel members shall be new and conform to ASTM specification A6."
2. ASTM Specification and Grade - clearly mark the grade on each member.
3. Unless noted otherwise on the Structural Drawings, structural steel members shall be:
   a. W-shapes shall conform to ASTM A992.
   b. Channels shall conform to ASTM A36.
   c. Angles shall conform to ASTM A36.
   d. Steel pipe shall conform to ASTM A53, Type E or S, Grade B.
   e. Round hollow structural shape members shall conform to ASTM A500, Grade C, Fy = 46 ksi.
   f. Square or rectangular hollow structural shape members shall conform to ASTM A500, Grade C, Fy = 50 ksi.
   g. Structural steel plate shall conform to ASTM A36.
   h. Any other steel shall conform to ASTM A36.
   i. Headed stud shear connectors shall conform to ASTM A108.

B. Fabrication
1. Splicing of structural steel members is prohibited without prior approval of the Engineer as to location and type of splice to be made. Any member having splice not shown and detailed on shop drawings will be rejected.

C. Erection
1. Erection tolerances of anchor bolts, embedded items, and all structural steel unless specified otherwise on the Structural Drawings shall conform to the AISC Code of Standard Practice.
2. Field cutting of structural steel or any field modifications to structural steel shall not be made without prior approval of the Engineer.
3. Contractor shall protect any unprimed structural steel from detrimental effects of corrosion, as required, until the steel is enclosed and protected by the new construction.
4. For any exposed steel not covered by architectural paint specifications, hot dip galvanize after fabrication all structural steel items and connections permanently exposed to the weather, whether specified on the Structural Drawings or not. such items include, but are not limited to:
   a. Shelf angles
   b. All embedded plates in concrete
   c. Building cladding support steel in space not air conditioned and/or exposed to moisture outside the exterior waterproofing surface if any.
   d. Railing exposed to weather.
   e. Examine the Architectural and Structural Drawings for other items required to be hot dipped galvanized. Galvanize all nuts, bolts, and washers used in connection with such steel. Field welded connections shall have welds protected with "Z.R.C. Cold Galvanizing Compound" as manufactured by Z.R.C. Company.

D. Contractor shall coordinate structural steel fireproofing requirements. All interior structural steel, including steel joists, scheduled or indicated to receive spray applied fireproofing shall be delivered to the project site unprimed. Steel exposed to corrosive conditions after installation shall be primed with a protective coating which does not diminish the bond between the spray applied fireproofing, and the steel substrate. Any primer, and/or coating applied to structural steel shall be approved for use in the applicable U.L. Fire Resistance Assembly used on the project.

STRUCTURAL STEEL CONNECTIONS

A. Welded Connections
1. All welding shall conform to ANSI/AWS D1.1, latest edition.
2. Minimum fillet weld size to be 3/16 inch or minimum size required by AISC, whichever is larger.

B. Bolted Connections
1. Unless noted otherwise on the Structural Drawings, bolts shall be 3/4 inch diameter and conform to ASTM F3125, grade A325. Bolts shall be designed using values for bearing type bolts with thread allowed in the shear plane.
2. Bolts shall be tightened to "snug tight" as defined by AISC, unless noted otherwise on the Structural Drawings.

C. Any structural steel connection not specifically detailed on the Structural Drawings shall be designed and detailed by the Contractor's professional engineer licensed in the state having jurisdiction at the project site (delegated designer). Sealed calculations for all connections designed by the Contractor's delegated designer shall be submitted for the Architect's files.

D. All beam shears, reactions, member forces, moments, etc. shown on the Structural Drawings are factored loads conforming to the requirements of AISC Load and Resistance Factor Design (LRFD).

E. Connections shall be designed and detailed as follows, unless noted otherwise on the Structural Drawings:
1. Shear connections may be selected or completed by an experienced steel detailer per the ANSI/AISC 303, Section 3.1.1.(2), in accordance with the details provided in the Structural Drawings for the following connections:
   a. Double angle shear connections
   b. Single plate shear connections
2. All other connections shall be designed and detailed by the Contractor's delegated designer and sealed calculations shall be submitted per the ANSI/AISC 303, Sections 3.1.1.(3) and 3.1.2.(2), option 3B for the following but not limited to:
   a. Moment connections
   b. Axial connections
   c. Brace connections
   d. Shear connections that do not meet the requirements of the detailing provided in the Structural Drawings.
3. Project specific details provided for non-typical conditions showing conceptual configurations of connections, stiffeners, web doubler plates, bearing stiffeners, and other member reinforcement at connections where such reinforcement is required. These conceptual configurations are not fully designed unless specifically noted otherwise and design shall be delegated as stated above. Where stiffener plates are shown they shall be provided.
4. Where indicated on the structural drawings, the connections shall be designed for the scheduled forces as follows (see force diagram in symbols legend):
   a. Vertical forces (shear) indicated as "R = ".
   b. Horizontal forces (out-of-plane) indicated as "H = ".
   c. Axial forces indicated as "A = ".
   d. Moment forces indicated as "M = ".
   e. Torsional forces indicated as " T = ".
   Note: All moment and torsional forces noted on plan should be designed for full reversibility in order to produce the worst case connection design.
5. A value of U= 0.x shall be used for HSS connection design. <or> A value of U shall be used for HSS connection design as follows:

Column Size	U
HSS4x4 & Smaller	0.x
HSS6x6	0.x
HSS8x8 & Larger	0.x

6. Beam shear connections not indicated on the Structural Drawings, shall be designed for 55% of the total load capacity for the beam span shown in the beam tables in the AISC Manual referenced in the "Codes & Referenced Reports" notes.
7. Moment connections with moment values not indicated on the Structural Drawings, shall be welded to develop the full capacity of the member.
8. Brace and truss connections not indicated on the Structural Drawings, shall be designed to be welded connections to develop the full tensile capacity of the members.
9. In general, shop connections shall be bolted or welded and field connections shall be bolted.
10. Short slotted holes shall be permitted in shear connections provided washers are installed in accordance with AISC requirements. Washers shall be hardened where A325 bolts are utilized. Short slotted holes shall not be oriented parallel to axial or shear loads.

F. All welds denoted as moment connection or complete joint penetration (CJP) weld shall be ultrasonically or x-ray certified by an independent testing agency.

G. Roof edge angles shall be continuous and shall be spliced only at supports. Splices shall be butt welded or an approved connection designed by delegated designer to develop the full capacity of the member.

H. Base Plates
1. Column base plates shall be set to the elevation indicated on the Structural Drawings and leveled using shims or by double nuts on anchor bolts. Base plates shall then be grouted with a non-shrink, high strength nonmetallic grout. Tighten anchor bolts after supported members have been positioned and plumbed.
2. Hole sizes in base plates shall be oversized with plate washers per AISC Table 14-2, and welded to the baseplate per AISC minimum, U.N.O.

I. Anchor rods shall be:
1. Typical: ASTM F1554 Gr. 36, Weldable.

J. For connections not specifically addressed by these notes or the Structural Drawings, provide fillet welds at all contact surfaces sufficient to develop the tensile strength of the smaller member at the joint.

METAL DECKS

A. Composite metal deck and concrete slab
1. Composite metal deck shall be:

Location	Deck Depth	Gauge	Concrete Type	Total Thickness	Fy (ksi)
Floor	3"	20	NWT	6"	50

2. Sheet steel for composite deck and accessories shall conform to ASTM A653 Structural Quality. Galvanizing shall conform to ASTM A924 with a minimum coating class of G60 as defined in ASTM A653.
3. Deck shall be continuous over three or more supports so as not to require any intermediate shoring to support construction loads and wet concrete, unless noted otherwise on the Structural Drawings. Deck continuous over fewer than three supports shall be shored from the supporting beams.
4. Reinforce the slab over the composite deck with 6x6-W2.9xW2.9 welded wire mesh chaired to be located 3/4" below the top of the slab. Provide a 6'-0" wide extra layer of mesh over all interior beams and girders spanning parallel to the deck span.
5. Metal edge forms shall be 14 gauge cold formed steel with 1/2" return lip. Weld edge form to supporting beams at 12" spacing, unless noted otherwise on the Structural Drawings.
6. Slabs over composite deck shall be placed and finished to provide a floor within specified tolerances. Slab thicknesses may vary away from the columns due to deflections of the beams and deck.
7. Headed stud anchors (shear stud connectors) shall be 3/4" diameter with an installed length of 1 1/2" above the deck flutes, unless noted otherwise on the Structural Drawings. Increase length of anchors as required to account for shortening from the welding process.
8. Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches.
9. Fasten floor deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated and as follows:
   a. Weld Diameter: 5/8-inch nominal.
   b. If minimum uncoated steel deck thickness is less than 0.028 inch, install weld washers at each weld location.
   c. Weld edge ribs of panels at each support. Space additional welds an average of 12 inches apart, but not more than 18 inches apart.
   d. Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of 1/2 of the span or 36 inches.
   e. Mechanically fasten with self-drilling No. 10 diameter or larger carbon-steel screws.
   f. Fasten with a minimum of 1-1/2-inch long welds.
   g. Do not use admixtures with chloride salts in concrete for slabs over metal deck.

DESIGN BY OTHERS

A. In accordance with the Specifications the items listed below are not included in the Contract Documents. Design of these elements shall be the responsibility of the Contractor, and shall be designed and sealed by a registered professional engineer licensed in the state having jurisdiction at the project site.
1. Steel Connections
2. Metal Stairs
3. Metal Ladders
4. Guardrail and Handrail Systems
5. Embedded assemblies and inserts, clamps, hangers, trapezes, unistrut, etc. for the support of MEP systems.
6. Embedded assemblies, inserts, and/or hangers for fire suppression systems.

B. Design of the items listed above shall be in accordance with the General Building Code, and shall include all attachments to the structure.

ABBREVIATIONS

ABV.	-	ABOVE
A.F.F.	-	ABOVE FINISHED FLOOR
ADDN'L.	-	ADDITIONAL
ADH.	-	ADHESIVE
ADJ.	-	ADJACENT
AGGR.	-	AGGREGATE
A/C	-	AIR CONDITIONER
AHU	-	AIR HANDLING UNIT
ALT.	-	ALTERNATE
ALUM.	-	ALUMINUM
A.C.I.	-	AMERICAN CONCRETE INSTITUTE
A.I.S.C.	-	AMERICAN INSTITUE OF STEEL CONSTRUCTION
A.B.	-	ANCHOR BOLT
&	-	AND
L	-	ANGLE
APPD.	-	APPROVED
APPROX.	-	APPROXIMATE
ARCH.	-	ARCHITECT
ARCH'L	-	ARCHITECTURAL
A.E.C.	-	ARCHITECTURALLY EXPOSED CONCRETE
A.E.S.S.	-	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
@	-	AT
B.F.	-	BACK FACE
B. TO B.	-	BACK TO BACK
BSMT.	-	BASEMENT
BM.	-	BEAM
BRG.	-	BEARING
B.F.F.	-	BELOW FINISH FLOOR
BTWN.	-	BETWEEN
BEV(D)	-	BEVEL(ED)
BLK.	-	BLOCK
B.L.	-	BLOCK LINTEL
BLKG.	-	BLOCKING
BOT.	-	BOTTOM
B.O.	-	BOTTOM OF
B.O.S.	-	BOTTOM OF STEEL
BRKT.	-	BRACKET
BR.L.	-	BRICKLEDGE
BRDG.	-	BRIDGING
BLDG.	-	BUILDING
C	-	CAMBER
C.I.P.	-	CAST-IN-PLACE
CLG.	-	CELING
C.L.	-	CENTER LINE
C.G.	-	CENTER OF GRAVITY
C.G.S.	-	CENTER OF GRAVITY OR STRAND
CTRD.	-	CENTERED
CLR.	-	CLEAR OR CLEARANCE
CFS	-	COLD FORMED STEEL
COL.	-	COLUMN
C OR COMP.	-	COMPRESSION
CONC.	-	CONCRETE
CMU	-	CONCRETE MASONRY UNIT
CONN(S)	-	CONNECTION(S)
CONST.	-	CONSTRUCTION
CONST. JT.	-	CONSTRUCTION JOINT
CONT.	-	CONTINUOUS
CONTR.	-	CONTRACTOR
C.J.	-	CONTROL JOINT
COORD.	-	COORDINATE
COV. PL.	-	COVER PLATE
D.L.	-	DEAD LOAD
D.B.A.	-	DEFORMED BAR ANCHOR
D.	-	DEPTH
DTL.	-	DETAIL
DIAG.	-	DIAGONAL
DIA OR Ø	-	DIAMETER
DIM(S).	-	DIMENSION(S)
DBL.	-	DOUBLE
XX-STR	-	DOUBLE EXTRA STRONG
DVTL.	-	DOVETAIL
DWL(S).	-	DOWEL(S)
DN.	-	DOWN
DS.	-	DOWNSPOUT
DWG(S).	-	DRAWING(S)
EA.	-	EACH
E.F.	-	EACH FACE
E.W.	-	EACH WAY
E.O.D.	-	EDGE OF DECK
ELEC.	-	ELECTRICAL
EL.	-	ELEVATION
ELEV.	-	ELEVATOR
EMBED.	-	EMBEDMENT
ENGR.	-	ENGINEER
EQ.	-	EQUAL
EQUIP.	-	EQUIPMENT
EF	-	EXHAUST FAN
(E)	-	EXIST.
EXIST.	-	EXISTING
EXP.	-	EXPANSION
E.J.	-	EXPANSION JOINT
EXT.	-	EXTERIOR
X-STR	-	EXTRA STRONG
FABR.	-	FABRICATOR
F. TO F.	-	FACE TO FACE
F.S.	-	FAR SIDE
F.V.	-	FIELD VERIFY
FIN(D)	-	FINISH(ED)
FIN. FL.	-	FINISHED FLOOR
FP.	-	FIREPROOF(ING)
FLG.	-	FLANGE
FL.	-	FLOOR
F.D.	-	FLOOR DRAIN
FT.	-	FOOT (OR) FEET
FDN.	-	FOUNDATION
FRMG	-	FRAMING
F.P.	-	FULL PENETRATION
GA.	-	GAGE OR GAUGE
GALV.	-	GALVANIZED
G.C.	-	GENERAL CONTRACTOR
GR.	-	GRADE
GR. BM.	-	GRADE BEAM
H.S.A.	-	HEADED STUD ANCHOR
HT.	-	HEIGHT
H.P.	-	HIGH POINT
HSS	-	HOLLOW STRUCTURAL SECTION
HK.	-	HOOK
HORIZ.	-	HORIZONTAL
H.B.	-	HORIZONTAL BRACE
H.D.	-	HOT-DIP
IN.	-	INCH
INFO.	-	INFORMATION
I.D.	-	INSIDE DIAMETER
I.F.	-	INSIDE FACE
INT.	-	INTERIOR
INTERM.	-	INTERMEDIATE
JT.	-	JOINT
J.G.	-	JOIST GIRDER
JST(S)	-	JOIST(S)
KLF	-	KIP PER LINEAR FOOT
KSF	-	KIP PER SQUARE FOOT
KSI	-	KIP PER SQUARE INCH
K	-	KIPS (1000 LBS)
L.	-	LENGTH
L.W.	-	LIGHTWEIGHT
L.W.C.	-	LIGHTWEIGHT CONCRETE
L.L.	-	LIVE LOAD
LOC.	-	LOCATION
LLH	-	LONG LEG HORIZONTAL
LLV	-	LONG LEG VERTICAL
LSH	-	LONG SIDE HORIZONTAL
LSV	-	LONG SIDE VERTICAL
LSL	-	LONG SLOTTED HOLE
LONG	-	LONGITUDINAL
L.P.	-	LOW POINT
MFR.	-	MANUFACTURE(R)
MAS.	-	MASONRY
MAT.	-	MATERIAL
MAX.	-	MAXIMUM
MECH.	-	MECHANICAL
MEP	-	MECHANICAL, ELECTRICAL, PLUMBING
MTL.	-	METAL
MEZZ.	-	MEZZANINE
MID.	-	MIDDLE
MIN.	-	MINIMUM
MISC.	-	MISCELLANEOUS
M	-	MOMENT
M.C.	-	MOMENT CONNECTION(S)
N.F.	-	NEAR FACE
NOM.	-	NOMINAL
N.S.	-	NON-SHRINK
N/A	-	NOT APPLICABLE
N.I.C.	-	NOT IN CONTRACT
N.T.S.	-	NOT TO SCALE
NO. OR #	-	NUMBER
O.C.	-	ON CENTER
OPNG(S)	-	OPENING(S)
OPP.	-	OPPOSITE
O.H.	-	OPPOSITE HAND
O.D.	-	OUTSIDE DIAMATER
O.F.	-	OUTSIDE FACE
OVS	-	OVER-SIZED HOLE
P	-	PAN
P.J.	-	PANEL JOINT
PAR.	-	PARALLEL
PERP.	-	PERPENDICULAR
PC.	-	PIECE
PL.	-	PLATE
PT.	-	POINT
P-T	-	POST-TENSION(ED)
# OR LBS.	-	POUNDS
PCF	-	POUNDS PER CUBIC FOOT
PLF	-	POUNDS PER LINEAR FOOT
PSF	-	POUNDS PER SQUARE FOOT
PSI	-	POUNDS PER SQUARE INCH
P.E.M.B.	-	PRE-ENGINEERED METAL BUILDING
P/C	-	PRECAST CONCRETE
PREFAB.	-	PREFABRICATED
PRELIM.	-	PRELIMINARY
P.T.	-	PRESSURE TREATED
PROJ.	-	PROJECTION
QTY.	-	QUANTITY
R	-	RADIUS
REINF.	-	REINFORCE(ING)(ED)(MENT)
RCP	-	REINFORCED CONCRETE PIPE
REM.	-	REMAINDER
REQ.	-	REQUIRE
REQ'D.	-	REQUIRED
RET. SYS.	-	RETENTION SYSTEM
RIS.	-	RISER
RF.	-	ROOF
R.D.	-	ROOF DRAIN
R.T.U.	-	ROOF TOP UNIT
RM.	-	ROOM
R.O.	-	ROUGH OPENING
RND.	-	ROUND
SCHED.	-	SCHEDULE(D)
SECT.	-	SECTION
V	-	SHEAR
SHT.	-	SHEET
SSL	-	SHORT SLOTTED HOLE
SW	-	SIDEWALK
SIM.	-	SIMILAR
S.O.G.	-	SLAB ON GRADE
SPA.	-	SPACE
SPEC(S)	-	SPECIFICATION(S)
SPEC'D	-	SPECIFIED
SQ.	-	SQUARE
S.F.	-	SQUARE FOOT
STAGG.	-	STAGGERED
S.S.	-	STAINLESS STEEL
STD.	-	STANDARD
STL.	-	STEEL
S.J.I.	-	STEEL JOIST INSTITUE
STIFF	-	STIFFENER
STIRR.	-	STIRRUPS
STR.	-	STRAIGHT
STRUCT'L	-	STRUCTURAL
STRUCT.	-	STRUCTURE
SUBCONTR.	-	SUBCONTRACTOR
SUPT(S).	-	SUPPORT(S)
TEMP.	-	TEMPERATURE
T	-	TENSION
TERR.	-	TERRAZZO
THK.	-	THICK
THRD.	-	THREAD(ED)
T&G	-	TONGUE AND GROOVE
T&B	-	TOP AND BOTTOM
T.O.	-	TOP OF
T.O.B.	-	TOP OF BEAM
T.O.C.	-	TOP OF CONCRETE
T.O.F.	-	TOP OF FOOTING
T.O.J.	-	TOP OF JOIST
T.O.P.	-	TOP OF PIER
T.O.P.C.	-	TOP OF PIER (PILE) CAP
T.O.S.	-	TOP OF STEEL
T.O.W.	-	TOP OF WALL
TRANSV.	-	TRANSVERSE
TR.	-	TREAD
TYP.	-	TYPICAL
U.N.O.	-	UNLESS NOTED OTHERWISE
VERT.	-	VERTICAL
V.B.	-	VERTICAL BRACE
WPFG.	-	WATERPROOFING
WS.	-	WATERSTOP
WT.	-	WEIGHT
W.W.M.	-	WELDED WIRE MESH
W.	-	WIDTH
W.L.	-	WIND LOAD
WDW.	-	WINDOW
W/	-	WITH
W/O	-	WITHOUT
W.D.	-	WOOD
W.P.	-	WORK POINT

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
BEAM SIZE, NO. OF HEADED STUDS, WXXXXX (X) C=X", R=XX, REACTION (FACTORED LOAD), CAMBER	COMPOSITE STEEL BEAM
M, A, R, H, T, ELEVATION, PLAN, SECTION	SCHEMATIC FORCE DIAGRAM
MOMENT CONNECTION, BEAM SIZE, WXXxXX, MOMENT CONNECTION	STEEL BEAM MOMENT CONNECTION
COLUMN SIZE, BASE PLATE TYPE	STEEL COLUMN
#	NEW COLUMN GRID
#	EXISTING COLUMN GRID
	WELDED METAL BAR GRATING
	SLAB OR DECK SPAN DIRECTION
	DROP IN SLAB OR DECK
	DROP AND SLOPE IN SLAB OR DECK
	SLOPE IN SLAB OR DECK
BRACE-x	VERTICAL STEEL BRACE
	STEEL BEAM SPLICE
*	HEAVY STEEL CONNECTION
	EXISTING CONSTRUCTION
	MISCELLANEOUS - SEE PLAN
	DEMO
	ROOF TOP UNIT (RTU)

4/1/25

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S1.02

STRUCTURAL NOTES

Treanor NO. HE0569.2402.00

SPECIAL INSPECTIONS

A. Special Inspections shall be performed in accordance with Chapter 17 of the 20<12/15/18/21> International Building Code (IBC) by a Special Inspector hired by the Owner to perform the Special Inspections listed below. The Special Inspector shall be qualified by an approved agency according to the City's building official to perform the special inspections for which they will be undertaking. The Contractor shall coordinate with and notify the Special Inspector of all tests. The Special Inspector shall be responsible to verify that the items detailed in the Construction Documents were built accordingly and shall prepare, sign, and furnish inspection reports to the building official and the Architect for all time spent at the site. The Inspector shall bring discrepancies to the immediate attention of the General Contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and to the Architect prior to the completion of that phase of the work. These special inspections are in addition to the other inspections listed in these Structural Notes or Project Specifications.

B. Where structural load-bearing members and assemblies are shop fabricated, the Special Inspector shall verify that the fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to the Construction Documents and Referenced Standards, unless the fabricator is registered and approved to perform such work without special inspection.

C. Job site visits by the structural engineer do not constitute and are not a substitute for special inspections. Architectural, mechanical, and electrical components requiring special inspections and testing per the building code are not listed here. Refer to architectural, mechanical, and electrical drawings and specifications for requirements for these components.

D. Refer to the general notes and project specifications for additional inspection and testing requirements.

SPECIAL INSPECTIONS AND TESTS SCHEDULED PER IBC 2021

SPECIAL INSPECTION REQUIRED	MATERIALS, SYSTEMS, COMPONENTS AND WORK REQUIRED TO HAVE SPECIAL INSPECTIONS AND/OR TEST BY THE SPECIAL INSPECTOR RESPONSIBLE FOR EACH PORTION OF THE WORK	REFERENCED STANDARD	IBC STANDARD
YES	STEEL CONSTRUCTION		1705.2
YES	1. Welding of Structural Steel	AISC 360-16 : Table N5.4	1705.2.1
YES	2. Bolting of Structural Steel	AISC 360-16 : Table N5.6	1705.2.1
YES	3. Steel Construction Other Than Structural Steel (Metal Deck)	SDI QA/QC - 2017	1705.2.2
YES	4. Open-Web Steel Joists and Joist Girders	SJI Specs per IBC 2207.1	1705.2.3
YES	5. Composite Construction Prior to Concrete Placement	AISC 360-16 : Table N6.1	
YES	CONCRETE CONSTRUCTION- (Note 1)		1705.3
NO	1. Welding of Reinforcing Bars	ACI 318-19 : Sect. 26.6.4	1705.3.1
YES	2. Material Testing	ACI 318-19 : Ch. 19 & 20	1705.3.1
YES	MASONRY CONSTRUCTION- (Note 1)		1705.4
NO	1. Level 2 Verification and Inspection of Masonry Construction	TMS 602-16 : Table 3 & 4	1705.4
YES	2. Level 3 Verification and Inspection of Masonry Construction	TMS 602-16 : Table 3 & 4	1705.4
NO	WOOD CONSTRUCTION- (Note 1)		1705.5
NO	1. High-Load Diaphragms		1705.5.1
NO	2. Metal-Plate-Connected Wood Trusses		1705.5.2
NO	3. Mass Timber Construction		1705.5.3
YES	SOILS		1705.6
NO	DRIVEN DEEP FOUNDATIONS		1705.7
YES	CAST-IN-PLACE DEEP FOUNDATIONS		1705.8
NO	HELICAL PILE FOUNDATIONS		1705.9
NO	STRUCTURAL INTEGRITY OF DEEP FOUNDATION ELEMENTS		1705.10
NO	FABRICATED ITEMS		1705.11
NO	SPECIAL INSPECTIONS FOR WIND RESISTANCE		1705.12
NO	1. Structural Wood		1705.12.1
NO	2. Cold-Formed Steel Light-Frame Construction		1705.12.2
NO	3. Wind-Resisting Components		1705.12.3
NO	SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE		1705.13
NO	1. Structural Steel	AISC 341-16 : Sect. J	1705.13.1
NO	a. Seismic Force Resisting System	AISC 341-16 : Sect. J	1705.13.1.1
NO	b. Structural Steel Elements	AISC 341-16 : Sect. J	1705.13.1.2
NO	2. Structural Wood		1705.13.2
NO	3. Cold-Formed Steel Light-Frame Construction		1705.13.3
NO	4. Designated Seismic System		1705.13.4
NO	TESTING FOR SEISMIC RESISTANCE		1705.14
NO	1. Structural Steel	AISC 341-16 : Sect. J	1705.14.1
YES	DESIGN STRENGTH OF MATERIALS		1706

1. Post-Installed anchors and dowels shall be either (a.) visually inspected during installation, or (b.) load tested after installation as noted below:
   a. Visual inspections shall be performed during the installation by a Special Inspector certified by ACI as a "Post-Installed Concrete Anchor Installation Inspector". Submit a report to the licensed design professional and building official documenting that the work covered by the report has been performed and that the materials used and the installation procedures used conform with the approved construction documents and the Manufacturer's Printed Installation Instructions.
   b. Load Testing shall comply with the following:
      i. Test at least ten (10) percent of each type and diameter of post-installed anchors. If one or more anchors fail the test, all post-installed anchors of the same diameter and type installed the same day as the failed anchor shall be load tested at the contractor's expense. If additional anchors fail, the engineer may require testing all anchors of the same diameter and type already installed at the contractor's expense.
      ii. Tension testing shall comply with ASTM E488
      iii. Test post-installed anchors to 50 percent of ultimate tensile capacity of post-installed anchor.
      iv. Apply test loads with a calibrated hydraulic ram.
      v. Displacement of post-installed anchors shall not exceed D/10, where D is nominal diameter of anchor being tested.
      vi. Correct defective work by removing and replacing or correcting, as directed by engineer.
      vii. Contractor shall pay for all corrections, engineering, and additional testing associated with failed anchor tests.
      viii. Testing agency shall submit test results to contractor and engineer with 24 hours of completion of test.

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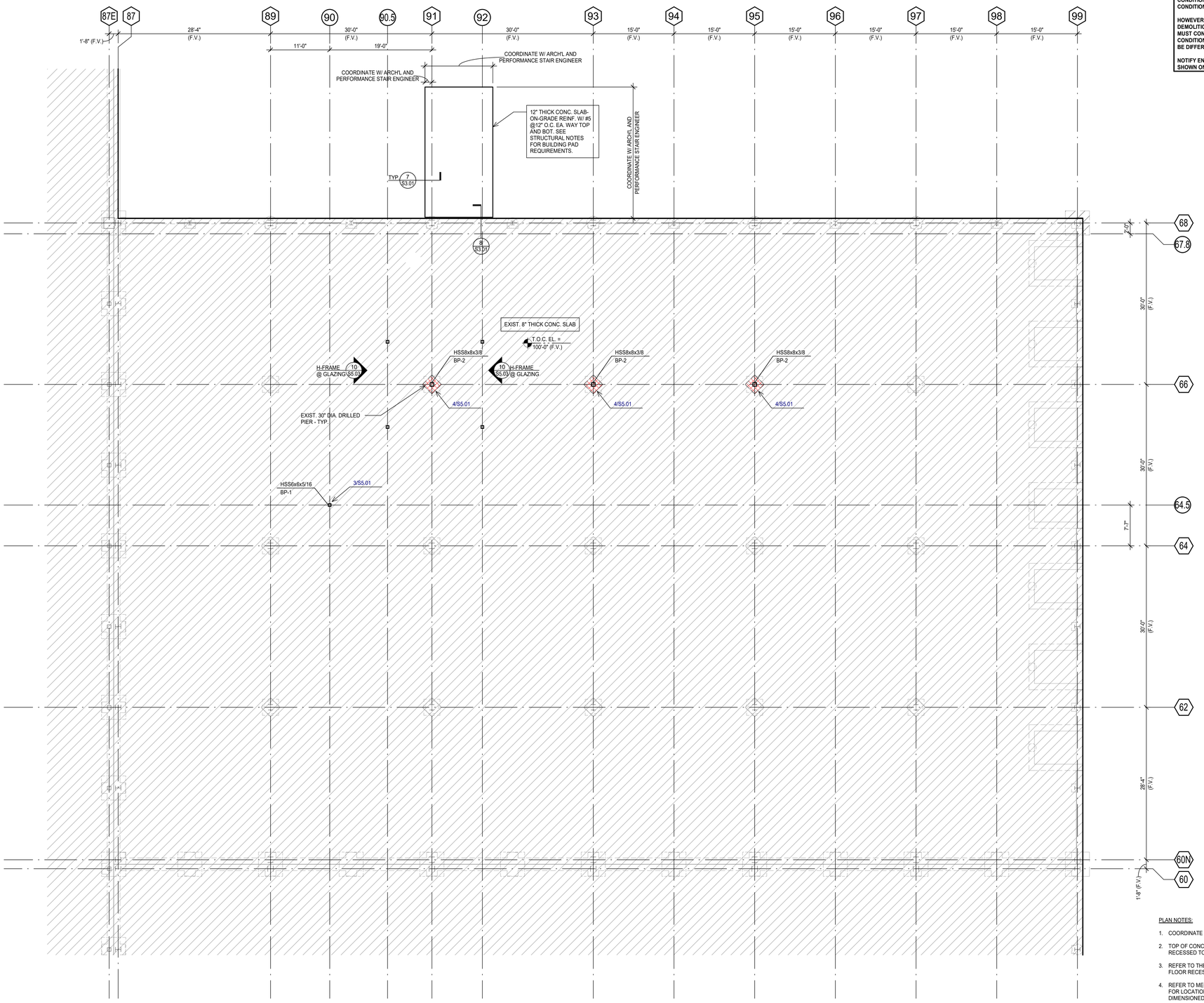
S1.03

SPECIAL INSPECTIONS

Treanor NO. HE0569.2402.00



north

1 FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

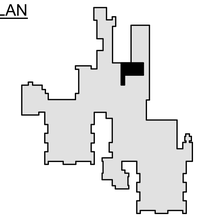
PLAN NOTES:

1. COORDINATE STAIR SLAB ELEVATION WITH CIVIL.
2. TOP OF CONCRETE ELEVATION (T.O.C. EL.) = FINISH FLOOR. UNLESS RECESSED TO RECEIVE FLOORING MATERIALS.
3. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF FLOOR RECESSES, DROPS AND SLOPES NOT DIMENSIONED ON PLAN.
4. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR LOCATION AND DIMENSIONS OF FLOOR PENETRATIONS NOT DIMENSIONED ON PLAN. CONTRACTOR TO COORDINATE.
5. CONTRACTOR TO VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION.

SHEET INDEX:

STRUCTURAL NOTES	-S1.02, S1.02
TYPICAL DETAILS	-S3.01, S5.01, S5.02

KEY PLAN



JQI HAS ATTEMPTED BY VISUAL OBSERVATION AND STUDY OF ORIGINAL CONSTRUCTION DOCUMENTS TO DETERMINE EXISTING DIMENSIONS, THE CONDITION OF VARIOUS STRUCTURAL ELEMENTS AND EXISTING CONDITIONS.

HOWEVER, AS SOME CONDITIONS CANNOT BE DETERMINED UNTIL AFTER DEMOLITION OF THE EXISTING BUILDING FINISHES, THE CONTRACTOR MUST CONSIDER AND ALLOW FOR THE FACT THAT DIMENSIONS, THE CONDITION OF STRUCTURAL ELEMENTS, AND DETAIL CONDITIONS MAY BE DIFFERENT FROM THOSE SHOWN ON THESE DRAWINGS.

NOTIFY ENGINEER WHERE CONDITIONS ARE DIFFERENT FROM THOSE SHOWN ON THESE DRAWINGS.

4/1/25

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S2.01

FOUNDATION PLAN

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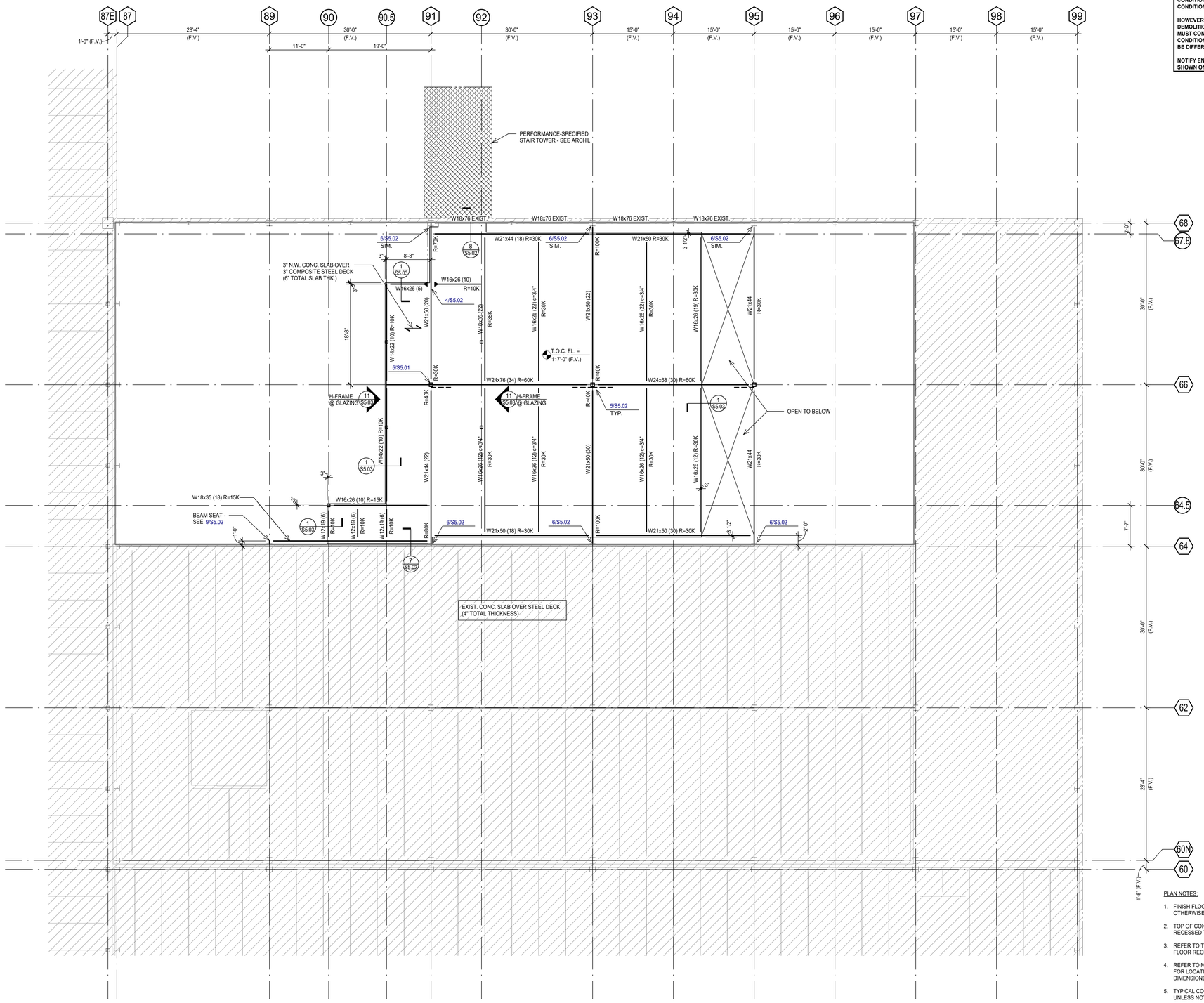

north

1 FRAMING PLAN
SCALE: 1/8" = 1'-0"

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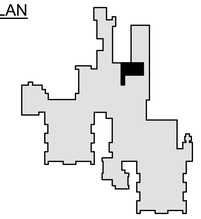
PLAN NOTES:

1. FINISH FLOOR ELEVATION = 117'-0" F.V., MATCH EXIST., UNLESS NOTED OTHERWISE.
2. TOP OF CONCRETE ELEVATION (T.O.C. EL.) = FINISH FLOOR. UNLESS RECESSED TO RECEIVE FLOORING MATERIALS.
3. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF FLOOR RECESSES, DROPS AND SLOPES NOT DIMENSIONED ON PLAN.
4. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR LOCATION AND DIMENSIONS OF FLOOR PENETRATIONS NOT DIMENSIONED ON PLAN. CONTRACTOR TO COORDINATE.
5. TYPICAL COMPOSITE CONCRETE SLAB THICKNESS IS 6" (OVERALL), UNLESS NOTED OTHERWISE. SEE STRUCTURAL NOTES.
6. STEEL BEAMS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.

SHEET INDEX:
STRUCTURAL NOTES -S1.01, S1.02
TYPICAL DETAILS -S3.01, S5.01, S5.02

KEY PLAN



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S2.02

FRAMING PLAN

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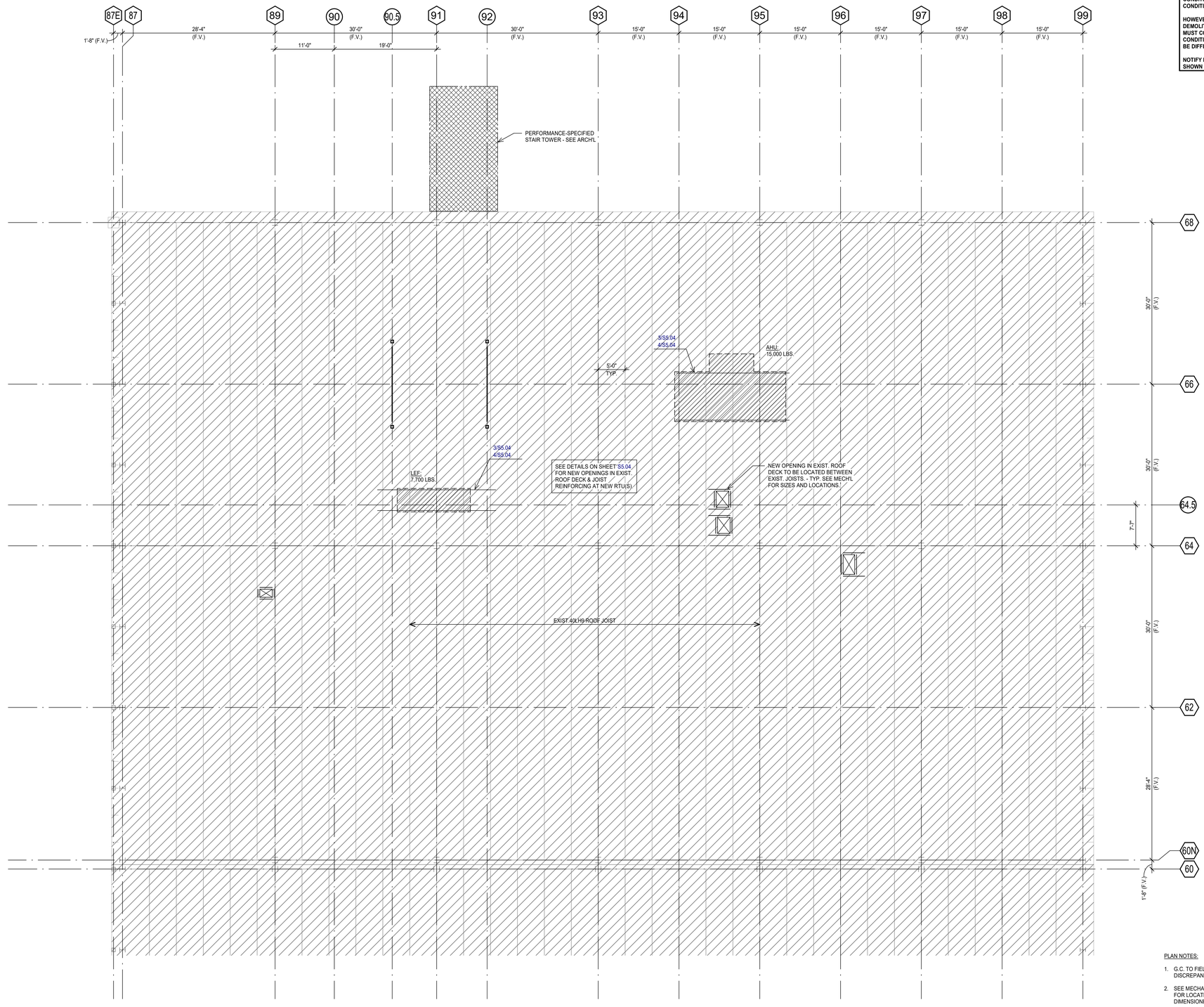


north

1 ROOF FRAMING PLAN

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

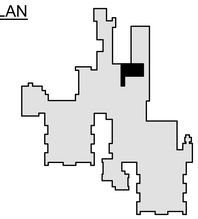
PLAN NOTES:

1. G.C. TO FIELD VERIFY EXISTING FRAMING AND REPORT ANY DISCREPANCIES TO A/E PRIOR TO ANY STEEL FABRICATION.
2. SEE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR LOCATION AND DIMENSIONS OF ROOF PENETRATIONS NOT DIMENSIONED ON PLAN. CONTRACTOR TO COORDINATE.

SHEET INDEX:

STRUCTURAL NOTES	-S1.01, S1.02
TYPICAL DETAILS	-S3.01, S5.01, S5.02

KEY PLAN



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NOTIFY ENGINEER WHERE CONDITIONS ARE DIFFERENT FROM THOSE SHOWN ON THESE DRAWINGS.

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ROOF FRAMING PLAN

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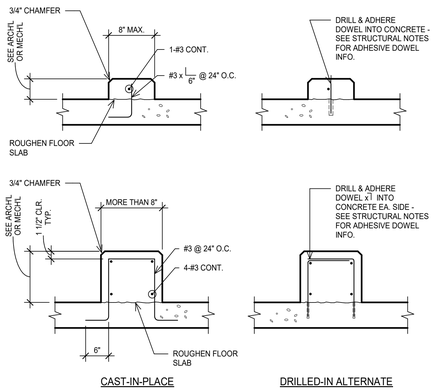
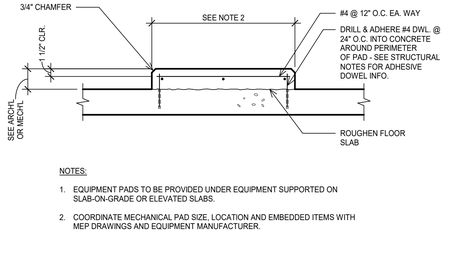


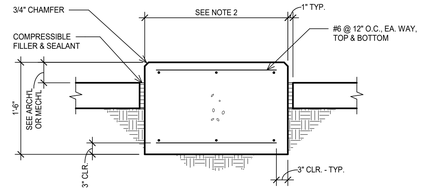
1 TYPICAL CONCRETE CURB DETAILS
NO SCALE



NOTES:

1. EQUIPMENT PADS TO BE PROVIDED UNDER EQUIPMENT SUPPORTED ON SLAB-ON-GRADE OR ELEVATED SLABS.
2. COORDINATE MECHANICAL PAD SIZE, LOCATION AND EMBEDDED ITEMS WITH MEP DRAWINGS AND EQUIPMENT MANUFACTURER.

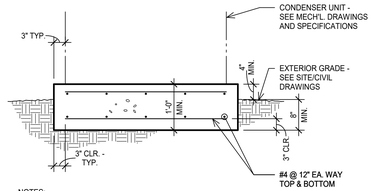
2 TYPICAL MECHANICAL EQUIPMENT PAD DETAIL
NO SCALE



NOTES:

1. ISOLATION PADS TO BE PROVIDED WHERE NOTED ON THE DRAWINGS.
2. COORDINATE MECHANICAL PAD SIZE, LOCATION AND EMBEDDED ITEMS WITH MEP DRAWINGS AND EQUIPMENT MANUFACTURER.

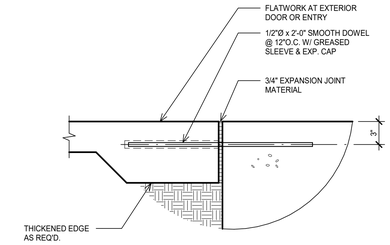
3 TYPICAL MECHANICAL ISOLATION PAD DETAIL
NO SCALE



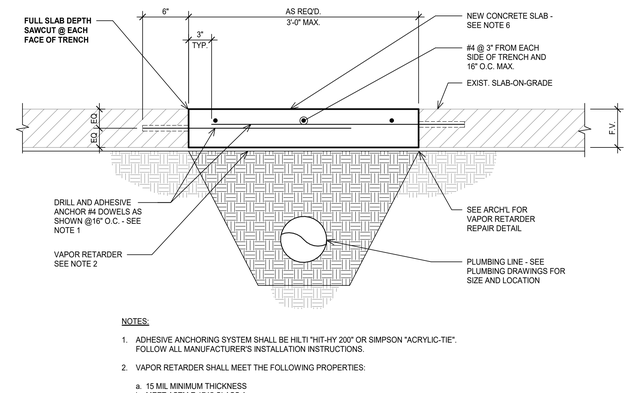
NOTES:

1. COORDINATE ANY EMBEDDED ITEMS IN PAD W/ MECHANICAL, ELECTRICAL & PLUMBING DRAWINGS.
2. VERIFY PAD DIMENSIONS WITH UNIT MANUFACTURER PRIOR TO CONSTRUCTION.
3. PAD SHALL BE PLACED ON UNDISTURBED EXISTING SOIL OR COMPACTED FILL.
4. SEE MEP, SITE AND/OR CIVIL DRAWINGS FOR PAD LOCATION.

4 CONDENSER UNIT PAD DETAIL
NO SCALE



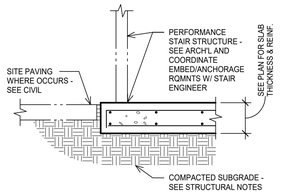
5 TYPICAL FLATWORK AT EXTERIOR DOORS AND ENTRIES DETAIL
NO SCALE



NOTES:

1. ADHESIVE ANCHORING SYSTEM SHALL BE HILTI "HIT-HY 200" OR SIMPSON "ACRYLIC-TIE". FOLLOW ALL MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. VAPOR RETARDER SHALL MEET THE FOLLOWING PROPERTIES:
   a. 15 MIL MINIMUM THICKNESS
   b. MEET ASTM E 1745 CLASS A
   c. WATER VAPOR PERMEANCE PER ASTM E96 SHALL BE 0.01 OR LESS
3. LAP JOINTS IN VAPOR RETARDER 6" MIN. USE MANUFACTURER'S STANDARD ADHESIVE OR PRESSURE SENSITIVE TAPE FOR SEALING MEMBRANE AT SEAMS, PIPE PENETRATIONS, TEARS, ETC.
4. PROVIDE 2-#4x2'-0" DIAGONAL BARS AT RE-ENTRANT CORNERS IN SAWCUT. PLACE AT MID-DEPTH OF SLAB.
5. SOIL REMOVED FOR SLAB TRENCH SHALL BE REPLACED AND RECOMPACTED TO A MINIMUM OF 95% STANDARD PROCTER DENSITY (ASTM D698).
6. PLACE SLAB BACK TO THICKNESS TO MATCH EXISTING WITH A MINIMUM 3,000 PSI NORMAL WEIGHT CONCRETE AND A WATER-CEMENT RATIO OF 0.50 OR LESS.
7. THE CONTRACTOR SHALL ENSURE THAT TRENCHING FOR THE UTILITY LINE IS NOT OVER-EXCAVATED AND THAT NO PORTION OF THE SURROUNDING SLAB-ON-GRADE IS LEFT UNSUPPORTED.
8. CONTRACTOR SHALL PROVIDE A COLD JOINT EVERY 30 LINEAR FEET IN THE PORTION OF NEW CONCRETE SLAB THAT IS PLACED DUE TO UNDER-SLAB TRENCHING.

6 TYPICAL TRENCH DETAIL FOR UNDER-SLAB PLUMBING LINES
NO SCALE



7 STAIR SLAB SECTION
SCALE: 3/4" = 1'-0"

8 FOUNDATION SECTION
SCALE: 3/4" = 1'-0"

ELEVATION

9 TYPICAL LIGHTPOLE FOUNDATION DETAIL
NO SCALE

4/1/25

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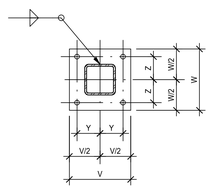
TYPICAL CONCRETE DETAILS

Treanor NO. HE0569.2402.00

BASE PLATE & ANCHOR BOLT SCHEDULE									
MARK	BASE PLATE DIMENSIONS					DETAIL	ANCHOR BOLTS		
	V	W	Y	Z	T		DETAIL	DIA.	EMBED LENGTH
BP-1	13"	13"	4 1/2"	4 1/2"	3/4"	2/S5.01	3/S5.01	1/2"	-
BP-2	15"	15"	5 1/2"	5 1/2"	3/4"	2/S5.01	4/S5.01	1"	10"

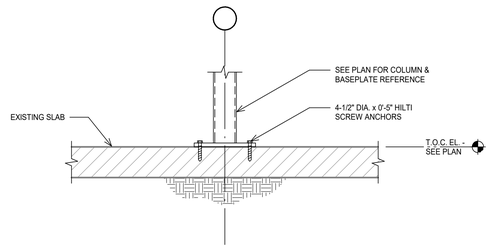
1 BASE PLATE & ANCHOR BOLT SCHEDULE
NO SCALE



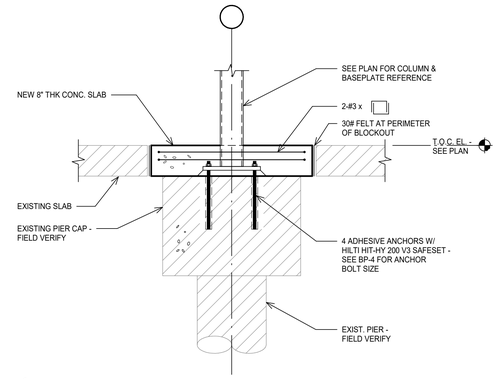
NOTES:

1. WELD TO BE 1/16" SMALLER THAN THICKNESS OF TUBE.
2. FOR BASE PLATE ELEVATION DETAIL SEE SCHEDULE.

2 TYPICAL BASE PLATE DETAIL
NO SCALE



3 COLUMN ON SLAB ON GRADE DETAIL
NO SCALE



4 TYPICAL TOP OF PIER DETAIL
NO SCALE

NOTES:

1. SEE ROOF PLAN FOR ROOF SLOPE. SLOPE CAP PLATES ACCORDINGLY.
2. STIFFENER PLATES SHALL BE EQUAL IN THICKNESS TO THE COLUMN WALL THICKNESS OR BEAM WEB THICKNESS, WHICHEVER IS GREATER.
3. CONNECT INTERSECTING BEAMS TO STIFFENER PLATES USING BOLTS IN SINGLE SHEAR DESIGNED FOR ECCENTRIC BEAM REACTION.

5 TYPICAL CAP PLATE - BOLTED CONNECTION DETAIL
NO SCALE

ELEVATION

6 HSS COL. TO HSS BEAM CONN.
NO SCALE

4/1/25

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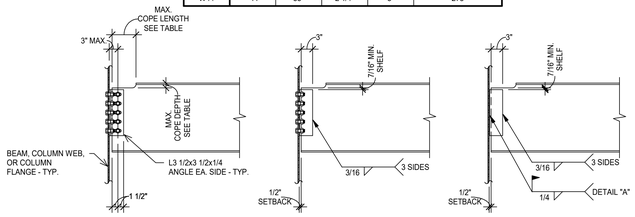
S5.01

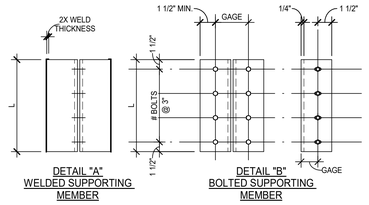
TYPICAL STEEL DETAILS

Treanor NO. HE0569.2402.00

CONNECTION LOAD CAPACITY - TOP COPE ONLY (NOTE 4)					
NOM. BM. SIZE	# OF BOLTS	ANGLE LENGTH (L)	MAX. COPE DEPTH	MAX. COPE LENGTH	MAX. REACTION (KIPS)
					3/4"Ø BOLTS
W8	2	6"	1 1/4"	6"	13
W10	2	6"	1 1/4"	6"	23
W12	2	6"	1 1/4"	6"	29
W14	3	9"	1 1/4"	6"	47
W16	3	9"	1 1/4"	6"	51
W18	4	12"	1 1/4"	6"	80
W21	5	15"	1 1/4"	7"	116
W24	5	15"	1 1/2"	8"	130
W27	6	18"	1 3/4"	8"	156
W30	7	21"	1 3/4"	8"	181
W33	8	24"	1 3/4"	8"	205
W36	9	27"	1 3/4"	8"	229
W40	10	30"	2 1/4"	8"	254
W44	11	33"	2 1/4"	8"	278



BOLTED / BOLTED CONNECTION | BOLTED / WELDED CONNECTION | WELDED / WELDED CONNECTION



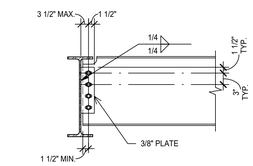
DETAIL "A" WELDED SUPPORTING MEMBER | DETAIL "B" BOLTED SUPPORTING MEMBER

NOTES:

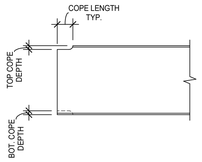
1. ALL BEAM REACTIONS ARE IN KIPS, AT STRENGTH LEVEL LOADS (FACTORED).
2. TABULATED CONNECTION CAPACITIES ARE BASED ON RIGHT ANGLE DOUBLE ANGLE CONNECTIONS, THE GRADES IN THE STRUCTURAL NOTES AND 70 KSI FILLER METAL.
3. HOLES IN ANGLES PARALLEL TO THE SUPPORTED BEAM SHALL HAVE HORIZONTAL SSL HOLES. HOLES IN BEAM, SUPPORTING MEMBER, AND ANGLES PERPENDICULAR TO SUPPORTED BEAMS SHALL HAVE STD. HOLES. REFERENCE AISC SPEC. J3.3 FOR HOLE SIZES.
4. THESE CAPACITIES ARE APPLICABLE FOR BEAMS WHICH ONLY HAVE VERTICAL (R=) REACTIONS AND MEET THE CONDITIONS PROVIDED IN THE DETAIL. DELEGATED DESIGNER SHALL PROVIDE CONNECTION CALCULATIONS FOR CONNECTION CONDITIONS THAT EXCEED THE LIMITATIONS OF THIS DETAIL. REFER TO "STRUCTURAL STEEL CONNECTIONS" IN THE STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.

1 TYPICAL DOUBLE ANGLE SHEAR CONNECTION DETAIL
NO SCALE

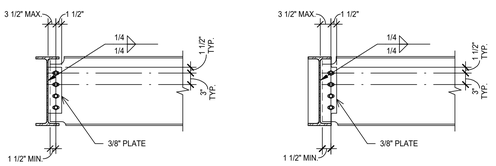
CONNECTION LOAD CAPACITY - TOP COPE ONLY (NOTE 4)					
NOM. BM. SIZE	# OF BOLTS PER VERT. COL.	MIN. SUPPORT THICKNESS	MAX. COPE DEPTH	MAX. COPE LENGTH	MAX. REACTION (KIPS)
					3/4"Ø BOLTS
W8	2	0.170"	1 1/4"	4"	14
W10	2	0.190"	1 1/2"	4"	16
W12	2	0.200"	4"	4"	17
W14	3	0.230"	3 1/4"	5"	30
W16	3	0.250"	4"	5"	32
W18	4	0.300"	4"	5"	52
W21	5	0.350"	4"	7"	76
W24	5	0.395"	5"	8"	80
W27	6	0.460"	5"	8"	99
W30	7	0.470"	5"	8"	117
W33	8	0.550"	5"	8"	135
W36	9	0.600"	5"	8"	153
W40	10	0.630"	5"	8"	171
W44	11	0.710"	5"	8"	189



TOP COPE ONLY



CONNECTION LOAD CAPACITY - TOP AND BOTTOM COPE (NOTE 4)						
NOM. BM. SIZE	# OF BOLTS PER VERT. COL.	MIN. SUPPORT THICKNESS	MAX. TOP COPE DEPTH	MAX. BOT. COPE DEPTH	MAX. COPE LENGTH	MAX. REACTION (KIPS)
						3/4"Ø BOLTS
W10	2	0.190"	1 1/4"	1 1/4"	4"	16
W12	2	0.200"	1 1/2"	1 1/2"	5"	17
W14	3	0.230"	1 1/2"	1 1/2"	5"	30
W16	3	0.250"	1 1/2"	1 1/2"	5"	32
W18	4	0.300"	2"	2"	5"	52
W21	5	0.350"	2"	2"	5"	76
W24	5	0.395"	2"	2"	5"	80
W27	6	0.460"	2 1/2"	2 1/2"	5"	99
W30	7	0.470"	3"	3"	5"	117
W33	8	0.550"	3"	3"	6"	135
W36	9	0.600"	3"	3"	6"	153
W40	10	0.630"	3"	3"	6"	171
W44	11	0.710"	3"	3"	8"	189



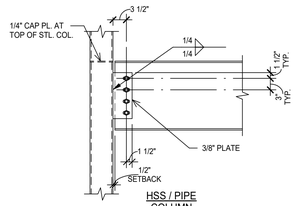
TOP & BOTTOM COPE

NOTES:

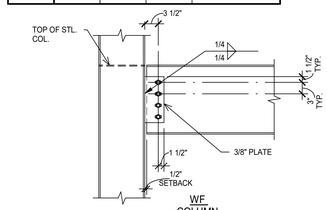
1. ALL BEAM REACTIONS ARE IN KIPS, AT STRENGTH LEVEL LOADS (FACTORED).
2. TABULATED CONNECTION CAPACITIES ARE BASED ON THE GRADES IN THE STRUCTURAL NOTES AND 70 KSI FILLER METAL.
3. BEAMS SHALL HAVE STD. HOLES AND PLATES SHALL HAVE HORIZONTAL SSL HOLES. REFERENCE AISC SPEC. J3.3 FOR HOLE SIZES.
4. THESE CAPACITIES ARE APPLICABLE FOR BEAMS WHICH ONLY HAVE VERTICAL (R=) REACTIONS AND MEET THE CONDITIONS PROVIDED IN THE DETAIL. DELEGATED DESIGNER SHALL PROVIDE CONNECTION CALCULATIONS FOR CONNECTION CONDITIONS THAT EXCEED THE LIMITATIONS OF THIS DETAIL. REFER TO "STRUCTURAL STEEL CONNECTIONS" IN THE STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.

2 TYPICAL BEAM TO BEAM SINGLE PLATE SHEAR CONNECTION DETAIL
NO SCALE

CONNECTION LOAD CAPACITY (NOTE 4)				
NOM. BM. SIZE	# OF BOLTS PER VERT. COL.	MIN. HSS/PIPE SUPPORT THICKNESS	MIN. WF SUPPORT THICKNESS	MAX. REACTION (KIPS)
				3/4"Ø BOLTS
W8	2	0.233"	0.170"	19
W10	2	0.233"	0.190"	21
W12	3	0.233"	0.200"	41
W14	4	0.233"	0.230"	61
W16	4	0.233"	0.250"	61
W18	5	0.233"	0.300"	80
W21	6	0.233"	0.350"	99
W24	7	0.233"	0.395"	117
W27	8	0.233"	0.395"	135
W30	9	0.233"	0.395"	153
W33	9	0.233"	0.395"	153
W36	10	0.233"	0.395"	171
W40	11	0.233"	0.395"	189
W44	12	0.233"	0.395"	207



HSS / PIPE COLUMN

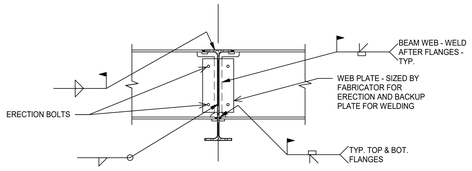


WF COLUMN

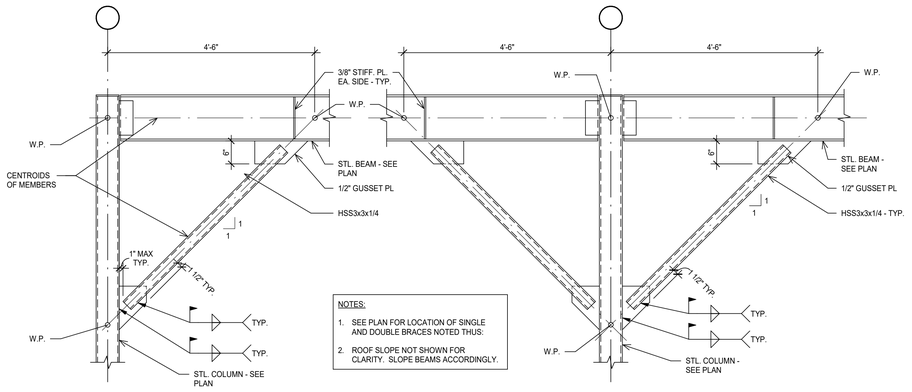
NOTES:

1. ALL BEAM REACTIONS ARE IN KIPS, AT STRENGTH LEVEL LOADS (FACTORED).
2. TABULATED CONNECTION CAPACITIES ARE BASED ON THE GRADES IN THE STRUCTURAL NOTES AND 70 KSI FILLER METAL.
3. BEAMS SHALL HAVE STD. HOLES AND PLATES SHALL HAVE HORIZONTAL SSL HOLES. REFERENCE AISC SPEC. J3.3 FOR HOLE SIZES.
4. THESE CAPACITIES ARE APPLICABLE FOR BEAMS WHICH ONLY HAVE VERTICAL (R=) REACTIONS AND MEET THE CONDITIONS PROVIDED IN THE DETAIL. DELEGATED DESIGNER SHALL PROVIDE CONNECTION CALCULATIONS FOR CONNECTION CONDITIONS THAT EXCEED THE LIMITATIONS OF THIS DETAIL. REFER TO "STRUCTURAL STEEL CONNECTIONS" IN THE STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.

3 TYPICAL BEAM TO HSS / PIPE / WF COLUMN SINGLE PLATE SHEAR CONNECTION DETAIL
NO SCALE

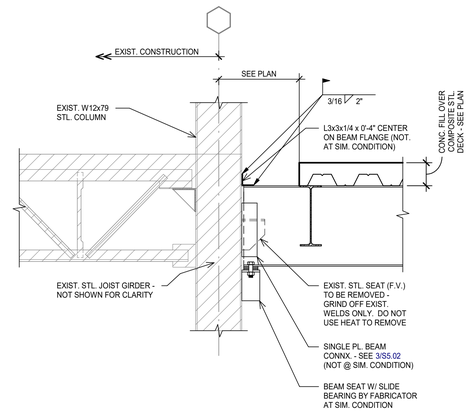


4 TYPICAL MOMENT CONNECTION DETAIL
NO SCALE

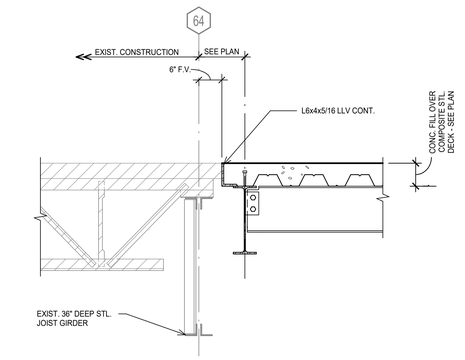


TYPICAL SINGLE BRACE DETAIL | TYPICAL DOUBLE BRACE DETAIL

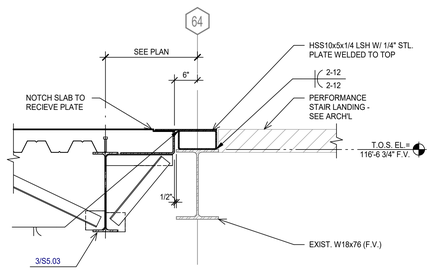
5 TYPICAL KNEE BRACE DETAIL
NO SCALE



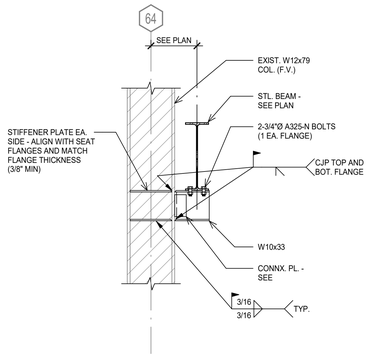
6 STEEL BEAM CONNECTION TO EXIST. COLUMN
SCALE: 3/4" = 1'-0"



7 STEEL BEAM CONNECTION TO EXIST. JOIST GIRDER
SCALE: 3/4" = 1'-0"



8 FLOOR SECTION AT STAIR LANDING
SCALE: 3/4" = 1'-0"



9 BEAM SEAT AT EXIST. COLUMN
SCALE: 3/4" = 1'-0"

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TYPICAL STEEL DETAILS

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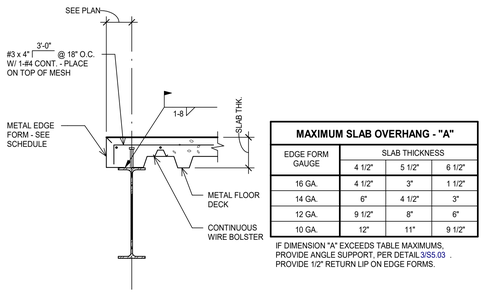
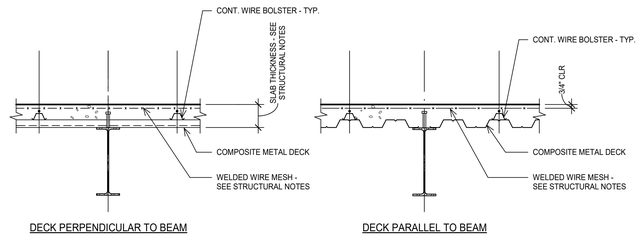


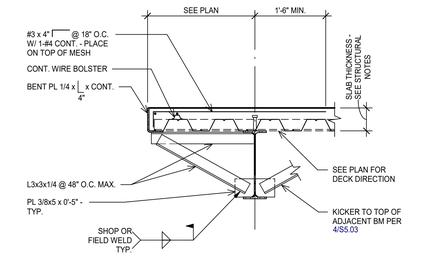
MAXIMUM SLAB OVERHANG - "A"			
EDGE FORM GAUGE	SLAB THICKNESS		
	4 1/2"	5 1/2"	6 1/2"
16 GA.	4 1/2"	3"	1 1/2"
14 GA.	6"	4 1/2"	3"
12 GA.	9 1/2"	8"	6"
10 GA.	12"	11"	9 1/2"

IF DIMENSION "A" EXCEEDS TABLE MAXIMUMS, PROVIDE ANGLE SUPPORT, PER DETAIL 3/S5.03 . PROVIDE 1/2" RETURN LIP ON EDGE FORMS.

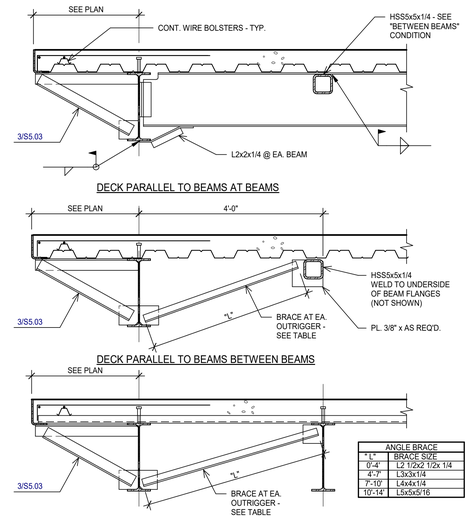
1 TYPICAL COMPOSITE SLAB EDGE CONDITION DETAIL
NO SCALE



2 TYPICAL COMPOSITE DECK DETAIL
NO SCALE

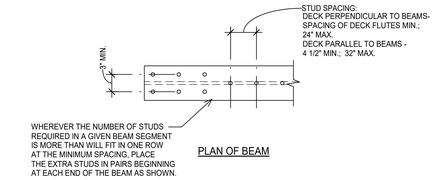


3 TYPICAL CANTILEVERED SLAB EDGE DETAIL
NO SCALE

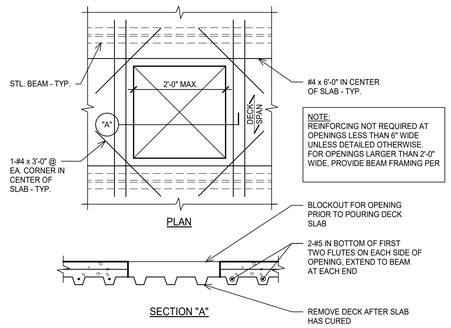


ANGLE BRACE	
"L"	BRACE SIZE
0'-4'	L2 1/2x2 1/2x 1/4
4'-7"	L3x3x1/4
7'-10'	L4x4x1/4
10'-14'	L5x5x5/16

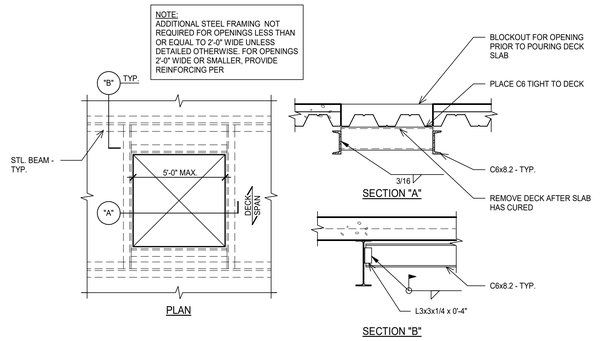
4 COMPOSITE SLAB CANTILEVERED EDGE CONDITION
NO SCALE



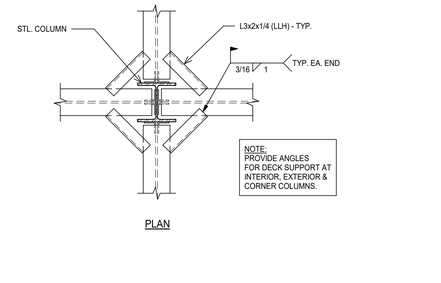
5 TYPICAL SHEAR STUD PLACEMENT DIAGRAM DETAIL
NO SCALE



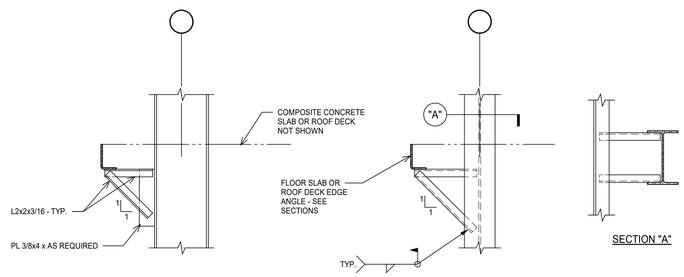
6 TYPICAL SMALL MECHANICAL OPENING IN COMPOSITE SLAB DETAIL
NO SCALE



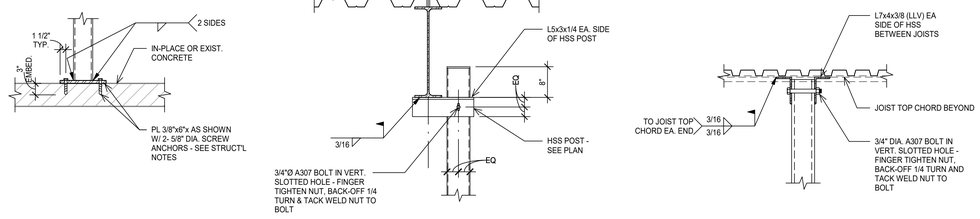
7 TYPICAL LARGE MECHANICAL OPENING IN COMPOSITE SLAB DETAIL
NO SCALE



8 TYPICAL DECK SUPPORT AT COLUMN DETAIL
NO SCALE



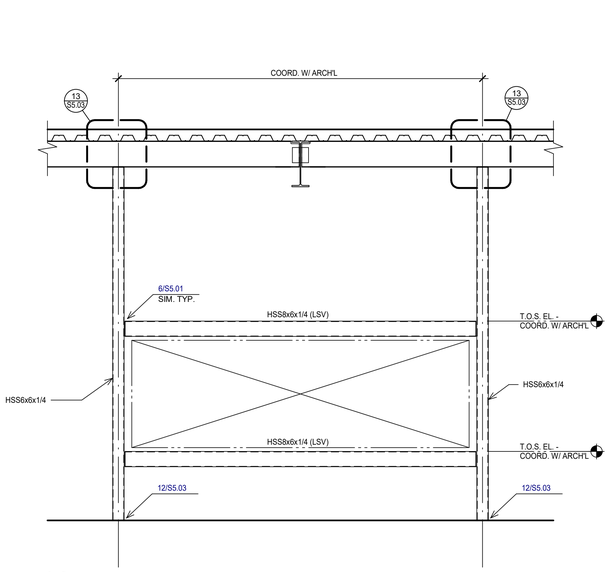
9 TYPICAL EDGE ANGLE SUPPORT AT COLUMN DETAIL
NO SCALE



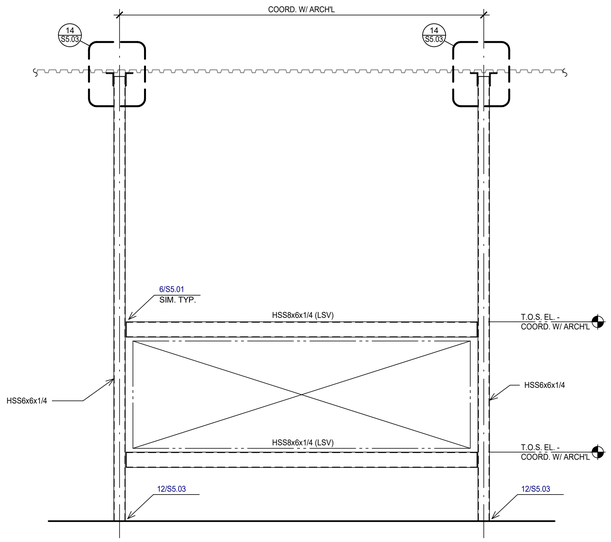
12 HSS H-FRAME BASE CONN.
SCALE: 3/4" = 1'-0"

13 HSS POST CONN.
SCALE: 3/4" = 1'-0"

14 DETAIL
SCALE: 3/4" = 1'-0"



10 H-FRAME ELEVATION (LEVEL 1)
SCALE: 3/8" = 1'-0"



11 H-FRAME ELEVATION (LEVEL 2)
SCALE: 3/8" = 1'-0"

4/1/25

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TYPICAL STEEL DETAILS

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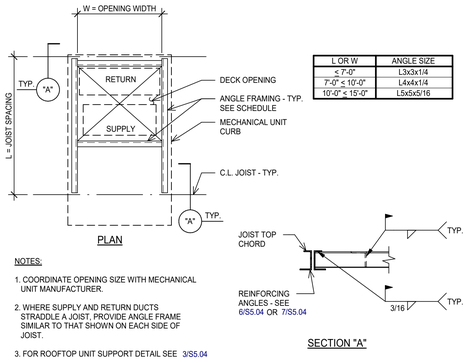


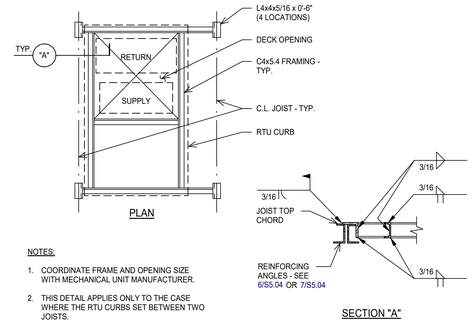
L OR W	ANGLE SIZE
< 7'-0"	L3x3x1/4
7'-0" < 10'-0"	L4x4x1/4
10'-0" < 15'-0"	L5x5x5/16

NOTES:

1. COORDINATE OPENING SIZE WITH MECHANICAL UNIT MANUFACTURER.
2. WHERE SUPPLY AND RETURN DUCTS STRADDLE A JOIST, PROVIDE ANGLE FRAME SIMILAR TO THAT SHOWN ON EACH SIDE OF JOIST.
3. FOR ROOFTOP UNIT SUPPORT DETAIL SEE 3/S5.04

1 TYPICAL SCHEMATIC ROOFTOP MOUNTED MECHANICAL UNIT OPENING FRAMING DETAIL

NO SCALE

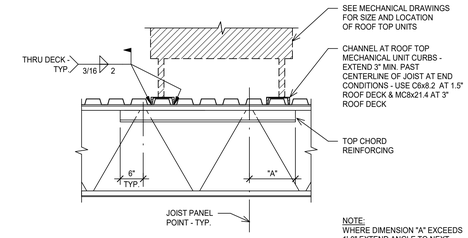


NOTES:

1. COORDINATE FRAME AND OPENING SIZE WITH MECHANICAL UNIT MANUFACTURER.
2. THIS DETAIL APPLIES ONLY TO THE CASE WHERE THE RTU CURBS SET BETWEEN TWO JOISTS.

2 TYPICAL SCHEMATIC ROOFTOP MOUNTED MECHANICAL UNIT OPENING FRAMING DETAIL

NO SCALE

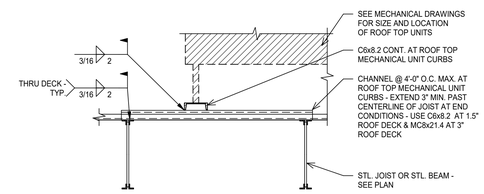


MECHANICAL UNIT SUPPORTED ON JOISTS

NOTE:
WHERE DIMENSION "A" EXCEEDS 1'-0" EXTEND ANGLE TO NEXT JOIST PANEL POINT

3 TYPICAL MECHANICAL UNIT SUPPORTED ON JOISTS - CURB PERPENDICULAR TO JOISTS

NO SCALE



MECHANICAL UNIT SUPPORTED ON JOISTS - LONG SIDE OF UNIT PARALLEL TO JOISTS

4 TYPICAL MECHANICAL UNIT SUPPORTED ON JOISTS - LONG SIDE OF UNIT PARALLEL TO JOISTS

NO SCALE

NOTES:

1. THIS DETAIL APPLIES WHEREVER A CONCENTRATED LOAD GREATER THAN 100 POUNDS OCCURS MORE THAN 4" AWAY FROM A JOIST TOP OR BOTTOM CHORD PANEL POINT. MAXIMUM LOAD TO BE APPLIED WITHOUT CONSULTATION WITH ENGINEER IS 250 POUNDS. DO NOT PLACE CONCENTRATED LOADS CLOSER THAN 4'-0" O.C.
2. ALL HANGERS OR ATTACHMENTS TO JOISTS SHALL BE PLACED CONCENTRIC WITH THE TOP AND BOTTOM CHORD(S) AND SHALL NOT ATTACH TO ONLY ONE ANGLE OF CHORD.

5 TYPICAL JOIST CHORD REINFORCEMENT DETAIL

NO SCALE

NOTES:

1. TOP CHORD SHALL BE REINFORCED WHEREVER A CONCENTRATED LOAD IN EXCESS OF 100 POUNDS DOES NOT OCCUR WITHIN 4" OF A JOIST TOP CHORD PANEL POINT. MAXIMUM LOAD TO BE APPLIED WITHOUT CONSULTATION WITH ENGINEER IS 250 POUNDS. DO NOT PLACE CONCENTRATED LOADS CLOSER THAN 4'-0" O.C.
2. ALL HANGERS OR ATTACHMENTS TO JOISTS SHALL BE PLACED CONCENTRIC WITH THE TOP CHORD, AND SHALL NOT ATTACH TO ONLY ONE ANGLE OF CHORD.

6 TYPICAL TOP CHORD REINFORCEMENT FOR KCS OR K-SERIES JOISTS DETAIL

NO SCALE

NOTES:

1. TOP CHORD SHALL BE REINFORCED WHEREVER A CONCENTRATED LOAD IN EXCESS OF 100 POUNDS DOES NOT OCCUR WITHIN 4" OF A JOIST TOP CHORD PANEL POINT. MAXIMUM LOAD TO BE APPLIED WITHOUT CONSULTATION WITH ENGINEER IS 250 POUNDS. DO NOT PLACE CONCENTRATED LOADS CLOSER THAN 4'-0" O.C.
2. ALL HANGERS OR ATTACHMENTS TO JOISTS SHALL BE PLACED CONCENTRIC WITH THE TOP CHORD, AND SHALL NOT ATTACH TO ONLY ONE ANGLE OF CHORD.

7 TYPICAL TOP CHORD REINFORCEMENT FOR LH-SERIES JOISTS

NO SCALE

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TYPICAL STEEL DETAILS

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ABBREVIATIONS

AA	AUTOMATICALLY ACTUATED
ABS	ABSOLUTE
ABV	ABOVE
AC	ABOVE COUNTER
ACMU	ARCHITECTURAL CEMENTITIOUS MASONRY UNIT
ACOUS	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AG	ACRYLIC GLAZING
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
ANCH	ANCHOR
AP	ACCESS PANEL
APX	APPROXIMATE
ARCH	ARCHITECT(URAL)
AUTO	AUTOMATIC
BD	BOARD
BLDG	BUILDING
BLK	BLOCK
BM	BENCH MARK
BO	BOTTOM OF
BOD	BASIS OF DESIGN
BOT	BOTTOM
BR	BRICK
BRG	BEARING
BS	BOTH SIDES
BSMT	BASEMENT
BUR	BUILT UP ROOFING
CA	CARD ACTUATED
CAB	CABINET
CB	CHALKBOARD
CCTV	CLOSED CIRCUIT TELEVISION
CF	CORK FLOORING
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CG	CORNER GUARD
CH	CONDUCTOR HEAD
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASORY UNIT
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
COND	CONDITION
CONST	CONSTRUCTION
CONT	CONTINUOUS, CONTINUE
CORR	CORRIDOR
CPT	CARPET
CR	CARD READER
CS	CUSTOM STEEL
CT	CERAMIC TILE
CTR	COUNTER
CTSK	COUNTERSUNK
CW	COLD WATER
D	DEEP/DEPTH/DRAIN
DBL	DOUBLE
DF	DRINKING FOUNTAIN
DFS	DOOR AND FRAME SCHEDULE
DIA	DIAMETER
DIM	DIMENSION
DIV	DIVISION
DN	DOWN
DPR	DISPENSER
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DWG	DRAWING
E	EAST
EA	EACH
EB	EXPANSION BOLT
ECUH	ELECTRIC CABINET UNIT HEATER
EF	EACH FACE
EIFS	EXTERIOR INSUL. FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATION/ELEVATOR
EMER	EMERGENCY
ENC	ENCLOSURE
EOS	EDGE OF SLAB
EP	ELECTRICAL PANEL
EPS	EXPANDED POLYSTYRENE
EQ	EQUAL
EQUIP	EQUIPMENT
EST	ESTIMATE
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FA	FRESH AIR
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAS	FASTENER
FB	FACE BRICK
FBO	FURNISHED BY OTHERS
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONECTION
FE	FIRE EXTINGUISHER
FEB	FIRE EXTINGUISHER BRACKET
FEC	FIRE EXTINGUISHER CABINET\
FF	FINISH FLOOR
FFCO	FLUSH FLOOR CLEANOUT
FFE	FINISHED FLOOR ELEVATION
FFL	FINISHED FLOOR LINE
FH	FLAT HEAD
FHC	FIRE HOSE CABINET
FHMS	FLAT HEAD MACHINE SCREW
FHWS	FLAT HEAD WOOD SCREW
FIN	FINISH
FL	FLOW LINE
FLUOR	FLUORESCENT
FND	FOUNDATION
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUCCO
FP	FIREPROOF(ING)
FR	FIRE RATED
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FLOOR SINK
FT	FEET
FTG	FOOTING
FUR	FURRING
FUT	FUTURE
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GD	GRADE/GRADING
GF	GROUND FACE
GFRC	GLASS FIBER REINFORCED CONCRETE
GR	GRADE, GRADING
GYP	GYPSUM
GYP BD	GYPSUM BOARD
H	HIGH/HEIGHT
HB	HOSE BIB
HM	HOLLOW METAL
HO	HOLD OPEN
HORZ	HORIZONTAL
HR	HOUR
HT	HEIGHT
HVAC	HEATING/VENTILATING/AIR CONDITIONING
HW	HOT WATER
HWD	HARD WOOD
ID	INSIDE DIAMETER
IN	INCHES
INCL	INCLUDE(D), (ING)
INSUL	INSULATION, INSULATING
INT	INTERIOR
INTM	INTERMEDIATE
JB	JUNCTION BOX
JF	JOINT FILLER
JST	JOIST
JT	JOINT
KB	KEYBOARD
KIT	KITCHEN
KO	KNOCK OUT
KS	KNEE SPACE
L	LONG/LENGTH
LAM	LAMINATE
LAV	LAVATORY
LH	LEFT HAND
LIN	LINOLEUM
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LMS	LIMESTONE
LT	LIGHT
LTL	LINTEL
LW	LIGHT WEIGHT
LWC	LIGHT WEIGHT CONCRETE
LWCMU	LIGHT WEIGHT CONCRETE MASONRY UNIT
M	METER(S)
MAS	MASONRY
MAT	MATERIAL(S)
MAX	MAXIMUM
MB	MARKERBOARD
MDF	MEDIUM DENSITY FIBERBOARD
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBRANE
MFR	MANUFACTURE/MANUFACTURER
MH	MANHOLE
MHO	MAGNETIC HOLD OPEN
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MLD	MOLDING, MOULDING
MO	MASONRY OPENING
MOD	MODULAR
MS	METAL STUDS
MT	MOUNT(ED), (ING)
MTFR	METAL FURRING
MTL	METAL
MTLR	METAL ROOF
MULL	MULLION
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NR	NOISE REDUCTION
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER (or) OVERFLOW DRAIN
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OFVI	OWNER FURNISHED VENDOR INSTALLED
OH	OVERHEAD
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
PAR	PARAPET
PAV	PAVING
PB	PUSH BUTTON
PC	PORTLAND CEMENT
PCC	PRECAST CONCRETE
PED	PEDESTRIAN
PERIM	PERIMETER
PERP	PERPENDICULAR
PFB	PREFABRICATE(D)
PIC	POLYISOCYANURATE
PK	PARKING
PL	PLATE
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLWD	PLYWOOD
PNL	PANEL
PR	PAIR
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT, PAINTED
PTR	PAPER TOWEL RECEPTOR
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
QT	QUARRY TILE
QTY	QUANTITY
R	RADIUS OR RISER
RA	RETURN AIR
RAD	RADIUS
RB	RUBBER BASE
RBT	RABBET
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RE	REFERENCE
RECEP	RECEPTACLE
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCED(ING)
REM	REMOVE
REQ	REQUIRE(D)
RES	RESILIENT
RET	RETURN
REV	REVISION
RFG	ROOFING
RFL	REFLECT(ED), (IVE), (OR)
RFS	ROOM FINISH SCHEDULE
RH	RIGHT HAND
RM	ROOM
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
RVRS	REVERSE
S	SOUTH
SA	SUPPLY AIR
SAM	SELF-ADHERED MEMBRANE
SAN	SANITARY
SCHED	SCHEDULE
SD	STORM DRAIN
SECT	SECTION
SF	SQUARE FEET
SHT	SHEET
SHTH	SHEATHING
SHWR	SHOWER
SIM	SIMILAR
SLNT	SEALANT
SND	SANITARY NAPKIN DISPENSER
SNR	SANITARY NAPKIN RECEPTACLE
SPC	SPACE
SPCR	SPACER
SPEC	SPECIFICATION(S)
SPKR	SPEAKER
SQ	SQUARE
SS	SOLID SURFACE
SSK	SERVICE SINK
SST	STAINLESS STEEL
ST	SPECIAL TREATMENT
STA	STATION
STD	STANDARD
STL	STEEL
STN	STONE
STOR	STORAGE
STP	STANDPIPE
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SY	SQUARE YARD
SYM	SYMMETRICAL
SYS	SYSTEM
T	TREAD
T&G	TONGUE AND GROOVE
TBD	TO BE DETERMINED
TD	TRENCH DRAIN
TEL	TELEPHONE
THK	THICK(NESS)
THRU	THROUGH
TLT	TOILET
TO	TOP OF
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL, TOP OF SLAB
TOW	TOP OF WALL
TPD	TOILET PAPER DISPENSER
TPTN	TOILET PARTITION
TS	TUBE STEEL
TYP	TYPICAL
TZ	TERRAZZO
UC	UNDER CONTRACT
UNF	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
US	URINAL SCREEN
VB	VAPOR BARRIER
VCT	VINYL COMPOSITE TILE
VERT	VERTICAL
VEST	VESTIBULE
VFCI	VENDOR FURNISHED CONTRACTOR INSTALLED
VFOI	VENDOR FURNISHED OWNER INSTALLED
VFVI	VENDOR FURNISHED VENDOR INSTALLED
VIF	VERIFY IN FIELD
W	WIDE/WIDTH
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WDB	WOOD BASE
WDO	WINDOW
WG	WIRE GLASS
WO	WHERE OCCURS
WPG	WATERPROOFING
WS	WRITABLE SURFACE
WS	WATERSTOP
WSCT	WAINSCOT
WT	WEIGHT
WTW	WALL TO WALL
WWF	WELDED WIRE FABRIC

MATERIALS

- FACE BRICK (PLAN/SECTION)
- CAST STONE (ELEVATION)
- RIGID INSULATION
- SPRAYED INSULATION
- CONCRETE MASONRY
- ASPHALT SHINGLES
- CONCRETE
- UNDISTURBED EARTH
- DISTURBED EARTH
- METAL STUD/STEEL
- GYPSUM BOARD
- DRAINAGE FILL
- PLYWOOD
- BLANKET OR LOOSE FILL INSULATION
- WOOD FINISH
- DEMOLITION
- EXISTING
- NEW PARTITION

SYMBOLS

DETAIL SECTION — DETAIL NUMBER 1 / A101 / SHEET NUMBER

ELEVATION LEVEL — NAME / ELEVATION

BUILDING SECTION — DETAIL NUMBER 1 / A101 / SHEET NUMBER

CEILING TAG W/ HEIGHT/MATERIAL — 1'-0" APC1 — HEIGHT ABOVE FINISH FLOOR, UNO / CEILING TYPE

WALL SECTION — DETAIL NUMBER 1 / A101 / SHEET NUMBER

DOOR TAG — 201A — UNIQUE ID / ROOM NUMBER

BUILDING ELEVATION / INTERIOR ELEVATION — 1 DETAIL NUMBER / A101 / SHEET NUMBER

WINDOW TAGS — AA / 3'-0" — AFF (WIN. SILL)

PLAN DETAIL — DETAIL NUMBER 1 / A101 / SHEET NUMBER

GLAZING TAGS — ?

GRID LINE - NEW — 0

GRID LINE - EXISTING — 0

PLAN NOTE & DEMO NOTE — P01

NORTH ARROW

REVISION TAG — 99 — REVISION NUMBER

PARTITION TYPE INDICATOR — PARTITION TYPE / DIMENSIONAL MODIFIER / TYPE MODIFIER / RATING - WHERE APPLIES — A321 — PARTITION

ROOM TAG — ROOM NAME 101 — ROOM NAME / ROOM NUMBER

ROOM TAG W/ AREA — ROOM NAME 101 150 SF — ROOM NAME / ROOM NUMBER / ROOM SF

CASEWORK TAG — B 12" — AWI # or PRODUCT # / WIDTH / DEPTH

SPECIALTY EQUIPMENT TAG — 1i

CARD READER LOCATION — CR — (REFER TO A501 FOR TYPICAL ROUGH-IN DETAILS)

GRAPHIC SCALE — 0 4' 8' 16'

GENERAL NOTES

1. GENERAL NOTES APPLY TO WORK OF THIS PROJECT, INCLUDING CHANGES TO THE WORK APPROVED BY THE OWNER.
2. VISIT SITE AND BECOME FAMILIAR WITH LOCAL CONDITIONS. CORRELATE PERSONAL OBSERVATIONS WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS.
3. CONTRACT DOCUMENTS INDICATE THE DESIGN INTENT. PROVIDE MINOR MODIFICATIONS NECESSARY TO SUIT JOB CONDITIONS AS PART OF THE WORK, WITH ARCHITECT'S DIRECTION.
4. CONTRACT DOCUMENTS ARE COMPLEMENTARY. BEFORE STARTING EACH PORTION OF THE WORK, STUDY AND COMPARE THE CONTRACT DOCUMENTS RELATIVE TO THAT PORTION OF THE WORK, TAKE FIELD MEASUREMENTS OF EXISTING CONDITIONS RELATED TO THAT PORTION OF THE WORK, AND OBSERVE CONDITIONS AT THE SITE AFFECTING IT, TO FACILITATE COORDINATION AND CONSTRUCTION. REPORT ERRORS, OMISSIONS AND INCONSISTENCIES IMMEDIATELY TO THE ARCHITECT.
5. FEES, TAXES, PERMITS, APPLICATIONS, CERTIFICATES OF INSPECTION, AND THE FILING OF WORK WITH GOVERNMENTAL AGENCIES, ARE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR, U.N.O.
6. COMPLY WITH APPLICABLE CODES, ORDINANCES, REGULATIONS, AND AUTHORITIES HAVING JURISDICTION, AS A MINIMUM STANDARD.
7. COOPERATE WITH AUTHORITIES HAVING JURISDICTION AND SPECIAL INSPECTORS. PROVIDE TIMELY NOTIFICATION IN ADVANCE OF INSPECTIONS, AND ASSISTANCE AND FACILITIES TO ACCOMMODATE INSPECTIONS.
8. DO NOT PERFORM CHANGES TO THE WORK AFFECTING THE CONTRACT SUM OR CONTRACT TIME WITHOUT WRITTEN AUTHORIZATION FROM THE ARCHITECT.
9. MINIMIZE INTERFERENCE WITH USE OF PUBLIC WAYS AND ADJACENT FACILITIES. DO NOT CLOSE, BLOCK OR OTHERWISE OBSTRUCT USE OF PUBLIC WAYS OR FACILITIES WITHOUT CONSENT OF OWNER AND/OR AUTHORITIES HAVING JURISDICTION.
10. PROTECT EXISTING UTILITIES INDICATED TO REMAIN IN SERVICE.
11. DO NOT INTERRUPT EXISTING UTILITIES UNLESS AUTHORIZED BY OWNER AND/OR AUTHORITIES HAVING JURISDICTION. WHEN REQUIRED, PROVIDE ALTERNATE TEMPORARY SERVICES ACCEPTABLE TO GOVERNING AUTHORITIES.
12. PROVIDE WORK TO MEET OR EXCEED THE LEVEL OR STANDARD OF QUALITY INDICATED ON THE CONSTRUCTION DOCUMENTS.
13. INSTALL MANUFACTURED ITEMS, MATERIALS AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS, U.N.O.
14. WHERE A MANUFACTURER IS SPECIFIED, THE NAME OR PRODUCT LISTED IS A BASIS OF DESIGN. WHERE THE TERM "OR APPROVED EQUAL" OR "OR EQUIVALENT" IS USED, THE ARCHITECT SHALL DETERMINE EQUIVALENCE AND ACCEPTABILITY BASED UPON THE INFORMATION SUBMITTED, PRIOR TO USE.
15. WHERE PRODUCTS ARE INDICATED, NOTED, NAMED, DESCRIBED, OR REFERENCED IN THE PROJECT DOCUMENTS BUT NOT FULLY DETAILED OR FULLY SPECIFIED, PROVIDE SUCH PRODUCT, INSTALLED IN ACCORDANCE WITH CURRENT (1) REFERENCED BUILDING CODES, ORDINANCES, AND REGULATIONS, (2) PRODUCT MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS, (3) GENERALLY ACCEPTED GOOD CONSTRUCTION PRACTICE STANDARDS, WITH PRECEDENCE IN THAT ORDER. PROVIDE SUCH PRODUCTS COMPLETE WITH HARDWARE, ACCESSORIES, ATTACHMENTS, CONTROLS AND OTHER DEVICES REQUIRED FOR THE PROPER INSTALLATION TO PROVIDE A COMPLETE OPERATIONAL SYSTEM WITH THE QUALITY OF WORKMANSHIP NOT LESS THAN INDUSTRY-ACCEPTED STANDARDS OF THAT TRADE.
16. INSTALL PLUMBING, MECHANICAL AND ELECTRICAL EQUIPMENT TO OPERATE QUIETLY AND WITH MINIMAL VIBRATION.
17. KEEP THE WORK FREE OF ACCUMULATIONS OF WASTE MATERIALS AND DEBRIS. USE METHODS AGREEABLE TO THE OWNER FOR WASTE REMOVAL.
18. ARCHITECTURAL DIMENSIONS ARE TO FACE OF CONCRETE, FACE OF MASONRY, FACE OR CENTERLINE OF STUD, OR STRUCTURAL GRID LINE, U.N.O. MASONRY DIMENSIONS ARE NOMINAL, U.N.O. ALIGN FACE OF MASONRY WITH FACE OF CONCRETE WALLS, COLUMNS OR PILASTERS WHERE APPLICABLE. "CLEAR" DENOTES MINIMUM FINISH-TO-FINISH DIMENSION.
19. FIELD-VERIFY GRADES, LINES, LEVELS AND DIMENSIONS SHOWN ON THE DRAWINGS.
20. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL GOVERN. DETAILS SHALL GOVERN OVER PLANS AND ELEVATIONS; LARGE SCALE DETAILS SHALL GOVERN OVER SMALL SCALE DETAILS.
21. PROTECT EXISTING PROPERTY AND WORK FROM DAMAGE. REPAIR OR REPLACE ITEMS DAMAGED BY CONSTRUCTION ACTIVITY TO MATCH CONDITIONS PRIOR TO START OF WORK.
22. PROTECT THE WORK FROM WEATHER-RELATED DAMAGE.
23. PROVIDE CAST-IN-PLACE CONCRETE BASES FOR FLOOR-MOUNTED MECHANICAL AND ELECTRICAL EQUIPMENT. VERIFY SIZE AND LOCATION OF BASES WITH MECHANICAL AND ELECTRICAL CONTRACTORS.
24. PROVIDE 3-1/2" HIGH, CAST-IN-PLACE RECTANGULAR CONCRETE PADS WHERE ELECTRICAL CONDUITS PENETRATE FLOORS AND ARE EXPOSED TO VIEW. EXTEND PADS LATERALLY 4" MIN. FROM CONDUITS.
25. PROVIDE (FIRE-RETARDANT TREATED, WHERE REQUIRED) WOOD BLOCKING FOR SUPPORT OF CASEWORK, GRAB BARS, TOILET, BATH AND CLOSET ACCESSORIES, VISUAL DISPLAY SURFACES AND EQUIPMENT, DOOR STOPS, FIXTURES AND SPECIALTY ITEMS. KERF BLOCKING TO FIT SNUGLY BETWEEN STUDS AND TO FIT TIGHTLY AGAINST BACK OF GYPSUM BOARD. BLOCK CONTINUOUSLY AT TOP AND BOTTOM OF BASE, WALL AND TALL CABINETS.
26. PROVIDE METAL BLOCKING FOR SUPPORT OF CASEWORK, GRAB BARS, TOILET, BATH AND CLOSET ACCESSORIES, VISUAL DISPLAY SURFACES AND EQUIPMENT, DOOR STOPS, FIXTURES AND SPECIALTY ITEMS. INSTALL BLOCKING TO FIT SNUGLY BETWEEN STUDS AND TO FIT TIGHTLY AGAINST BACK OF GYPSUM BOARD. BLOCK CONTINUOUSLY AT TOP AND BOTTOM OF BASE, WALL AND TALL CABINETS.
27. INSTALL TOP OF FLOOR DRAINS 1/2" BELOW FINISH FLOOR ELEVATION, U.N.O. PROVIDE POSITIVE SLOPE TO DRAINS FROM ALL DIRECTIONS, SO THAT WATER DOES NOT POND ON FLOOR AWAY FROM DRAINS.
28. PROTECT EXISTING CONSTRUCTION, MATERIALS AND FINISHES WITH ENCLOSURES AND OTHER SUITABLE MEASURES. COMPLY WITH GOVERNING REGULATIONS REGARDING ENVIRONMENTAL PROTECTION. REPAIR ANY DAMAGE TO MATCH CONDITIONS PRIOR TO START OF WORK.
29. REMOVE EXISTING ITEMS NOT SHOWN TO REMAIN, AND AS REQUIRED TO ACCOMMODATE NEW WORK. SALVAGE ITEMS WHERE INDICATED.
30. INFILL OR PATCH UNUSED OPENINGS IN FLOOR, WALL, CEILING AND ROOF ASSEMBLIES, AS REQUIRED TO MAINTAIN SMOKE, FIRE OR SOUND RATING, AND /OR STRUCTURAL CAPACITY, MATCH TEXTURE, COLOR AND FINISH OF ADJACENT SURFACE WHERE EXPOSED TO VIEW.

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GENERAL NOTES / ABBREVIATIONS

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WALL SCHEDULE

TYPE	Type	DIM.	FIRE RATING	SOUND BATT	UL NO.	STC(SOUND)	COMMENTS
A6	A6 - MTL STUD_SGL LAYER OF GYP BD, BS_TO ROOF OR BOTTOM OF DECK	7 1/4"	-	-	-	-	
A6-1	A6-1 - MTL STUD_SGL LAYER OF GYP BD, BS_TO ROOF OR BOTTOM OF DECK (1-HR RATED)	7 1/4"	1HR (Fire)	-	UL U419	-	
A6S	A6S - MTL STUD_SGL LAYER OF GYP BD, BS_TO ROOF OR BOTTOM OF DECK (SMOKE PARTITION)	7 1/4"	0HR (Smoke)	-	-	-	
F3	F3 - MTL STUD_SGL LAYER OF GYP BD, SS_TO ROOF OR BOTTOM OF DECK	4 1/4"	-	-	-	-	
F6	F6 - MTL STUD_SGL LAYER OF GYP BD, SS_TO ROOF OR BOTTOM OF DECK	6 5/8"	-	-	-	-	
X6-1	X6-1 (1 HR) MTL CH STUD_SGL LAYER OF GYP BD W/ SHAFT LINER, BS_TO ROOF OR BOTTOM OF DECK (1-HR RATED)	7 1/4"	1HR (Fire)	-	UL U469	-	

PARTITION TYPE MARK A3z1

- PARTITION TYPE
- DIMENSIONAL MODIFIER
- TYPE MODIFIER
- RATING - WHERE APPLIES

PARTITION TYPE:

A. MTL STUD_SGL LAYER OF GYP BD, BS_TO ROOF OR BOTTOM OF DECK
B. MTL STUD_SGL LAYER OF GYP BD, BS_4" ABV CLG
C. MTL STUD_SGL LAYER OF GYP BD, BS_PARTIAL HEIGHT
D. MTL STUD_DBL LAYER OF GYP BD, BS_TO ROOF OR BOTTOM OF DECK
E. MTL STUD_SGL LAYER OF GYP BD, SS,DBL LAYER OF GYP BD, SS_TO ROOF OR BOTTOM OF DECK
F. MTL STUD_SGL LAYER OF GYP BD,SS_4" ABV CLG
G. MTL STUD_DBL LAYER OF GYP BD, SS_TO ROOF OR BOTTOM OF DECK
H. MTL STUD_DBL LAYER OF GYP BD, SS_SGL LAYER OF GYP BD, SS_TO ROOF OR BOTTOM OF DECK
I. NOT USED
J. N/A
K. MTL DBL STUD_SGL LAYER OF GYP BD,BS_TO ROOF OR BOTTOM OF DECK
L. N/A
M. MTL FURRING_SGL LAYER OF GYP BD_4" ABV CLG
N. MTL FURRING_DBL LAYER OF GYP BD_4" ABV CLG
O. NOT USED
P. N/A
Q. CMU_TO ROOF OR BOTTOM OF DECK
R. CMU_4" ABOVE CEILING AND BRACED TO STRUCTURE
S. CMU_PARTIAL HEIGHT
T. CMU_4" ABOVE CEILING, BRACE TO STRUCTURE, TYPE A WALL ABOVE
U. CMU,TO ROOF OR BOTTOM OF DECK, 1 1/2" MTL FURRING, SS_SGL LAYER OF GYP BD, SS_4" ABV CLG
V. CMU,TO ROOF OR BOTTOM OF DECK, 1 1/2" MTL FURRING, BS_SGL LAYER OF GYP BD, BS_4" ABV CLG
W. N/A
X. SHAFT WALL_SGL LAYER OF GYP BD, SS_TO ROOF OR BOTTOM OF DECK
Y. SHAFT WALL_DBL LAYER OF GYP BD, SS_TO ROOF OR BOTTOM OF DECK
Z. N/A

DIMENSIONAL MODIFIER

MTL STUD
0 - 7/8"
1 - 1 5/8"
2 - 2 1/2"
3 - 3 5/8"
4 - 4"
5 - 5"
6 - 6"

SHAFT WALL
2 - 2 1/2" SHAFT WALL FRAMING
4 - 4" SHAFT WALL FRAMING
6 - 6" SHAFT WALL FRAMING

CMU
1 - 9 5/8"
2 - 11 5/8"
4 - 3 5/8"
6 - 5 5/8"
8 - 7 5/8"

WOOD
4 - 2X4
6 - 2X6
8 - 2X8

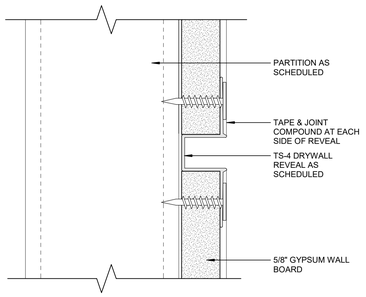
TYPE MODIFIER:

a. ACOUSTIC, SOUND, STC
b. EXPANDED METAL
c. EXPANDED METAL/ACOUSTIC, SOUND, STC
d. FIRE BARRIER
e. FIRE BARRIER/ACOUSTIC, SOUND, STC
f. FIRE PARTITION
g. FIRE PARTITION/ACOUSTIC, SOUND, STC
h. FIRE WALL
i. Do not use
j. FIRE WALL/ACOUSTIC, SOUND, STC
k. LEAD
l. Do not use
m. LEAD/ACOUSTIC, SOUND, STC
n. RF SHIELDED/ACOUSTIC, SOUND, STC
o. RF SHIELDED/ACOUSTIC, SOUND, STC/EXPANDED METAL
p. SECURITY
q. SECURITY/ACOUSTIC, SOUND, STC
r. SMOKE BARRIER
s. Do not use
t. RF SHIELDED/ACOUSTIC, SOUND, STC/LEAD

RATING:

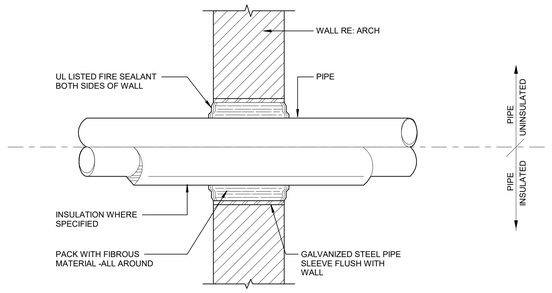
0 - NON-RATED
1 - 1 HOUR
2 - 2 HOUR
3 - 3 HOUR
4 - 4 HOUR
5 - 1/2 HOUR

S - SMOKE



DRYWALL REVEAL, TYP.
12" = 1'-0"

A4

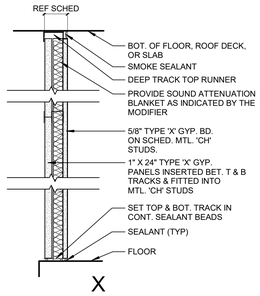


NOTES:

1. WHERE PIPING IS EXPOSED TO VIEW PROVIDE WITH ESCUTCHEON.

PIPE PENETRATION THRU FIRE-RATED WALL

NO SCALE



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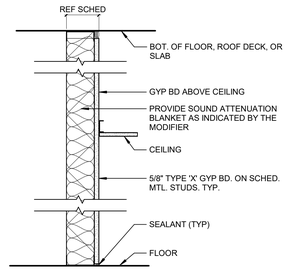

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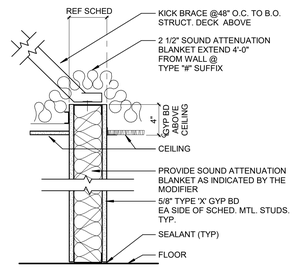

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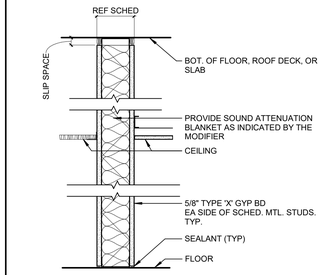
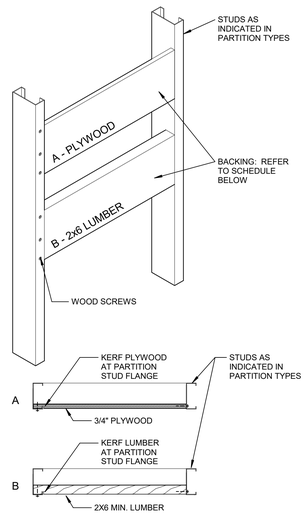


A

BACKING PLATE DETAIL:



BACKING PLATE SCHEDULE

TYPE	A	B
DESCRIPTION	3/4" PLYWOOD	2X6 NOMINAL LUMBER

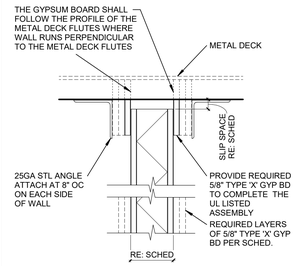
1. PROVIDE CONCEALED PLYWOOD OR LUMBER BACKING (FIRE-RETARDANT-TREATED WHERE REQUIRED) FOR SUPPORT OF WALL-MOUNTED GRAB BARS, HANDRAILS, FIXTURES, ACCESSORIES, SPECIALTIES, EQUIPMENT, TRIM AND CABINETS.
2. EXTEND BACKING TO NEXT STUD BEYOND ATTACHMENT LOCATION, BOTH DIRECTIONS.
3. ANCHOR BACKING SECURELY TO STUDS. KERF BACKING AT STUD FLANGES SO BACKING IS TIGHT TO BACK OF GYPSUM BOARD.

SLIP SPACE SCHEDULE

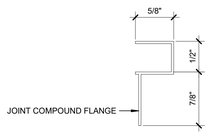
HORIZONTAL SPAN OF FLOOR BETWEEN BEAMS	OTHER FLOORS	ROOF
≤ 30 FEET	1.5 INCH	2 INCH
30 FEET TO ≤ 50 FEET	2.5 INCHES	3.3 INCHES
50 FEET TO ≤ 60 FEET	3 INCHES	4 INCHES
60 FEET TO ≤ 70 FEET	3.5 INCHES	4.7 INCHES

1. REFER TO STRUCTURAL DRAWINGS FOR BEAM SPANS.
2. SLIP SPACES GREATER THAN 1 1/2" SHALL USE PROPRIETARY DEEP LEG DEFLECTION TRACK.

OPTIONAL HEAD DETAIL



"F" REVEAL FRY REGLET DRMF-625-50



MT-1
12" = 1'-0"

PARTITION NOTES:

A. STUD SPACING IS 16 INCHES ON CENTER MAX.

B. REFER TO THE DASHED LINES ON THE LIFE SAFETY PLANS FOR ALL FIRE RATING LOCATIONS. PARTITIONS MUST CONFORM TO TESTED, RATED ASSEMBLIES WHEN THEY ARE INDICATED TO BE RATED ON THE ARCHITECTURAL CODE PLANS. WHEN NO RATING IS INDICATED, CONSTRUCT THE PARTITION PER THE INDICATED TYPE AS A NON-RATED ASSEMBLY.

C. LABEL FIRE AND SMOKE WALLS AS FOLLOWS: LABEL BOTH SIDES; LABEL ALL SECTIONS; USE 4" HIGH STENCILS; USE FLUORESCENT ORANGE PAINT; LOCATE ABOUT 12" ABOVE THE FINISHED CEILING; SPACE STENCILS 10 FEET OC MAX; SPECIFIC LABELS TO READ "1HR", "2HR", "1HR SMOKE", "2HR SMOKE", "SMOKE", ETC AS IDENTIFIED IN THE LIFE SAFETY PLANS.

D. PROVIDE FIRE STOP & SMOKE STOP SYSTEMS PER SPECIFICATION AT ALL PENETRATIONS & OPENINGS (INCLUDING THE PERIMETER) THROUGH FIRE RATED WALLS.

E. SEAL ALL PENETRATIONS & OPENINGS (INCLUDING THE PERIMETER) PER SPECIFICATIONS IN ALL SOUND RATED WALLS.

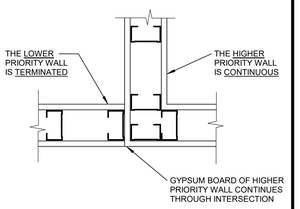
F. THE PARTITION TYPES INDICATE THE BASIC WALL CONSTRUCTION ONLY. REFER TO ALL OF THE CONSTRUCTION DOCUMENTS FOR OTHER REQUIREMENTS INCLUDING: MECHANICAL, ELECTRICAL, PLUMBING, BLOCKING & BACKING, WALL BASE, WALL FINISH, AND RECESSED & SURFACE MOUNTED EQUIPMENT.

G. PROVIDE TESTED, RATED ASSEMBLIES AT THE TOP OF ALL PARTITIONS INDICATED TO BE FIRE OR SMOKE RATED THAT EXTEND TO THE BOTTOM OF STRUCTURE OR DECK ABOVE. ALL ASSEMBLIES SHALL BE TESTED BY UNDERWRITERS LABORATORY OR OTHER TESTING FACILITY ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION. PROVIDE A FIRE AND SMOKE RATING CONSISTENT WITH THE PARTITION. THE ASSEMBLY SHALL ALLOW VERTICAL MOVEMENT PER THE SLIP SPACE SCHEDULE.

H. WHEN WALLS CONTINUE PAST INTERMEDIATE STRUCTURE, FOR EXAMPLE IN MULTI-STORY STAIR ENCLOSURES, ATTACHMENT TO INTERMEDIATE STRUCTURE SHALL BE WITH A SLOTTED CONNECTION OR OTHER MEANS SO THAT STRUCTURAL DEFLECTION WILL NOT TRANSFER LOADS TO WALL FRAMING.

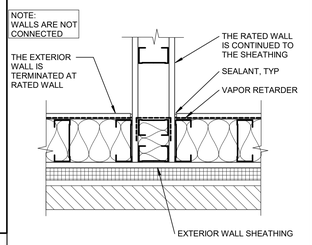
I. WHERE METAL DECK ASSEMBLIES AND FIRE RATED WALLS MEET, THE CONTRACTOR MAY INSTALL FIRE RATED MINERAL BATT INSULATION WITH FIRE CAULKING OR USE THE HEAD OF DETAIL SHOWN BELOW THE SLIP SPACE SCHEDULE ON THIS SHEET TO COMPLETE THE UL LISTED ASSEMBLY.

PARTITION PRIORITY:

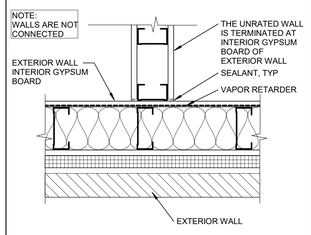


PARTITION TYPE	PRIORITY
3 HOUR FIRE	1 - HIGHEST
2 HOUR SHAFT	2
2 HOUR FIRE	3
1 HOUR SHAFT	4
1 HOUR	5
SMOKE	6
ACOUSTIC	7
NO FIRE OR ACOUSTIC RATING	8 - LOWEST

PARTITION TERMINATIONS AT EXTERIOR WALL:



RATED INTERIOR PARTITION



UNRATED INTERIOR PARTITION

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A005

PARTITION DETAILS AND NOTES

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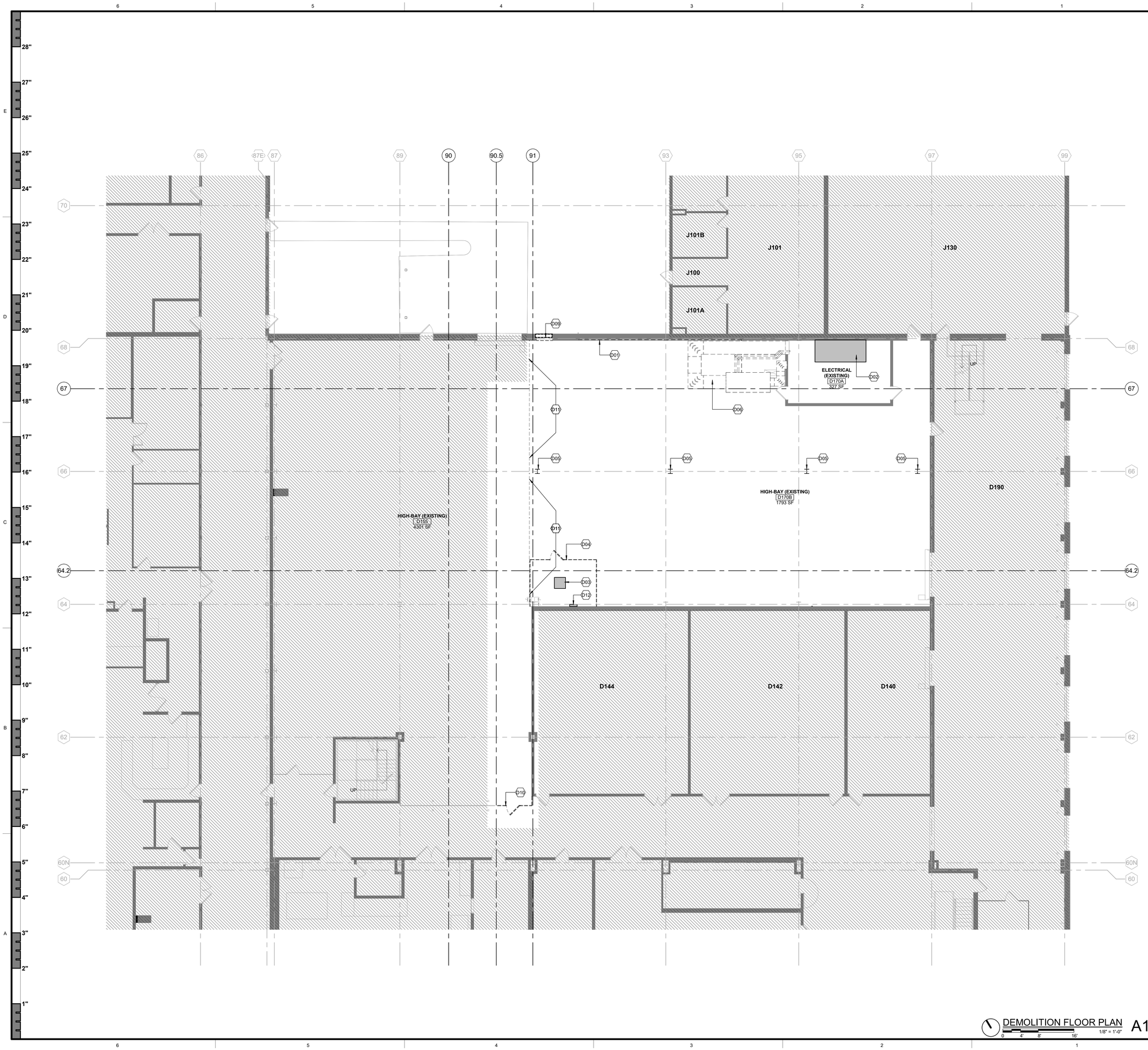


DEMO PLAN NOTES - GENERAL

A. DO NOT SCALE DRAWINGS.

B. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING WORK.

C. ITEMS NOTED TO BE SALVAGED ARE TO BE RETURNED TO OWNER OR USED IN NEW WORK WITHIN THE PROJECT SCOPE. ALL DEMOLITION MATERIALS NOT CLAIMED BY THE OWNER, OR TO BE REUSED, ARE TO BE DISPOSED OF OFF-SITE AS PER LOCAL REGULATIONS AT THE CONTRACTOR'S EXPENSE.

D. AREAS TO REMAIN THAT ARE AFFECTED BY DEMOLITION SHALL BE PATCHED AND REPAIRED FOR NEW SCOPE OF WORK.

E. REMAINING FURNISHINGS AND EQUIPMENT SHALL BE TURNED OVER TO OWNER PRIOR TO DEMOLITION.

F. EXISTING CONDITIONS INFORMATION WAS OBTAINED FROM DOCUMENTS AND INFORMATION SUPPLIED TO THE ARCHITECT. THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS, SIZES, ELEVATIONS, ETC..

G. REMOVE EXISTING CONSTRUCTION TO THE EXTENT INDICATED ON DRAWINGS. ITEMS SHOWN DASHED ON DEMOLITION PLAN ARE TO BE REMOVED UNLESS NOTED OTHERWISE. SHOULD ANY DAMAGE OCCUR TO ANY EXISTING CONSTRUCTION TO REMAIN ON SITE, THE CONTRACTOR SHALL REPAIR THE DAMAGE AT NO COST TO THE OWNER.

H. PREPARE EXISTING CONCRETE SUBSTRATE FOR NEW FINISHES.

I. REFER TO ENGINEERING DEMOLITION DRAWINGS FOR ADDITIONAL ITEMS TO BE DEMOLISHED. REFER TO MEP DRAWINGS FOR DEMOLITION OF MEP SYSTEMS TO IDENTIFY WORK REQUIRED BY THIS CONTRACTOR WHICH MAY AFFECT DEMOLITION AND/OR REPAIRS OF ARCHITECTURAL ELEMENTS. COORDINATE WITH ALL RELEVANT SUBCONTRACTORS THE EXTENT OF ALL DEMOLITION WORK.

J. THIS DEMOLITION PLAN OUTLINES THE SCOPE OF THE WORK INVOLVED FOR THE DEMOLITION PHASE OF THIS PROJECT. REFER TO THE DRAWINGS FOR NEW CONSTRUCTION FOR ADDITIONAL INFORMATION.

K. IF SUSPECTED HAZARDOUS MATERIALS ARE ENCOUNTERED, STOP WORK IMMEDIATELY AND NOTIFY OWNER. DO NOT RESUME WORK UNTIL DIRECTED BY THE OWNER.

L. REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.

M. MAINTAIN THE INTEGRITY OF ALL EXISTING RATED WALLS AND FIRE SEAL ANY PENETRATIONS WITH A U.L. APPROVED ASSEMBLY.

N. EXISTING WALLS (OR PORTIONS OF WALLS) TO BE REMOVED SHALL BE CUT FLUSH WHERE INTERSECTING WITH WALLS TO REMAIN. REMAINING WALLS SHALL BE PATCHED AND FINISHED SMOOTH.

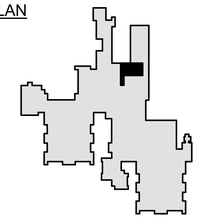
O. REFER TO MEP DRAWINGS TO COORDINATE REQUIRED SLAB TRENCHING/CONCRETE INFILL TO ACCOMMODATE INSTALLATION AND/OR REPAIRS OF BELOW-SLAB UTILITIES.

P. REMOVE ANY REMAINING CEILING ELEMENTS, NOT ASSOCIATED WITH NEW WORK AT CEILINGS TO BE OPEN TO STRUCTURE, INCLUDING; CEILING GRID, CEILING TILE, GYPSUM SOFFITS/BULKHEADS, ABANDONED MECHANCIAL DUCTWORK AND EQUIPMENT, ABANDONED ELECTRICAL CONDUITS AND FIXTURES, ABANDONED PIPING, ETC. REFER TO MEP DEMOLITION DRAWINGS FOR ADDITIONAL INFORMATION.

DEMO PLAN NOTES

D01 EXISTING COLUMNS AND EXTERIOR WALLS TO REMAIN.
D02 EXISTING ELECTRICAL DISCONNECT AND MECHANICAL PIPING TO REMAIN; REFER TO ELECTRICAL AND MECHANICAL
D03 EXISTING EQUIPMENT TO REMAIN.
D04 REMOVE EXISTING CHAIN LINK ENCLOSURE AND GATE.
D05 REMOVE EXISTING BRIDGE CRANE STRUCTURE. PATCH AND REPAIR EXISTING CONCRETE SLAB AS REQUIRED.
D06 RE-ROUTE EXISTING MECHANICAL PIPING AND DUCTWORK TO ACCOMMODATE LEVEL 2 INFILL. REFER TO MECHANICAL.
D09 CUT NEW WALL OPENING IN EXISTING EXTERIOR WALL FOR NEW DOOR.
D10 REMOVE SECTION OF METAL CAGE WALL AND GATE. PREP FOR INSTALLATION OF NEW WALL AND DOOR.
D11 PORTION OF EXISTING METAL CAGE WALL TO BE REMOVED. PREP FOR INSTALLATION OF NEW WALLS AND COLUMNS AS SCHEDULED.
D12 EXISTING ELECTRICAL PANEL TO REMAIN. REFER TO ELECTRICAL FOR ADDITIONAL INFORMATION.

KEY PLAN



DEMOLITION FLOOR PLAN A1
1/8" = 1'-0"
0 4' 8' 16'

REGISTERED ARCHITECT JASON TREANOR STATE OF TEXAS
04/01/2025

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DEMO FLOOR PLAN - LEVEL 1

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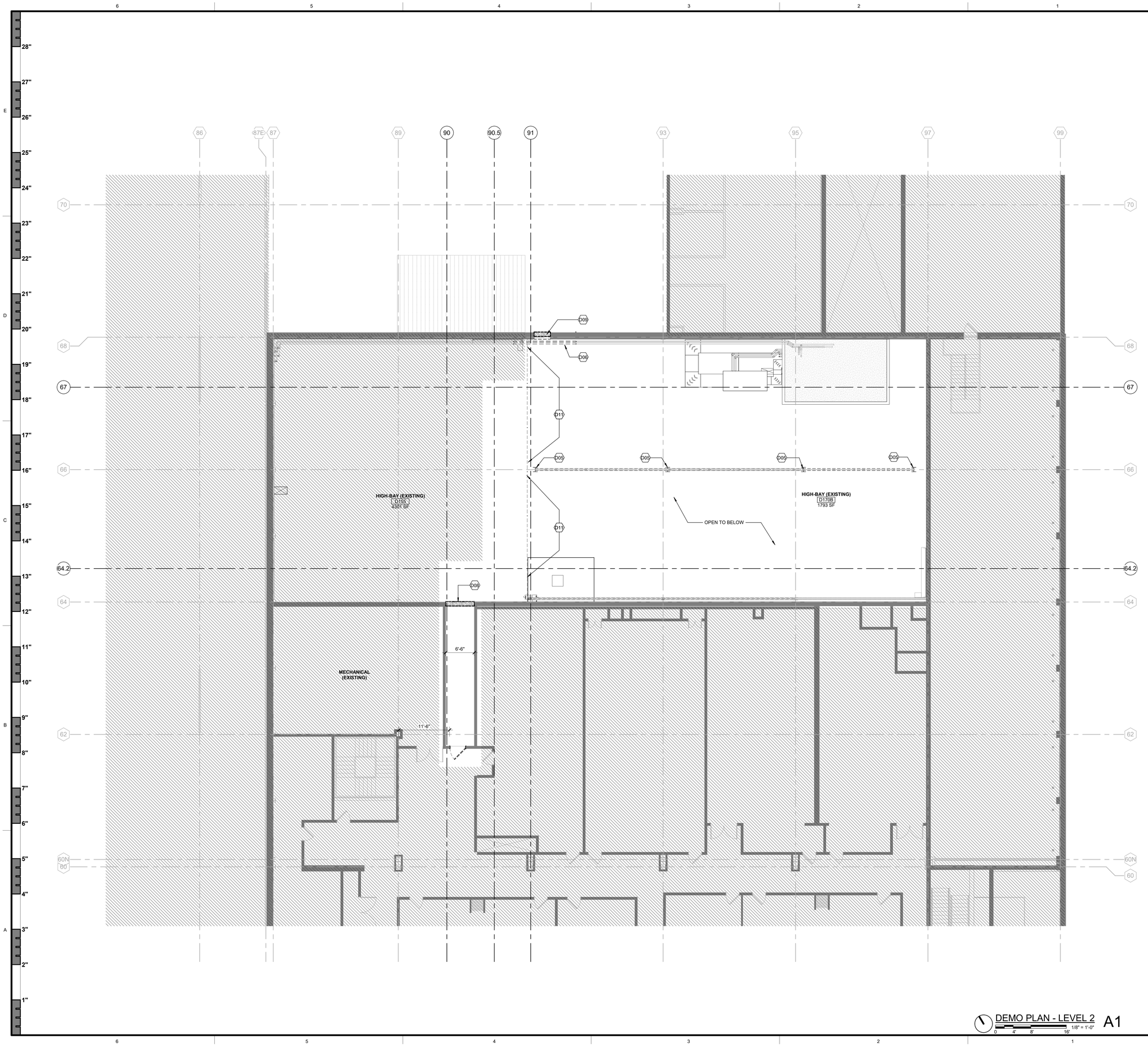


DEMO PLAN NOTES - GENERAL

A. DO NOT SCALE DRAWINGS.

B. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING WORK.

C. ITEMS NOTED TO BE SALVAGED ARE TO BE RETURNED TO OWNER OR USED IN NEW WORK WITHIN THE PROJECT SCOPE. ALL DEMOLITION MATERIALS NOT CLAIMED BY THE OWNER, OR TO BE REUSED, ARE TO BE DISPOSED OF OFF-SITE AS PER LOCAL REGULATIONS AT THE CONTRACTOR'S EXPENSE.

D. AREAS TO REMAIN THAT ARE AFFECTED BY DEMOLITION SHALL BE PATCHED AND REPAIRED FOR NEW SCOPE OF WORK.

E. REMAINING FURNISHINGS AND EQUIPMENT SHALL BE TURNED OVER TO OWNER PRIOR TO DEMOLITION.

F. EXISTING CONDITIONS INFORMATION WAS OBTAINED FROM DOCUMENTS AND INFORMATION SUPPLIED TO THE ARCHITECT. THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS, SIZES, ELEVATIONS, ETC..

G. REMOVE EXISTING CONSTRUCTION TO THE EXTENT INDICATED ON DRAWINGS. ITEMS SHOWN DASHED ON DEMOLITION PLAN ARE TO BE REMOVED UNLESS NOTED OTHERWISE. SHOULD ANY DAMAGE OCCUR TO ANY EXISTING CONSTRUCTION TO REMAIN ON SITE, THE CONTRACTOR SHALL REPAIR THE DAMAGE AT NO COST TO THE OWNER.

H. PREPARE EXISTING CONCRETE SUBSTRATE FOR NEW FINISHES.

I. REFER TO ENGINEERING DEMOLITION DRAWINGS FOR ADDITIONAL ITEMS TO BE DEMOLISHED. REFER TO MEP DRAWINGS FOR DEMOLITION OF MEP SYSTEMS TO IDENTIFY WORK REQUIRED BY THIS CONTRACTOR WHICH MAY AFFECT DEMOLITION AND/OR REPAIRS OF ARCHITECTURAL ELEMENTS. COORDINATE WITH ALL RELEVANT SUBCONTRACTORS THE EXTENT OF ALL DEMOLITION WORK.

J. THIS DEMOLITION PLAN OUTLINES THE SCOPE OF THE WORK INVOLVED FOR THE DEMOLITION PHASE OF THIS PROJECT. REFER TO THE DRAWINGS FOR NEW CONSTRUCTION FOR ADDITIONAL INFORMATION.

K. IF SUSPECTED HAZARDOUS MATERIALS ARE ENCOUNTERED, STOP WORK IMMEDIATELY AND NOTIFY OWNER. DO NOT RESUME WORK UNTIL DIRECTED BY THE OWNER.

L. REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.

M. MAINTAIN THE INTEGRITY OF ALL EXISTING RATED WALLS AND FIRE SEAL ANY PENETRATIONS WITH A U.L. APPROVED ASSEMBLY.

N. EXISTING WALLS (OR PORTIONS OF WALLS) TO BE REMOVED SHALL BE CUT FLUSH WHERE INTERSECTING WITH WALLS TO REMAIN. REMAINING WALLS SHALL BE PATCHED AND FINISHED SMOOTH.

O. REFER TO MEP DRAWINGS TO COORDINATE REQUIRED SLAB TRENCHING/CONCRETE INFILL TO ACCOMMODATE INSTALLATION AND/OR REPAIRS OF BELOW-SLAB UTILITIES.

P. REMOVE ANY REMAINING CEILING ELEMENTS, NOT ASSOCIATED WITH NEW WORK AT CEILINGS TO BE OPEN TO STRUCTURE, INCLUDING; CEILING GRID, CEILING TILE, GYPSUM SOFFITS/BULKHEADS, ABANDONED MECHANCIAL DUCTWORK AND EQUIPMENT, ABANDONED ELECTRICAL CONDUITS AND FIXTURES, ABANDONED PIPING, ETC. REFER TO MEP DEMOLITION DRAWINGS FOR ADDITIONAL INFORMATION.

DEMO PLAN NOTES

D05 REMOVE EXISTING BRIDGE CRANE STRUCTURE. PATCH AND REPAIR EXISTING CONCRETE SLAB AS REQUIRED.

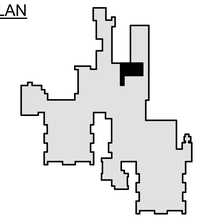
D06 RE-ROUTE EXISTING MECHANICAL PIPING AND DUCTWORK TO ACCOMMODATE LEVEL 2 INFILL. REFER TO MECHANICAL.

D08 EXISTING CORRIDOR TO REMAIN. CUT NEW WALL OPENING IN EXISTING WALL FOR SECOND FLOOR CORRIDOR CONNECTION.

D09 CUT NEW WALL OPENING IN EXISTING EXTERIOR WALL FOR NEW DOOR.

D11 PORTION OF EXISTING METAL CAGE WALL TO BE REMOVED. PREP FOR INSTALLATION OF NEW WALLS AND COLUMNS AS SCHEDULED.

KEY PLAN



DEMO PLAN - LEVEL 2 A1

1/8" = 1'-0"

0 4' 8' 16'

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DEMO FLOOR PLAN - LEVEL 2

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04/01/2025

DEMO RCP PLAN NOTES

1/4" = 1'-0"

?

J101B

J101

J130

J100

J101A

D170A

D170

D190

D155

D144

D142

D140

D06

D07

D05

TYP

D13

D10

D22223

64.2

DEMOLITION RCP PLAN NOTES - GENERAL

A. DRAWINGS SHALL NOT BE SCALED.
B. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING WORK.
C. ALL AREAS TO REMAIN THAT ARE AFFECTED BY DEMOLITION SHALL BE PATCHED AND REPAIRED FOR NEW SCOPE OF WORK.
D. REPORT ANY UNKNOWN OR UNFORSEEN CONDITIONS DISCOVERED DURING DEMOLITION TO ARCHITECT AND OWNER.
E. ITEMS SHOWN DASHED ON DEMOLITION PLAN REFLECT ELEMENTS TO BE DEMOLISHED IN THEIR ENTIRETY.
F. REFER TO ENGINEERING DEMOLITION DRAWINGS FOR ADDITIONAL ITEMS TO BE DEMOLISHED.
G. DURING DEMOLITION OF CEILINGS, IF WATER DAMAGE IS PRESENT ON ACT OR GYPSUM BOARD CEILINGS, GC TO INVESTIGATE ABOVE CEILING CONDITIONS AND PROVIDE INFORMATION TO ARCHITECT AND OWNER. GC TO PROPOSE SOLUTIONS TO ARCHITECT AND OWNER TO REMEDY ANY WATER LEAKAGE OR SIMILAR PROBLEMS THAT MAY BE OCCURING IN PLENUM SPACES. ISSUES TO BE REMEDIED PRIOR TO NEW CEILING WORK.

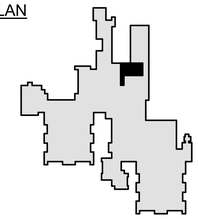
DEMOLITION RCP PLAN LEGEND

- NOT IN SCOPE
- EXISTING WALL TO REMAIN. PROTECT IN PLACE
- WALL TO BE DEMOLISHED IN ITS ENTIRETY
- EXISTING GYPSUM BOARD CEILING TO REMAIN. PROTECT IN PLACE.
- GYPSUM BOARD CEILINGS AND SOFFITS TO BE DEMOLISHED

DEMO RCP NOTES

D05 REMOVE EXISTING BRIDGE CRANE STRUCTURE. PATCH AND REPAIR EXISTING CONCRETE SLAB AS REQUIRED.
D06 RE-ROUTE EXISTING MECHANICAL PIPING AND DUCTWORK TO ACCOMMODATE LEVEL 2 INFILL. REFER TO MECHANICAL.
D07 REMOVE EXISTING LIGHT FIXTURES AS INDICATED. REFER TO ELECTRICAL.
D10 REMOVE SECTION OF METAL CAGE WALL AND GATE. PREP FOR INSTALLATION OF NEW WALL AND DOOR.
D13 EXISTING LIGHT FIXTURES TO REMAIN, TYP.

KEY PLAN



DEMOLITION REFLECTED CEILING PLAN

1/8" = 1'-0"

0 4' 8' 16'

A1

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DEMO REFLECTED CEILING PLAN

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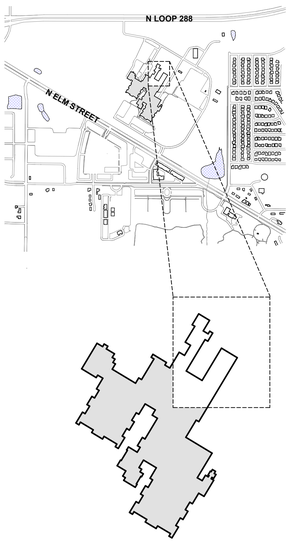
ARCHITECTURAL SITE PLAN A1

1/16" = 1'-0"

0 8' 16' 32'



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REGISTERED ARCHITECT
JASON
STATE OF TEXAS
04/01/2025

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NO	DESCRIPTION	DATE

A100

ARCHITECTURAL SITE PLAN

Treanor NO. HE0569.2402.00

Autodesk Docs://HE0569.2402.00 - UNT DP D170 Fit-Out/HE0569.2402.00_UNT DP D170 Fit-Out_R24_Arch.rvt
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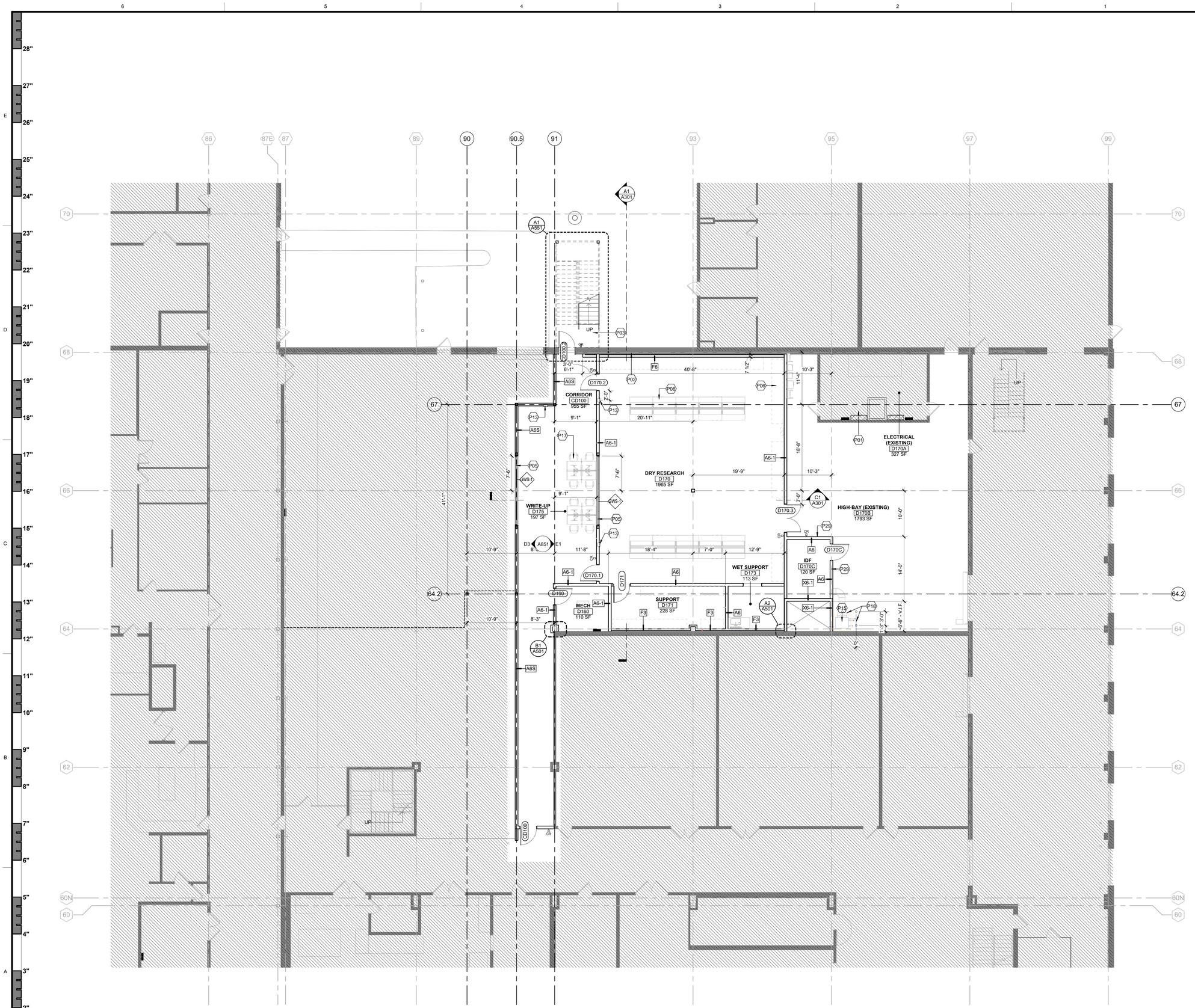


FLOOR PLAN GENERAL NOTES

A. ALL DIMENSIONS ARE TO GRID LINE, FACE OF EXISTING WALLS, OR FACE OF STRUCTURE, UNLESS OTHERWISE NOTED.

B. ALL FLOOR PLAN DIMENSIONS TO MASONRY ARE NOMINAL DIMENSIONS, UNLESS NOTED AS ACTUAL.

C. ALL ANGLES SHOWN ON THE FLOOR PLANS ARE 90 DEGREES UNLESS OTHERWISE NOTED.

D. ALL SPOT ELEVATIONS SHOWN ON THE FLOOR PLANS OUTSIDE THE BUILDING RELATE TO USGS ELEVATIONS. ALL SPOT ELEVATIONS INSIDE THE BUILDING REFER TO BUILDING REFERENCE ELEVATIONS. NOTIFY ARCHITECT IMMEDIATELY SHOULD CONDITIONS BE FOUND CONTRADICTORY TO THESE DRAWINGS.

E. FURNISHINGS (SHOWN HALFTONE) ARE SHOWN FOR GENERAL COORDINATION, REFER TO 'I' SERIES FOR COMPLETE SCOPE OF WORK.

F. LAB EQUIPMENT AND FURNITURE SHOWN HALFTONE FOR REFERENCE ONLY. REFER TO LAB EQUIPMENT DRAWINGS (A800 SERIES) FOR ADDITIONAL INFORMATION.

G. IN ROOMS WITH FLOOR DRAINS, SLOPE CONCRETE SURFACE WITHIN 18" RADIUS AT 1/4" PER FOOT TOWARD FLOOR DRAIN, UNLESS OTHERWISE INDICATED.

H. DO NOT SCALE DRAWINGS.

I. COORDINATE ALL FLOOR CORE DRILLING WITH EXISTING STRUCTURE.

J. PATCH AND LEVEL FLOOR SUBSTRATES TO RECEIVE NEW WORK AS SCHEDULED.

K. PATCH AND REPAIR CEILING AS REQUIRED FOR NEW LAYOUT.

L. CONTRACTOR TO REPAIR ALL CEILINGS TO MATCH EXISTING WHERE PARTITIONS HAVE BEEN DEMOLISHED AND EXISTING CEILING IS TO REMAIN.

M. PATCH WALLS AT REMOVED RECEPTACLE OPENINGS SO AS TO RECEIVE SUBSEQUENT WORK.

N. PATCH EXISTING FIRE-RATED WALLS, FLOORS, CEILINGS, ETC. SO AS TO MAINTAIN THE FIRE-RATING. ADD FIRE-SMOKE DAMPERS WHERE NEW DUCTS CROSS. ADD FIRE STOP AT ALL PENETRATIONS.

O. PATCH EXISTING CONSTRUCTION SCHEDULED TO REMAIN. REPAIRED SURFACES TO BE FLUSH WITH ADJACENT FINISH SURFACES. PATCH, SAND, AND TEXTURE EXISTING SURFACES TO SAME QUALITY AS NEW CONSTRUCTION PRIOR TO INSTALLING NEW FINISHES. REFER TO THE FINISH MANUFACTURER'S GUIDELINES FOR INSTALLATION.

FLOOR PLAN NOTES

P01 EXISTING ELECTRICAL ROOM AND EXISTING EQUIPMENT TO REMAIN. REFER TO MECHANICAL FOR REROUTING OF DUCTWORK AND EQUIPMENT OUTSIDE OF ELECTRICAL ROOM.

P02 EXISTING MECHANICAL PIPING AND ELECTRICAL EQUIPMENT TO REMAIN BEYOND FURRING WALL. REFER TO MECHANICAL FOR ADDITIONAL INFORMATION.

P03 PREFABRICATED MODULAR STAIR SYSTEM (DELEGATED DESIGN BY OTHERS). BASIS OF DESIGN 'UPSIDE INNOVATIONS APEX SYSTEM."

P05 INTERIOR GLAZED ALUMINUM STOREFRONT AS SCHEDULED; REFER TO A601 FOR ADDITIONAL INFORMATION.

P06 DASHED AREA INDICATES CLEAR FLOOR AREA FOR OFOI EQUIPMENT, TYPICAL

P08 LABORATORY EQUIPMENT, TYPICAL. REFER TO LAB EQUIPMENT SHEETS (A800 SERIES) FOR ADDITIONAL INFORMATION.

P13 FULLY-RECESSED FIRE EXTINGUISHER CABINET (FEC).

P15 WALL-MOUNTED MECHANICAL EQUIPMENT. REFER TO MECHANICAL.

P17 FURNITURE (OFOI), NOT IN CONTRACT.

P18 BOLLARD; REFER TO B5/A501

P29 TERMINATE IDF ROOM WALLS AT HARD LID CEILING. WALL CONSTRUCTION IDENTICAL TO TYPE 'A6.' PARTITIONS DO NOT EXTEND TO STRUCTURE ABOVE.

FLOOR PLAN LEGEND

NOT IN SCOPE

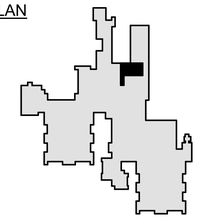
EXISTING WALL TO REMAIN. PROTECT IN PLACE

NEW DOOR AND FRAME ASSEMBLY

GWS-1 — GLAZING TYPE TAG, REFER TO SHEET A601

CR — ROUGH-IN LOCATION FOR CARD READER; REFER TO C1/A501

KEY PLAN



FLOOR PLAN - LEVEL 1 A1

1/8" = 1'-0"

0 4' 8' 16'

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FLOOR PLAN - LEVEL 1

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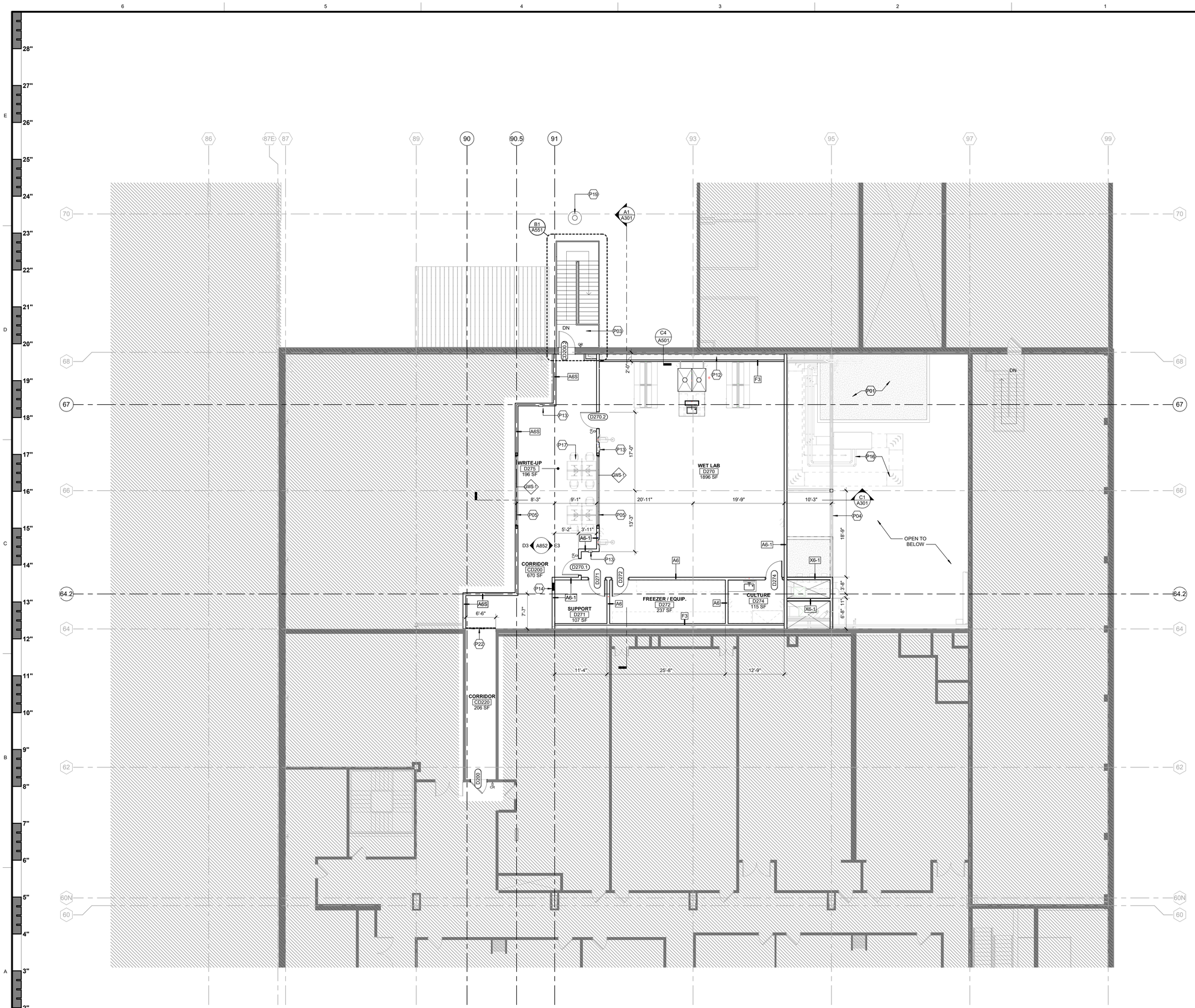


FLOOR PLAN GENERAL NOTES

A. ALL DIMENSIONS ARE TO GRID LINE, FACE OF EXISTING WALLS, OR FACE OF STRUCTURE, UNLESS OTHERWISE NOTED.

B. ALL FLOOR PLAN DIMENSIONS TO MASONRY ARE NOMINAL DIMENSIONS, UNLESS NOTED AS ACTUAL.

C. ALL ANGLES SHOWN ON THE FLOOR PLANS ARE 90 DEGREES UNLESS OTHERWISE NOTED.

D. ALL SPOT ELEVATIONS SHOWN ON THE FLOOR PLANS OUTSIDE THE BUILDING RELATE TO USGS ELEVATIONS. ALL SPOT ELEVATIONS INSIDE THE BUILDING REFER TO BUILDING REFERENCE ELEVATIONS. NOTIFY ARCHITECT IMMEDIATELY SHOULD CONDITIONS BE FOUND CONTRADICTORY TO THESE DRAWINGS.

E. FURNISHINGS (SHOWN HALFTONE) ARE SHOWN FOR GENERAL COORDINATION, REFER TO 'I' SERIES FOR COMPLETE SCOPE OF WORK.

F. LAB EQUIPMENT AND FURNITURE SHOWN HALFTONE FOR REFERENCE ONLY. REFER TO LAB EQUIPMENT DRAWINGS (A800 SERIES) FOR ADDITIONAL INFORMATION.

G. IN ROOMS WITH FLOOR DRAINS, SLOPE CONCRETE SURFACE WITHIN 18" RADIUS AT 1/4" PER FOOT TOWARD FLOOR DRAIN, UNLESS OTHERWISE INDICATED.

H. DO NOT SCALE DRAWINGS.

I. COORDINATE ALL FLOOR CORE DRILLING WITH EXISTING STRUCTURE.

J. PATCH AND LEVEL FLOOR SUBSTRATES TO RECEIVE NEW WORK AS SCHEDULED.

K. PATCH AND REPAIR CEILING AS REQUIRED FOR NEW LAYOUT.

L. CONTRACTOR TO REPAIR ALL CEILINGS TO MATCH EXISTING WHERE PARTITIONS HAVE BEEN DEMOLISHED AND EXISTING CEILING IS TO REMAIN.

M. PATCH WALLS AT REMOVED RECEPTACLE OPENINGS SO AS TO RECEIVE SUBSEQUENT WORK.

N. PATCH EXISTING FIRE-RATED WALLS, FLOORS, CEILINGS, ETC. SO AS TO MAINTAIN THE FIRE-RATING. ADD FIRE-SMOKE DAMPERS WHERE NEW DUCTS CROSS. ADD FIRE STOP AT ALL PENETRATIONS.

O. PATCH EXISTING CONSTRUCTION SCHEDULED TO REMAIN. REPAIRED SURFACES TO BE FLUSH WITH ADJACENT FINISH SURFACES. PATCH, SAND, AND TEXTURE EXISTING SURFACES TO SAME QUALITY AS NEW CONSTRUCTION PRIOR TO INSTALLING NEW FINISHES. REFER TO THE FINISH MANUFACTURER'S GUIDELINES FOR INSTALLATION.

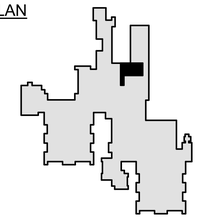
FLOOR PLAN NOTES

P01	EXISTING ELECTRICAL ROOM AND EXISTING EQUIPMENT TO REMAIN. REFER TO MECHANICAL FOR REROUTING OF DUCTWORK AND EQUIPMENT OUTSIDE OF ELECTRICAL ROOM.
P03	PREFABRICATED MODULAR STAIR SYSTEM (DELEGATED DESIGN BY OTHERS). BASIS OF DESIGN 'UPSIDE INNOVATIONS APEX SYSTEM."
P04	STRUCTURAL FRAMING; REFER TO STRUCTURAL
P05	INTERIOR GLAZED ALUMINUM STOREFRONT AS SCHEDULED; REFER TO A601 FOR ADDITIONAL INFORMATION
P12	MODIFY MECHANICAL PIPE ROUTING AS NECESSARY IN THIS LOCATION. REFER TO MECHANICAL FOR ADDITIONAL INFORMATION.
P13	FULLY-RECESSED FIRE EXTINGUISHER CABINET (FEC)
P14	WALL-MOUNTED ELECTRICAL PANEL. REFER TO ELECTRICAL FOR ADDITIONAL INFORMATION.
P16	DUCTWORK AND MECHANICAL PIPING; REFER TO MECHANICAL
P17	FURNITURE (OFOI). NOT IN CONTRACT.
P19	NEW POLE-MOUNTED LIGHT FIXTURE; REFER TO ELECTRICAL
P22	2" EXPANSION JOINT. INSTALL FLOOR AND WALL EXPANSION JOINT COVERS AS SPECIFIED AND DETAILED ON SHEET A501.

FLOOR PLAN LEGEND

- NOT IN SCOPE
- EXISTING WALL TO REMAIN. PROTECT IN PLACE
- NEW DOOR AND FRAME ASSEMBLY
- GWS-1 — GLAZING TYPE TAG, REFER TO SHEET A601
- CR — ROUGH-IN LOCATION FOR CARD READER; REFER TO C1/A501

KEY PLAN



FLOOR PLAN - LEVEL 2 A1
1/8" = 1'-0"
0 4' 8' 16'

REGISTERED ARCHITECT
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STATE OF TEXAS
04/01/2025

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FLOOR PLAN - LEVEL 2

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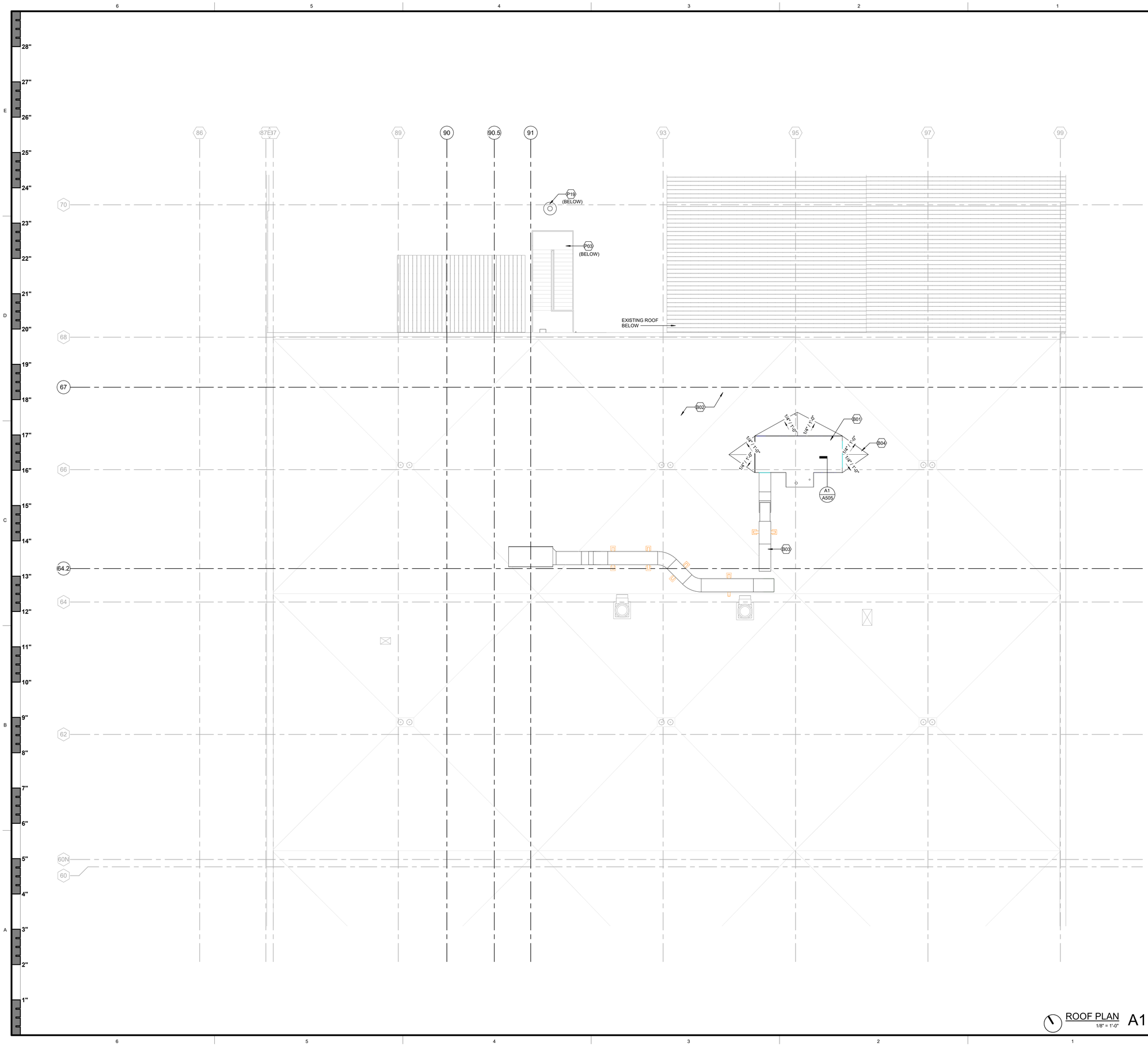


ROOF PLAN NOTES - GENERAL

A. PATCH ALL NEW ROOF PENETRATIONS, MATCHING EXISTING ROOF SYSTEM AND MAINTAINING ADEQUATE ROOF SLOPE. PROVIDE CRICKETS AT NEW ROOFTOP MECHANICAL UNIT WHERE APPLICABLE.

B. PRIMARY ROOF SLOPE 1/4" / 1'-0" UNLESS NOTED OTHERWISE.

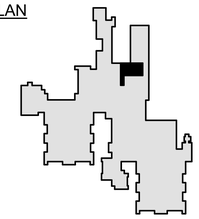
C. DO NOT SCALE DRAWINGS.

D. REFER TO A505 FOR TYPICAL ROOF PENETRATION DETAILS.

ROOF PLAN NOTES

B01	NEW AIR HANDLING UNIT. REFER TO MECHANICAL.
B02	EXISTING ROOF AND ROOF STRUCTURE TO REMAIN.
B03	NEW MECHANICAL DUCTWORK. REFER TO MECHANICAL FOR ADDITIONAL INFORMATION.
B04	CRICKET / MODIFY ROOF SLOPE AROUND NEW AHU AS REQUIRED
P03	PREFABRICATED MODULAR STAIR SYSTEM (DELEGATED DESIGN BY OTHERS). BASIS OF DESIGN "UPSIDE INNOVATIONS APEX SYSTEM."
P19	NEW POLE-MOUNTED LIGHT FIXTURE; REFER TO ELECTRICAL

KEY PLAN



ROOF PLAN A1
1/8" = 1'-0"

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JASON
STATE OF TEXAS
04/01/2025

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ROOF PLAN

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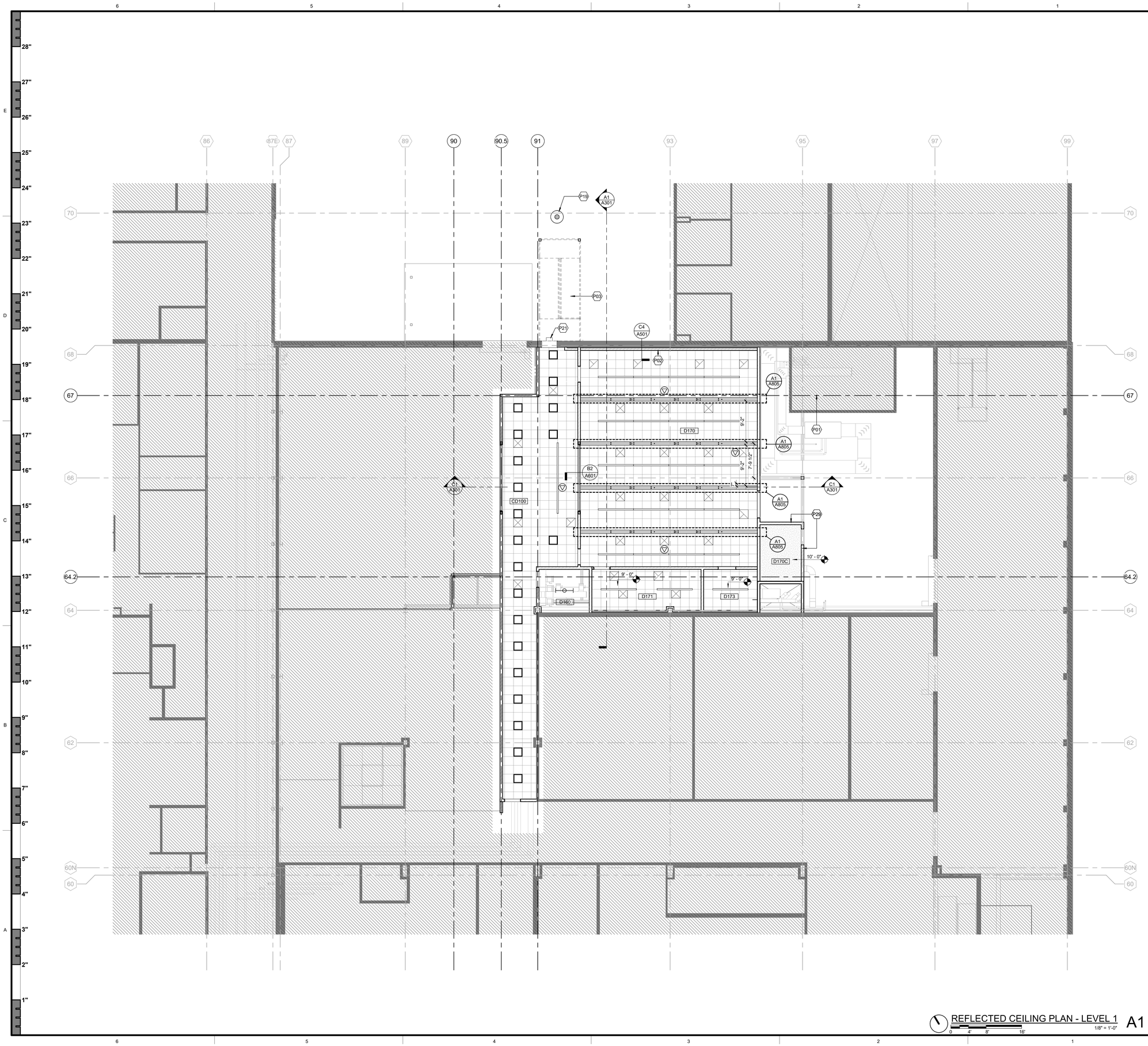


RCP GENERAL NOTES

A. REFER TO FIRE PROTECTION DRAWINGS FOR LOCATIONS OF FIRE SPRINKLER HEADS. CENTER FIRE SPRINKLER HEADS BOTH DIRECTIONS IN CEILING TILES.

B. SUBMIT LAYOUT OF ALL GYPSUM BOARD CEILING CONTROL JOINTS FOR REVIEW.

C. REFER TO INTERIOR FINISH LEGEND FOR BASIS OF DESIGN INTERIOR FINISHES.

D. ALL CEILINGS SHALL BE APC-1 AT 10' - 0" A.F.F. UNLESS NOTED OTHERWISE.

E. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR MOUNTING LOCATIONS OF ITEMS WHERE NO CEILING IS REQUIRED OR INDICATED.

F. LIGHTS, DIFFUSERS, EXIT SIGNS, SMOKE DETECTORS, AND FIRE ALARM SPEAKER / STROBES SHALL BE CENTERED IN THE CEILING TILES IN WHICH THEY OCCUR, UNLESS NOTED OTHERWISE.

G. CENTER ALL CEILING GRIDS IN EACH ROOM OR SPACE UNLESS OTHERWISE INDICATED WITH A GRID ORIGIN OR DIMENSION.

RCP NOTES

P01 EXISTING ELECTRICAL ROOM AND EXISTING EQUIPMENT TO REMAIN. REFER TO MECHANICAL FOR REROUTING OF DUCTWORK AND EQUIPMENT OUTSIDE OF ELECTRICAL ROOM.

P02 EXISTING MECHANICAL PIPING AND ELECTRICAL EQUIPMENT TO REMAIN BEYOND FURRING WALL. REFER TO MECHANICAL FOR ADDITIONAL INFORMATION.

P03 PREFABRICATED MODULAR STAIR SYSTEM (DELEGATED DESIGN BY OTHERS). BASIS OF DESIGN 'UPSIDE INNOVATIONS APEX SYSTEM."

P19 NEW POLE-MOUNTED LIGHT FIXTURE; REFER TO ELECTRICAL

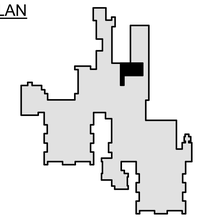
P21 NEW WALL PACK LIGHT FIXTURE; REFER TO ELECTRICAL

P29 TERMINATE IDF ROOM WALLS AT HARD LID CEILING. WALL CONSTRUCTION IDENTICAL TO TYPE 'A6.' PARTITIONS DO NOT EXTEND TO STRUCTURE ABOVE.

RCP LEGEND

- ACOUSTICAL PANEL CEILINGS (APC-1)
- LINEAR METAL SERVICE PANEL; REFER TO SERVICE PANEL DETAILS
- GYPSUM CEILING ON METAL STUDS
- RECESSED CAN LIGHT (6")
- RECESSED TROFFER LIGHT (2' x 2')
- LINEAR DIRECT/INDIRECT PENDANT LIGHT (8' TYPICAL) - 1' SUSPENSION FROM CEILING U.N.O.
- INDUSTRIAL STRIP LIGHT
- DIFFUSER-SUPPLY REFER TO MECHANICAL DRAWINGS
- DIFFUSER-RETURN REFER TO MECHANICAL DRAWINGS
- STRIP DIFFUSER-SUPPLY REFER TO MECHANICAL DRAWINGS
- CEILING ACCESS PANEL
- CEILING MOUNTED WIRELESS ACCESS POINT (WAP) - DEVICE BY OWNER. INSTALL J-HOOKS FOR CABLING; REFER TO A501.

KEY PLAN



REFLECTED CEILING PLAN - LEVEL 1 A1
1/8" = 1'-0"
0 4' 8' 16'

REGISTERED ARCHITECT JASON ... STATE OF TEXAS
04/01/2025

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REFLECTED CEILING PLAN - LEVEL 1

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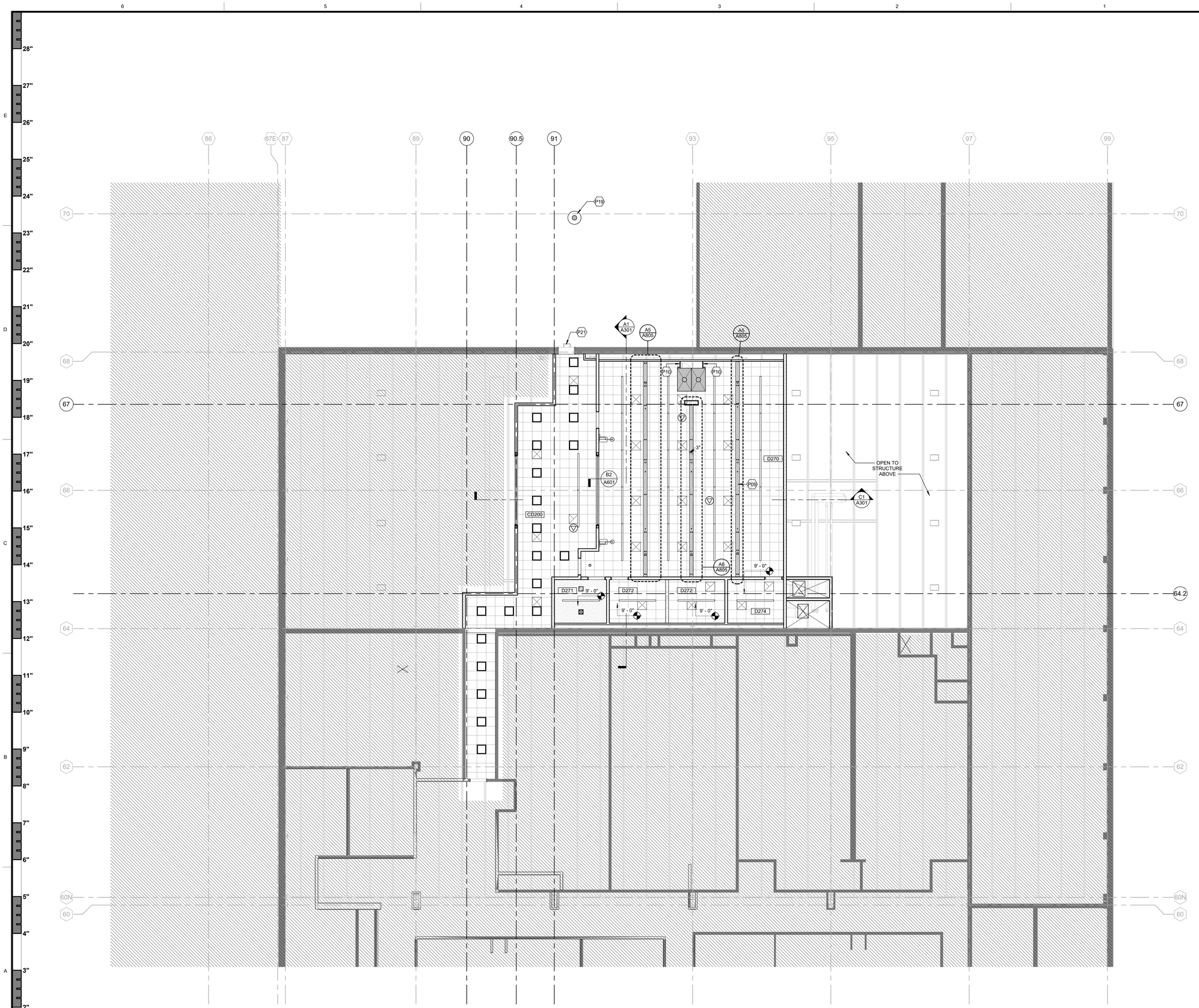


RCP GENERAL NOTES

A. REFER TO FIRE PROTECTION DRAWINGS FOR LOCATIONS OF FIRE SPRINKLER HEADS. CENTER FIRE SPRINKLER HEADS BOTH DIRECTIONS IN CEILING TILES.

B. SUBMIT LAYOUT OF ALL GYPSUM BOARD CEILING CONTROL JOINTS FOR REVIEW.

C. REFER TO INTERIOR FINISH LEGEND FOR BASIS OF DESIGN INTERIOR FINISHES.

D. ALL CEILINGS SHALL BE APC-1 AT 10' - 0" A.F.F. UNLESS NOTED OTHERWISE.

E. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR MOUNTING LOCATIONS OF ITEMS WHERE NO CEILING IS REQUIRED OR INDICATED.

F. LIGHTS, DIFFUSERS, EXIT SIGNS, SMOKE DETECTORS, AND FIRE ALARM SPEAKER / STROBES SHALL BE CENTERED IN THE CEILING TILES IN WHICH THEY OCCUR, UNLESS NOTED OTHERWISE.

G. CENTER ALL CEILING GRIDS IN EACH ROOM OR SPACE UNLESS OTHERWISE INDICATED WITH A GRID ORIGIN OR DIMENSION.

RCP PLAN NOTES

P09 LINEAR SERVICE PANEL, TYPICAL. REFER TO DETAILS FOR SERVICES LOCATION, AND REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

P10 METAL CLOSURE PANEL (BY LABORATORY CASEWORK MANUFACTURER)

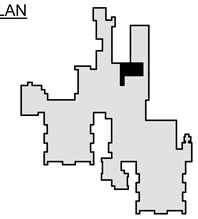
P19 NEW POLE-MOUNTED LIGHT FIXTURE; REFER TO ELECTRICAL

P21 NEW WALL PACK LIGHT FIXTURE; REFER TO ELECTRICAL

RCP PLAN LEGEND

- ACOUSTICAL PANEL CEILINGS (APC-1)
- LINEAR METAL SERVICE PANEL; REFER TO SERVICE PANEL DETAILS
- GYPSUM CEILING ON METAL STUDS
- RECESSED CAN LIGHT (6")
- RECESSED TROFFER LIGHT (2' x 2')
- LINEAR DIRECT/INDIRECT PENDANT LIGHT (8' TYPICAL) - 1' SUSPENSION FROM CEILING U.N.O.
- INDUSTRIAL STRIP LIGHT
- DIFFUSER-SUPPLY REFER TO MECHANICAL DRAWINGS
- DIFFUSER-RETURN REFER TO MECHANICAL DRAWINGS
- STRIP DIFFUSER-SUPPLY REFER TO MECHANICAL DRAWINGS
- CEILING ACCESS PANEL
- CEILING MOUNTED WIRELESS ACCESS POINT (WAP) - DEVICE BY OWNER, INSTALL J-HOOKS FOR CABLING; REFER TO A501.

KEY PLAN



REFLECTED CEILING PLAN - LEVEL 2

1/8" = 1'-0"

A1

0 4' 8' 16'

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REFLECTED CEILING PLAN - LEVEL 2

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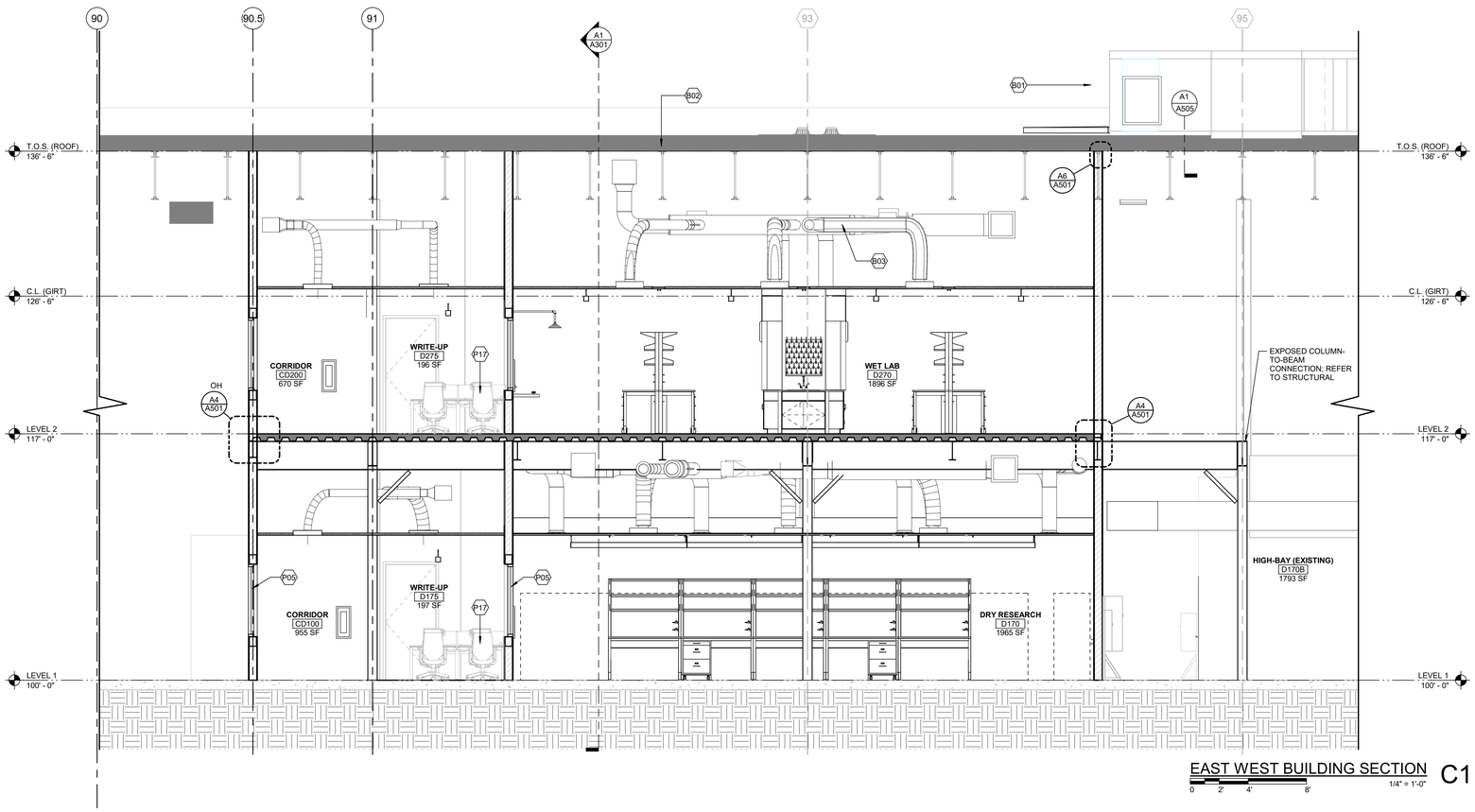
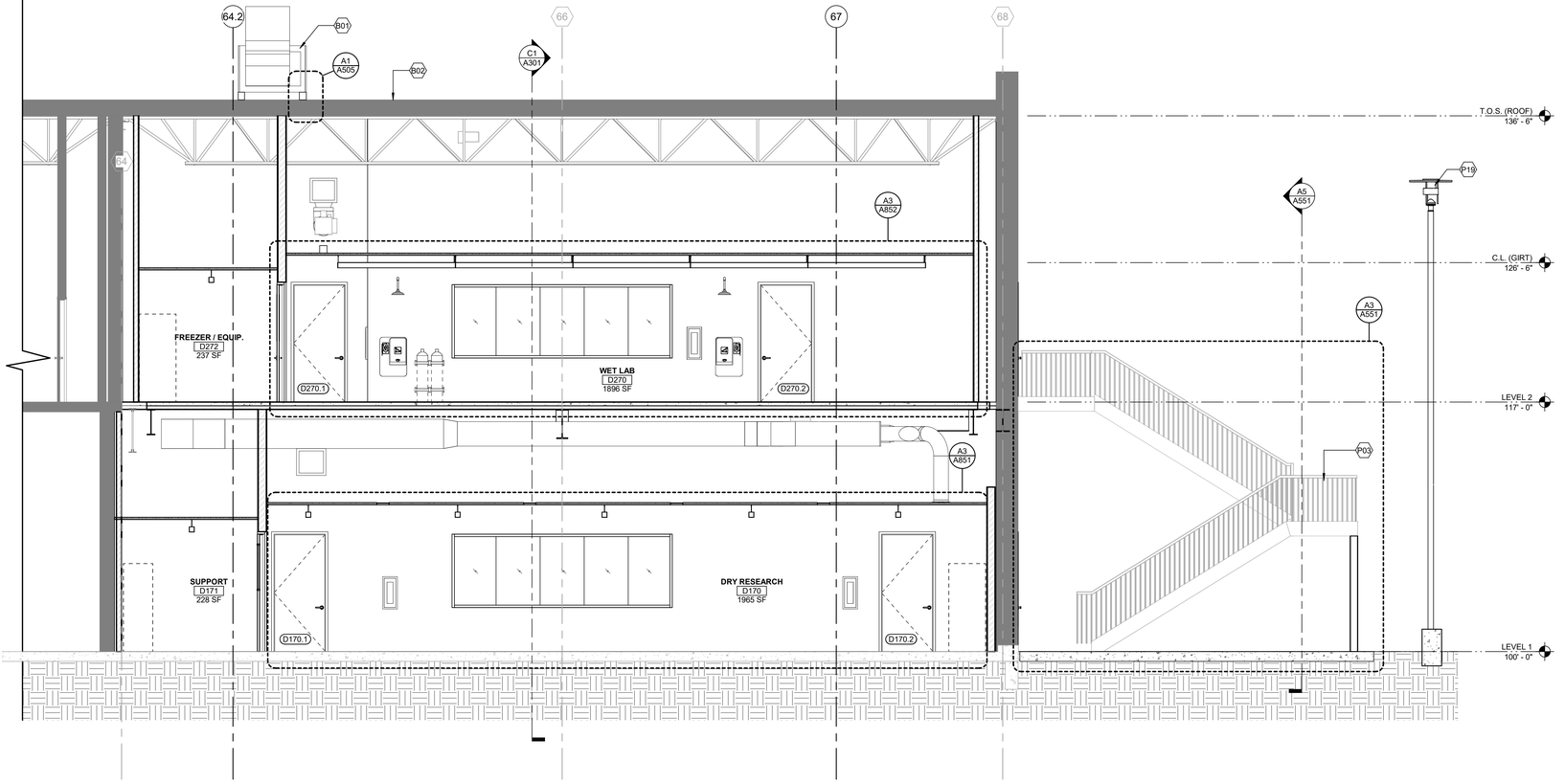


EAST WEST BUILDING SECTION C1

1/4" = 1'-0"



NORTH SOUTH BUILDING SECTION A1

1/4" = 1'-0"

GENERAL NOTES

A. NEW FLOOR-TO-FLOOR HEIGHT SHOWN IS BASED ON EXISTING DRAWINGS. MATCH THE NEW INFILLED LEVEL 2 FLOOR TO THE EXISTING FLOOR HEIGHT.

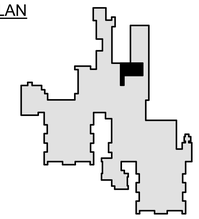
B. REFER TO A505 FOR ROOF PENETRATION DETAILS. REFER TO MECHANICAL FOR ALL NEW ROOFTOP-MOUNTED EQUIPMENT.

C. REFER TO A800 SERIES DRAWINGS FOR ADDITIONAL INFORMATION REGARDING LAB EQUIPMENT.

BUILDING SECTION NOTES

B01 NEW AIR HANDLING UNIT. REFER TO MECHANICAL.
B02 EXISTING ROOF AND ROOF STRUCTURE TO REMAIN.
B03 NEW MECHANICAL DUCTWORK. REFER TO MECHANICAL FOR ADDITIONAL INFORMATION.

KEY PLAN



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REGISTERED ARCHITECT
JASON
STATE OF TEXAS
04/01/2025

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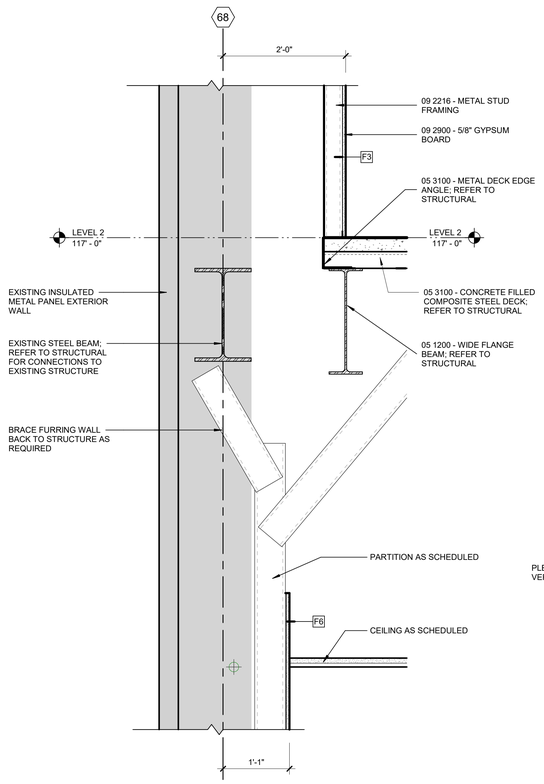
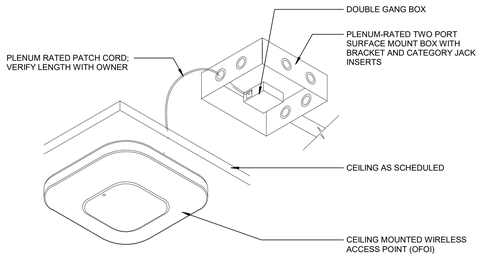
A301

BUILDING SECTIONS

Treanor NO. HE0569.2402.00



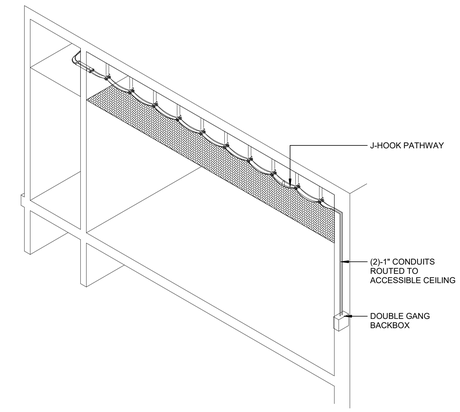
SECTION - FURRING AT EXTERIOR WALL C4
1" = 1'-0"



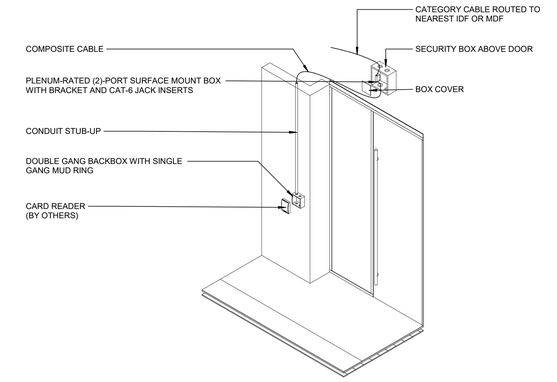
WIRELESS ACCESS POINT (WAP) ROUGH-IN C2
N.T.S.

NOTES:

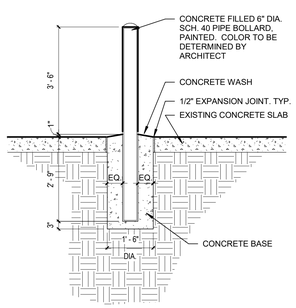
1. A MINIMUM OF ONE CONTINUOUS RUN OF CONDUIT SHALL BE PLACED FROM I/O ACCESSIBLE CEILING SPACE
2. ALL CONDUIT SHALL BE A MINIMUM 1" DIA., HAVE PROTECTIVE BUSHING, AND PULL STRINGS.
3. NO CABLE SHALL BE PLACED IN CONDIT THAT DOES NOT HAVE PROTECTIVE INSULATING BUSHING PRESENT.
4. THIS DETAIL IS INTENDED TO ILLUSTRATE CABLE ROUTING FOR CABLE CONTRACTOR AND AS A GENERAL GUIDE FOR ELECTRICAL CONTRACTOR.
5. CONTRACTOR SHALL REPORT ANY DEVIATIONS FROM THIS OR ANY STANDARD TO THE GENERAL CONTRACTOR FOR REFIT BY RESPONSIBLE CONTRACTOR.



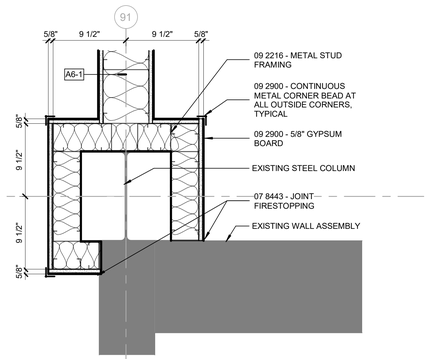
J-HOOK PATHWAY (DROP CEILING) D1
N.T.S.



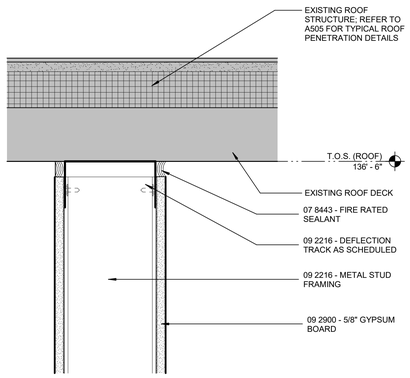
CARD READER ROUGH-IN DETAIL C1
NTS



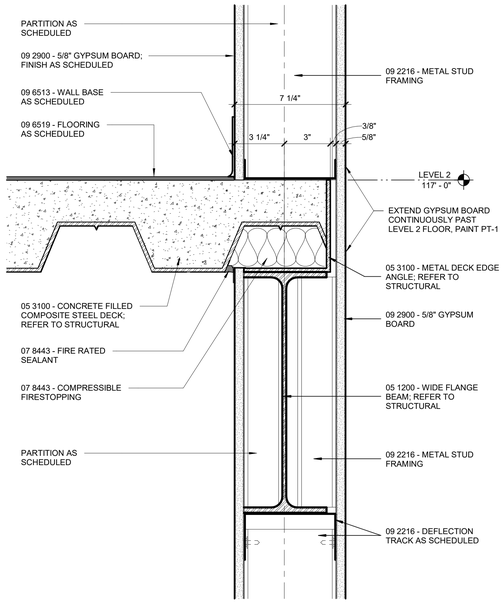
UTILITY BOLLARD B2
1/2" = 1'-0"



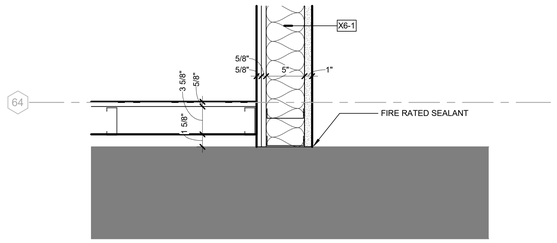
PLAN DETAIL - RATED WALL AT EXISTING COLUMN B1
1 1/2" = 1'-0"



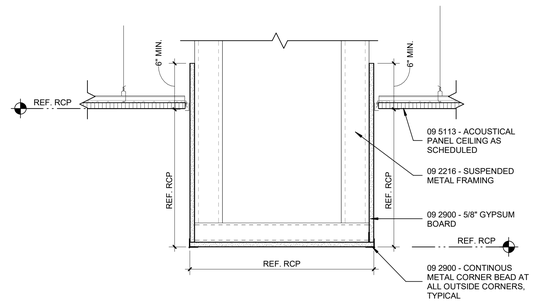
RATED WALL AT ROOF, TYP. A6
3" = 1'-0"



SECTION DETAIL - SLAB EDGE AT LEVEL 2 HIGH-BAY A4
3" = 1'-0"



PLAN DETAIL - SHAFT WALL AT EXISTING A2
1 1/2" = 1'-0"



APC TO GYP SOFFIT TRANSITION A1
1 1/2" = 1'-0"

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REGISTERED ARCHITECT JASON HOLT STATE OF TEXAS 04/01/2025

UNIVERSITY OF NORTH TEXAS
DISCOVERY PARK D170 LAB FIT-OUT

3940 N Elm Street
Denton, TX 76207

UNT UNIVERSITY OF NORTH TEXAS

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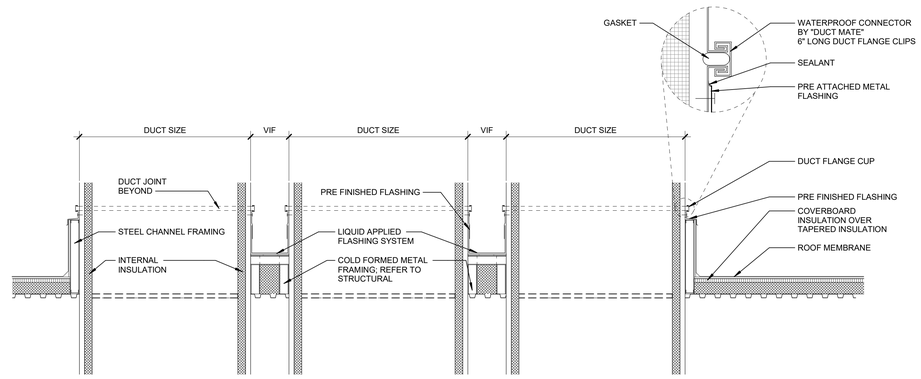
A501

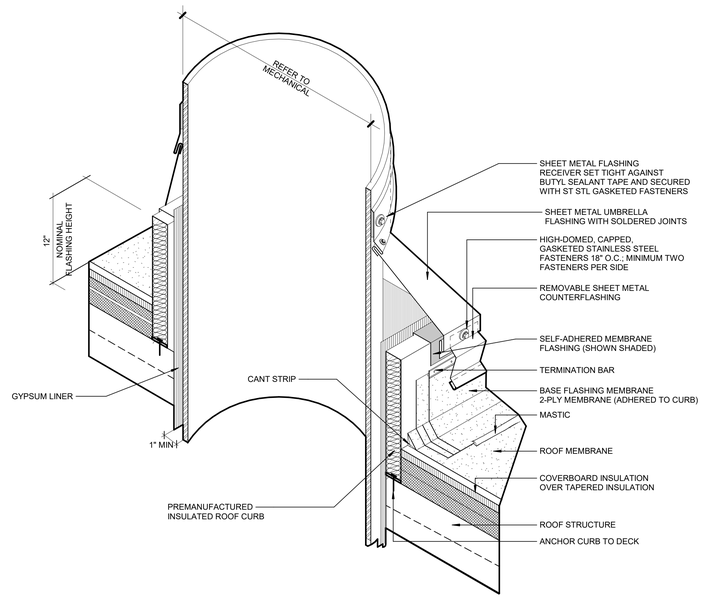
INTERIOR DETAILS

Treanor NO. HE0569.2402.00

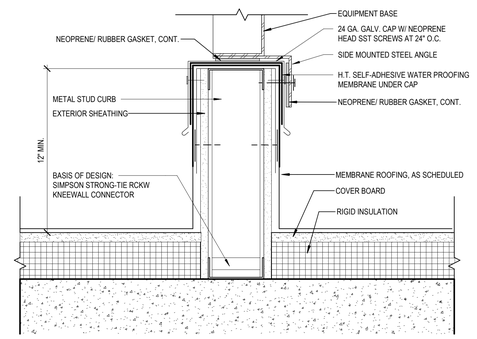
DUCT PENETRATIONS AT ROOF - ELEVATION B4
1/2" = 1'-0"



DUCT PENETRATIONS AT ROOF - SECTION B1
1/2" = 1'-0"



ISOLATED VENT STACK ROOF PENETRATION A3
3" = 1'-0"



TYP. EQUIP. ROOF CURB DETAIL A1
3" = 1'-0"

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TYPICAL ROOF DETAILS

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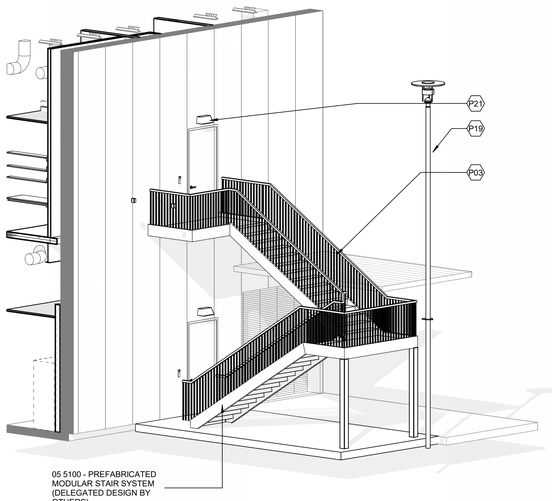
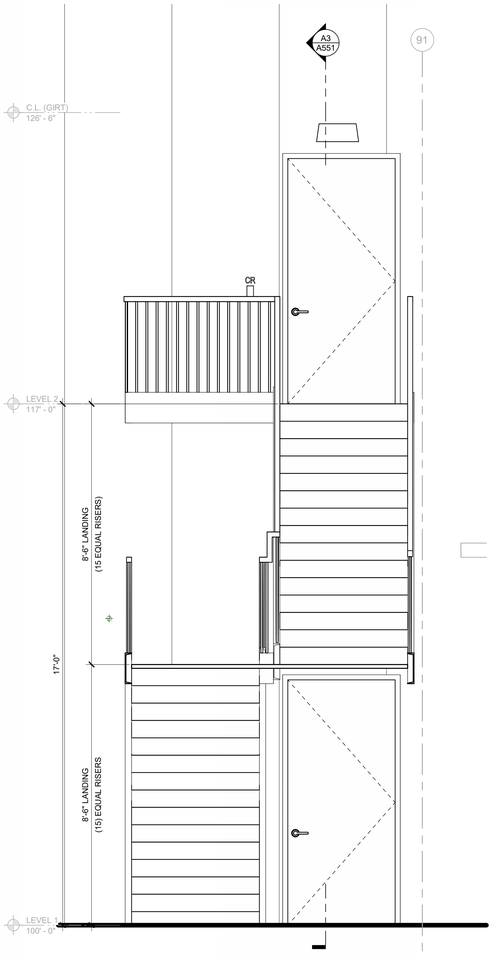
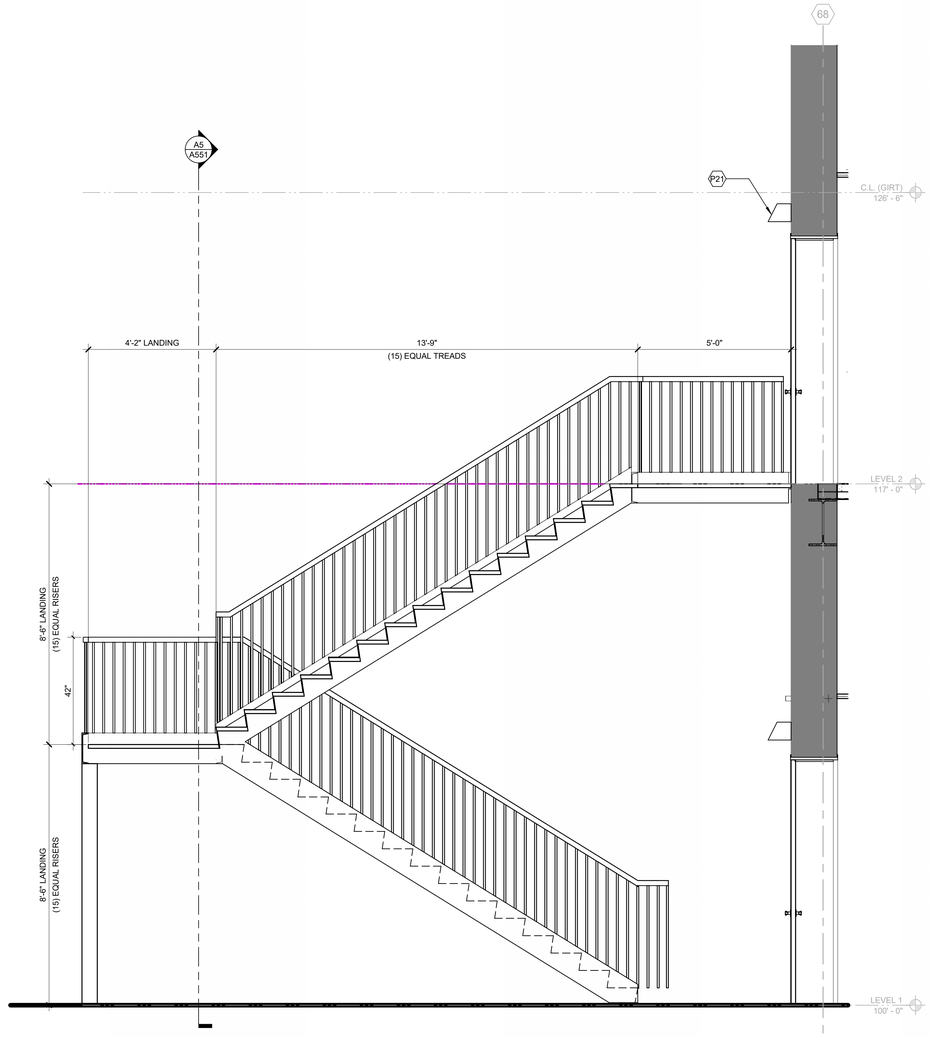


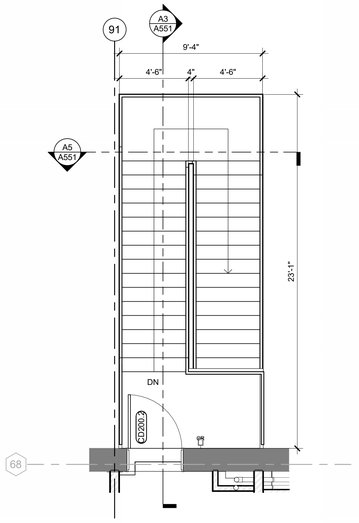
EXTERIOR STAIR - 3D C1



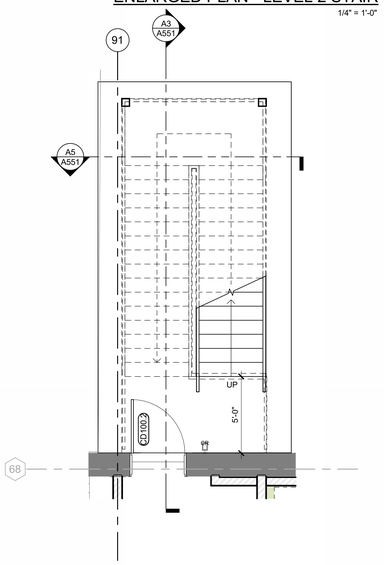
EAST/WEST VIEW SOUTH A5
1/2" = 1'-0"



NORTH/SOUTH VIEW EAST A3
1/2" = 1'-0"



ENLARGED PLAN - LEVEL 2 STAIR B1
1/4" = 1'-0"



ENLARGED PLAN - LEVEL 1 STAIR A1
1/4" = 1'-0"

FLOOR PLAN GENERAL NOTES

A. ALL DIMENSIONS ARE TO GRID LINE, FACE OF EXISTING WALLS, OR FACE OF STRUCTURE, UNLESS OTHERWISE NOTED.

B. ALL FLOOR PLAN DIMENSIONS TO MASONRY ARE NOMINAL DIMENSIONS, UNLESS NOTED AS ACTUAL.

C. ALL ANGLES SHOWN ON THE FLOOR PLANS ARE 90 DEGREES UNLESS OTHERWISE NOTED.

D. ALL SPOT ELEVATIONS SHOWN ON THE FLOOR PLANS OUTSIDE THE BUILDING RELATE TO USGS ELEVATIONS. ALL SPOT ELEVATIONS INSIDE THE BUILDING REFER TO BUILDING REFERENCE ELEVATIONS. NOTIFY ARCHITECT IMMEDIATELY SHOULD CONDITIONS BE FOUND CONTRADICTORY TO THESE DRAWINGS.

E. FURNISHINGS (SHOWN HALFTONE) ARE SHOWN FOR GENERAL COORDINATION, REFER TO 'I' SERIES FOR COMPLETE SCOPE OF WORK.

F. LAB EQUIPMENT AND FURNITURE SHOWN HALFTONE FOR REFERENCE ONLY. REFER TO LAB EQUIPMENT DRAWINGS (A800 SERIES) FOR ADDITIONAL INFORMATION.

G. IN ROOMS WITH FLOOR DRAINS, SLOPE CONCRETE SURFACE WITHIN 18" RADIUS AT 1/4" PER FOOT TOWARD FLOOR DRAIN, UNLESS OTHERWISE INDICATED.

H. DO NOT SCALE DRAWINGS.

I. COORDINATE ALL FLOOR CORE DRILLING WITH EXISTING STRUCTURE.

J. PATCH AND LEVEL FLOOR SUBSTRATES TO RECEIVE NEW WORK AS SCHEDULED.

K. PATCH AND REPAIR CEILING AS REQUIRED FOR NEW LAYOUT.

L. CONTRACTOR TO REPAIR ALL CEILINGS TO MATCH EXISTING WHERE PARTITIONS HAVE BEEN DEMOLISHED AND EXISTING CEILING IS TO REMAIN.

M. PATCH WALLS AT REMOVED RECEPTACLE OPENINGS SO AS TO RECEIVE SUBSEQUENT WORK.

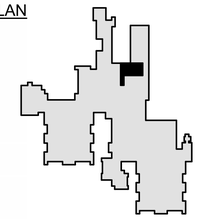
N. PATCH EXISTING FIRE-RATED WALLS, FLOORS, CEILINGS, ETC. SO AS TO MAINTAIN THE FIRE-RATING. ADD FIRE-SMOKE DAMPERS WHERE NEW DUCTS CROSS. ADD FIRE STOP AT ALL PENETRATIONS.

O. PATCH EXISTING CONSTRUCTION SCHEDULED TO REMAIN. REPAIRED SURFACES TO BE FLUSH WITH ADJACENT FINISH SURFACES. PATCH, SAND, AND TEXTURE EXISTING SURFACES TO SAME QUALITY AS NEW CONSTRUCTION PRIOR TO INSTALLING NEW FINISHES. REFER TO THE FINISH MANUFACTURER'S GUIDELINES FOR INSTALLATION.

KEYNOTES

P03 PREFABRICATED MODULAR STAIR SYSTEM (DELEGATED DESIGN BY OTHERS). BASIS OF DESIGN "UPSIDE INNOVATIONS APEX SYSTEM."
P19 NEW POLE-MOUNTED LIGHT FIXTURE; REFER TO ELECTRICAL
P21 NEW WALL PACK LIGHT FIXTURE; REFER TO ELECTRICAL

KEY PLAN



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A551

STAIR ENLARGED PLAN AND SECTION

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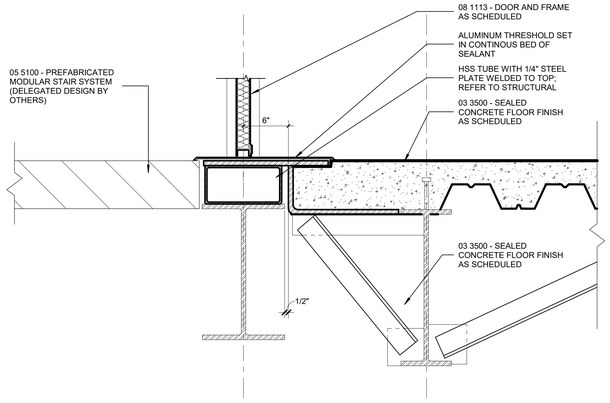
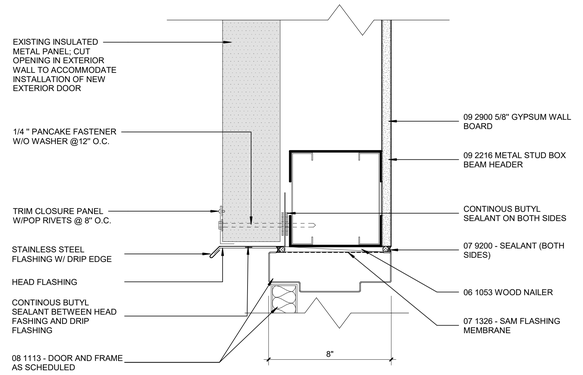
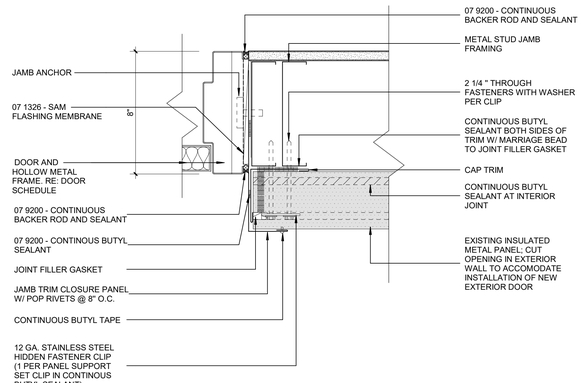


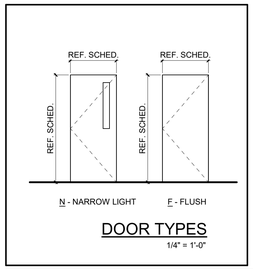
SILL DETAIL - EXTERIOR DOOR (AT STAIR LANDING) C5
1 1/2" = 1'-0"



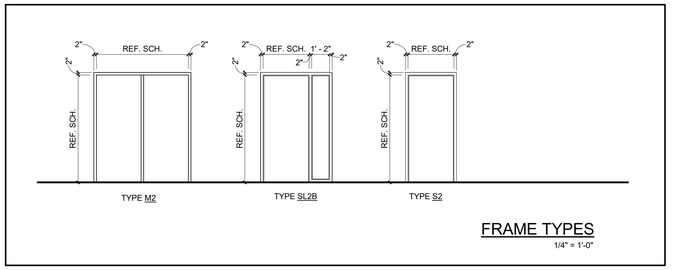
HEAD DETAIL - EXTERIOR DOOR B5
3" = 1'-0"



JAMB DETAIL - EXTERIOR DOOR A5
3" = 1'-0"



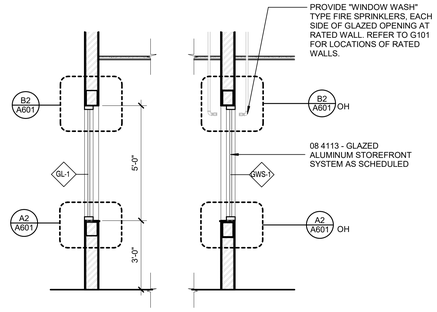
DOOR TYPES
1/4" = 1'-0"



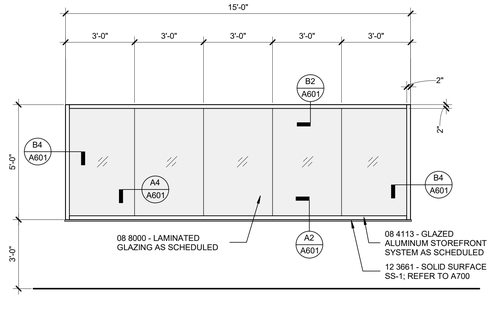
FRAME TYPES
1/4" = 1'-0"

DOOR AND FRAME SCHEDULE

DOOR NO.	DIMENSIONS		DOOR			FRAME				DETAIL			FIRE RATING	HARDWARE SET
	WIDTH	HEIGHT	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	GLASS TYPE	JAMB	HEAD	SILL		
CD100	3' - 6"	8' - 0"	F	HM	PT-2	S2	HM	PT-2	-	A5/A601	B5/A601	-	-	C701CTW
CD100.2	3' - 6"	8' - 0"	F	HM	PT-2	S2	HM	PT-2	-	A5/A601	B5/A601	C5/A601	-	C715TW
D160	3' - 6"	8' - 0"	F	SCW	PT-2	S2	HM	PT-2	-	A1/A601	B1/A601	-	-	201TW
D170.1	3' - 6"	8' - 0"	F	SCW	PT-2	S2	HM	PT-2	-	A1/A601	B1/A601	-	45-MIN	C201TW
D170.2	3' - 6"	8' - 0"	F	SCW	PT-2	S2	HM	PT-2	-	A1/A601	B1/A601	-	45-MIN	C207TW
D170.3	6' - 0"	8' - 0"	N	SCW	PT-2	S2	HM	PT-2	-	A1/A601	B1/A601	-	45-MIN	200CT
D170C	3' - 6"	8' - 0"	F	HM	PT-2	S2	HM	PT-2	-	A1/A601	B1/A601	-	-	201TW
D171	3' - 6"	8' - 0"	N	SCW	PT-2	S2	HM	PT-2	GL-2	A1/A601	B1/A601	-	-	501TW
CD200.2	3' - 6"	8' - 0"	F	HM	PT-2	S2	HM	PT-2	-	A1/A601	B1/A601	-	-	C205TW
D200	3' - 6"	8' - 0"	F	SCW	PT-2	S2	HM	PT-2	-	A1/A601	B1/A601	-	-	C701CTW
D270.1	3' - 6"	8' - 0"	F	SCW	PT-2	S2	HM	PT-2	-	A1/A601	B1/A601	-	45-MIN	C201TW
D270.2	3' - 6"	8' - 0"	F	SCW	PT-2	S2	HM	PT-2	-	A1/A601	B1/A601	-	45-MIN	C207TW
D271	3' - 6"	8' - 0"	N	SCW	PT-2	S2	HM	PT-2	GL-2	A1/A601	B1/A601	-	-	501TW
D272	3' - 6"	8' - 0"	N	SCW	PT-2	S2	HM	PT-2	GL-2	A1/A601	B1/A601	-	-	501TW
D274	3' - 6"	8' - 0"	N	SCW	PT-2	S2	HM	PT-2	GL-2	A1/A601	B1/A601	-	-	501TW

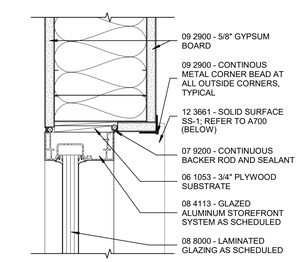


WALL SECTION AT CORRIDOR GLAZING, TYP. C2
3/8" = 1'-0"

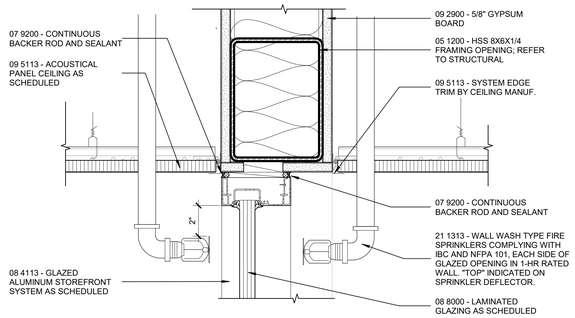


GLAZING AT LAB FRONTS AND CORRIDOR (GWS-1)
3/8" = 1'-0"

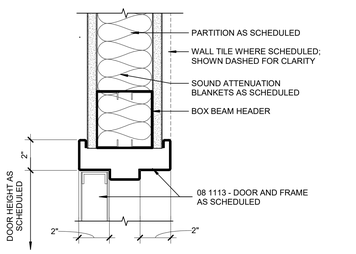
GWS-1



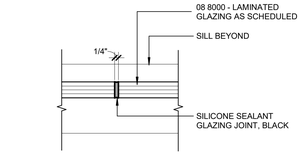
JAMB DETAIL - LAB FRONT B4
3" = 1'-0"



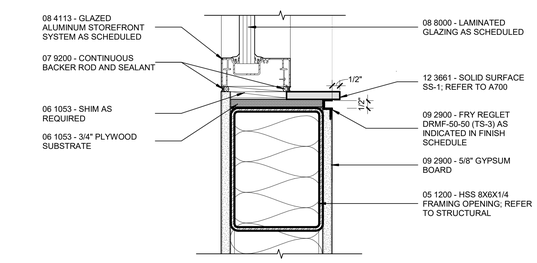
HEAD DETAIL - LAB FRONT B2
3" = 1'-0"



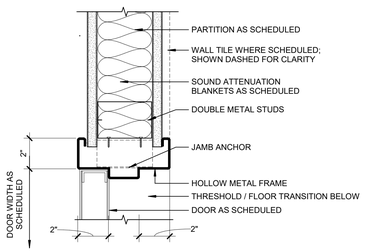
INTERIOR HM FRAME HEAD B1
3" = 1'-0"



PLAN DETAIL - BUTT GLAZING A4
3" = 1'-0"



SILL DETAIL - LAB FRONT A2
3" = 1'-0"



INTERIOR HM FRAME JAMB A1
3" = 1'-0"

DOOR SCHEDULE NOTES:

1. REFER THIS SHEET (A601) FOR DOOR HEAD, JAMB, AND SILL DETAILS.
2. ALL DOORS IN SMOKE RESISTANT PARTITIONS TO HAVE POSITIVE LATCHING.
3. FIRE-RATING GLAZING IN DOORS SHALL MEET THE FIRE RATING REQUIREMENT OF THE DOORS TO WHICH THEY ARE INSTALLED.
4. GLAZING IN DOORS SHALL BE CLEAR TEMPERED FLOAT GLASS UNLESS NOTED OTHERWISE. CORRIDOR AND LAB FRONT GLAZING SHALL BE LAMINATED SAFETY GLAZING AS SCHEDULED.
5. ALL DOORS TO HAVE BOXED HEADERS UNLESS STEEL CHANNELS ARE INDICATED IN THE REMARKS COLUMN OF THE DOOR SCHEDULE OR UNLESS OTHERWISE INDICATED BY HEAD DETAIL.

REGISTERED ARCHITECT JASON STATE OF TEXAS
04/01/2025

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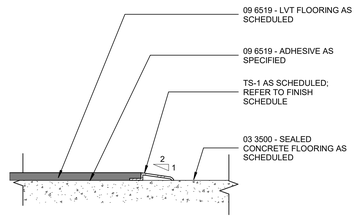
A601

DOOR SCHEDULE, GLAZING TYPES, AND DETAILS

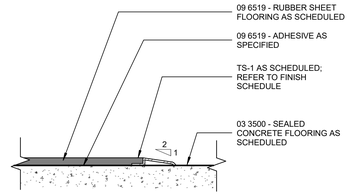
Treanor NO. HE0569.2402.00

INTERIOR FINISH LEGEND

TAG	MATERIAL	BASIS OF DESIGN	PRODUCT NAME/ NO.	COLOR NAME/NO.	FINISH	SIZE	INSTALLATION	REMARKS	REP CONTACT
CEILINGS									
CL-1	ACOUSTIC PANEL CEILING	ARMSTRONG	CLEAN ROOM VL	WHITE	-	24" x 24" TILE WITH 15/16" CO-EXTRUDED CLEAN ROOM GRID	-	-	CARSON NEWBY / EMAIL: CNEWBY@ARMSTRONGCEILINGS.COM / PHONE: 972.841.
LSP-1	LINEAR SERVICE PANEL	KEWAUNEE SCIENTIFIC	FINISH TO MATCH STEEL LAB CASEWORK	CC61 LIGHT NEUTRAL	FLAT	-	-	-	CHRIS ETHERIDGE / EMAIL: CETHERIDGE@HALLMARKCASEWORK.COM / PHONE: 512.297.7834
FLOORING									
LVT-1	LVT FLOORING - COLOR 1	MOHAWK	HOT AND HEAVY COLLECTION - LINEATE	868 GROOVE	-	9" X 59", 5mm THICK, 20mil WEAR LAYER	-	-	REFER TO FINISH PLANS FOR PATTERN
LVT-2	LVT FLOORING - COLOR 2	MOHAWK	HOT AND HEAVY COLLECTION - LINEATE	948 FIGURED	-	9" X 59", 5mm THICK, 20mil WEAR LAYER	-	-	REFER TO FINISH PLANS FOR PATTERN
RB-1	RESILIENT BASE	JOHNSONITE TARKETT	DURACOVE RUBBER (TP)	29 MOON ROCK WG	-	4" H WITH TOE	DIRECT ADHESIVE	-	-
RF-1	RUBBER FLOORING	NORA BY INTERFACE	ENVIRONCARE	7033 TAIL GAITING	-	24" x 24" x 2mm (TILE)	DIRECT ADHESIVE	-	ANNMARIE DESHOTEL / EMAIL: ANNMARIE.DESHOTEL@INTERFACE.COM / PHONE: 504.218.6654
SC-1	SEALED CONCRETE	SCOFIELD	CURESEAL-W SEALED CONCRETE	-	-	-	-	USE ON HOUSEKEEPING PADS AND AS INDICATED IN DRAWINGS	-
GLAZING									
GWS-1	ALUMINUM STOREFRONT SYSTEM	KAWNEER	TRIFAB VERSAGLAZE 451	CLEAR ANODIZED ALUMINUM	-	2" SIGHTLINE x 4.5" DEPTH	-	LAB FRONTS, CORRIDOR GLAZING	JOSH HEMBY / EMAIL: JHEMBY@PGP-USA.COM
LGL-1	GLASS	LAMINATED SAFETY GLAZING	-	CLEAR, WITH CLEAR SILICONE VERTICAL JOINTS	-	3/8" LITE / PVB INTERLAYER / 1/4" LITE	-	LAB FRONTS, CORRIDOR GLAZING	JOSH HEMBY / EMAIL: JHEMBY@PGP-USA.COM
LAB CASEWORK									
EP-1	EPOXY RESIN WORKSURFACES	DURCON	CLASSICTOP	DARK KHAKI	-	1" THICK	-	TYP. INSIDE CORNER, AS NOTED ON DRAWINGS	JAMIE BORGER / EMAIL: JAMIE.BORGER@WILSONART.COM / PHONE: 971.266.4729
MTL-1	PAINTED STEEL LAB CASEWORK	KEWAUNEE SCIENTIFIC	-	CC61 LIGHT NEUTRAL	-	AS INDICATED ON DRAWINGS	-	-	-
PAINT									
PT-1	WALL PAINT (FIELD)	SHERWIN WILLIAMS	SUPER PAINT	SW 7010 WHITE DUCK	EGGSHELL	-	-	FIELD PAINT COLOR	JACKIE BOOTH / EMAIL: JACKIE.N.BOOTH@SHERWIN.COM / PHONE: 713.292.7098
PT-2	WALL PAINT (ACCENT/ DOORS & FRAMES)	SHERWIN WILLIAMS	SUPER PAINT	SW 7020 BLACK FOX	SEMIGLOSS	-	-	DOORS & FRAMES	JACKIE BOOTH / EMAIL: JACKIE.N.BOOTH@SHERWIN.COM / PHONE: 713.292.7098
PT-3	WALL PAINT (FIELD)	SHERWIN WILLIAMS	SUPER PAINT	SW 6741 DERBYSHIRE	EGGSHELL	-	-	ACCENT PAINT	JACKIE BOOTH / EMAIL: JACKIE.N.BOOTH@SHERWIN.COM / PHONE: 713.292.7098
PT-4	COLUMN PAINT	SHERWIN WILLIAMS	SUPER PAINT	SW 6258 TRICORN BLACK	SEMIGLOSS	-	-	PROVIDE SURFACE PREPARATION AND PRIMER PER MANUFACTURER'S RECOMMENDATION FOR PAINTING STEEL COLUMN	JACKIE BOOTH / EMAIL: JACKIE.N.BOOTH@SHERWIN.COM / PHONE: 713.292.7098
SOLID SURFACE									
SS-1	SOLID SURFACE GLAZING SILL MATERIAL	WILSONART	-	9208CS WHITE STONE	-	AS INDICATED ON DRAWINGS	MITERED AND EASED EDGES; AS INDICATED ON DRAWINGS	SILL CONDITION AT LAB FRONTS, CORRIDOR GLAZING	JAMIE BORGER / EMAIL: JAMIE.BORGER@WILSONART.COM / PHONE: 971.266.4729
TRANSITION STRIP									
EJ-1	2" FLOOR EXPANSION JOINT COVER	INPRO	787NS SERIES RECESSED EXPANSION JOINT COVER	STAINLESS STEEL	BRUSHED	-	-	2" JOINT COVER AT LEVEL 2 CORRIDOR AS INDICATED ON PLAN	-
EJ-2	2" WALL EXPANSION JOINT COVER	INPRO	114 SERIES DRYWALL WALL EXPANSION JOINT COVER	OFF WHITE	-	-	-	2" JOINT COVER AT LEVEL 2 CORRIDOR AS INDICATED ON PLAN	-
TS-1	FLOOR TRANSITION	SCHLUTER	VINPRO-U	STAINLESS STEEL	BRUSHED	VPUL 60 ACGB	-	TYP. LVT/RF-1 TO SEALED CONCRETE TRANSITION	-
TS-2	DRYWALL J-MOLDING	FRY REGLET	JDM-625	ALUMINUM	CLEAR ANODIZED	AS REQUIRED	-	TYP. INSIDE CORNER AND DRYWALL TERMINATION	-
TS-3	DRYWALL F-REVEAL	FRY REGLET	DRMF-50-50	ALUMINUM	CLEAR ANODIZED	1/2" REVEAL DEPTH x 1/2" REVEAL WIDTH	-	REVEAL AT SOLID SURFACE SILL; REFER TO A601 FOR ADDITIONAL INFORMATION	-
TS-4	DRYWALL CONTROL JOINT	FRY REGLET	DRM-50-50 2-PC	ALUMINUM	CLEAR ANODIZED	1/2" REVEAL DEPTH x 1/2" REVEAL WIDTH	-	REFER TO A4/A005 AND INTERIOR ELEVATIONS	-
WALL PROTECTION									
CG-1	CORNER GUARD	INPRO	SURFACE-APPLIED 2" WING CORNER GUARDS	STAINLESS STEEL	TYPE 430, 16-GA.	MOUNT 4' STANDARD HEIGHT CORNER GUARDS 6" ABOVE FINISH FLOOR	DIRECT ADHESIVE	AT ALL OUTSIDE CORNERS, TYPICAL	



SEALED CONCRETE TO LVT A2
12" = 1'-0"



SEALED CONCRETE TO RF-1 A1
12" = 1'-0"

REGISTERED ARCHITECT
JASON
STATE OF TEXAS
04/01/2025

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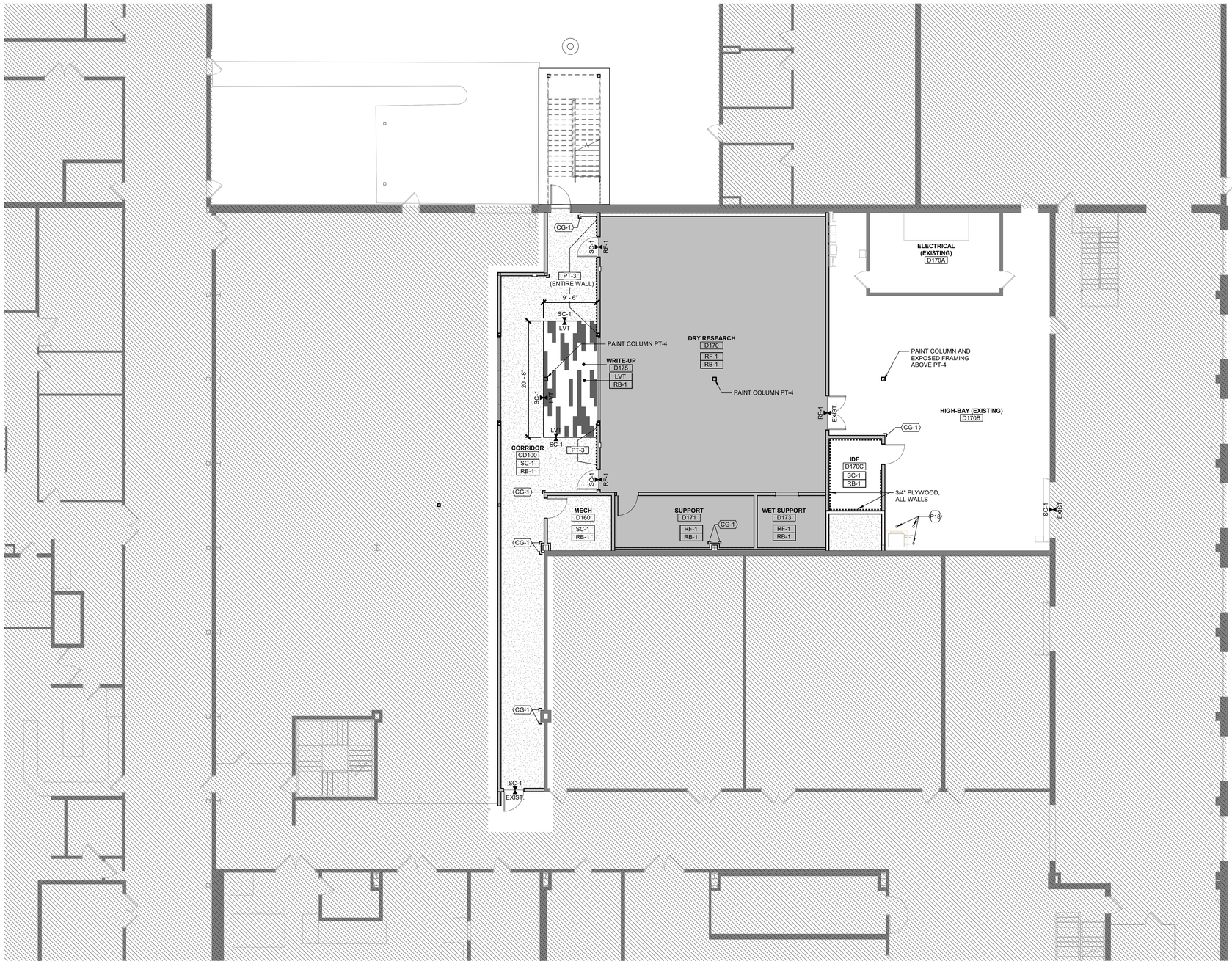
A700

INTERIOR FINISH SCHEDULES AND DETAILS

Treanor NO. HE0569.2402.00



FLOOR FINISH PLAN NOTES-GENERAL

A. REFER TO SHEET A700 FOR INTERIOR FINISH BASIS OF DESIGN LEGEND AND TRANSITION DETAILS.

B. PROVIDE FLOOR FINISH TRANSITIONS AT CENTER OF DOOR. PROVIDE THRESHOLDS WHERE FLOOR CHANGES OCCUR. REFER TO FLOOR TRANSITION DETAILS ON SHEET A700.

C. CONFIRM ORIENTATION OF DIRECTIONAL MATERIAL WITH ARCHITECT PRIOR TO ORDERING AND INSTALLATION.

D. REFER TO INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.

E. FINISH FLOORING CONTINUES UNDER COUNTERTOPS, KNEE SPACES, TOE KICKS, VANITIES, PLUMBING FIXTURES, REMOVABLE MILLWORK, FURNITURE, AND EQUIPMENT, ETC. U.N.O.

F. PROVIDE CONTROL JOINTS IN FLOOR TILE AND WALL TILE PER TCNA STANDARDS.SUBMIT SHOP DRAWINGS TO ARCHITECT FOR REVIEW.

G. HATCH PATTERN(S) ARE FOR MATERIAL GRAPHIC REPRESENTATION ONLY AND ARE NOT INDICATIVE OF PATTERN, SIZE, ORIENTATION OR INSTALLATION METHOD OF ANY FINISH PRODUCT, U.N.O.

H. REF. PROJECT SPECIFICATIONS AND MANUFACTURER INSTALLATION SPECIFICATIONS FOR FLOOR FINISH SUBSTRATE PREP AND INSTALLATION REQUIREMENTS.

I. ALL WALLS TO BE PAINTED PT-1 U.N.O.

J. ALL DOOR FRAMES AND TRIM TO BE PAINTED PT-2 U.N.O.

K. REFER TO FLOOR PLANS AND PARTITION TYPES FOR MATERIAL SUBSTRATES.

L. REFER TO REFLECTED CEILING PLANS FOR CEILING MATERIAL INFORMATION AND FINISHES.

M. TYPICAL WALL BASE IS RB-1 U.N.O.

FINISH PLAN NOTES

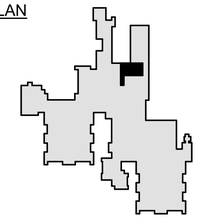
P18 BOLLARD; REFER TO B5/A501

FLOOR FINISH LEGEND

- **SC-1** SEALED CONCRETE
- **RF-1** RUBBER FLOORING
- **LVT (LVT-1, LVT-2)** LUXURY VINYL TILE — LVT-1, LVT-2
- NOT IN SCOPE
- **CORNER GUARD CG-1, TYP.**
- **SPECIALTY EQUIPMENT FINISH TAG**
- **FLOOR & WALL BASE TAG** — XX FLOOR FINISH / XX WALL BASE
- **OPEN AREA FLOOR TRANSITION TAG** — TAG FLOOR FINISH / TAG TRANSITION / TAG FLOOR FINISH

FLOOR TRANSITIONS IDENTIFIED ONLY WHERE FLOOR MATERIAL CHANGES OCCUR WITHIN A ROOM OR SPACE - REFERENCE ROOM FINISH TAGS FOR FINISH CHANGES BETWEEN ROOMS.

KEY PLAN



FINISH PLAN - LEVEL 1 A1

1/8" = 1'-0"

0 4' 8' 16'

REGISTERED ARCHITECT JASON [illegible] STATE OF TEXAS
04/01/2025

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FINISH PLAN - LEVEL 1

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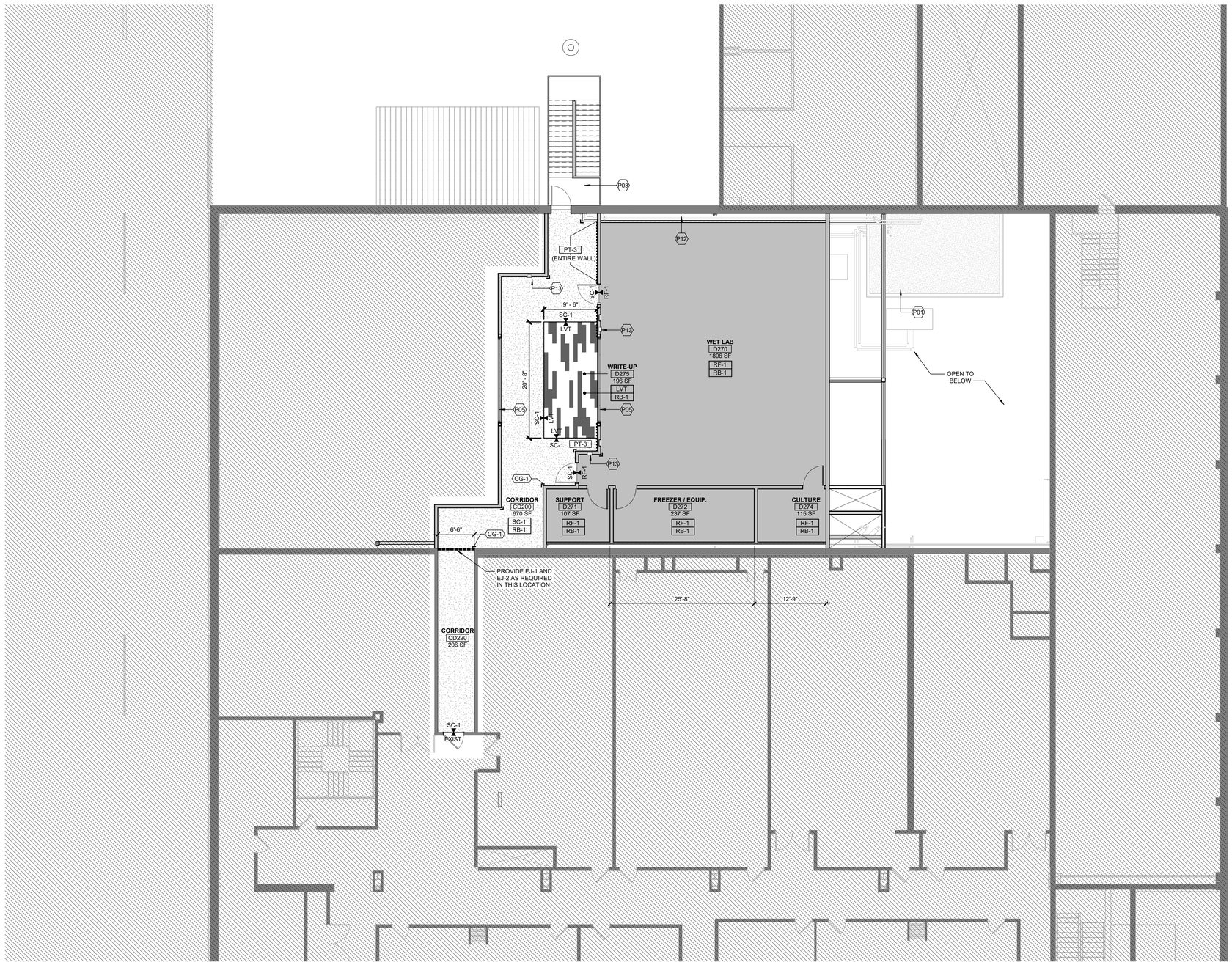


FINISH PLAN - LEVEL 2 A1

1/8" = 1'-0"

0 4' 8' 16'

FLOOR FINISH PLAN NOTES- GENERAL

A. REFER TO SHEET A700 FOR INTERIOR FINISH BASIS OF DESIGN LEGEND AND TRANSITION DETAILS.

B. PROVIDE FLOOR FINISH TRANSITIONS AT CENTER OF DOOR. PROVIDE THRESHOLDS WHERE FLOOR CHANGES OCCUR. REFER TO FLOOR TRANSITION DETAILS ON SHEET A700.

C. CONFIRM ORIENTATION OF DIRECTIONAL MATERIAL WITH ARCHITECT PRIOR TO ORDERING AND INSTALLATION.

D. REFER TO INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.

E. FINISH FLOORING CONTINUES UNDER COUNTERTOPS, KNEE SPACES, TOE KICKS, VANITIES, PLUMBING FIXTURES, REMOVABLE MILLWORK, FURNITURE, AND EQUIPMENT, ETC. U.N.O.

F. PROVIDE CONTROL JOINTS IN FLOOR TILE AND WALL TILE PER TCNA STANDARDS.SUBMIT SHOP DRAWINGS TO ARCHITECT FOR REVIEW.

G. HATCH PATTERN(S) ARE FOR MATERIAL GRAPHIC REPRESENTATION ONLY AND ARE NOT INDICATIVE OF PATTERN, SIZE, ORIENTATION OR INSTALLATION METHOD OF ANY FINISH PRODUCT, U.N.O.

H. REF. PROJECT SPECIFICATIONS AND MANUFACTURER INSTALLATION SPECIFICATIONS FOR FLOOR FINISH SUBSTRATE PREP AND INSTALLATION REQUIREMENTS.

I. ALL WALLS TO BE PAINTED PT-1 U.N.O.

J. ALL DOOR FRAMES AND TRIM TO BE PAINTED PT-2 U.N.O.

K. REFER TO FLOOR PLANS AND PARTITION TYPES FOR MATERIAL SUBSTRATES.

L. REFER TO REFLECTED CEILING PLANS FOR CEILING MATERIAL INFORMATION AND FINISHES.

M. TYPICAL WALL BASE IS RB-1 U.N.O.

FLOOR FINISH LEGEND

SC-1
SEALED CONCRETE

RF-1
RUBBER FLOORING

LVT (LVT-1, LVT-2)
LUXURY VINYL TILE
- LVT-1
- LVT-2

NOT IN SCOPE

CORNER GUARD CG-1, TYP.

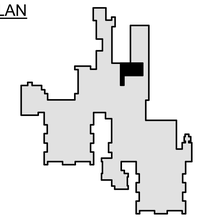
SPECIALTY EQUIPMENT FINISH TAG

FLOOR & WALL BASE TAG
XX FLOOR FINISH
XX WALL BASE

OPEN AREA FLOOR TRANSITION TAG
TAG FLOOR FINISH
TAG TRANSITION
TAG FLOOR FINISH

FLOOR TRANSITIONS IDENTIFIED ONLY WHERE FLOOR MATERIAL CHANGES OCCUR WITHIN A ROOM OR SPACE - REFERENCE ROOM FINISH TAGS FOR FINISH CHANGES BETWEEN ROOMS.

KEY PLAN



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FINISH PLAN - LEVEL 2

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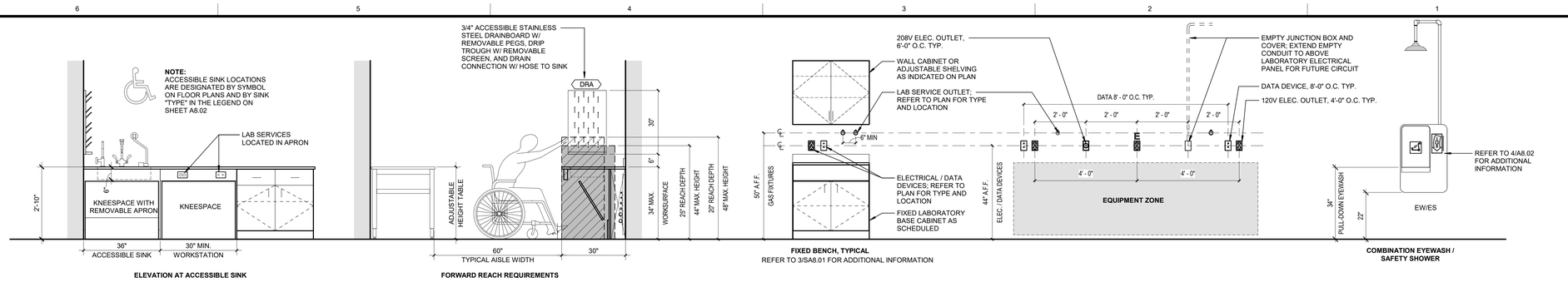


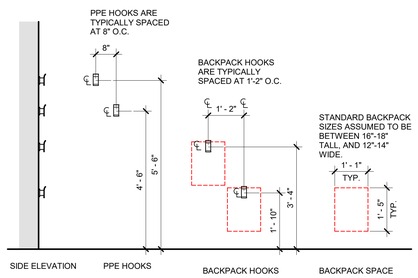
ELEVATION AT ACCESSIBLE SINK

FORWARD REACH REQUIREMENTS

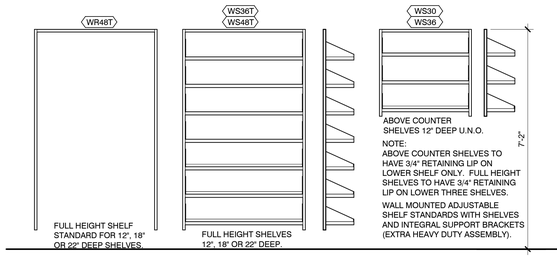
FIXED BENCH, TYPICAL
REFER TO 3/SA8.01 FOR ADDITIONAL INFORMATION

COMBINATION EYEWASH / SAFETY SHOWER

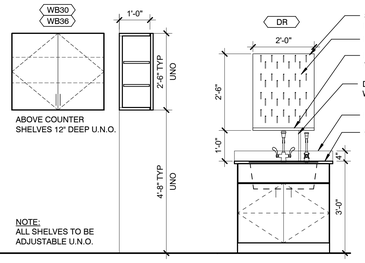
ACCESSIBLE FIXTURE LOCATIONS AND MOUNTING HEIGHTS

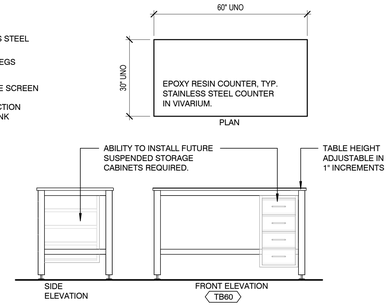


HOOKS

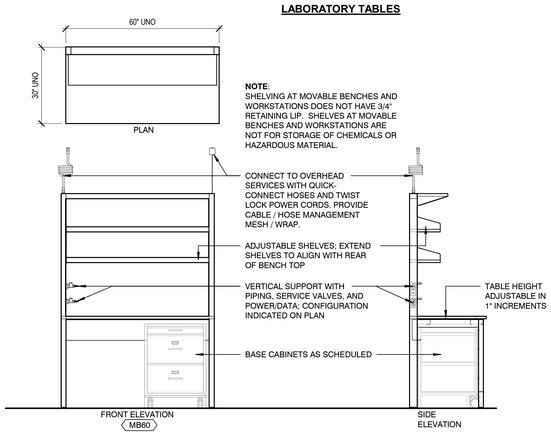


TYPICAL FIXTURE LOCATIONS AND MOUNTING HEIGHTS

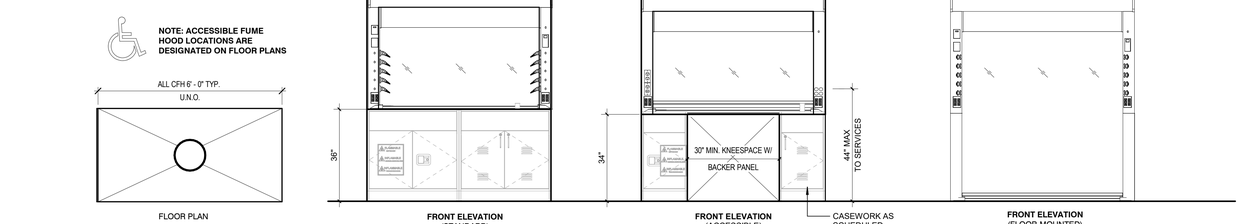




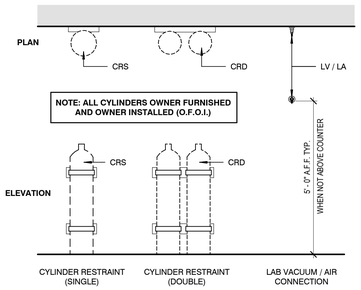
LABORATORY TABLES



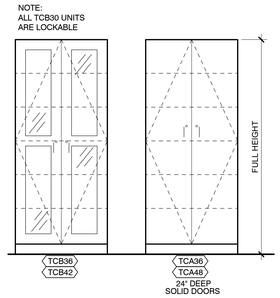
MOVABLE LAB BENCH



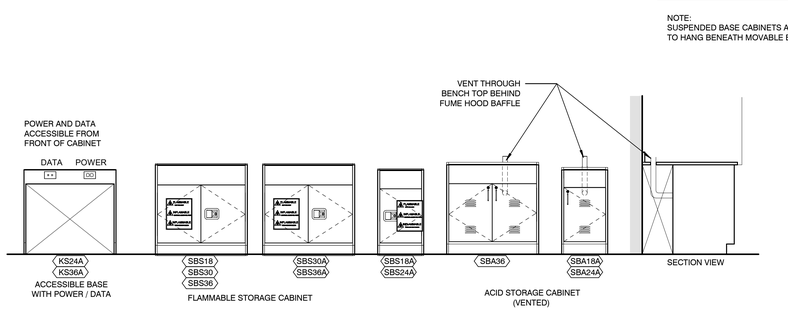
FUME HOODS



CYLINDER RESTRAINTS / LAB VACUUM



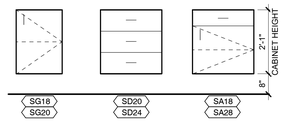
TALL STORAGE



SPECIALTY BASE CABINETS

WALL-MOUNTED CASEWORK

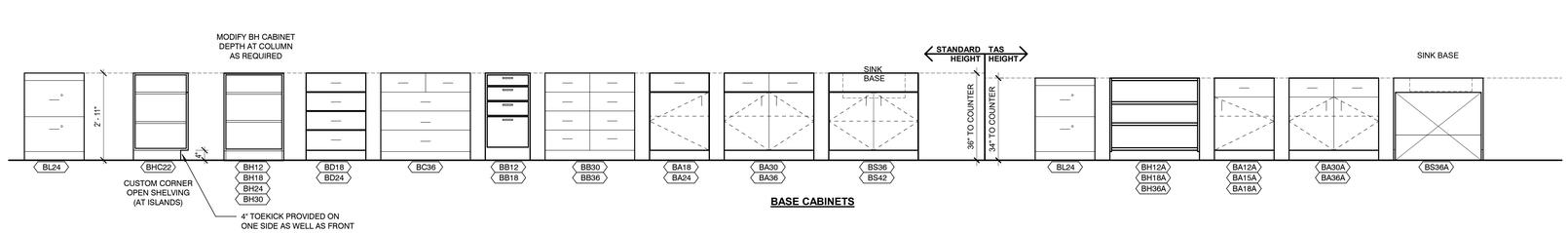
NOTE:
SUSPENDED BASE CABINETS ARE DESIGNED TO HANG BENEATH MOVABLE BENCHES



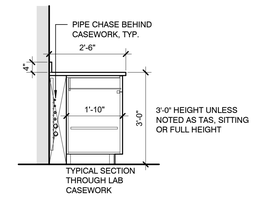
SUSPENDED BASE CABINETS

MOVABLE BASE CABINETS WITH TWO CONCEALED, FIXED CASTERS AT REAR, AND TWO SWIVEL, LOCKING CASTERS AT FRONT. 1" EPOXY TOP. DESIGNED TO FIT UNDER MOVABLE BENCHES.

MOVABLE BASE CABINETS



BASE CABINETS



LABORATORY EQUIPMENT NOTES

1. REFER TO A801 FOR MOUNTING HEIGHT, TYPICAL DIMENSIONS, AND TYPICAL LOCATIONS OF LAB CASEWORK, SERVICES, AND EQUIPMENT.
2. REFER TO A802 FOR LAB SINK TYPES AND TYPICAL CEILING OVERHEAD SERVICE PANEL CONFIGURATION. COORDINATE WITH MEP FOR CONNECTIONS.
3. ALL LABORATORY CASEWORK TO BE STEEL U.N.O.; CASEWORK TO BE LOCKABLE.
4. ALL ADJUSTABLE SHELVING TO BE STEEL U.N.O.
5. ALL COUNTERTOPS, BACKSPLASHES AND SIDESPLASHES TO BE 4" HIGH EPOXY RESIN UNLESS OTHERWISE NOTED. PROVIDE BACK AND SIDE SPLASH AT WALL AND ADJOINING CASEWORK.
6. ALL FIXED CASEWORK TO HAVE 4" RESILIENT BASE AT TOE KICK.
7. TYPICAL FIXED AND MOVABLE BENCH COUNTERTOP HEIGHT 36" A.F.F. UNLESS INDICATED AS ACCESSIBLE HEIGHT. TYPICAL COUNTERTOP DEPTH 30".
8. PROVIDE MIN 16 GA. STRAP BLOCKING WITH ADDITIONAL BLOCKING AS REQUIRED TO ACCOMMODATE ATTACHMENT FOR ALL WALL MOUNTED CASEWORK. COORDINATE BLOCKING PLACEMENT WITH ANCHORING.
9. FINISHED PANELS SHALL BE PROVIDED AT EXPOSED ENDS AND BACKS OF CASEWORK AND FUME HOODS. PROVIDE FILLER PANELS WHERE REQUIRED FOR CLOSING BETWEEN BASE CABINETS AND WALLS. USE SAME MATERIAL AND FINISH AS CABINETS FOR FILLER PANELS.
10. TALL CASEWORK SHALL BE SECURED TO WALL TO PREVENT TIPPING.
11. CENTER DRYING RACKS WITH DRIP-THROUGH ABOUT CENTERLINE OF SINKS.
12. ALL DRYING RACKS TO BE STAINLESS STEEL U.N.O.
13. WALL MOUNTED OPEN SHELVING UNITS ABOVE COUNTERTOP: LOWER SHELF TO HAVE 3/4" RETAINING LIP. UPPER SHELVES DO NOT HAVE 3/4" RETAINING LIP. REFER TO A801.
14. SHELVES AT MOVABLE BENCHES AND WORKSTATIONS ARE NOT FOR STORAGE OF CHEMICALS OR HAZARDOUS MATERIAL.
15. PROVIDE REMOVABLE FINISHED BACK PANEL AT KNEE SPACES TYPICAL.
16. MOVABLE BENCHES AND TABLES HAVE GLIDES, U.N.O.
17. DASHED AREAS NOTED "EQUIP." ARE DESIGNATED O.F.O.I. EQUIPMENT AREAS.
18. ELECTRICAL DEVICES SHALL BE PROVIDED UNDER DIVISION 26. DEVICES SHOWN ON THE LABORATORY DRAWINGS ARE FOR REFERENCE ONLY.
19. DEVICES SHOWN AT FUME HOODS SHALL BE PROVIDED BY THE EQUIPMENT MANUFACTURER.
20. ALL COUNTERTOPS TO BE 1" THICK EPOXY RESIN U.N.O. OVERALL LENGTH OF BENCHTOPS SHALL BE DETERMINED BY CASEWORK SIZES AND DIMENSIONS AS INDICATED ON PLANS. COUNTERTOPS SHALL OVERHANG 1/2" AT EACH END AND 1" FROM FRONT OF BASE CABINETS, MOVABLE BENCHES, AND TABLES. WHEN OVERALL DIMENSIONS ARE GIVEN, 1/2" OVERHANG IS NOT INCLUDED. COUNTERTOPS AT MOVABLE BENCHES AND TABLES SHALL ALIGN WITHOUT ANY GAP WHEN ADJACENT TO EACH OTHER. UPPER SHELVING AT MOVABLE BENCHES SHALL MEET WHEN BENCHES ARE BACK TO BACK.
21. ALL PENETRATIONS THROUGH COUNTERTOP SHALL BE SEALED WITH SEALANT. ALL PENETRATIONS IN LABORATORY FLOORS, WALLS AND CEILING SHALL BE FULLY SEALED. REFER TO A802.
22. BACKS OF COUNTERTOPS, SIDE SPLASHES AND BACK SPLASHES SHALL BE SEALED TO THE WALL WITH SEALANT. REFER TO A802.
23. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
24. SAFETY SHOWERS AND EYEWASH UNITS (INCLUDING COMBINATION RECESSED UNITS) SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 12.
25. LABORATORY SERVICE FITTINGS SHALL BE FURNISHED UNDER DIVISION 12 AND INSTALLED UNDER DIVISION 22. SERVICES SHOWN ON THE LABORATORY DRAWINGS ARE FOR LOCATION ONLY.
26. CORROSIVE STORAGE CABINETS LOCATED UNDER FUME HOODS SHALL BE VENTED. VENT PIPING TO EXTEND 4" ABOVE FUME HOOD WORK SURFACE, BEHIND BAFFLE. VACUUM CABINET UNDER FUME HOOD OR ADJACENT TO SHALL BE VENTED INTO THE FUME HOOD.
27. INSTALLATION OF FUME HOOD BASE CABINETS MUST BE INSPECTED BY EHS FOR FINAL APPROVAL
28. CONTRACTOR TO MAKE FINAL UTILITY CONNECTIONS TO EQUIPMENT.

CASEWORK I.D. LEGEND

XXX XX X
TYPE WIDTH HEIGHT OPTIONS
XXXXX

LABORATORY SERVICES LEGEND

CS	CUP SINK
CW	COLD WATER CONNECTION
EW	EYE WASH (DECK MOUNT)
EW / ES	COMBINATION EYE WASH / EMERGENCY SHOWER
HW	HOT WATER CONNECTION
LA	LABORATORY AIR
LV	LABORATORY VACUUM
RO	REVERSE OSMOSIS PURIFIED WATER

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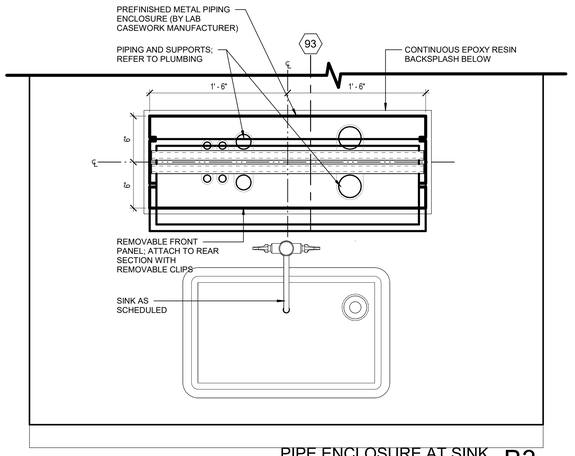
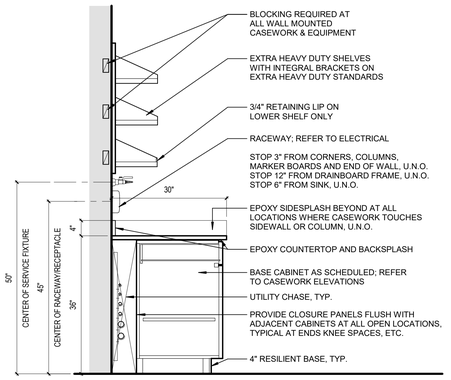
A801

LAB CASEWORK LEGEND

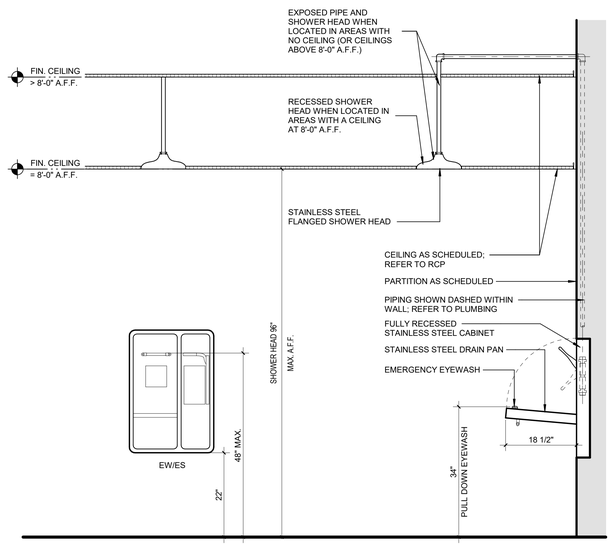
Treanor NO. HE0569.2402.00



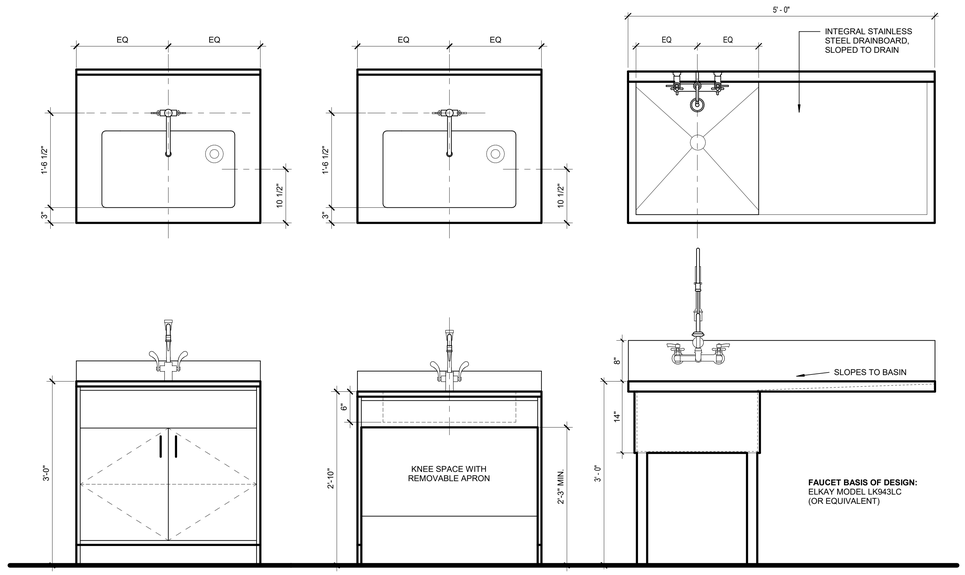
PIPE ENCLOSURE AT SINK B3
1 1/2" = 1'-0"



TYPICAL LAB CASEWORK SECTION B1
3/4" = 1'-0"



COMBINATION EYEWASH / EMERGENCY SHOWER DETAIL A4
3/4" = 1'-0"



LS-1
SERVICES: HW/CW

LS-1A
SERVICES: HW/CW
ACCESSIBLE

LS-2
SERVICES: HW/CW

STAINLESS STEEL SCULLERY SINK

LAB SINK TYPES LEGEND A1
1" = 1'-0"

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EW / ES	COMBINATION EYE WASH / EMERGENCY SHOWER
HW	HOT WATER CONNECTION
LA	LABORATORY AIR
LV	LABORATORY VACUUM
RO	REVERSE OSMOSIS PURIFIED WATER

REGISTERED ARCHITECT JASON ... STATE OF TEXAS
04/01/2025

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Denton, TX 76207

UNT UNIVERSITY OF NORTH TEXAS

Issued For: ISSUE FOR CONSTRUCTION
Date: 04.01.2025

REVISIONS

NO	DESCRIPTION	DATE

A802

TYPICAL LAB DETAILS AND SINK TYPES LEGEND

Treanor NO. HE0569.2402.00

Sealant Schedule

Group	Description	Research Laboratories	Comments
Doors	Seal all penetrations in doors	N/S	
	Seal all door hinge plates (not at pin) to include piano hinges	N/S	
	Seal door frame and wall board interface	IJS-3	
	Seal view panel frames (around glass whether or not gasketed)	N/S	
	Seal around lock sets	N/S	
	Seal around all sides of latch boxes installed within frames	N/S	
	Seal door thresholds to the floor and around the threshold	IJS-1	
	Seal door protection plates and tapered door guards to doors	N/S	
Cabinetry/ Shelving	Seal openings in the base of tables where the support feet mount to the table	IJS-3	
	Seal openings in table legs where the support feet mount to the floor	IJS-3	
	Seal all cabinets where they contact dissimilar materials and where they contact one another	IJS-3	Cabinets need to be closed boxes
	Seal all counter tops where they contact with dissimilar material	IJS-3	
	Seal around all shelf support brackets where they contact the shelves and are mounted to the walls	N/S	
	Seal tops and bottoms of all wall mounted shelving brackets	IJS-3	
	Seal covers between shelf standards	N/S	
	Seal peninsula shelving support at countertop and ceiling	IJS-3	
Walls/Floors/	Seal around all wall guards, bumpers, and rails	IJS-3	Brackets/fasteners shall be installed tight to wall
Ceilings:	Seal all penetrations on the top and bottom of slab	IJS-3 (Non Rated Assemblies) IJS-6 (Fire-rated Assemblies)	To include but not limited to HVAC, plumbing, and electrical penetrations, and like penetrations through interstitial space
	Seal around all corner guards	IJS-3	Brackets/fasteners shall be installed tight to wall
	Seal around all door bumpers	N/S	Brackets/fasteners shall be installed tight to wall
	Seal top of trim strip and sheet flooring at wall	N/S	Recommend feathering epoxy cove base to flat surface, e.g. not at grout line.
	Seal top of base	IJS-3	
	Seal bottom of base	IJS-3	
	Seal all ceiling access panels (whether or not 100% gasketed)	N/S	
	Seal the perimeter of all suspended acoustical ceiling frames at the wall juncture	IJS-3	
	Seal all interior window frames (including gasketed areas)	IJS-3	Sealant shall be sloped to promote cleaning
	Seal around wall and ceiling, surface-mounted cover plates and surface-mounted mounting plates	IJS-3	
	Seal all around floor surface-mounted mounting plates	IJS-1	
	Seal all around floor surface-mounted cover plates	IJS-3	
	Seal around all cap strips on the top edge of cove base	N/S	
	Seal baseboard molding, at the top bottom and terminate at door frame	IJS-3	
	Seal control joints in walls	IJS-3	
	Seal control joints in ceilings	IJS-3	
	Seal control joints in floors	IJS-1	At substrate, below floor finish
	Seal all crash rails, guard rails stand offs, and door rollers mounting brackets	IJS-3	
	Seal joints between walls of dissimilar materials	IJS-3	
	Seal space in wall penetrations, including inside sleeves, collars, and surrounding construction	IJS-3 (Non Rated Assemblies) IJS-6 (Fire-rated Assemblies)	
HVAC:	Seal all ductwork that penetrates the wall envelope	IJS-3	
	Seal all diffusers/grill joints in hard ceilings	IJS-3	
Plumbing:	Hot water line insulation shall be wrapped in aluminum and the seams and ends of the insulation sealed	IJS-7	This applies for steam lines (e.g. autoclaves)
	Seal at vacuum pass-through	IJS-3	
	Seal all cracks in foam rubber water line insulation	IJS-3	
	All flat escutcheon plates and support standoff brackets for animal water systems shall be sealed all around	IJS-3	
	Seal plumbing to surface where a gap of 6mm to 9mm or less exists	IJS-3	
	Seal all plumbing escutcheon and cover plates at the wall and pipe junctions	IJS-3	
	Seal around sprinkler collars	IJS-3	
	Seal all piping that penetrates the wall envelope	IJS-3	
Electrical:	Seal electrical conduit to surfaces where a gap of 6mm to 9mm or less exists	IJS-3	
	conduit shall be sealed tight to wall or ceiling surfaces; (raceway)	IJS-3	Sealant is required on both sides of surface mounted conduit
	Seal the perimeter of all electrical panels	N/S*	* Panelboards in BSL-2 spaces do not require sealing - if done, recommend with gasket only. Locating panelboards within ABSL areas shall be avoided and shall never be placed in actual BSL-3 space. If required within ABSL space, gasketing and sealing is required. Sealing of cover plates in BSL-2 is not required
	Seal joints between ceiling and light fixtures in hard ceilings	N/S*	* Surface and recessed mounted lighting fixtures shall have sealant applied between fixture enclosure and ceiling surface. Recessed mounted fixtures shall have manufacturer's gasketing applied between fixture lens trim cover and adjacent ceiling surfaces.
	Seal perimeter of device boxes to adjacent drywall/CMU. Wire within conduit shall be sealed also	N/S*	*** Applicable for ALL power, communications, signal and control applications within ABSL-3 vivarium facilities: All device boxes shall be cast type with external hub. Where device boxes and conduits are recessed mounted, the box to the adjacent wall, ceiling or floor surface shall be sealed. All wiring shall be provided in either threaded rigid galvanized steel (RGS), intermediate metal conduit (IMC), or electrical metallic tubing (EMT - only when recessed and with compression fittings). Gasketed device cover plates shall be used with an additional continuous bead of silicone sealant between the device box cover plate and the adjacent wall, ceiling or floor surface. Where device boxes and conduits are surface mounted, and where the device box meets the wall, ceiling or floor surface, a continuous bead of silicone sealant shall be provided. Non-recessed conduits are then required to be threaded RGS on minimum 3/4" (19mm) standoffs, or if also surface mounted, both sides of the conduit shall be sealed to adjacent surfaces with silicone caulk. Once wiring is installed, the wiring**
			shall be surrounded by a one inch barrier of silicone caulking around the conductors within the device box hub. This prevents vermin harborage in and transmission through the electrical distribution system
	Seal perimeter of device boxes to adjacent drywall/CMU. Wire within conduit shall be sealed also	N/S*	**Applicable for all power, communications, signal and control applications within ABSL-3 vivarium and BSL3 laboratory facilities: All device boxes shall be cast type with external hub. Where device boxes and conduits are recessed mounted, the box to the adjacent wall, ceiling or floor surface shall be sealed. All wiring shall be provided in either threaded rigid galvanized steel (RGS) or intermediate metal conduit (IMC - only when recessed)....**
			around the conductors within the device box hub. This provides for a gas tight electrical installation allowing decontamination of the BL3 space, and prevents vermin harborage in the BL3 space, and prevents vermin harborage in and transmission through the electrical distribution systems.
Equipment:	Seal all fixed equipment that is within 1-1/2" or less from a ceiling	IJS-2	
	All sinks shall be sealed if they contact other surfaces, including mounting and support brackets	IJS-2	
	Large gaps, behind the backsplash shall be filled in with foam cord and sealed in place	IJS-3	
	Seal gaps that exist between stainless steel sheet metal in all cage washes	IJS-7	
	Seal gaps that exist between stainless steel sheet metal in all tunnel washers	IJS-7	
	Seal gaps that exist between stainless steel sheet metal in all rack wash equipment	IJS-7	
	Seal around frames and holes inside of fire extinguisher boxes	IJS-3	
	Seal around the metal rod hangers used to hold the exhaust hoods where they penetrate the drop ceiling	IJS-3	
	Seal wall mounted heating/air conditioner unit casework and utility	IJS-3	
	Seal floor mounted equipment supports, legs and standoff supports	IJS-5	
Fixtures:	Seal stainless steel equipment at all joints and gaps	IJS-7	
	Seal toilet mounted to surface	IJS-2	
	Seal sink faucet mounted to surface	IJS-2	
	Seal wall hung equipment at surface attachment	IJS-2	

Interior Sealant Types

IJS-1	Architectural Urethane Sealant ASTM C1620
IJS-2	100% Silicone Mildew Resistant ASTM C1518
IJS-3	Siliconized Acrylic Latex ASTM C1518, ASTM C834
IJS-4	<NOT USED>
IJS-5	Urethane ASTM C1620
IJS-6	Non-Halogenated Latex-Based Elastomeric Sealant ASTM C920
IJS-7	100% Silicone Aluminum Finish ASTM C920

Key

BSL	Biological Safety Level
ABSL	Animal Biological Safety Level
JS	Joint Sealant
N/S	No Sealant
N/A	Not Applicable
*	Refer to Comments

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REGISTERED ARCHITECT JASON A. TREANOR STATE OF TEXAS 04/01/2025

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REVISIONS

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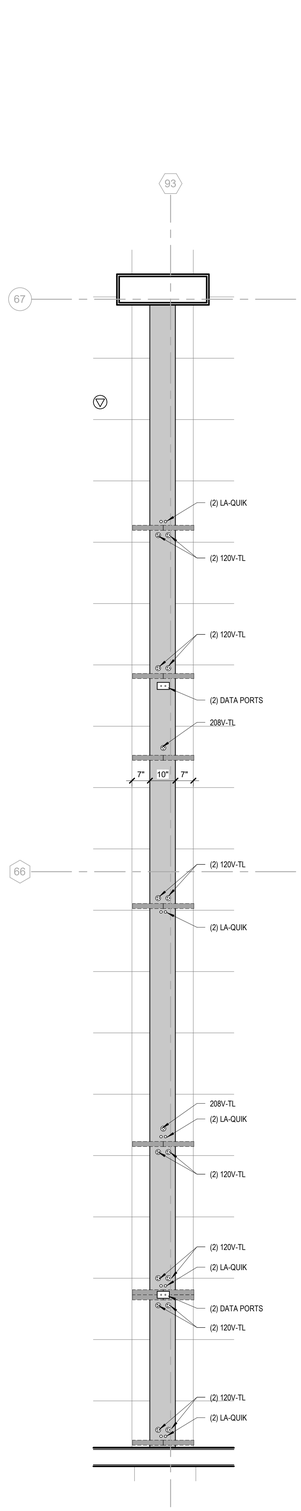
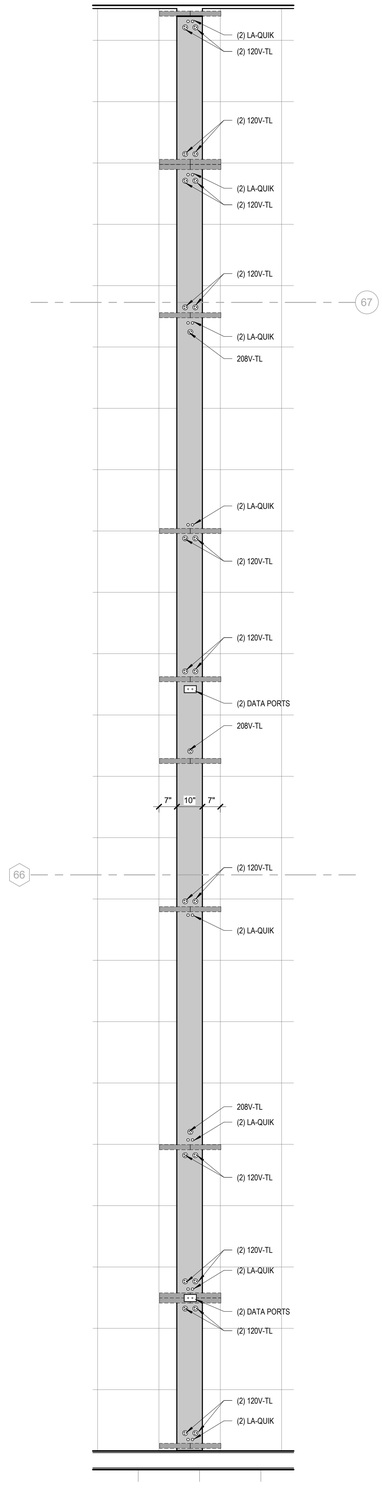
A803

LAB JOINT SEALANT MATRIX

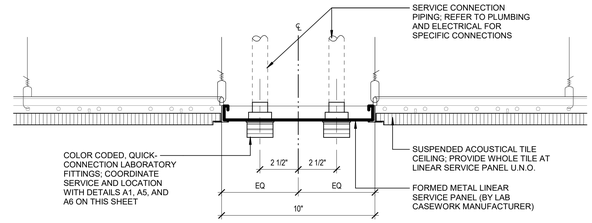
Treanor NO. HE0569.2402.00



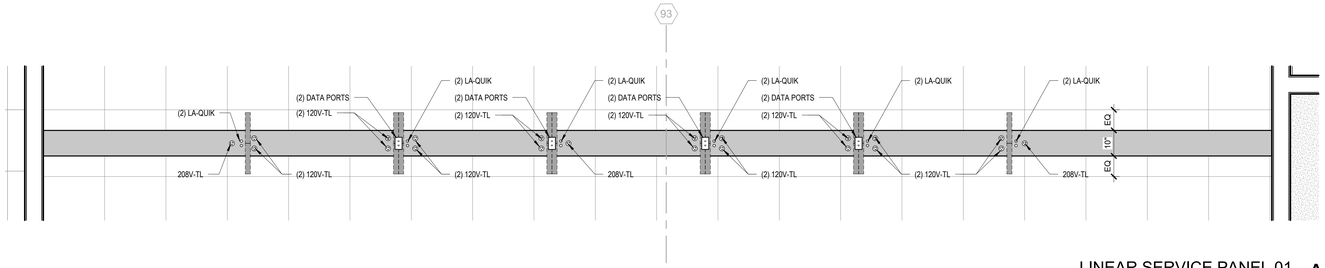
LINEAR SERVICE PANEL 03 A6
1/2" = 1'-0"



LINEAR SERVICE PANEL 02 A5
1/2" = 1'-0"



SECTION - LINEAR SERVICE PANEL, TYPICAL B1
3" = 1'-0"



LINEAR SERVICE PANEL 01 A1
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A805

LINEAR SERVICE PANEL DETAILS

Treanor NO. HE0569.2402.00

Autodesk Docs://HE0569.2402.00 - UNT DP D170 Fit-Out/HE0569.2402.00_UNT DP D170 Fit-Out_R24_Arch.rvt
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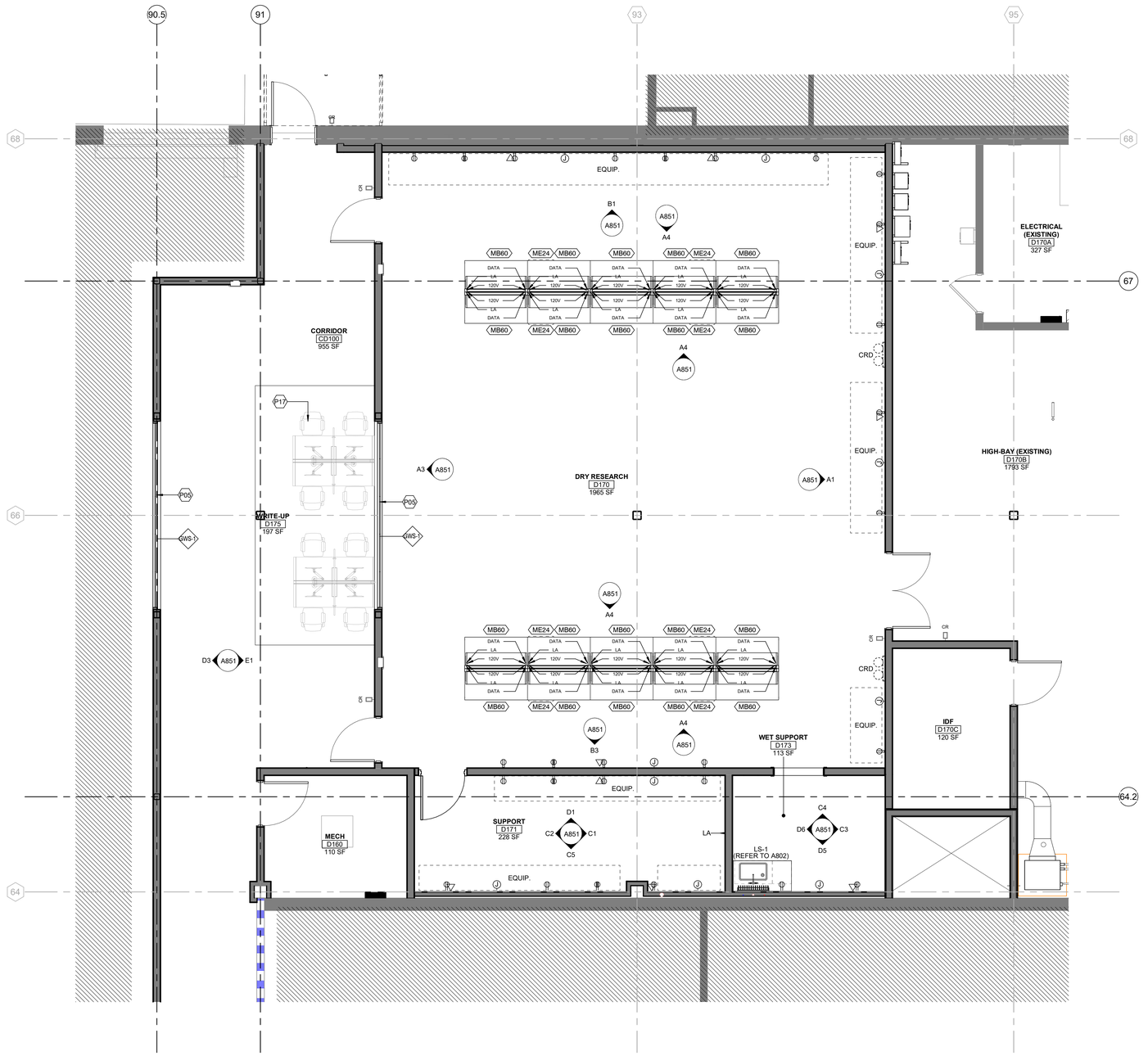
CHEMICAL FUME HOOD SCHEDULE

MARK	ROOM NO.	ROOM NAME	FUME HOOD LENGTH	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	CEILING ENCLOSURE	PLUMBING LA	PLUMBING LV	PLUMBING CS	PLUMBING W	COMMENTS

RESEARCH LABORATORY EQUIPMENT

MARK	ROOM NO.	ROOM NAME	DESCRIPTION	MANUFACTURER	MODEL	SOURCE	FURNISH	INSTALL	DIMENSION DEPTH (D)	DIMENSION WIDTH (W)	DIMENSION HEIGHT (H)	PLUMBING CW	PLUMBING HW	PLUMBING LW	PLUMBING LW TYPE	PLUMBING FD	PLUMBING FS	PLUMBING LA	PLUMBING LV	PLUMBING SG	ELECTRICAL VOLTS (V)	ELECTRICAL AMPS (A)	ELECTRICAL PHASE (PH)	ELECTRICAL DED. CIRC.	ELECTRICAL STANDBY	ELECTRICAL NEMA PLUG	OTHER STEAM	OTHER PCW	EXHAUST	COMMENTS



LAB EQUIPMENT PLAN - LEVEL 1 (BASE BID) A1

1/4" = 1'-0"

0 2' 4' 8'

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21. ALL PENETRATIONS THROUGH COUNTERTOP SHALL BE SEALED WITH SEALANT. ALL PENETRATIONS IN LABORATORY FLOORS, WALLS AND CEILING SHALL BE FULLY SEALED. REFER TO A802.
22. BACKS OF COUNTERTOPS, SIDE SPLASHES AND BACK SPLASHES SHALL BE SEALED TO THE WALL WITH SEALANT. REFER TO A802.
23. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
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28. CONTRACTOR TO MAKE FINAL UTILITY CONNECTIONS TO EQUIPMENT.

WIDTH / TYPE I.D. — HEIGHT OPTIONS
BA36A — CASEWORK TAG; REFER TO SA8.00 FOR ADDITIONAL INFORMATION

LS-1 (REFER TO A802) — LAB SINK TYPE, TYP.; REFER TO A802 FOR ADDITIONAL INFORMATION

EX-000 — EXHAUST EQUIPMENT TAG; REFER TO EXHAUST EQUIPMENT SCHEDULE

CENTRIFUGAL FUME HOOD

BIOLOGICAL SAFETY CABINET WITH ADJUSTABLE STAND

THREE JOINT, CEILING-MOUNTED SNORKEL EXHAUST; REFER TO EXHAUST EQUIPMENT SCHEDULE

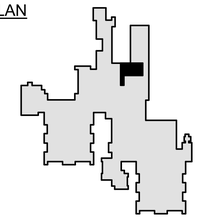
LAB AIR / VACUUM CONNECTION

CRS CRD — CYLINDER RESTRAINT (SINGLE / DOUBLE)

CYLINDER RESTRAINT RACK

RECESSED COMBINATION EYEWASH / EMERGENCY SHOWER

KEY PLAN



REGISTERED ARCHITECT JASON STATE OF TEXAS
04/01/2025

TREANOR
2554 Elm Street, Suite 200
Dallas, TX 75226
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UNIVERSITY OF NORTH TEXAS DISCOVERY PARK D170 LAB FIT-OUT

3940 N Elm Street
Denton, TX 76207

UNT UNIVERSITY OF NORTH TEXAS

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REVISIONS

NO	DESCRIPTION	DATE

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LAB EQUIPMENT PLAN AND SCHEDULE - LEVEL 1 (BASE BID)

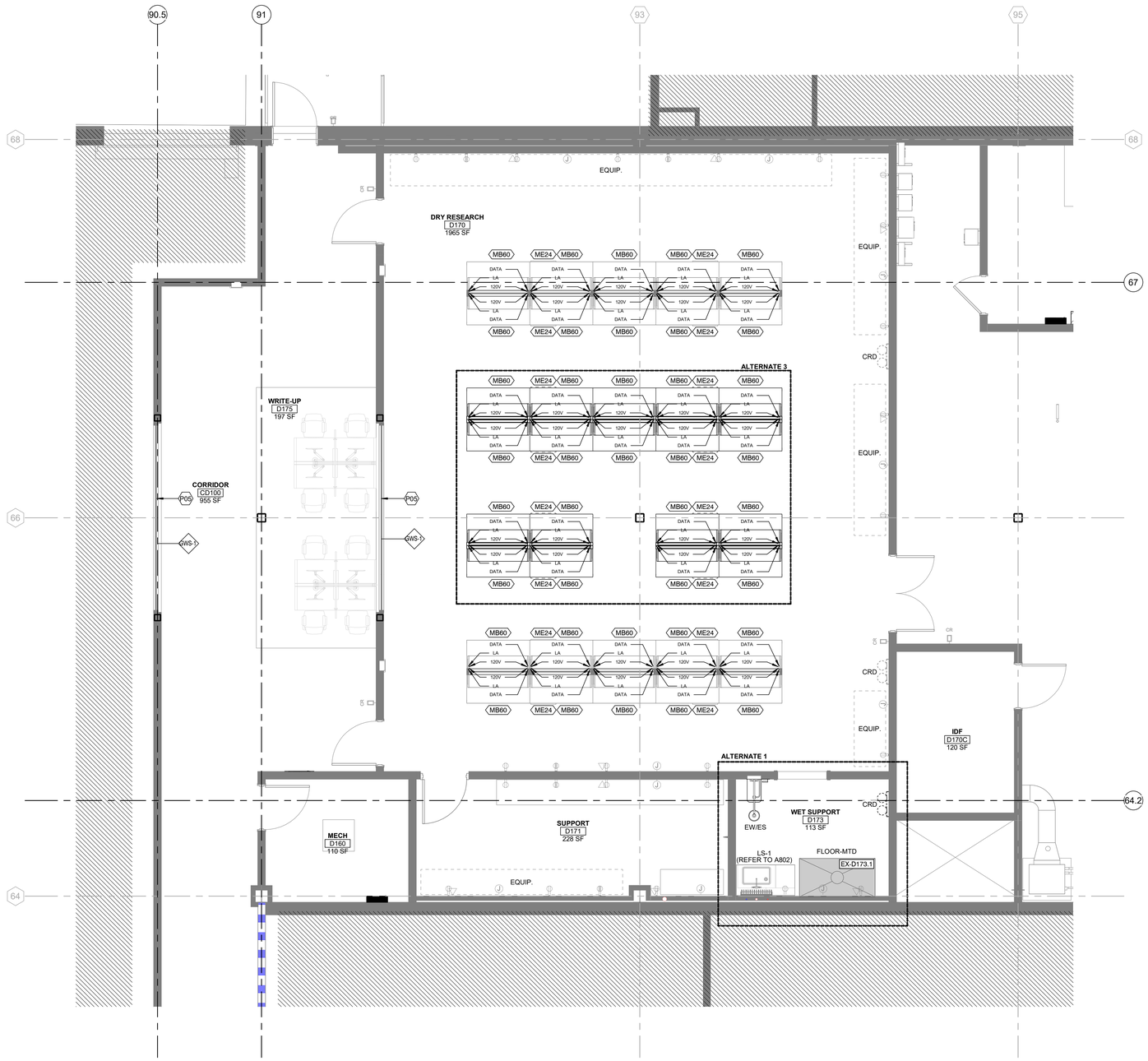
Treanor NO. HE0569.2402.00

CHEMICAL FUME HOOD SCHEDULE

MARK	ROOM NO.	ROOM NAME	FUME HOOD LENGTH	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	CEILING ENCLOSURE	PLUMBING LA	PLUMBING LV	PLUMBING CS	PLUMBING W	COMMENTS

RESEARCH LABORATORY EQUIPMENT

MARK	ROOM NO.	ROOM NAME	DESCRIPTION	MANUFACTURER	MODEL	SOURCE	FURNISH	INSTALL	DIMENSION DEPTH (D)	DIMENSION WIDTH (W)	DIMENSION HEIGHT (H)	PLUMBING CW	PLUMBING HW	PLUMBING LW	PLUMBING LW TYPE	PLUMBING FD	PLUMBING FS	PLUMBING LA	PLUMBING LV	PLUMBING SG	ELECTRICAL VOLTS (V)	ELECTRICAL AMPS (A)	ELECTRICAL PHASE (PH)	ELECTRICAL DED. CIRC.	ELECTRICAL STANDBY	ELECTRICAL NEMA PLUG	OTHER STEAM	OTHER PCW	EXHAUST	COMMENTS



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2. REFER TO A802 FOR LAB SINK TYPES AND TYPICAL CEILING OVERHEAD SERVICE PANEL CONFIGURATION. COORDINATE WITH MEP FOR CONNECTIONS.
3. ALL LABORATORY CASEWORK TO BE STEEL U.N.O.; CASEWORK TO BE LOCKABLE.
4. ALL ADJUSTABLE SHELVING TO BE STEEL U.N.O.
5. ALL COUNTERTOPS, BACKSPLASHES AND SIDESPLASHES TO BE 4" HIGH EPOXY RESIN UNLESS OTHERWISE NOTED. PROVIDE BACK AND SIDE SPLASH AT WALL AND ADJOINING CASEWORK.
6. ALL FIXED CASEWORK TO HAVE 4" RESILIENT BASE AT TOE KICK.
7. TYPICAL FIXED AND MOVABLE BENCH COUNTERTOP HEIGHT 36" A.F.F. UNLESS INDICATED AS ACCESSIBLE HEIGHT. TYPICAL COUNTERTOP DEPTH 30".
8. PROVIDE MIN 16 GA. STRAP BLOCKING WITH ADDITIONAL BLOCKING AS REQUIRED TO ACCOMMODATE ATTACHMENT FOR ALL WALL MOUNTED CASEWORK. COORDINATE BLOCKING PLACEMENT WITH ANCHORING.
9. FINISHED PANELS SHALL BE PROVIDED AT EXPOSED ENDS AND BACKS OF CASEWORK AND FUME HOODS. PROVIDE FILLER PANELS WHERE REQUIRED FOR CLOSING BETWEEN BASE CABINETS AND WALLS. USE SAME MATERIAL AND FINISH AS CABINETS FOR FILLER PANELS.
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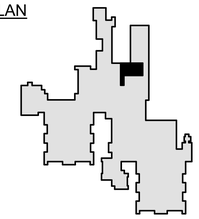

LAB EQUIPMENT PLAN - LEVEL 1 (ALTERNATES) A1
1/4" = 1'-0"
0 2" 4" 8"

REGISTERED ARCHITECT JASON HARRIS STATE OF TEXAS
04/01/2025

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REVISIONS

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A811A

LAB EQUIPMENT PLAN AND SCHEDULE - LEVEL 1 (ALTERNATES)

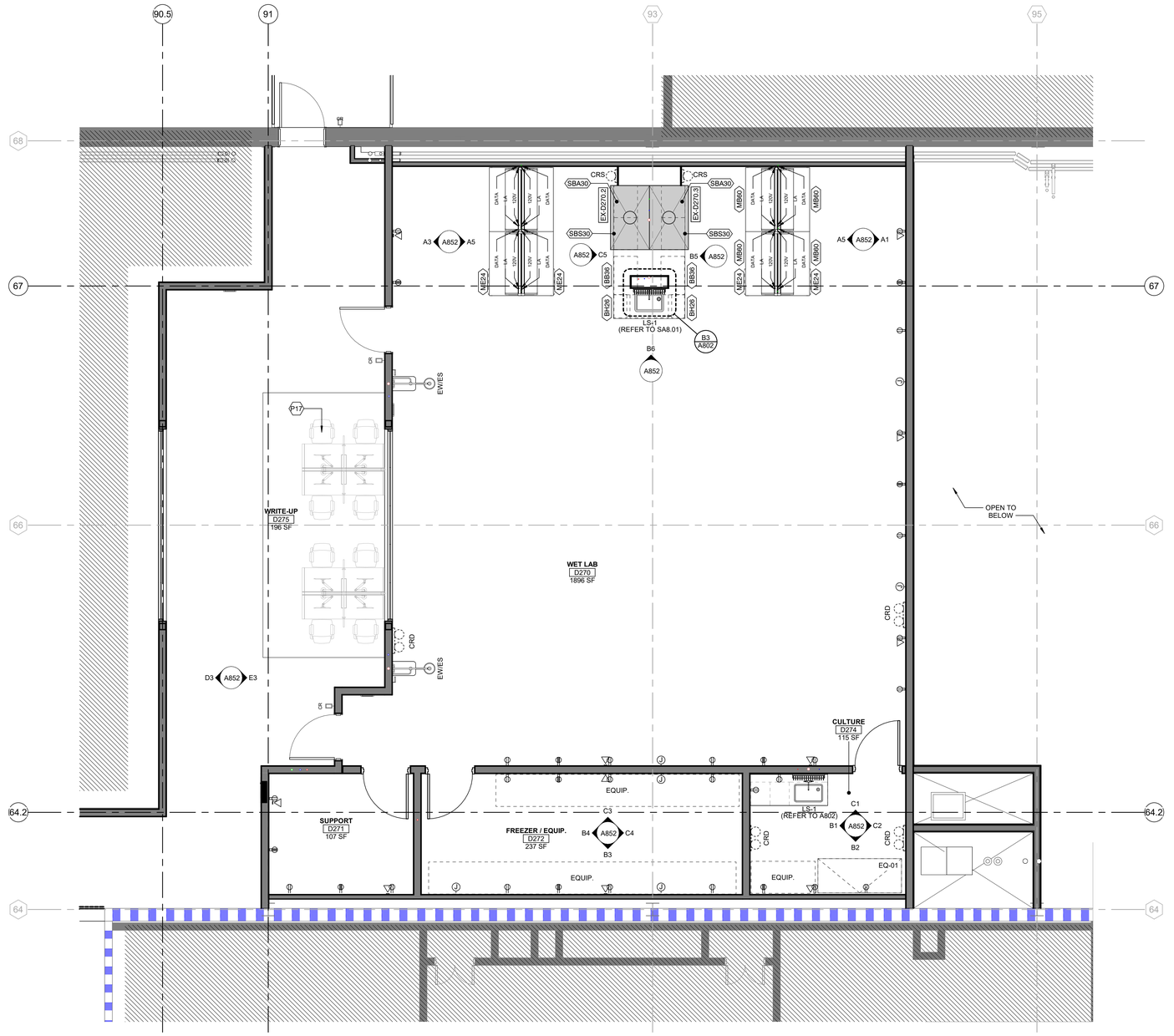
Treanor NO. HE0569.2402.00

CHEMICAL FUME HOOD SCHEDULE

MARK	ROOM NO.	ROOM NAME	FUME HOOD LENGTH	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	CEILING ENCLOSURE	PLUMBING LA	PLUMBING LV	PLUMBING CS	PLUMBING W	COMMENTS
EX-D270.2	D270	WET LAB	5'-0"	MOTT MANUFACTURING	RFV2	Yes	Yes		Yes	Yes	
EX-D270.3	D270	WET LAB	5'-0"	MOTT MANUFACTURING	RFV2	Yes	Yes		Yes	Yes	

RESEARCH LABORATORY EQUIPMENT

MARK	ROOM NO.	ROOM NAME	DESCRIPTION	MANUFACTURER	MODEL	SOURCE	FURNISH	INSTALL	DIMENSION DEPTH (D)	DIMENSION WIDTH (W)	DIMENSION HEIGHT (H)	PLUMBING CW	PLUMBING HW	PLUMBING LW	PLUMBING LW TYPE	PLUMBING FD	PLUMBING FS	PLUMBING LA	PLUMBING LV	PLUMBING SG	ELECTRICAL VOLTS (V)	ELECTRICAL AMPS (A)	ELECTRICAL PHASE (PH)	ELECTRICAL DED. CIRC.	ELECTRICAL STANDBY	ELECTRICAL NEMA PLUG	OTHER STEAM	OTHER PCW	EXHAUST	COMMENTS
EQ-01	D274	CULTURE	6' BSC - CLASS II A2 (RECIRC)	LABCONCO	PURIFIER LOGIC+	NEW	OWNER	OWNER																						



LAB EQUIPMENT PLAN - LEVEL 2 (BASE BID) A1

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CYLINDER RESTRAINT RACK

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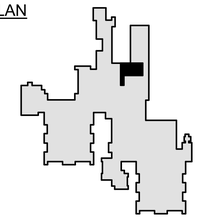
KEY PLAN



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REVISIONS

NO	DESCRIPTION	DATE

A812

LAB EQUIPMENT PLAN AND SCHEDULE - LEVEL 2 (BASE BID)

Treanor NO. HE0569.2402.00

CHEMICAL FUME HOOD SCHEDULE

MARK	ROOM NO.	ROOM NAME	FUME HOOD LENGTH	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	CEILING ENCLOSURE	PLUMBING LA	PLUMBING LV	PLUMBING CS	PLUMBING W	COMMENTS
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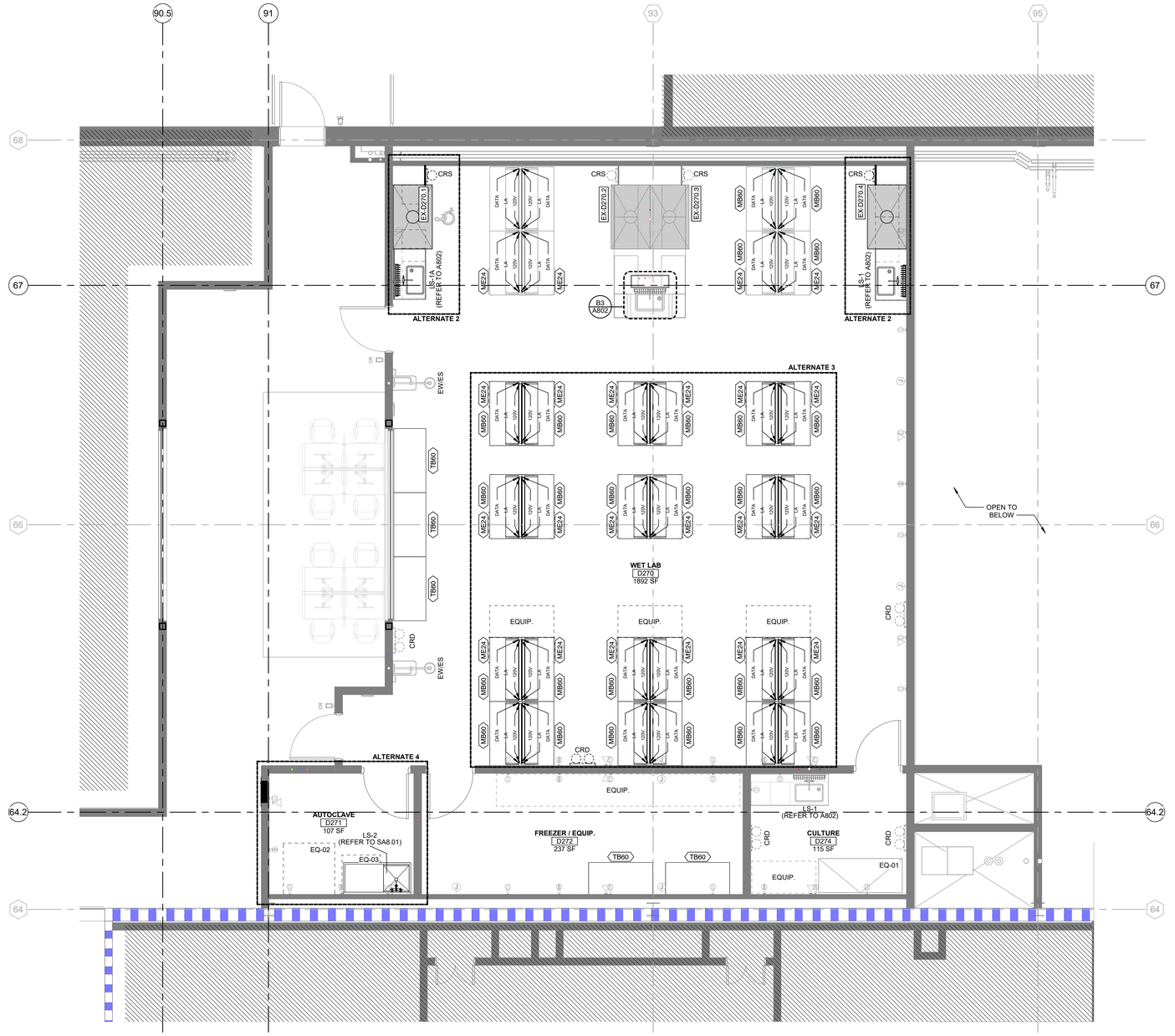
EQ-02	D271	AUTOCLAVE	SMALL STERILIZER	STERIS AMSCO	LS 250	NEW	CONTRACTOR	CONTRACTOR																			No	No		
EQ-03	D271	AUTOCLAVE	GLASSWARE WASHER	STERIS AMSCO	RELIANCE 100	NEW	CONTRACTOR	CONTRACTOR																			No	No		



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BIOLOGICAL SAFETY CABINET WITH ADJUSTABLE STAND

THREE JOINT, CEILING-MOUNTED SNORKEL EXHAUST, REFER TO EXHAUST EQUIPMENT SCHEDULE

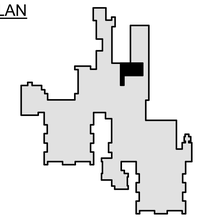
LAB AIR / VACUUM CONNECTION

CRS CRD — CYLINDER RESTRAINT (SINGLE / DOUBLE)

CYLINDER RESTRAINT RACK

RECESSED COMBINATION EYEWASH / EMERGENCY SHOWER

KEY PLAN



REGISTERED ARCHITECT JASON ... STATE OF TEXAS
04/01/2025

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UNIVERSITY OF NORTH TEXAS
DISCOVERY PARK D170 LAB FIT-OUT

3940 N Elm Street
Denton, TX 76207

UNT UNIVERSITY OF NORTH TEXAS

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REVISIONS

NO	DESCRIPTION	DATE

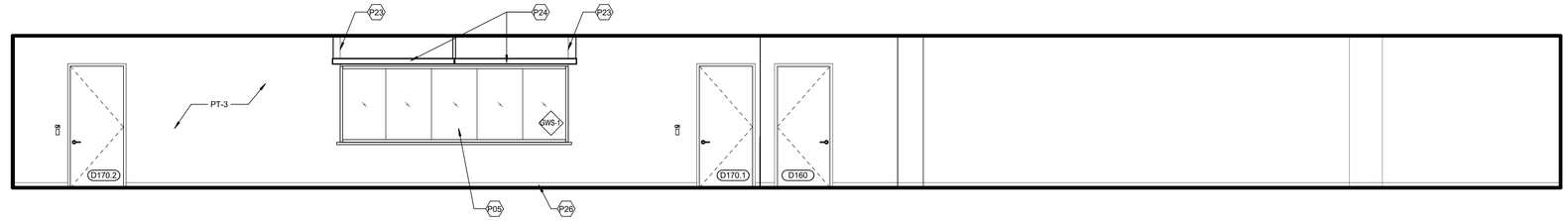
A812A

LAB EQUIPMENT PLAN AND SCHEDULE - LEVEL 2 (ALTERNATES)

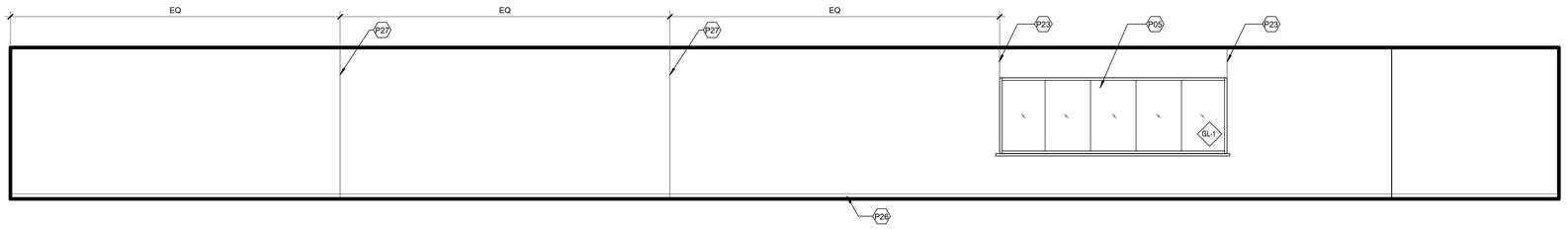
Treanor NO. HE0569.2402.00

KEYNOTES

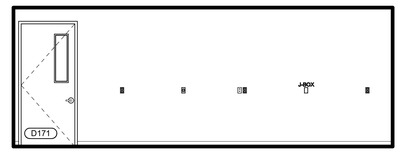
P05	INTERIOR GLAZED ALUMINUM STOREFRONT AS SCHEDULED; REFER TO A601 FOR ADDITIONAL INFORMATION
P13	FULLY-RECESSED FIRE EXTINGUISHER CABINET (FEC)
P23	PROVIDE DRYWALL CONTROL JOINTS AT CORRIDOR SIDE OF GLAZED OPENING
P24	LINEAR PENDANT LIGHT FIXTURE; CENTER ON GLAZED OPENING.
P26	RUBBER BASE RB-1, TYPICAL. REFER TO A700 FOR ADDITIONAL INFORMATION.
P27	CENTER (2) DRYWALL CONTROL JOINTS BETWEEN GLAZED OPENING AND END OF LEVEL 1 CORRIDOR



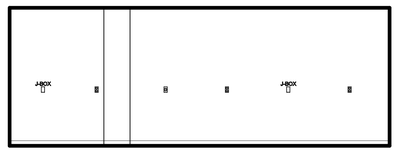
LEVEL 1 CORRIDOR INTERIOR ELEVATION - EAST E1
1/4" = 1'-0"



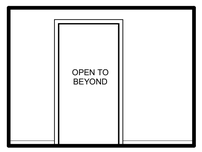
LEVEL 1 CORRIDOR INTERIOR ELEVATION - WEST D3
1/4" = 1'-0"



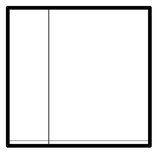
SUPPORT - NORTH D1
1/4" = 1'-0"



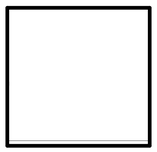
SUPPORT - SOUTH C5
1/4" = 1'-0"



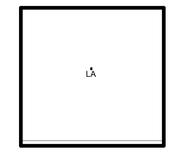
WET SUPPORT - NORTH C4
1/4" = 1'-0"



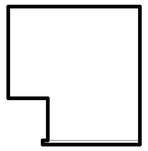
WET SUPPORT - EAST C3
1/4" = 1'-0"



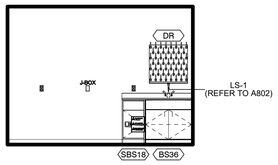
SUPPORT - WEST C2
1/4" = 1'-0"



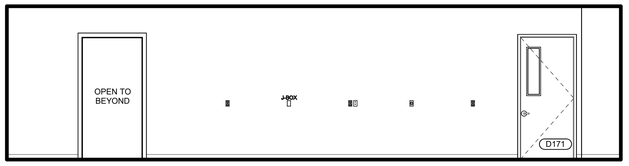
SUPPORT - EAST C1
1/4" = 1'-0"



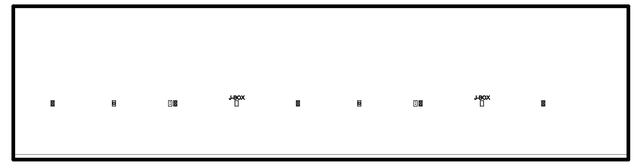
WET SUPPORT - WEST D6
1/4" = 1'-0"



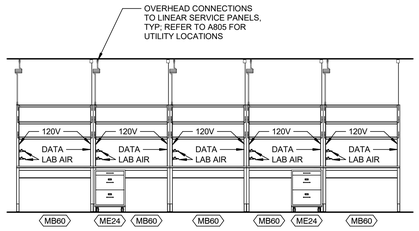
WET SUPPORT - SOUTH D5
1/4" = 1'-0"



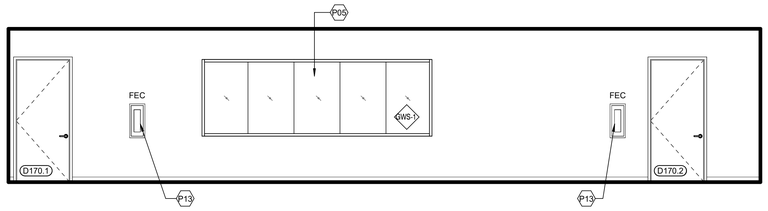
DRY RESEARCH D170 - SOUTH B3
1/4" = 1'-0"



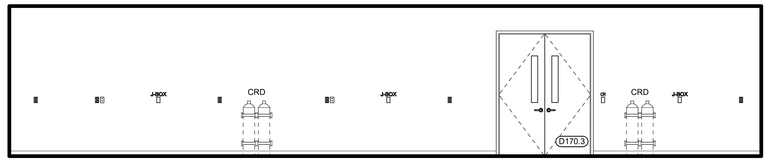
DRY RESEARCH D170 - NORTH B1
1/4" = 1'-0"



TYP. LAB BENCH CONFIGURATION - LEVEL 1 A4
1/4" = 1'-0"



DRY RESEARCH D170 - WEST A3
1/4" = 1'-0"



DRY RESEARCH D170 - EAST A1
1/4" = 1'-0"

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INTERIOR ELEVATIONS - LEVEL 1

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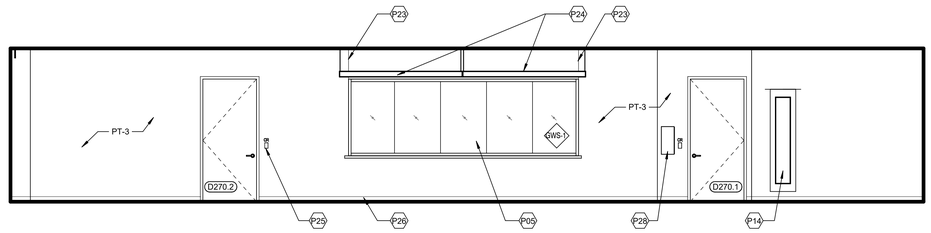
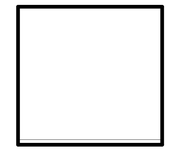
KEYNOTES

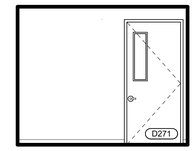
P05	INTERIOR GLAZED ALUMINUM STOREFRONT AS SCHEDULED; REFER TO A601 FOR ADDITIONAL INFORMATION
P14	WALL-MOUNTED ELECTRICAL PANEL. REFER TO ELECTRICAL FOR ADDITIONAL INFORMATION.
P22	2" EXPANSION JOINT. INSTALL FLOOR AND WALL EXPANSION JOINT COVERS AS SPECIFIED AND DETAILED ON SHEET A501.
P23	PROVIDE DRYWALL CONTROL JOINTS AT CORRIDOR SIDE OF GLAZED OPENING
P24	LINEAR PENDANT LIGHT FIXTURE; CENTER ON GLAZED OPENING.
P25	ROUGH-IN LOCATION FOR CARD READER, TYP. REFER TO C1/A501.
P26	RUBBER BASE RB-1, TYPICAL. REFER TO A700 FOR ADDITIONAL INFORMATION.
P28	ELECTRICAL DISCONNECT; REFER TO ELECTRICAL



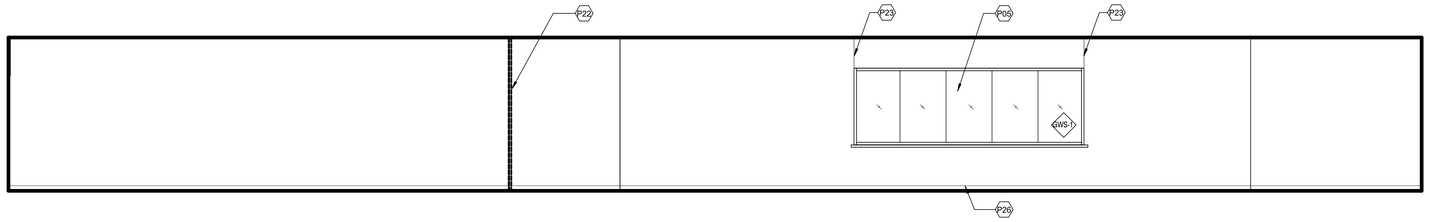
LEVEL 2 CORRIDOR INTERIOR ELEVATION - EAST E3
1/4" = 1'-0"



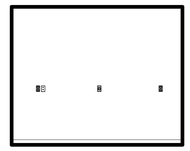
D271 - EAST E2
1/4" = 1'-0"



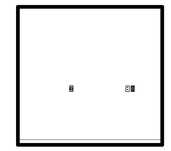
D271 - NORTH E1
1/4" = 1'-0"



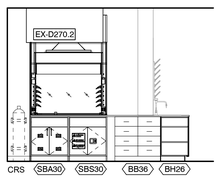
LEVEL 2 CORRIDOR INTERIOR ELEVATION - WEST D3
1/4" = 1'-0"



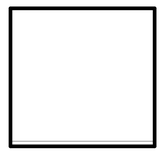
D171 - SOUTH D2
1/4" = 1'-0"



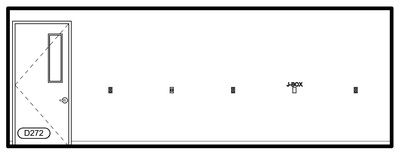
D271 - WEST D1
1/4" = 1'-0"



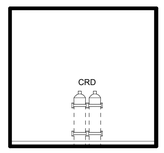
ELEVATION - LEVEL 2 FUME HOOD (EAST) C5
1/4" = 1'-0"



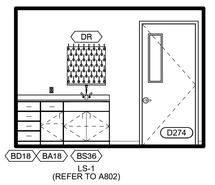
FREEZER - EAST C4
1/4" = 1'-0"



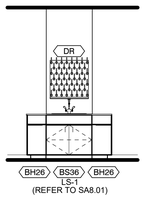
FREEZER - NORTH C3
1/4" = 1'-0"



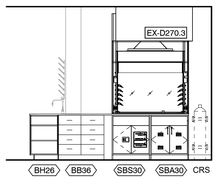
CULTURE - EAST C2
1/4" = 1'-0"



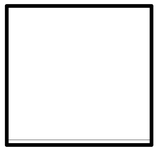
CULTURE - NORTH C1
1/4" = 1'-0"



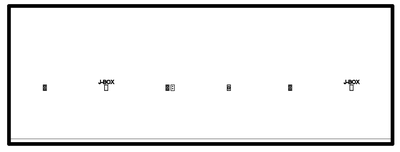
D270 - PENINSULA SINK B6
1/4" = 1'-0"



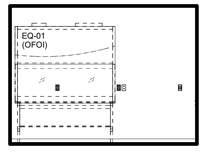
ELEVATION - LEVEL 2 FUME HOOD (WEST) B5
1/4" = 1'-0"



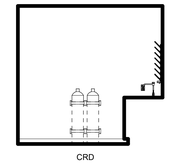
FREEZER - WEST B4
1/4" = 1'-0"



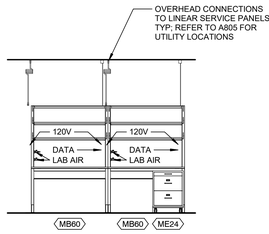
FREEZER - SOUTH B3
1/4" = 1'-0"



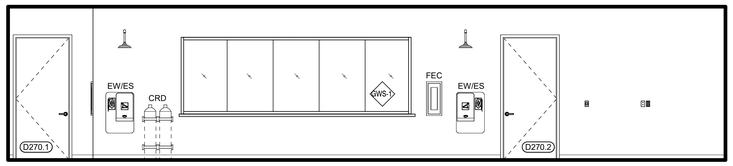
CULTURE - SOUTH B2
1/4" = 1'-0"



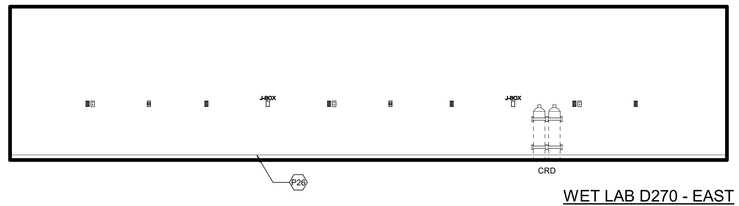
CULTURE - WEST B1
1/4" = 1'-0"



TYP. LAB BENCH CONFIGURATION - LEVEL 2 A5
1/4" = 1'-0"



WET LAB D270 - WEST A3
1/4" = 1'-0"



WET LAB D270 - EAST A1
1/4" = 1'-0"

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INTERIOR ELEVATIONS - LEVEL 2

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CODES AND STANDARDS - MECHANICAL BASIS OF DESIGN

A. 2021 Edition of International Building Code (IBC)

B. 2021 Edition of International Mechanical Code (IMC)

C. 2020 Edition of National Fire Protection Association (NFPA) 101 Life Safety Code

D. UNT University Design and Construction Standards - March 2024 Release w/ Research Park Appendix

E. International Energy Conservation Code (IECC) 2018 Edition

F. ASHRAE 90.1 - 2013 Edition

G. SECO's Water Efficiency Standards for State Buildings and Institutions of Higher Education Facilities

H.
I. ASHRAE 62.1 - 2019 Edition Ventilation for Acceptable Indoor Air Quality

J. ANSI/ASSP Z9.5 - 2012 Edition Laboratory Ventilation

K. 2021 ASHRAE Fundamentals Handbook

L. ASHRAE design guidelines

M. SMACNA standards

MECHANICAL SYSTEMS INFORMATION

TYPE OF SYSTEM

ROOFTOP, 100% OUTSIDE AIR, SINGLE DUCT AIR HANDLING UNIT WITH MERV-8 AND MERV-11 FILTERS, SUPPLY FAN ARRAY WITH VFD, HOT WATER PREHEAT COIL, AND CHILLED WATER COOLING COIL SERVING VAV TERMINALS AND LAB VALVES WITH ELECTRIC REHEAT COILS.

AIR IS EXHAUSTED TO THE OUTDOORS USING A ROOFTOP LAB EXHAUST FAN SYSTEM WITH N+1 FAN REDUNDANCY, VFD, AND BYPASS CONTROL DAMPER. EXHAUST SYSTEM USES GENERAL AND LAB EXHAUST VALVES TO MAINTAIN SPACE PRESSURIZATION.

UTILITIES FROM CAMPUS DISTRIBUTION

ADDED CONNECTED LOAD (AIR CONDITIONING TONS):	92
ADDED CONNECTED LOAD (HEATING IN MBTU/H):	800
ADDED CONNECTED LOAD (HEATING IN KW):	62

OUTDOOR DESIGN CONDITIONS

SUMMER OUTSIDE (°F DB/WB) (ASHRAE 1% DRY BULB/WET BULB)	99.9 °F / 74.5 °F
WINTER OUTSIDE (°F) (ASHRAE 99.6% HEATING DB)	21.1 °F DB
PREHEAT COIL SELECTION (°F)	0 °F DB

INDOOR DESIGN CONDITIONS

LABORATORIES	75°F DB, 50%RH - COOLING 70°F DB - HEATING
OFFICES	75°F DB, 50%RH - COOLING 70°F DB - HEATING
CORRIDORS	75°F DB, 50%RH - COOLING 70°F DB - HEATING
IDF ROOM	72°F DB, 50%RH - COOLING NO HEAT
MECHANICAL ROOM	85°F DB, 30%RH - COOLING 65°F DB - HEATING

OUTSIDE AIR (PER ASHRAE 62.1 - 2013 AND LAB DESIGN GUIDELINES)

LABORATORIES	10 CFM / PERSON + 0.18 CFM / SQ FT MIN 8 ACH
OFFICES	5 CFM / PERSON + 0.06 CFM / SQ FT
CORRIDORS	0.06 CFM / SQ FT

EXHAUST AIR (PER ASHRAE AND UNT STANDARDS)

LABORATORIES	MIN 8 ACH
CHEMICAL FUME HOODS	MAX 100 FPM FACE VELOCITY AT 18" SASH HEIGHT / MIN 150 ACH
• 5-FOOT FUME HOOD	635 CFM MAX / 200 CFM MIN
• 6-FOOT FUME HOOD	785 CFM MAX / 300 CFM MIN
AUTOCLAVE CANOPY HOOD	860 CFM

BASIS OF DESIGN & FUTURE CONSIDERATIONS

THE BASIS OF DESIGN INCLUDES QTY (2) 5-FT FUME HOODS. THE LABS ARE DESIGNED TO BE NEGATIVELY PRESSURIZED WITH RESPECT TO THE CORRIDOR, AND SUPPORT LABS ARE DESIGNED TO BE NEUTRAL PRESSURE WITH RESPECT TO THE CONNECTING MAIN LAB. AIR HANDLING UNIT (AHU) COOLING CAPACITY IS SIZED FOR 5 W / SQ FT OF HEAT LOSS FROM MISCELLANEOUS LAB EQUIPMENT IN THE MAIN LAB SPACES AND 12 W / SQ FT IN THE SUPPORT LABS. AHU FAN CAPACITY AND SUPPLY MAIN DUCTWORK ARE SIZED TO PROVIDE AT LEAST 8 AIR CHANGES PER HOUR (ACH) TO ALL LAB SPACES AND SUFFICIENT AIRFLOW FOR PRESSURIZATION AND TEMPERATURE CONTROL. LAB EXHAUST FAN (LEF) CAPACITY AND EXHAUST MAIN DUCTWORK ARE SIZED FOR AT LEAST 8 ACH FROM ALL LAB SPACES AND SUFFICIENT AIRFLOW TO MAINTAIN PRESSURIZATION AND MEET THE ABOVE BASIS OF DESIGN EQUIPMENT AIRFLOWS.

THE MECHANICAL SYSTEMS ARE DESIGNED FOR FLEXIBILITY TO ALLOW FUTURE MODIFICATIONS TO LAB SPACE REQUIREMENTS AND EQUIPMENT. THE AHU, LEF, AND SUPPLY AND EXHAUST MAIN DUCTWORK ARE SIZED TO ALLOW ANY COMBINATION OF THE FOLLOWING CHANGES FROM THE BASIS OF DESIGN:

- THE PRESSURIZATION OF ONE OR ALL OF THE SUPPORT LABS MAY BE NEGATIVE WITH RESPECT TO THE CONNECTING MAIN LAB, IN LIEU OF NEUTRAL.
- UP TO QTY (2) ADDITIONAL 5-FT FUME HOODS AT THE AIRFLOW NOTED ABOVE (QTY 4 TOTAL ON LEF SYSTEM). (ALTERNATE 2)
- THE ADDITION OF QTY (1) 6-FT FUME HOOD AT THE AIRFLOW NOTED ABOVE. (ALTERNATE 1)
- THE ADDITION OF QTY (1) AUTOCLAVE WITH INTEGRAL ELECTRIC STEAM GENERATOR AND AN APPROXIMATE HEAT LOSS OF 8,750 BTU/H. (ALTERNATE 4)

MECHANICAL GENERAL NOTES:

A. THESE GENERAL NOTES APPLY TO ALL MECHANICAL DRAWINGS.

B. IN ANY CASE WHERE A PIPE OR DUCT SHOWN ON A PLAN SHEET DIFFERS FROM THAT SHOWN IN A SCHEMATIC OR DETAIL, USE THE LARGER OF THE TWO SIZES SHOWN.

C. ALL ELEVATIONS INDICATED IN THIS WAY (8'-0") ARE THE ELEVATIONS FROM THE FINISHED FLOOR DIRECTLY BELOW TO THE BOTTOM OF THE BARE PIPE OR DUCT.

D. MOUNT TEMPERATURE AND HUMIDITY SENSORS 44 INCHES ABOVE FINISHED FLOOR AND CENTERED ABOVE THE LIGHT SWITCHES WHERE BOTH OCCUR IN THE SAME LOCATION, UNLESS OTHERWISE NOTED.

E. PROVIDE FIRE DAMPER IN ALL DUCTWORK PIERCING FLOORS AND 2 HOUR FIRE RATED WALLS. PROVIDE ACCESS DOORS IN DUCTWORK AT FIRE DAMPERS AND FIRE/SMOKE DAMPERS. IDENTIFY ACCESS DOORS IN ACCORDANCE WITH SPECIFICATIONS. REFER TO MECHANICAL DETAIL LIST FOR DUCT PENETRATION THROUGH FIRE RATED PARTITION DETAIL LOCATION.

F. COORDINATE LOCATION OF CEILING DIFFUSERS AND GRILLES WITH LIGHTING. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS.

G. ALL RETURN GRILLES SHALL BE MARK [CC22] UNLESS OTHERWISE NOTED.

H. DUCT RUN-OUTS TO DIFFUSERS SHALL BE THE SAME SIZE AS DIFFUSER NECK SIZE, UNLESS OTHERWISE NOTED. REFER TO DIFFUSER SCHEDULE FOR SIZE OF RUNOUT AND DIFFUSER CONNECTION SIZE.

I. REFER TO MECHANICAL DETAIL LIST FOR LOCATION OF DIFFUSER INSTALLATION AND CONNECTION DETAILS.

J. SUPPLY DUCT BRANCH TO TERMINAL BOXES SHALL BE SAME SIZE AS BOX INLET SIZE UNLESS OTHERWISE NOTED. REFER TO MECHANICAL DETAIL LIST FOR LOCATION OF TYPICAL DUCT DESIGN DETAIL.

K. REFER TO MECHANICAL DETAIL LIST FOR LOCATION OF TERMINAL BOX AND LAB TRAC VALVES INSTALLATION DETAILS.

L. DUCT SIZES SHOWN ARE NET FREE AIR PASSAGE DIMENSIONS. DUCTS ARE NOT LINED, BUT ARE EXTERNALLY INSULATED.

M. PROVIDE CEILING MOUNTED REMOTE DAMPER OPERATOR, STRAIGHT SOLID SHAFT EXTENSION IN-LINE FOR DIRECT CONNECTION TO VOLUME DAMPER SHAFT WITHOUT GEAR MECHANISM FOR DAMPERS LOCATED ABOVE GYPSUM BOARD AND PLASTER CEILINGS. CABLE CONNECTION WILL NOT BE ACCEPTED.

N. PROVIDE DUCTWORK TRANSITIONS AS REQUIRED AT TERMINAL BOX INLET AND DISCHARGE CONNECTIONS.

O. PROVIDE TURNING VANES IN ALL RECTANGULAR DUCT ELBOWS.

P. INSULATE EXTERIOR OF ALL SUPPLY AIR DUCTWORK AND THE TOP OF ALL SUPPLY AIR DIFFUSERS.

Q. COORDINATE INSTALLATION OF EQUIPMENT AND PIPING WITH ELECTRICAL CONTRACTOR TO ENSURE NEC CLEARANCE IN FRONT OF ALL ELECTRICAL PANELS.

R. CONTRACTOR SHALL PROVIDE CLEARANCE IN FRONT AND AT SIDES OF TERMINAL BOX UNIT CONTROL PANEL AND J-BOX AS REQUIRED BY N.E.C. (36 INCHES).

S. PIPING AND DUCTWORK ARE NOT PERMITTED IN ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS, AND COMMUNICATION ROOMS.

T. PIPING SHOWN ON EACH PLAN IS RUN ABOVE THE CEILING ON THE FLOOR WHERE IT IS SHOWN UNLESS OTHERWISE NOTED.

U. ARRANGE PIPING CONNECTIONS TO ALL EQUIPMENT TO ALLOW EASY REMOVAL OF EQUIPMENT, COILS, FANS, MOTORS, FILTERS, ACCESS PANELS, ETC. PROVIDE UNIONS, FLANGES AND VALVES AT CONNECTIONS.

V. PROVIDE AIR VENTS AT HIGH POINT OF ALL WATER SYSTEMS.

W. REFER TO MECHANICAL DETAIL LIST FOR LOCATION OF 2-WAY CONTROL VALVE CONNECTION PIPING DETAIL.

X. INSULATE ALL HOT WATER PIPING AND HOT WATER COIL CASING AT EACH TERMINAL UNIT.

Y. COORDINATE PIPING WITH CABLE TRAY INSTALLATION IN ALL SPACES. PIPING AND DUCTWORK SHALL NOT INTERFERE WITH ACCESS TO CABLE TRAY.

Z. PROVIDE REDUCERS IN PIPING AT COIL CONNECTIONS AS REQUIRED. TYPICAL AT ALL TERMINAL UNITS. RUN OUTS TO TERMINAL UNITS ARE 3/4" UNLESS OTHERWISE NOTED.

AA. PROVIDE STRAINERS INDICATED PER THE SPECIFICATIONS, DRAWINGS, DETAILS AND MANUFACTURER INSTALLATION RECOMMENDATIONS, UPSTREAM OF ALL EQIUIPMENT INCLUDING BUT NOT LIMITED TO CONTROL VALVES.

BB. PROVIDE SUPPORTS TO SUPPORT ALL PIPING, DUCTWORK AND EQUIPMENT (SUSPENDED OR FLOOR MOUNTED). REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

CC. ALL EXTERIOR PIPING SHALL BE INSULATED AND JACKETED, REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

DD. EXISTING BUILDING, COORDINATE WORK TO MINIMIZE IMPACT ON THE SPACE. COORDINATE ALL OUTAGES AND EQUIPMENT EGRESS WITH OWNER A MINIMUM 2 WEEKS PRIOR TO STARTING WORK.

EE. EQUIPMENT INGRESS AND EGRESS ROUTES SHALL BE COORDINATED WITH OWNER. COORDINATE TIMES, DATES, AND DURATIONS WITH OWNER A MINIMUM 2 WEEKS IN ADVANCE TO ENSURE THERE ARE NO CONFLICTS IN USAGE OF EQUIPMENT/SPACES.

FF. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING FINISHES AND FURNISHINGS FROM DAMAGE DURING WORK.

GG. CONTRACTOR TO PROVIDE TEMPORARY SPACE CONDITIONING DURING ALL MECHANICAL EQUIPMENT OUTAGES.

HH. DEMOLITION OF PIPING AND DUCTWORK SHALL INCLUDE ALL SUPPORTS, HANGERS, AND INSULATION UNLESS OTHERWISE NOTED.

II. EXISTING HVAC DRAWINGS ARE BASED ON AS-BUILT DOCUMENTS AND SITE INVESTIGATION. INSTALLATION MAY NOT BE EXACTLY AS SHOWN. CONTRACTOR TO FIELD VERIFY EXISTING HVAC EQUIPMENT AS REQUIRED TO ACCOMPLISH THE WORK SHOWN. THE CONTRACTOR SHALL NOTIFY THE DESIGN TEAM IF THE ACTUAL EXISTING INSTALLATION IS FOUND TO SIGNIFICANTLY DIFFER FROM DRAWINGS, SUCH THAT THE INTENT OF THE DESIGN CANNOT BE MET.

JJ. EXISTING TO REMAIN HVAC SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR EXISTING ITEMS DAMAGED DURING CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, HVAC EQUIPMENT, DUCTWORK, AND INSULATION. IF EXISTING TO REMAIN HVAC IS FOUND TO HAVE EXISTING DAMAGE BEFORE OR DURING PROJECT DEMOLITION, THE CONTRACTOR SHALL DOCUMENT THE INSTANCE AND NOTIFY THE OWNER.

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MECHANICAL NOTES AND SYSTEM INFORMATION

Treanor NO. HE0569.2402.00

LEGEND

DISREGARD LEGEND ITEMS NOT INDICATED ON DRAWINGS

SYMBOL	ABBREV.	DESCRIPTION	SYMBOL	ABBREV.	DESCRIPTION
	SA/OA	SUPPLY/OUTSIDE AIR DUCT			VALVE BOX
	RA	RETURN AIR DUCT			GAUGE COCK
	EA/REA	EXHAUST/RELIEF AIR DUCT			BUTTERFLY VALVE
OR	FD/FSD	FIRE/FIRE SMOKE DAMPER			PLUG VALVE
		NEW WORK			TWO-WAY CONTROL VALVE
		EXISTING WORK			THREE-WAY CONTROL VALVE
		TEMPORARY WORK			THERMOMETER WELL
		SUPPLY AIR DIRECTION		12"	DENOTES ROUND DUCTWORK/PIPING
		OFFSET AIR QUANTITY (CFM)/ EXHAUST/RETURN DIRECTION		70/22 O.	DENOTES OVAL DUCTWORK
	VD	VOLUME DAMPER		70/22	DENOTES RECTANGULAR DUCTWORK
OR	MVD	MOTORIZED VOLUME DAMPER		AFF	ABOVE FINISHED FLOOR
10		KEYED NOTE		AFMS	AIR FLOW MEASURING STATION
1		REVISION TRIANGLE		AHU	AIR HANDLING UNIT
		ACCESS DOOR		BOD	BOTTOM OF DUCT
S		SMOKE DETECTOR		BOP	BOTTOM OF PIPE
TS		TEMPERATURE SENSOR		CAV	CONSTANT AIR VOLUME
T		THERMOSTAT		C/C	COOLING COIL
DD		SMOKE DUCT DETECTOR		CFM	CUBIC FEET PER MINUTE
H OR HS		HUMIDISTAT		DDC	DIRECT DIGITAL CONTROL
SP		STATIC PRESSURE SENSOR		EF	EXHAUST FAN
— CHS —	CHS	CHILLED WATER SUPPLY		EXH	EXHAUST
— CHR —	CHR	CHILLED WATER RETURN		(E)/EXIST.	EXISTING
— CWS—	CWS	CONDENSER WATER SUPPLY		FCU	FAN COIL UNIT
— CWR—	CWR	CONDENSER WATER RETURN		FO	FLAT OVAL
— HWS—	HWS	HOT WATER SUPPLY		GPM	GALLONS PER MINUTE
— HWR—	HWR	HOT WATER RETURN		H/C	HEATING COIL
— #S —	#S	# OF STEAM SUPPLY		NTS	NOT TO SCALE
— #R —	#R	# OF STEAM RETURN		SAD	SOUND ATTENUATING DEVICE
— A —	A	COMPRESSED AIR		VAV	VARIABLE AIR VOLUME
— PCR —	PCR	PUMPED CONDENSATE RETURN		VFD	VARIABLE FREQUENCY DRIVE
— CR —	CR	CONDENSATE RETURN		VTR	VENT THRU ROOF
	RV	PRESSURE RELIEF VALVE		CO2	CARBON DIOXIDE SENSOR
	PRV	PRESSURE REDUCING VALVE		HS	HUMIDITY SENSOR
		THERMOMETER		ES	MOTOR STARTER
		UNION		N.C.	NORMALLY CLOSED
		STRAINER		N.O.	NORMALLY OPEN
		REDUCER		DP	DIFFERENTIAL PRESSURE SENSOR
F		GAUGE		VFD	VARIABLE FREQUENCY DRIVE
		FLEXIBLE JOINT		FS	FREEZE STAT
		ANCHOR		G	FILTER GAUGE
		VENTURI FLOW TUBE		DPS	DIFFERENTIAL PRESSURE SWITCH
		SOLENOID VALVE		HP	HIGH PRESSURE SHUT OFF SWITCH
		BALL VALVE		AFMS	AIRFLOW MEASURING STATION
		GATE VALVE			ELECTRICAL SIGNAL
		GLOBE VALVE			DAMPER OR VALVE ACTUATOR
		CHECK VALVE			

DRAWING LIST - MECHANICAL

DETAIL LIST - MECHANICAL

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MECHANICAL LEGENDS, DRAWING AND DETAIL LIST

Treanor NO. HE0569.2402.00

SCHEDULE - AIR HANDLING UNIT

MARK	LEVEL	TOTAL CFM	OUTSIDE AIR CFM	SUPPLY AIR								COOLING COIL													HEATING COIL								REMARKS
				QTY. FANS	EXT. S.P. IN. W.G.	TOTAL S.P. IN. W.G.	MOTOR BHP (EA)	MOTOR HP (EA)	VOLTS	PH	HZ	COIL CFM	MIN. SENS. BTUH	TOTAL BTUH	MAX ROW	ENT. WTR. GPM	EWT °F	LWT °F	MAX FACE VEL. FPM	EAT DB °F	EAT WB °F	LAT DB °F	LAT WB °F	COIL CFM	MAX ROW	ENT. WTR. GPM	MAX FACE VEL. FPM	EWT °F	LWT °F	EAT °F	LAT °F	HEATING BTUH	
AHU-D07	ROOF	12000	12000	4	2.90	3.85	3.7	5.0	460	3	60	12000	637,396	1,068,606	8	133	42	58	450	100.0	78.0	52.2	52.0	12000	2	68	450	145	120	0	61.7	800128	

AIR HANDLING UNIT GENERAL NOTES

A. BASIS OF DESIGN - CLIMATECRAFT
B. UNIT SHALL OPERATE ON A VFD WITHOUT BYPASS, FURNISHED BY DIVISION 23, INSTALLED BY DIVISION 26.
C. AHU FANS ARE SCHEDULED FOR N-1 REDUNDANCY. SCHEDULED MOTOR BRAKE HORSEPOWER IS FOR THE CONDITION WITH ONE FAN FAILED.
D. AHU MANUFACTURER SHALL PROVIDE UNIT MOUNTED MOTOR CONTROL CENTER WITH OVERLOAD PROTECTION AND INDIVIDUAL DISCONNECT SWITCH FOR EACH FAN MOTOR.
E. ALL AHU FANS AND MOTORS SHALL BE INTERNALLY VIBRATION ISOLATED.
F. ALL FANS WITHIN FAN ARRAY SHALL OPERATE AT THE SAME SPEED.
G. EACH FAN SHALL INCLUDE AIRFLOW MEASURING PIEZO RING AND PRESSURE TAPS PROVIDED BY AHU MANUFACTURER.
H. AHU EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO SUPPLY DUCTWORK, DIFFUSERS AND GRILLES, VAV BOXES, DUCT MOUNTED COILS, AND DIRTY FILTERS (0.5" FOR MERV 8 AND 0.75" FOR MERV 11).
I. PROVIDE WITHOUT EXCEPTION MINIMUM MOTOR HORSEPOWER (SIZE) AS SCHEDULED. HORSEPOWER IS FOR EACH FAN IN UNIT.
J. REFER TO COMPONENT DIAGRAM FOR FURTHER INFORMATION.
K. ALL FANS SHALL COMPLY WITH IECC 2018 MINIMUM FEG REQUIREMENTS OF 67 AND BE SELECTED WITHIN 15% POINTS FROM ITS PEAK TOTAL EFFICIENCY.
L. EACH FAN INLET SHALL HAVE A COUNTERBALANCE GRAVITY BACKDRAFT DAMPER.
M. UNIT MANUFACTURER SHALL PROVIDE ROOF CURB. VERIFY ROOF PITCH.

SCHEDULE - FAN

MARK	LEVEL	TYPE	DRIVE	FAN QTY.	MAX LAB CFM	MAX BYPASS CFM	EXT. S.P. IN. W.G.	BRAKE HP (EA)	MOTOR HP (EA)	POWER			MOTOR RPM	MANUFACTURER	REMARKS
										VOLTS	PH	HZ			
LEF-D04	ROOF	HIGH PLUME DILUTION	DIRECT	2	12000	10370	1.2	14.1	15	460	3	60	1200	STROBIC AIR	

FAN GENERAL NOTES

A. FAN MANUFACTURER SHALL DETERMINE QUANTITY AND SIZE OF BYPASS OPENINGS NEEDED. PROVIDE RAIN HOOD AND ALUMINUM BIRD SCREEN ON BYPASS OPENING(S).
B. FAN MANUFACTURER TO PROVIDE ROOF CURB. VERIFY ROOF PITCH.
C. FAN MANUFACTURER TO PROVIDE A BYPASS CONTROL DAMPER PER BYPASS OPENING AND AN ISOLATION CONTROL DAMPER PER FAN. DAMPER ACTUATORS SHALL BE PROVIDED BY BAS CONTRACTOR.
D. EACH FAN SHALL OPERATE USING VFD WITHOUT BYPASS TO BE FURNISHED BY DIVISION 23 AND INSTALLED BY DIVISION 26. DIVISION 26 TO PROVIDE NEMA 4X FUSED DISCONNECT WITH SERVICE INTERUPTION RELAY FOR EACH FAN.
E. FANS SHALL HAVE A MINIMUM SPARK C CONSTRUCTION.
F. FANS SHALL COMPLY WITH 2018 IECC MINIMUM FEG REQUIREMENT OF 67 AND BE SELECTED WITHIN 15 PERCENTAGE POINTS OF ITS PEAK TOTAL EFFICIENCY.
G. EACH FAN SHALL HAVE AIRFLOW MEASURING STATION BY FAN MANUFACTURER. TRANSDUCER SHALL BE PROVIDED BY BAS CONTRACTOR.
H. FAN SHALL MAINTAIN A MINIMUM DISCHARGE VELOCITY OF 3,000 FPM.
I. FANS ARE SIZED FOR N+1 REDUNDANCY. ONLY ONE FAN IN THE SYSTEM SHALL OPERATE AT A TIME. FAN SHALL OPERATE AT A CONSTANT VOLUME.

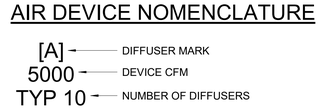
SCHEDULE - DIFFUSER & GRILLE

MARK	CFM RANGE	NECK SIZE	SUPPLY	RETURN	EXHAUST	TYPE	PATTERN	BASIS OF DESIGN	SCHEDULE NOTES
A6	0-180	6"	X			24" X 24" PLAQUE	4-WAY	PRICE ASPD FULL FACE ALUMINUM CONSTRUCTION	
D6	0-160	6"			X	24" X 24" PERF. FACE	PERF	PRICE APDDR ALUMINUM CONSTRUCTION	
D10	276-435	10"			X	24" X 24" PERF. FACE	PERF	PRICE APDDR ALUMINUM CONSTRUCTION	
D12	436-625	12"			X	24" X 24" PERF. FACE	PERF	PRICE APDDR ALUMINUM CONSTRUCTION	
D14	626-825	14"			X	24" X 24" PERF. FACE	PERF	PRICE APDDR ALUMINUM CONSTRUCTION	
EE	RE: DWGS	RE: DWGS			X	SIDEWALL GRILLE	SINGLE DEFLECTION	PRICE 630 FL ALUMINUM FACE AND FRAME	PROVIDE INTEGRAL OPPOSED BLADE DAMPER
ER	RE: DWGS	RE: DWGS		X		SIDEWALL GRILLE	SINGLE DEFLECTION	PRICE 630 FL ALUMINUM FACE AND FRAME	PROVIDE INTEGRAL OPPOSED BLADE DAMPER
ES	RE: DWGS	RE: DWGS	X			SIDEWALL GRILLE	DOUBLE DEFLECTION	PRICE 620 FS, 3/4" BLADE SPACING ALUMINUM FACE AND FRAME	PROVIDE INTEGRAL OPPOSED BLADE DAMPER
G8	0-300	8"	X			24" X 24" CRITICAL ENVIRON.	RADIAL FLOW 2-WAY	PRICE FRFDSS STAINLESS STEEL CONSTRUCTION	
G10	0-400	10"	X			24" X 24" CRITICAL ENVIRON.	RADIAL FLOW 2-WAY	PRICE FRFDSS STAINLESS STEEL CONSTRUCTION	

DIFFUSER & GRILLE SCHEDULE NOTES

A. PROVIDE LIGHT SHIELDS FOR ALL RETURN AIR SLOTS AND BLANK-OFFS FOR ALL SLOTS NOT DESIGNATED AS SUPPLY OR RETURN.
B. MAX NC-30 FOR ALL AIR DEVICES. NC SHALL BE CALCULATED AS PER AHRI 885-2008 ASSUMING LAY-IN ACOUSTICAL TILE.
C. PROVIDE INTEGRAL OBD FOR SIDEWALL DIFFUSERS AND GRILLES.
D. ALL DIFFUSERS IN GYP. BOARD CEILINGS TO HAVE FLOATABLE EDGE TRIM.

AIR DEVICE NOMENCLATURE



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MECHANICAL SCHEDULES

Treanor NO. HE0569.2402.00

SCHEDULE - SINGLE DUCT TERMINAL BOX (ELECTRIC HEAT)

MARK	LEVEL	BOX TYPE	SERVED BY AHU/FAN	PRIMARY AIR		BOX INLET	MAX S.P. IN. WG	POWER			ELECTRIC HEAT COIL						REMARKS
				MAX CFM	MIN CFM			VOLTS	PH	HZ	CFM MAX	CFM MIN	EAT °F	LAT °F	KW	STEPS	
VAV-D0701	LEVEL 1	VAV	AHU-D07	700	620	10	0.2	480	3	60	620	620	53	80	5.32	SCR	
VAV-D0702	LEVEL 1	VAV	AHU-D07	1645	430	14	0.2	277	1	60	430	430	53	65	1.64	SCR	
VAV-D0703	LEVEL 2	VAV	AHU-D07	715	490	10	0.2	480	3	60	490	490	53	80	4.21	SCR	
VEX-D0401	LEVEL 1	VEX	LEF-D04	160	80	6	0.1	277	1	60							NOTE 1
VEX-D0402	LEVEL 1	VEX	LEF-D04	1775	560	14	0.1	277	1	60							NOTE 1
VEX-D0403	LEVEL 2	VEX	LEF-D04	305	80	6	0.1	277	1	60							NOTE 1

SINGLE DUCT TERMINAL BOX GENERAL NOTES - (APPLIES TO ALL UNITS)

A. ABOVE SELECTIONS BASED ON PRICE MODEL SDV CLL6.
B. INLET SIZE INDICATED IS THE MINIMUM INLET SIZE ACCEPTABLE. MANUFACTURER MAY INCREASE INLET SIZE IF NECESSARY TO MEET PROJECT REQUIREMENTS.
C. MAX SP IN. WG IS THE MAXIMUM STATIC PRESSURE DROP ALLOWED THROUGH THE BOX AND COIL AT SCHEDULED MAXIMUM CFM.
D. ALL BOXES SHALL BE OPERATED BY 277V/1/60 POWER. PROVIDE CONTROL POWER TRANSFORMER PER SPECIFICATIONS. DIV 26 SHALL PROVIDE SINGLE POINT POWER CONNECTION AS SCHEDULED ABOVE.

SINGLE DUCT TERMINAL BOX NOTES

1. TERMINAL BOX HAS NO HEATING COIL.

SCHEDULE - LAB-TRAC AIR TERMINAL BOX (ELECTRIC HEAT) - PHOENIX

MARK	LEVEL	CONTROL TYPE	LAB SERVED	SERVED BY AHU/FAN	PRIMARY AIR		ROOM OFFSET CFM	VALVE SIZE	MAX S.P. IN. W.G.	POWER			ELECTRICAL HEAT COIL						REMARKS
					MAX CFM	MIN CFM				VOLTS	PH	HZ	MAX CFM	MIN CFM	EAT °F	LAT °F	KW	STEPS	
SV-D0701A	LEVEL 1	VAV	DRY RESEARCH D170	AHU-D07	935	725	460	12	0.4	480	3	60	725	725	53	80	6.22	SCR	
SV-D0701B	LEVEL 1	VAV	DRY RESEARCH D170	AHU-D07	930	725	460	12	0.4	480	3	60	725	725	53	80	6.22	SCR	
SV-D0701C	LEVEL 1	VAV	DRY RESEARCH D170	AHU-D07	930	725	460	12	0.4	480	3	60	725	725	53	80	6.22	SCR	
GEX-D0401A	LEVEL 1	VAV	DRY RESEARCH D170	LEF-D04	1085	875	460	14	0.4	277	1	60							NOTE 1
GEX-D0401B	LEVEL 1	VAV	DRY RESEARCH D170	LEF-D04	1085	880	460	14	0.4	277	1	60							NOTE 1
GEX-D0401C	LEVEL 1	VAV	DRY RESEARCH D170	LEF-D04	1085	880	460	14	0.4	277	1	60							NOTE 1
SV-D0702A	LEVEL 1	VAV	SUPPORT D171	AHU-D07	235	150	0	8	0.4	277	1	60	150	150	53	80	1.29	SCR	
SV-D0702B	LEVEL 1	VAV	SUPPORT D171	AHU-D07	235	150	0	8	0.4	277	1	60	150	150	53	80	1.29	SCR	
GEX-D0402A	LEVEL 1	VAV	SUPPORT D171	LEF-D04	235	150	0	8	0.4	277	1	60							NOTE 1
GEX-D0402B	LEVEL 1	VAV	SUPPORT D171	LEF-D04	235	150	0	8	0.4	277	1	60							NOTE 1
SV-D0703	LEVEL 1	VAV	WET SUPPORT D173	AHU-D07	240	150	0	12	0.4	277	1	60	150	150	53	80	1.29	SCR	NOTE 2
HEV-D0403	LEVEL 1	VAV	WET SUPPORT D173	LEF-D04	240	150	0	12	0.4	277	1	60							NOTE 1,2
SV-D0705	LEVEL 2	VAV	CULTURE D274	AHU-D07	250	150	0	8	0.4	277	1	60	150	150	53	80	1.29	SCR	
GEX-D0405	LEVEL 2	VAV	CULTURE D274	LEF-D04	250	150	0	8	0.4	277	1	60							NOTE 1
SV-D0706	LEVEL 2	VAV	FREEZER / EQUIP. D272	AHU-D07	590	300	0	12	0.4	277	1	60	300	300	53	80	2.58	SCR	
GEX-D0406	LEVEL 2	VAV	FREEZER / EQUIP. D272	LEF-D04	590	300	0	8	0.4	277	1	60							NOTE 1
SV-D0707	LEVEL 2	VAV	SUPPORT D271	AHU-D07	420	135	0	12	0.4	277	1	60	210	135	53	80	1.80	SCR	NOTE 3
HEV-D0407	LEVEL 2	VAV	SUPPORT D271	LEF-D04	210	135	0	12	0.4	277	1	60							NOTE 1,3
SV-D0704A	LEVEL 2	VAV	WET LAB D270	AHU-D07	1365	1150	260	14	0.4	480	3	60	1340	1150	53	80	11.51	SCR	NOTE 5
SV-D0704B	LEVEL 2	VAV	WET LAB D270	AHU-D07	1365	1150	260	14	0.4	480	3	60	1340	1150	53	80	11.51	SCR	NOTE 5
GEX-D0404A	LEVEL 2	VAV	WET LAB D270	LEF-D04	1295	645	260	14	0.4	277	1	60							NOTE 1
GEX-D0404B	LEVEL 2	VAV	WET LAB D270	LEF-D04	1295	645	260	14	0.4	277	1	60							NOTE 1
HEV-D0404A	LEVEL 2	VAV	WET LAB D270	LEF-D04	635	200	260	12	0.4	277	1	60							NOTE 1
HEV-D0404B	LEVEL 2	VAV	WET LAB D270	LEF-D04	635	200	260	12	0.4	277	1	60							NOTE 1
HEV-D0404C	LEVEL 2	VAV	WET LAB D270	LEF-D04	0	0	260	12	0.4	277	1	60							NOTE 1,4
HEV-D0404D	LEVEL 2	VAV	WET LAB D270	LEF-D04	0	0	260	12	0.4	277	1	60							NOTE 1,4

LAB-TRACK AIR TERMINAL BOX GENERAL NOTES - (APPLIES TO ALL UNITS)

A. ABOVE SELECTIONS BASED ON PHOENIX LOW PRESSURE VALVES.
B. LAB OFFSET TO BE MAINTAINED AT ALL TIMES.
C. POSITIVE (+) OFFSET INDICATES FLOW ENTERING LAB/AREA. REFER TO AIR BALANCE DIAGRAM FOR ADDITIONAL INFORMATION.
D. ELECTRIC COIL DATA BASED ON SCR CONTROL AND 53 DEG. F ENTERING AIR TEMPERATURE. CONTRACTOR SHALL PROVIDE DUCT MOUNTED COIL TO MEET PERFORMANCE REQUIREMENTS INDICATED.
E. LAB EXHAUST VALVES (HEV) SHALL BE STAINLESS STEEL WITH FLANGE CONNECTIONS.
F. LAB SUPPLY (SV) AND GENERAL EXHAUST (GEX) VALVES SHALL BE ALUMINUM WITH SLIP-ON CONNECTIONS (UNLESS NOTED OTHERWISE).
G. CONTROL TYPES:
   CV - CONSTANT VOLUME
   VAV -VARIABLE VOLUME
   TP - TWO POSITION
H. MAX. SP. IS THE MAXIMUM ALLOWABLE STATIC PRESSURE LOSS THOUGH THE VALVE AND COIL AT SCHEDULED MAXIMUM CFM.
I. DIVISION 26 WILL PROVIDE 120/1PH POWER AT EACH LAB ROOM CONTROLLER (LRC) PANEL. LRC SHALL BE LOCATED ON SV TERMINAL UNIT. PROVIDE TRANSFORMER AS REQUIRED FOR CONTROLS POWER.
J. DIVISION 26 WILL PROVIDE 120/1PH POWER TO SV TERMINAL CONTROL PANEL FOR ROOMS WITHOUT HOODS. ROUTE CONTROLS POWER FROM SV TERMINAL TO SPACE GEX TERMINAL. PROVIDE CONTROL POWER TRANSFORMER AS REQUIRED.
K. DIVISION 26 WILL PROVIDE 277/1PH OR 480/3PH POWER TO SV TERMINAL REHEAT COIL CONTROL PANEL AS SCHEDULED. PROVIDE CONTROL POWER TRANSFORMER AS REQUIRED.

LAB-TRACK AIR TERMINAL BOX SCHEDULE NOTES

1. TERMINAL BOX HAS NO HEATING COIL.
2. TERMINAL IS SIZED FOR FUTURE CAPACITY (ALTERNATE 1). ELECTRIC COIL, WHERE SCHEDULED, IS SIZED FOR BASE BID ONLY.
3. TERMINAL IS SIZED FOR FUTURE CAPACITY (ALTERNATE 4).
4. TERMINAL IS SIZED FOR FUTURE CAPACITY (ALTERANTE 2). FOR BASE BID, TERMINAL CONTROLS SHALL NOT BE CONNECTED, AND DUCT SHALL BE CAPPED.
5. TERMINAL AND ELECTRIC COIL ARE SIZED FOR FUTURE CAPACITY (ALTERNATE 2).

SCHEDULE - FAN COIL UNITS

MARK	LEVEL	SERVES	TOTAL CFM	EXT. S.P. IN. W.G.	MOTOR HP	VOLTS	PH	HZ	COOLING COIL										NOTES
									MIN. SENS. BTUH	TOTAL BTUH	MAX ROW	ENT. WTR. GPM	EWT °F	LWT °F	EAT DB °F	EAT WB °F	LAT DB °F	LAT WB °F	
FCU-D01	LEVEL 1	IDF D170C	1425	0.40	(2) 1/3	277	1	60	30,862	40,142	4	5.2	42	58	75.0	63.0	54.0	53.0	NOTES 1, 2, 3

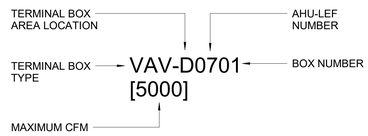
FAN COIL UNIT GENERAL NOTES (APPLIES TO ALL UNITS)

A. PROVIDE WITHOUT EXCEPTION MINIMUM MOTOR HORSEPOWER (SIZE) AS SCHEDULED.
B. FCU EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO SUPPLY AND RETURN DUCTWORK, DIFFUSERS AND GRILLES, AND DIRTY FILTER (0.15" FOR MERV 8).
C. ALL DIRECT DRIVE MOTORS SHALL BE EQUIPPED WITH ECM MOTORS AND 3 SPEED CONTROLLER.

FAN COIL UNIT SCHEDULE NOTES

1. PROVIDE VERTICAL FLOOR MOUNTED UNIT. UNIT SHALL HAVE SUPPLY AND RETURN DUCT CONNECTIONS. IF REQUIRED BY MANUFACTURER TO MAINTAIN ACCESS, FCU MANUFACTURER SHALL PROVIDE A RETURN PLENUM SECTION FOR DUCT CONNECTION.
2. FAN COIL UNIT HAS NO HEATING WATER COIL.
3. PROVIDE FAN COIL UNIT WITH CONDENSATE PUMP RATED FOR 9.3 GPM AT 10 FT OF HEAD, LITTLE GIANT HT-VCL SERIES OR EQUAL. CONDENSATE PUMP TO BE PLENUM RATED. DIVISION 26 TO PROVIDE 115V SINGLE PHASE POWER CONNECTION.

TERMINAL BOX NOMENCLATURE



LEGEND

VEX - VARIABLE VOLUME TERMINAL UNIT USED FOR EXHAUST

VAV - SINGLE DUCT VARIABLE VOLUME TERMINAL UNIT

SV - LAB SUPPLY AIR VALVE

HEV - LAB HOOD EXHAUST VALVE

GEX - LAB GENERAL EXHAUST VALVE

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M-003

MECHANICAL SCHEDULES

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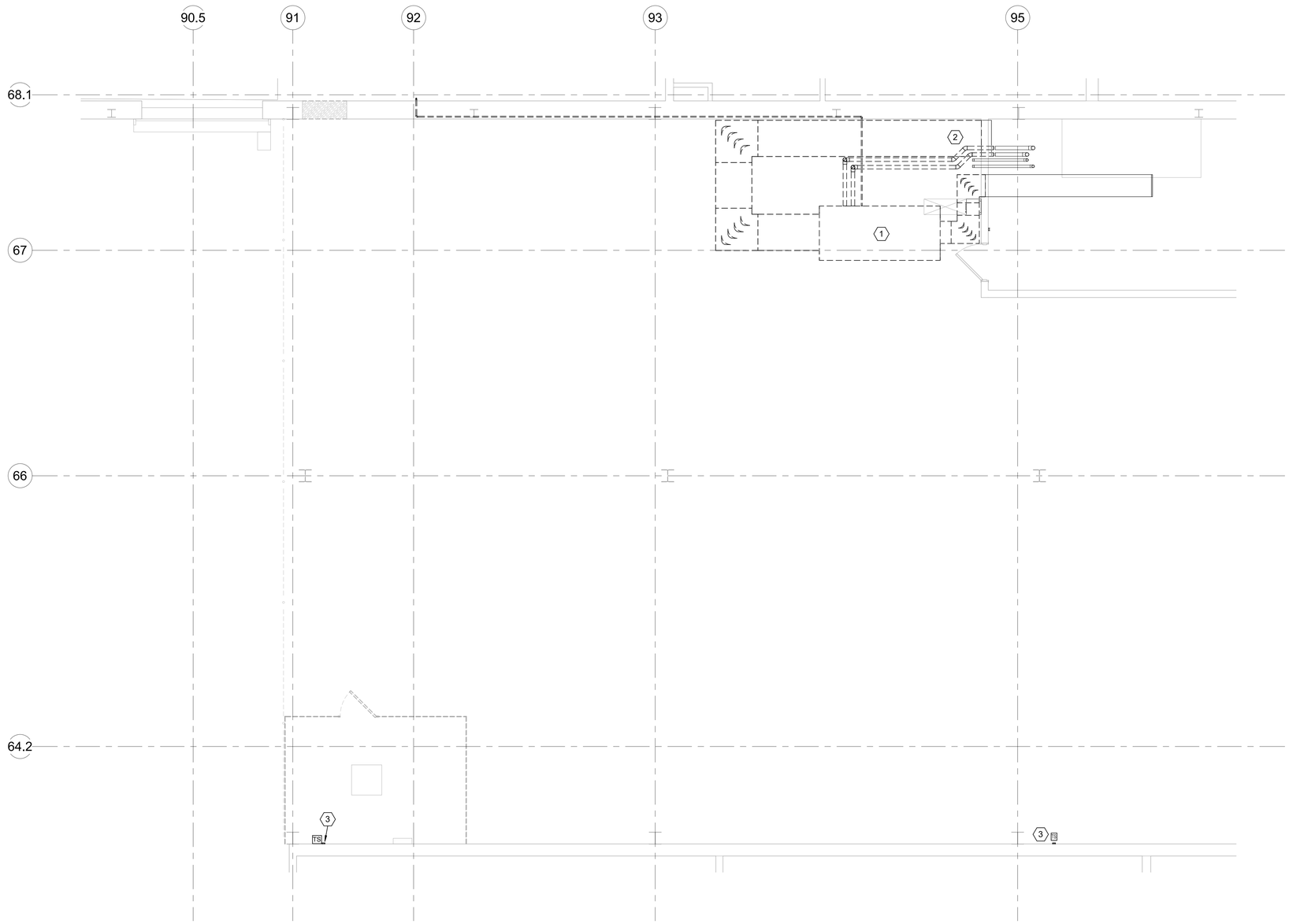

1 ENLARGED MECHANICAL DEMOLITION PLAN - LEVEL 1
1/4" = 1'-0"

GENERAL NOTES

A. DEMOLITION OF PIPING AND DUCTWORK SHALL INCLUDE ALL SUPPORTS, HANGERS, AND INSULATION UNLESS OTHERWISE NOTED.
B. EXISTING HVAC DRAWINGS ARE BASED ON AS-BUILT DOCUMENTS AND SITE INVESTIGATION. INSTALLATION MAY NOT BE EXACTLY AS SHOWN. CONTRACTOR TO FIELD VERIFY EXISTING HVAC EQUIPMENT AS REQUIRED TO ACCOMPLISH THE WORK SHOWN. THE CONTRACTOR SHALL NOTIFY THE DESIGN TEAM IF THE ACTUAL EXISTING INSTALLATION IS FOUND TO SIGNIFICANTLY DIFFER FROM DRAWINGS, SUCH THAT THE INTENT OF THE DESIGN CANNOT BE MET.
C. CONTRACTOR SHALL COORDINATE WORK TO MINIMIZE IMPACT ON THE EXISTING BUILDING AND SPACE. COORDINATE ALL OUTAGES AND EQUIPMENT INGRESS/EGRESS WITH OWNER A MINIMUM OF 2 WEEKS PRIOR TO STARTING WORK.
D. EXISTING TO REMAIN HVAC SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR EXISTING ITEMS DAMAGED DURING CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, HVAC EQUIPMENT, DUCTWORK, AND INSULATION. IF EXISTING TO REMAIN HVAC IS FOUND TO HAVE EXISTING DAMAGE BEFORE OR DURING PROJECT DEMOLITION, THE CONTRACTOR SHALL DOCUMENT THE INSTANCE AND NOTIFY THE OWNER.

KEYED NOTES - MD-101

1 DISCONNECT PIPING, DUCT, POWER, AND CONTROLS FROM EXISTING FAN COIL UNIT. REMOVE UNIT AND RELOCATE. RE: M-301
2 REMOVE AND RELOCATE EXISTING DUCT DETECTOR. RE: M-301
3 REMOVE AND RELOCATE EXISTING TEMPERATURE SENSOR. RE: M-301

LEGEND

EXISTING TO REMAIN
TO BE DEMOLISHED

True NORTH
Plan NORTH

1/4" = 1'-0" (0', 4', 8')

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ENLARGED MECHANICAL DEMOLITION PLAN - LEVEL 1

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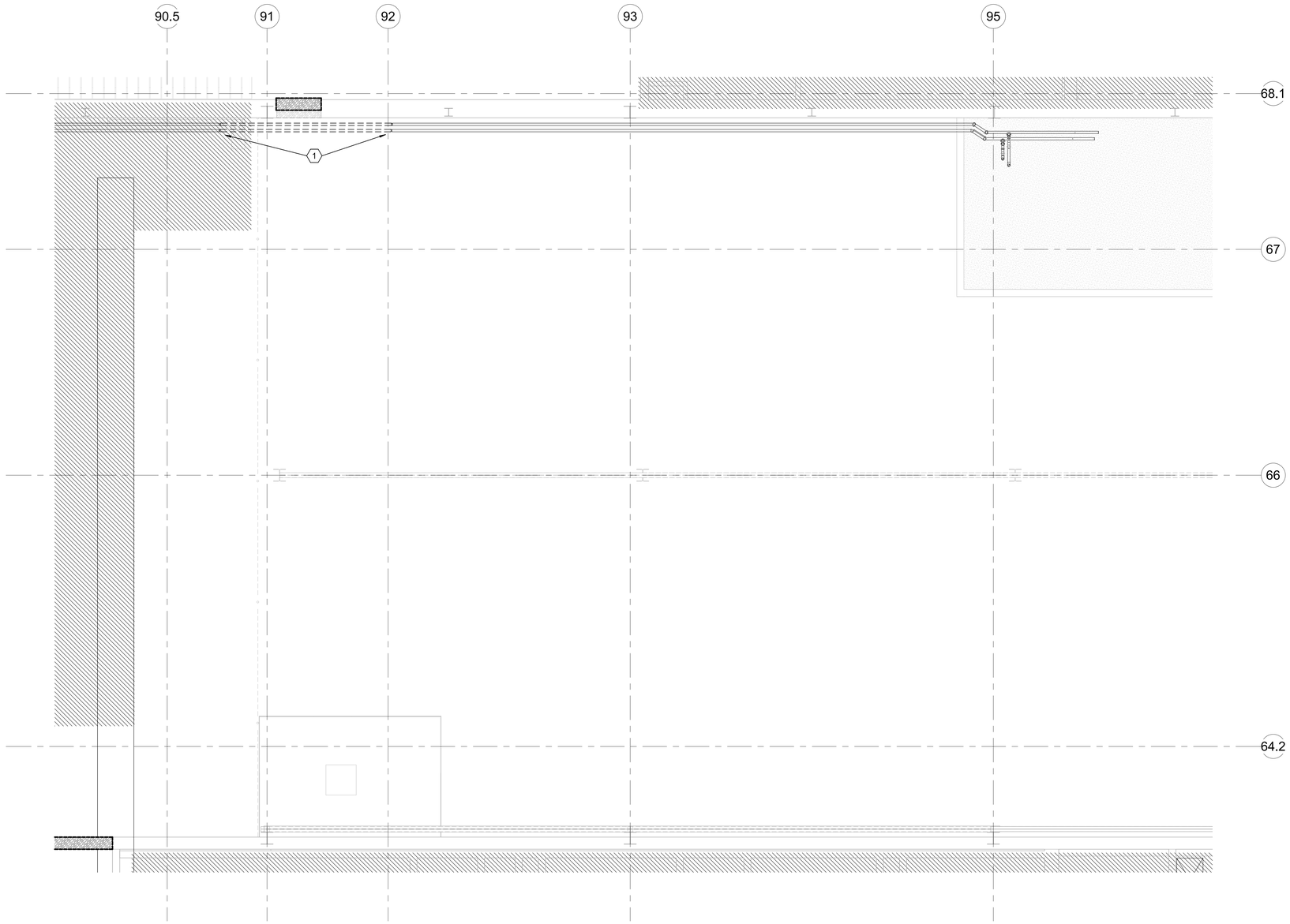

1 ENLARGED MECHANICAL DEMOLITION PLAN - LEVEL 2
1/4" = 1'-0"

GENERAL NOTES

A. DEMOLITION OF PIPING AND DUCTWORK SHALL INCLUDE ALL SUPPORTS, HANGERS, AND INSULATION UNLESS OTHERWISE NOTED.
B. EXISTING HVAC DRAWINGS ARE BASED ON AS-BUILT DOCUMENTS AND SITE INVESTIGATION. INSTALLATION MAY NOT BE EXACTLY AS SHOWN. CONTRACTOR TO FIELD VERIFY EXISTING HVAC EQUIPMENT AS REQUIRED TO ACCOMPLISH THE WORK SHOWN. THE CONTRACTOR SHALL NOTIFY THE DESIGN TEAM IF THE ACTUAL EXISTING INSTALLATION IS FOUND TO SIGNIFICANTLY DIFFER FROM DRAWINGS, SUCH THAT THE INTENT OF THE DESIGN CANNOT BE MET.
C. CONTRACTOR SHALL COORDINATE WORK TO MINIMIZE IMPACT ON THE EXISTING BUILDING AND SPACE. COORDINATE ALL OUTAGES AND EQUIPMENT INGRESS/EGRESS WITH OWNER A MINIMUM OF 2 WEEKS PRIOR TO STARTING WORK.
D. EXISTING TO REMAIN HVAC SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR EXISTING ITEMS DAMAGED DURING CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, HVAC EQUIPMENT, DUCTWORK, AND INSULATION. IF EXISTING TO REMAIN HVAC IS FOUND TO HAVE EXISTING DAMAGE BEFORE OR DURING PROJECT DEMOLITION, THE CONTRACTOR SHALL DOCUMENT THE INSTANCE AND NOTIFY THE OWNER.

KEYED NOTES - MD-102

1 DEMOLISH SECTIONS OF EXISTING CHILLED WATER AND HEATING HOT WATER PIPING

LEGEND

EXISTING TO REMAIN
TO BE DEMOLISHED

True NORTH
Plan NORTH

0' 4' 8'
1/4" = 1'-0"

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ENLARGED MECHANICAL DEMOLITION PLAN - LEVEL 2

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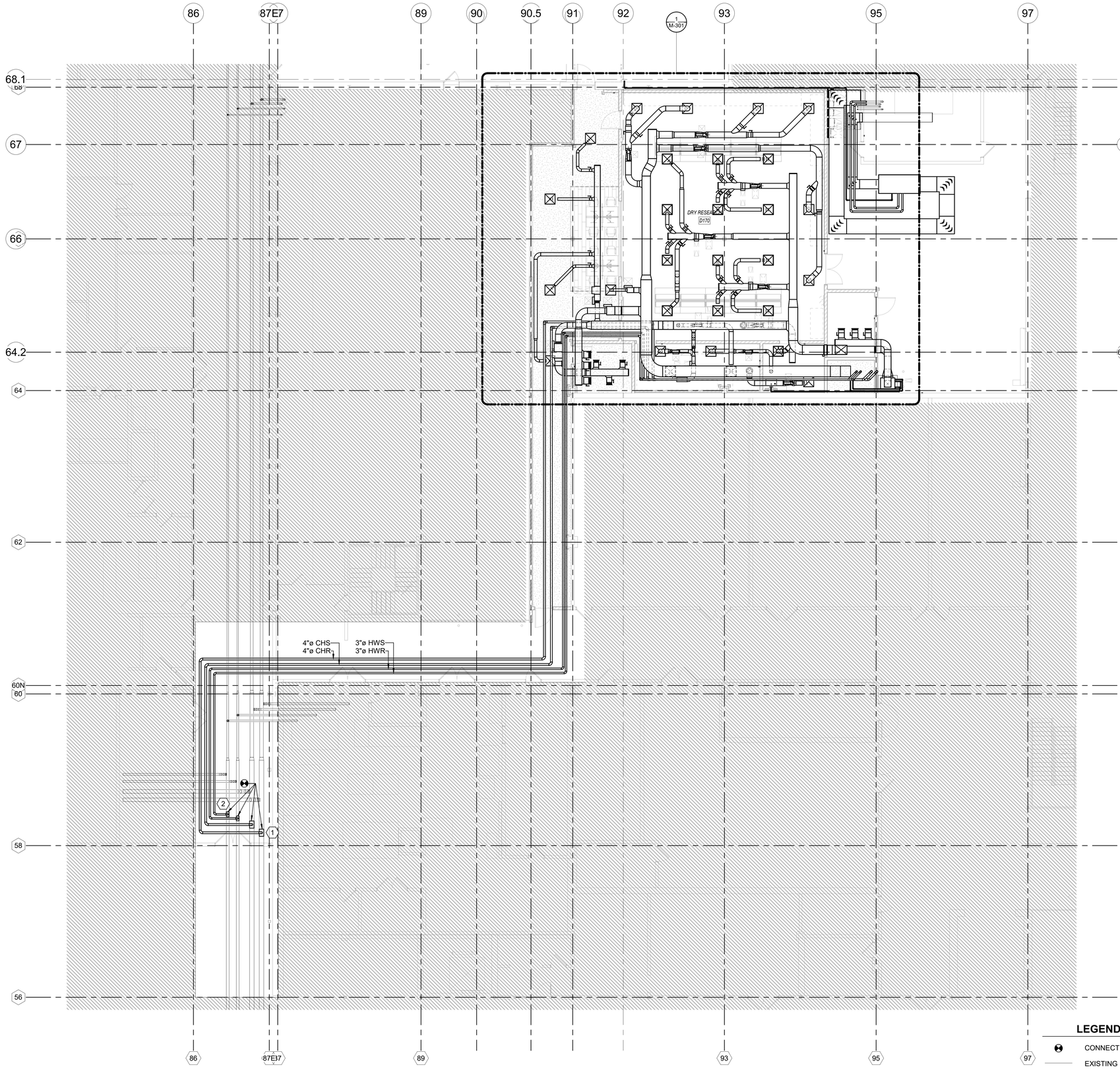

1 MECHANICAL OVERALL RENOVATION PLAN - LEVEL 1
1/8" = 1'-0"

LEGEND

- CONNECT TO EXISTING
- EXISTING
- RENOVATION

True NORTH / Plan NORTH

1/8" = 1'-0" (0', 8', 16')

GENERAL NOTES

A. CONTRACTOR SHALL PROVIDE CLEARANCE IN FRONT AND AT SIDES OF TERMINAL BOX UNIT CONTROL PANEL AND J-BOX AS REQUIRED BY N.E.C. (36 INCHES).
B. PROVIDE DUCTWORK TRANSITIONS AS REQUIRED AT TERMINAL BOX INLET AND DISCHARGE CONNECTIONS.
C. PROVIDE TURNING VANES IN ALL RECTANGULAR DUCT ELBOWS.
D. PROVIDE ACCESS DOORS IN DUCTWORK AT FIRE DAMPERS AND FIRE/SMOKE DAMPERS. IDENTIFY ACCESS DOORS IN ACCORDANCE WITH SPECIFICATIONS.
E. INSULATE EXTERIOR OF ALL SUPPLY AIR DUCTWORK AND THE TOP OF ALL SUPPLY AIR DIFFUSERS.
F. PIPING AND DUCTWORK ARE NOT PERMITTED IN ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS, AND COMMUNICATION ROOMS.
G. PROVIDE YOUNG REGULATORS FOR ALL DAMPERS LOCATED ABOVE HARD OR INACCESSIBLE CEILINGS. YOUNG REGULATORS SHALL BE PROVIDED WITH SOLID SHAFT CONNECTION; CABLE CONNECTION TO REGULATOR WILL NOT BE ACCEPTED.
H. INSULATE ALL HOT WATER PIPING.
I. INSULATE HOT WATER COIL CASING AT EACH TERMINAL UNIT.
J. COORDINATE PIPING WITH CABLE TRAY INSTALLATION IN ALL SPACES. PIPING SHALL NOT INTERFERE WITH ACCESS TO CABLE TRAY.
K. PROVIDE REDUCERS IN PIPING AT COIL CONNECTIONS AS REQUIRED. TYPICAL AT ALL TERMINAL UNITS.
L. RUN OUTS TO TERMINAL UNITS ARE 3/4" UNLESS OTHERWISE NOTED.
M. PROVIDE STRAINERS INDICATED PER THE SPECIFICATIONS, DRAWINGS, DETAILS AND MANUFACTURER INSTALLATION RECOMMENDATIONS UPSTREAM OF ALL EQUIPMENT INCLUDING, BUT NOT LIMITED TO, CONTROL VALVES.
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P. EXISTING TO REMAIN HVAC SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR EXISTING ITEMS DAMAGED DURING CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, HVAC EQUIPMENT, DUCTWORK, AND INSULATION. IF EXISTING TO REMAIN HVAC IS FOUND TO HAVE EXISTING DAMAGE BEFORE OR DURING PROJECT DEMOLITION, THE CONTRACTOR SHALL DOCUMENT THE INSTANCE AND NOTIFY THE OWNER.

KEYED NOTES - M-101

1 HOT TAP EXISTING 10" CHS/R PIPING. CONNECT 4" CHS/R PIPING AND ROUTE TO RENOVATION AREA.
2 HOT TAP EXISTING 6" HWS/R PIPING. CONNECT 3" HWS/R PIPING AND ROUTE UP TO AHU-D07 ON ROOF.

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M-101

MECHANICAL OVERALL RENOVATION PLAN - LEVEL 1

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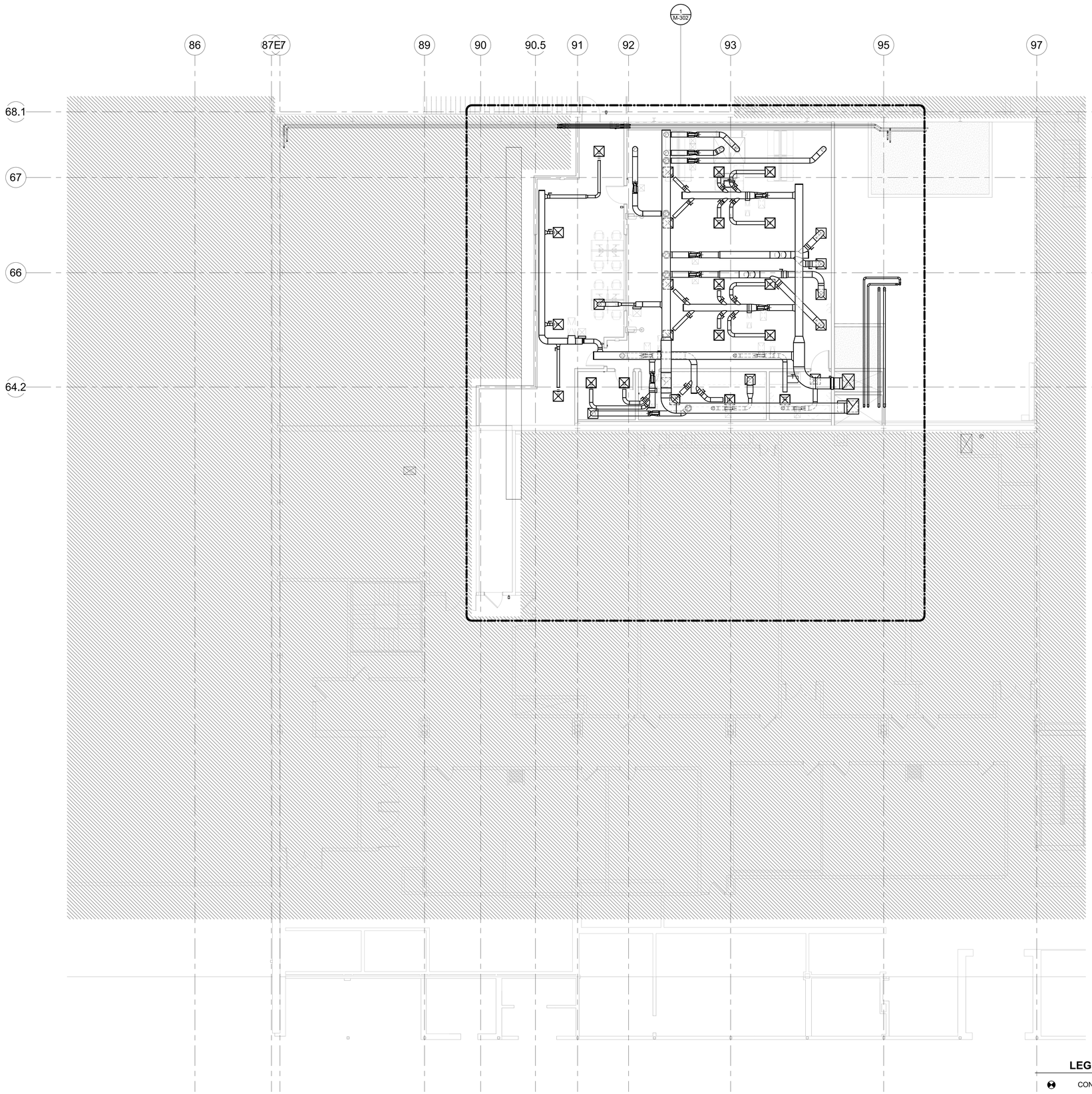

GENERAL NOTES

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B. PROVIDE DUCTWORK TRANSITIONS AS REQUIRED AT TERMINAL BOX INLET AND DISCHARGE CONNECTIONS.
C. PROVIDE TURNING VANES IN ALL RECTANGULAR DUCT ELBOWS.
D. PROVIDE ACCESS DOORS IN DUCTWORK AT FIRE DAMPERS AND FIRE/SMOKE DAMPERS. IDENTIFY ACCESS DOORS IN ACCORDANCE WITH SPECIFICATIONS.
E. INSULATE EXTERIOR OF ALL SUPPLY AIR DUCTWORK AND THE TOP OF ALL SUPPLY AIR DIFFUSERS.
F. PIPING AND DUCTWORK ARE NOT PERMITTED IN ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS, AND COMMUNICATION ROOMS.
G. PROVIDE YOUNG REGULATORS FOR ALL DAMPERS LOCATED ABOVE HARD OR INACCESSIBLE CEILINGS. YOUNG REGULATORS SHALL BE PROVIDED WITH SOLID SHAFT CONNECTION; CABLE CONNECTION TO REGULATOR WILL NOT BE ACCEPTED.
H. INSULATE ALL HOT WATER PIPING.
I. INSULATE HOT WATER COIL CASING AT EACH TERMINAL UNIT.
J. COORDINATE PIPING WITH CABLE TRAY INSTALLATION IN ALL SPACES. PIPING SHALL NOT INTERFERE WITH ACCESS TO CABLE TRAY.
K. PROVIDE REDUCERS IN PIPING AT COIL CONNECTIONS AS REQUIRED. TYPICAL AT ALL TERMINAL UNITS.
L. RUN OUTS TO TERMINAL UNITS ARE 3/4" UNLESS OTHERWISE NOTED.
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N. EXISTING HVAC DRAWINGS ARE BASED ON AS-BUILT DOCUMENTS AND SITE INVESTIGATION. INSTALLATION MAY NOT BE EXACTLY AS SHOWN. CONTRACTOR TO FIELD VERIFY EXISTING HVAC EQUIPMENT AS REQUIRED TO ACCOMPLISH THE WORK SHOWN. THE CONTRACTOR SHALL NOTIFY THE DESIGN TEAM IF THE ACTUAL EXISTING INSTALLATION IS FOUND TO SIGNIFICANTLY DIFFER FROM DRAWINGS, SUCH THAT THE INTENT OF THE DESIGN CANNOT BE MET.
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LEGEND

- CONNECT TO EXISTING
- EXISTING
- RENOVATION

True NORTH / Plan NORTH

1/8" = 1'-0"

1 MECHANICAL OVERALL RENOVATION PLAN - LEVEL 2

1/8" = 1'-0"

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MECHANICAL OVERALL RENOVATION PLAN - LEVEL 2

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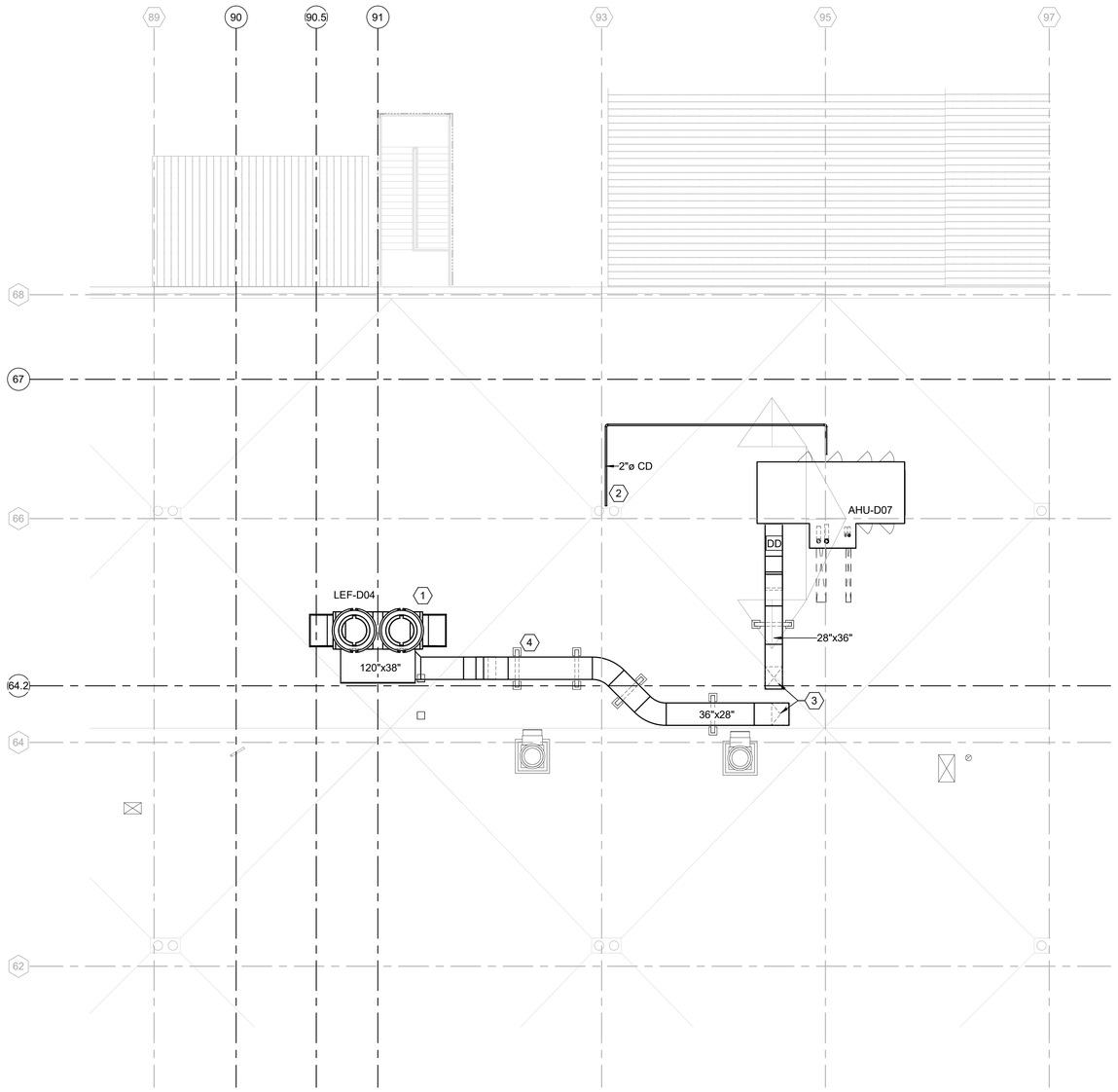

1 MECHANICAL HVAC ROOF RENOVATION PLAN
1/8" = 1'-0"

GENERAL NOTES

A. CONTRACTOR SHALL PROVIDE CLEARANCE IN FRONT AND AT SIDES OF TERMINAL BOX UNIT CONTROL PANEL AND J-BOX AS REQUIRED BY N.E.C. (36 INCHES).
B. PROVIDE DUCTWORK TRANSITIONS AS REQUIRED AT TERMINAL BOX INLET AND DISCHARGE CONNECTIONS.
C. PROVIDE TURNING VANES IN ALL RECTANGULAR DUCT ELBOWS.
D. PROVIDE ACCESS DOORS IN DUCTWORK AT FIRE DAMPERS AND FIRE/SMOKE DAMPERS. IDENTIFY ACCESS DOORS IN ACCORDANCE WITH SPECIFICATIONS.
E. INSULATE EXTERIOR OF ALL SUPPLY AIR DUCTWORK AND THE TOP OF ALL SUPPLY AIR DIFFUSERS.
F. PIPING AND DUCTWORK ARE NOT PERMITTED IN ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS, AND COMMUNICATION ROOMS.
G. PROVIDE YOUNG REGULATORS FOR ALL DAMPERS LOCATED ABOVE HARD OR INACCESSIBLE CEILINGS. YOUNG REGULATORS SHALL BE PROVIDED WITH SOLID SHAFT CONNECTION; CABLE CONNECTION TO REGULATOR WILL NOT BE ACCEPTED.
H. INSULATE ALL HOT WATER PIPING.
I. INSULATE HOT WATER COIL CASING AT EACH TERMINAL UNIT.
J. COORDINATE PIPING WITH CABLE TRAY INSTALLATION IN ALL SPACES. PIPING SHALL NOT INTERFERE WITH ACCESS TO CABLE TRAY.
K. PROVIDE REDUCERS IN PIPING AT COIL CONNECTIONS AS REQUIRED. TYPICAL AT ALL TERMINAL UNITS.
L. RUN OUTS TO TERMINAL UNITS ARE 3/4" UNLESS OTHERWISE NOTED.
M. PROVIDE STRAINERS INDICATED PER THE SPECIFICATIONS, DRAWINGS, DETAILS AND MANUFACTURER INSTALLATION RECOMMENDATIONS UPSTREAM OF ALL EQUIPMENT INCLUDING, BUT NOT LIMITED TO, CONTROL VALVES.
N. EXISTING HVAC DRAWINGS ARE BASED ON AS-BUILT DOCUMENTS AND SITE INVESTIGATION. INSTALLATION MAY NOT BE EXACTLY AS SHOWN. CONTRACTOR TO FIELD VERIFY EXISTING HVAC EQUIPMENT AS REQUIRED TO ACCOMPLISH THE WORK SHOWN. THE CONTRACTOR SHALL NOTIFY THE DESIGN TEAM IF THE ACTUAL EXISTING INSTALLATION IS FOUND TO SIGNIFICANTLY DIFFER FROM DRAWINGS, SUCH THAT THE INTENT OF THE DESIGN CANNOT BE MET.
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KEYED NOTES - M-103

1 LEF SHALL BE LOCATED AT LEAST 30 FT FROM ANY NEW OR EXISTING OUTSIDE AIR INTAKE.
2 FIELD ROUTE CONDENSATE DRAIN PIPING TO NEAREST ROOF DRAIN.
3 DUCT DOWN THRU ROOF. RE: M-302 FOR CONTINUATION.
4 ROOF SUPPORTS. RE: DETAIL 2/M-903.

LEGEND

CONNECT TO EXISTING
EXISTING
RENOVATION

True NORTH
Plan NORTH

1/8" = 1'-0" (0' 8' 16')

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MECHANICAL HVAC RENOVATION PLAN – ROOF

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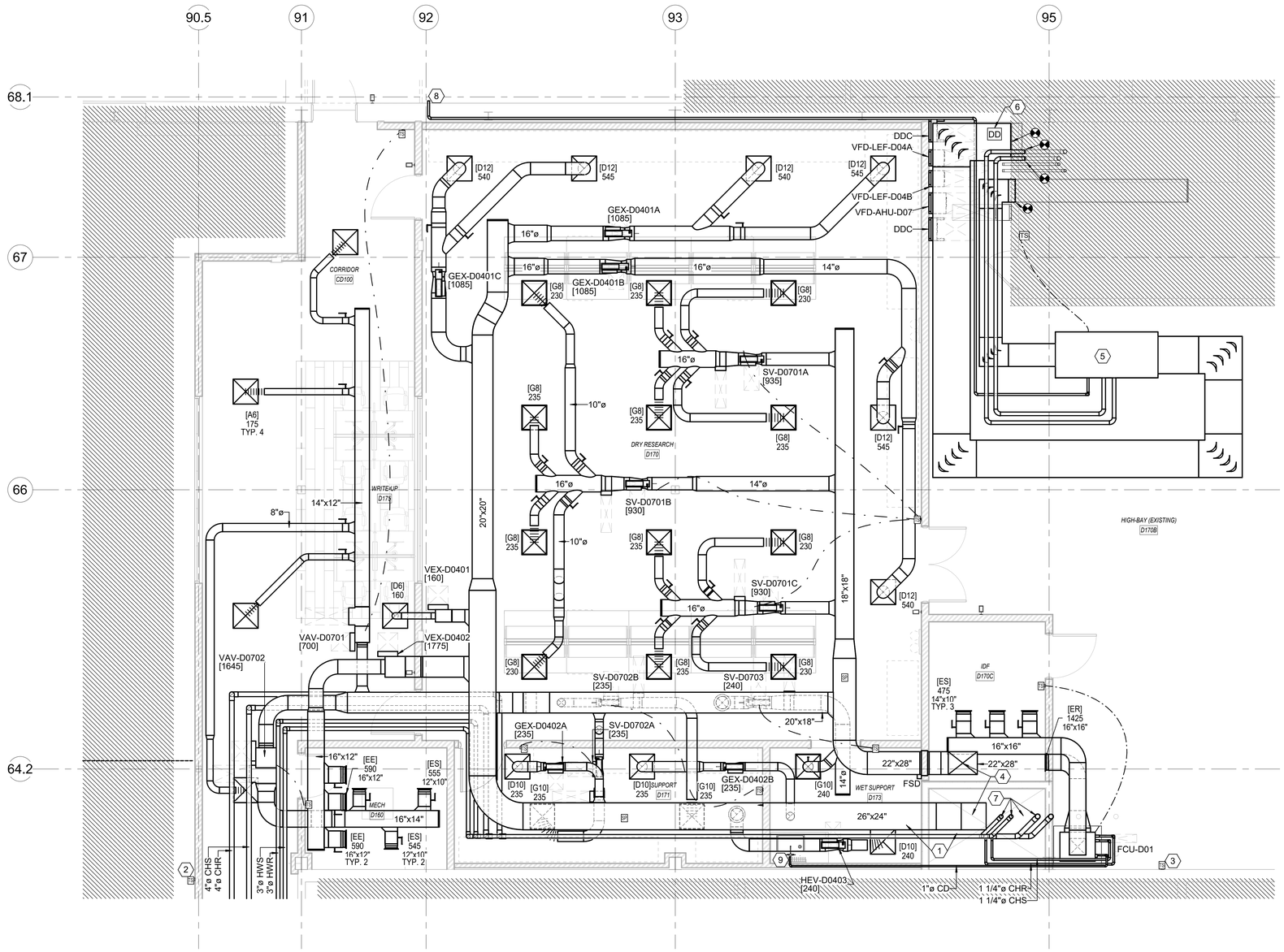

1 ENLARGED MECHANICAL RENOVATION PLAN - LEVEL 1 BASE BID
1/4" = 1'-0"

GENERAL NOTES

A. CONTRACTOR SHALL PROVIDE CLEARANCE IN FRONT AND AT SIDES OF TERMINAL BOX UNIT CONTROL PANEL AND J-BOX AS REQUIRED BY N.E.C. (36 INCHES).
B. PROVIDE DUCTWORK TRANSITIONS AS REQUIRED AT TERMINAL BOX INLET AND DISCHARGE CONNECTIONS.
C. PROVIDE TURNING VANES IN ALL RECTANGULAR DUCT ELBOWS.
D. PROVIDE ACCESS DOORS IN DUCTWORK AT FIRE DAMPERS AND FIRE/SMOKE DAMPERS. IDENTIFY ACCESS DOORS IN ACCORDANCE WITH SPECIFICATIONS.
E. INSULATE EXTERIOR OF ALL SUPPLY AIR DUCTWORK AND THE TOP OF ALL SUPPLY AIR DIFFUSERS.
F. PIPING AND DUCTWORK ARE NOT PERMITTED IN ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS, AND COMMUNICATION ROOMS.
G. PROVIDE YOUNG REGULATORS FOR ALL DAMPERS LOCATED ABOVE HARD OR INACCESSIBLE CEILINGS. YOUNG REGULATORS SHALL BE PROVIDED WITH SOLID SHAFT CONNECTION; CABLE CONNECTION TO REGULATOR WILL NOT BE ACCEPTED.
H. INSULATE ALL HOT WATER PIPING.
I. INSULATE HOT WATER COIL CASING AT EACH TERMINAL UNIT.
J. COORDINATE PIPING WITH CABLE TRAY INSTALLATION IN ALL SPACES. PIPING SHALL NOT INTERFERE WITH ACCESS TO CABLE TRAY.
K. PROVIDE REDUCERS IN PIPING AT COIL CONNECTIONS AS REQUIRED. TYPICAL AT ALL TERMINAL UNITS.
L. RUN OUTS TO TERMINAL UNITS ARE 3/4" UNLESS OTHERWISE NOTED.
M. PROVIDE STRAINERS INDICATED PER THE SPECIFICATIONS, DRAWINGS, DETAILS AND MANUFACTURER INSTALLATION RECOMMENDATIONS UPSTREAM OF ALL EQUIPMENT INCLUDING, BUT NOT LIMITED TO, CONTROL VALVES.
N. EXISTING HVAC DRAWINGS ARE BASED ON AS-BUILT DOCUMENTS AND SITE INVESTIGATION. INSTALLATION MAY NOT BE EXACTLY AS SHOWN. CONTRACTOR TO FIELD VERIFY EXISTING HVAC EQUIPMENT AS REQUIRED TO ACCOMPLISH THE WORK SHOWN. THE CONTRACTOR SHALL NOTIFY THE DESIGN TEAM IF THE ACTUAL EXISTING INSTALLATION IS FOUND TO SIGNIFICANTLY DIFFER FROM DRAWINGS, SUCH THAT THE INTENT OF THE DESIGN CANNOT BE MET.
O. CONTRACTOR SHALL COORDINATE WORK TO MINIMIZE IMPACT ON THE EXISTING BUILDING AND SPACE. COORDINATE ALL OUTAGES AND EQUIPMENT INGRESS/EGRESS WITH OWNER A MINIMUM OF 2 WEEKS PRIOR TO STARTING WORK.
P. EXISTING TO REMAIN HVAC SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR EXISTING ITEMS DAMAGED DURING CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, HVAC EQUIPMENT, DUCTWORK, AND INSULATION. IF EXISTING TO REMAIN HVAC IS FOUND TO HAVE EXISTING DAMAGE BEFORE OR DURING PROJECT DEMOLITION, THE CONTRACTOR SHALL DOCUMENT THE INSTANCE AND NOTIFY THE OWNER.

KEYED NOTES - M-301

1 WRAP EXHAUST DUCTWORK WITH 2-HR FIRE RATED INSULATION FOR A LENGTH OF 10 FT ON BOTH SIDES OF THE SHAFT WALL PENETRATION.
2 RELOCATE EXISTING TEMPERATURE SENSOR FOR EXISTING AIR HANDLING UNT AA3.
3 RELOCATE EXISTING TEMPERATURE SENSOR FOR EXISTING AIR HANDLING UNT AA2.
4 DUCT UP IN SHAFT. RE: M-302 FOR CONTINUATION.
5 RELOCATE EXISTING FAN COIL UNIT AT SAME ELEVATION AS PREVIOUS INSTALLATION. REUSE EXISTING SUPPORTS AND ISOLATORS. RECONNECT POWER AND CONTROLS, INCLUDING EXISTING VFD AND TEMPERATURE SENSOR. MATCH EXISTING DUCT AND PIPING SIZES.
6 REINSTALL EXISTING DUCT DETECTOR. RECONNECT TO FIRE ALARM SYSTEM AS BEFORE.
7 3" HWS/R AND 4" CHS/R PIPING UP IN SHAFT. RE: M-302 FOR CONTINUATION.
8 ROUTE CONDENSATE DRAIN PIPING THRU EXTERIOR WALL TO TERMINATE OUTDOORS. REUSE EXISTING WALL PENETRATION. MATCH EXISTING PIPING SIZE.
9 PUMPED CONDENSATE. FIELD ROUTE CONDENSATE DRAIN LINE TO SINK TAILPIECE.

LEGEND

- CONNECT TO EXISTING
- EXISTING
- RENOVATION

True NORTH / Plan NORTH

1/4" = 1'-0" (0', 4', 8')

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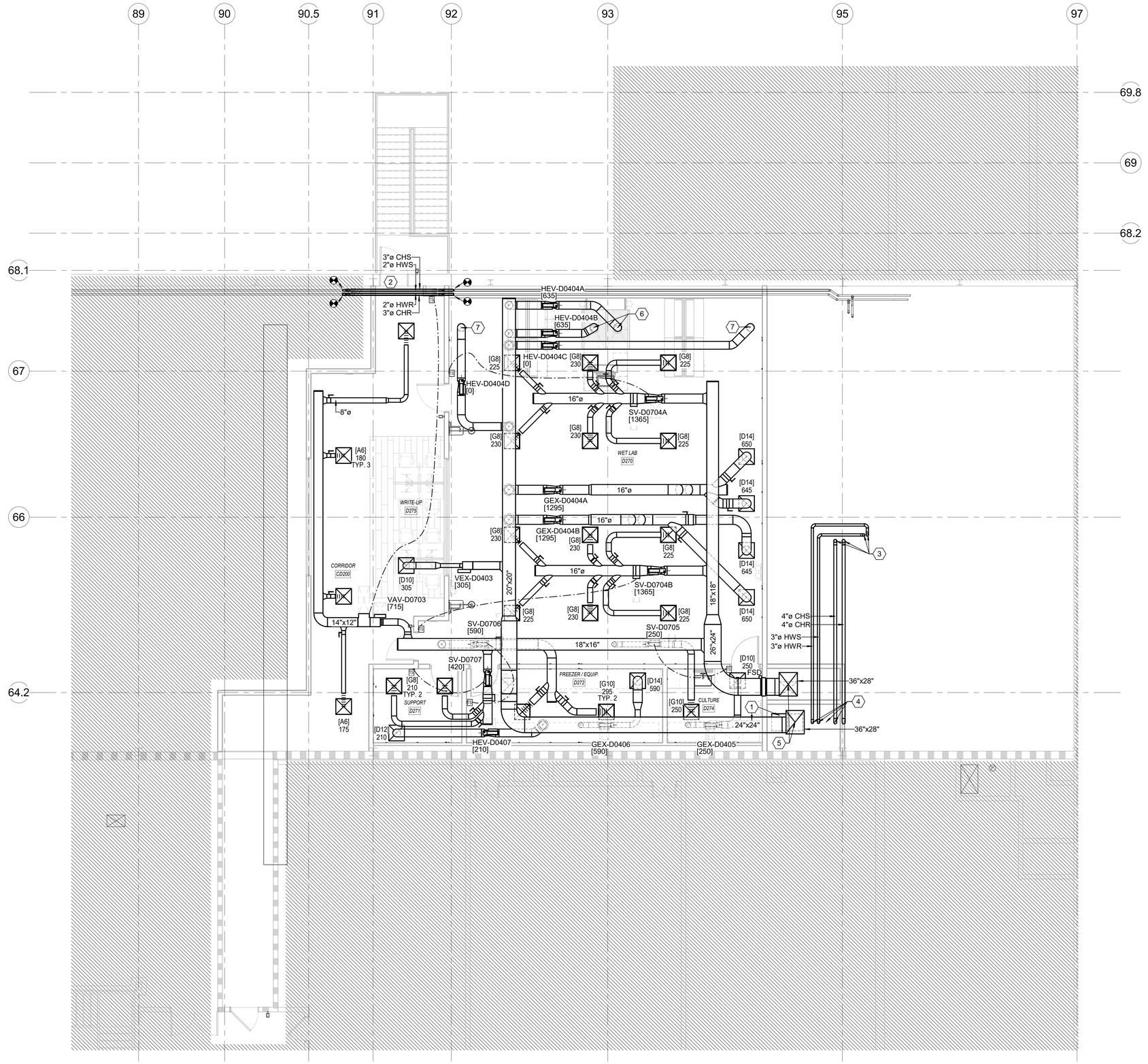
M-301

ENLARGED MECHANICAL RENOVATION PLAN - LEVEL 1 BASE BID

Treanor NO. HE0569.2402.00



1 ENLARGED MECHANICAL RENOVATION PLAN - LEVEL 2 BASE BID
3/16" = 1'-0"

LEGEND

- CONNECT TO EXISTING
- EXISTING
- RENOVATION

True NORTH / Plan NORTH

3/16"=1'-0" (0' 6' 12')

GENERAL NOTES

A. CONTRACTOR SHALL PROVIDE CLEARANCE IN FRONT AND AT SIDES OF TERMINAL BOX UNIT CONTROL PANEL AND J-BOX AS REQUIRED BY N.E.C. (36 INCHES).
B. PROVIDE DUCTWORK TRANSITIONS AS REQUIRED AT TERMINAL BOX INLET AND DISCHARGE CONNECTIONS.
C. PROVIDE TURNING VANES IN ALL RECTANGULAR DUCT ELBOWS.
D. PROVIDE ACCESS DOORS IN DUCTWORK AT FIRE DAMPERS AND FIRE/SMOKE DAMPERS. IDENTIFY ACCESS DOORS IN ACCORDANCE WITH SPECIFICATIONS.
E. INSULATE EXTERIOR OF ALL SUPPLY AIR DUCTWORK AND THE TOP OF ALL SUPPLY AIR DIFFUSERS.
F. PIPING AND DUCTWORK ARE NOT PERMITTED IN ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS, AND COMMUNICATION ROOMS.
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H. INSULATE ALL HOT WATER PIPING.
I. INSULATE HOT WATER COIL CASING AT EACH TERMINAL UNIT.
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P. EXISTING TO REMAIN HVAC SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR EXISTING ITEMS DAMAGED DURING CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, HVAC EQUIPMENT, DUCTWORK, AND INSULATION. IF EXISTING TO REMAIN HVAC IS FOUND TO HAVE EXISTING DAMAGE BEFORE OR DURING PROJECT DEMOLITION, THE CONTRACTOR SHALL DOCUMENT THE INSTANCE AND NOTIFY THE OWNER.

KEYED NOTES - M-302

1 WRAP EXHAUST DUCTWORK WITH 2-HR FIRE RATED INSULATION FOR A LENGTH OF 10 FT ON BOTH SIDES OF THE SHAFT WALL PENETRATION.
2 ROUTE PIPING ABOVE NEW DOORWAY. MATCH EXISTING PIPE SIZES.
3 PIPING UP THRU ROOF INTO AHU VESTIBULE. RE: M-103 FOR CONTINUATION.
4 PIPING DOWN IN SHAFT. RE: M-301 FOR CONTINUATION.
5 DUCT UP THRU ROOF AND DOWN IN SHAFT. RE: M-103 AND M-301 FOR CONTINUATION.
6 CONNECT TO FUME HOOD WITH DUCT COLLAR.
7 CAP AND SEAL EXHAUST DUCT ABOVE CEILING FOR FUTURE CONNECTION.

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M-302

ENLARGED MECHANICAL RENOVATION PLAN - LEVEL 2 BASE BID

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SCHEDULE - LAB-TRAC AIR TERMINAL BOX (ELECTRIC HEAT) - ALTERNATE 1

MARK	LEVEL	CONTROL TYPE	LAB SERVED	SERVED BY AHU/FAN	PRIMARY AIR		ROOM OFFSET CFM	VALVE SIZE	MAX S.P. IN. W.G.	POWER			ELECTRIC HEAT COIL					STEPS	REMARKS
					MAX CFM	MIN CFM				VOLTS	PH	HZ	MAX CFM	MIN CFM	EAT °F	LAT °F	KW		
SV-D0703	LEVEL 1	VAV	WET SUPPORT D173	AHU-D07	785	300	0	12	0.4	480	3	60	785	475	53	80	6.74	SCR	
HEV-D0403	LEVEL 1	VAV	WET SUPPORT D173	LEF-D04	785	300	0	12	0.4	277	1	60							NOTE 1

SCHEDULE - LAB-TRAC AIR TERMINAL BOX (ELECTRIC HEAT) - ALTERNATE 2

MARK	LEVEL	CONTROL TYPE	LAB SERVED	SERVED BY AHU/FAN	PRIMARY AIR		ROOM OFFSET CFM	VALVE SIZE	MAX S.P. IN. W.G.	POWER			ELECTRIC HEAT COIL						REMARKS
					MAX CFM	MIN CFM				VOLTS	PH	HZ	CFM	EAT °F	LAT °F	KW		STEPS	
GEX-D0404A	LEVEL 2	VAV	WET LAB D270	LEF-D04	1095	200	260	14	0.4	277	1	60							NOTE 1
GEX-D0404B	LEVEL 2	VAV	WET LAB D270	LEF-D04	1095	200	260	14	0.4	277	1	60							NOTE 1
HEV-D0404C	LEVEL 2	VAV	WET LAB D270	LEF-D04	635	200	260	12	0.4	277	1	60							NOTE 1
HEV-D0404D	LEVEL 2	VAV	WET LAB D270	LEF-D04	635	200	260	12	0.4	277	1	60							NOTE 1

SCHEDULE - LAB-TRAC AIR TERMINAL BOX (ELECTRIC HEAT) - ALTERNATE 4

MARK	LEVEL	CONTROL TYPE	LAB SERVED	SERVED BY AHU/FAN	PRIMARY AIR		ROOM OFFSET CFM	VALVE SIZE	MAX S.P. IN. W.G.	POWER			ELECTRIC HEAT COIL					STEPS	REMARKS
					MAX CFM	MIN CFM				VOLTS	PH	HZ	MAX CFM	MIN CFM	EAT °F	LAT °F	KW		
SV-D0707	LEVEL 2	VAV	SUPPORT D271	AHU-D07	860	135	0	12	0.4	277	1	60	135	135	53	80	1.16		
HEV-D0407	LEVEL 2	VAV	SUPPORT D271	LEF-D04	860	135	0	12	0.4	277	1	60							NOTE 1

LAB-TRAC AIR TERMINAL BOX GENERAL NOTES - (APPLIES TO ALL UNITS)

A. ABOVE SELECTIONS BASED ON PHOENIX LOW PRESSURE VALVES. VALVES IN ALTERNATE SCHEDULES ABOVE ARE ONLY SHOWN FOR BALANCING PURPOSES. ALL VALVES AND COILS ARE ALREADY INCLUDED AND SCHEDULED ON THE BASE BID DOCUMENTS.
B. LAB OFFSET TO BE MAINTAINED AT ALL TIMES.
C. POSITIVE (+) OFFSET INDICATES FLOW ENTERING LAB/AREA. REFER TO AIR BALANCE DIAGRAM FOR ADDITIONAL INFORMATION.
D. ELECTRIC COIL DATA BASED ON SCR CONTROL AND 53 DEG. F ENTERING AIR TEMPERATURE. CONTRACTOR SHALL PROVIDE DUCT MOUNTED COIL TO MEET PERFORMANCE REQUIREMENTS INDICATED.
E. LAB EXHAUST VALVES (HEV) SHALL BE STAINLESS STEEL WITH FLANGE CONNECTIONS.
F. LAB SUPPLY (SV) AND GENERAL EXHAUST (GEX) VALVES SHALL BE ALUMINUM WITH SLIP-ON CONNECTIONS (UNLESS NOTED OTHERWISE).
G. CONTROL TYPES:
   CV - CONSTANT VOLUME
   VAV -VARIABLE VOLUME
   TP - TWO POSITION
H. MAX. SP. IS THE MAXIMUM ALLOWABLE STATIC PRESSURE LOSS THOUGH THE VALVE AND COIL AT SCHEDULED MAXIMUM CFM.
I. DIVISION 26 WILL PROVIDE 120/1PH POWER AT EACH PHOENIX LAB ROOM CONTROL (LRC) PANEL. LRC SHALL BE LOCATED ON SV TERMINAL UNIT. PROVIDE TRANSFORMER AS REQUIRED FOR CONTROLS POWER.
J. DIVISION 26 WILL PROVIDE 120/1PH POWER TO SV TERMINAL CONTROL PANEL FOR ROOMS WITHOUT HOODS. ROUTE CONTROLS POWER FROM SV TERMINAL TO SPACE GEX TERMINAL. PROVIDE CONTROL POWER TRANSFORMER AS REQUIRED.
K. DIVISION 26 WILL PROVIDE 277/1PH OR 480/3PH POWER TO SV TERMINAL REHEAT COIL CONTROL PANEL AS SCHEDULED. PROVIDE CONTROL POWER TRANSFORMER AS REQUIRED.

LAB-TRAC AIR TERMINAL BOX SCHEDULE NOTES

1. TERMINAL BOX HAS NO HEATING COIL.

SCHEDULE - DIFFUSER & GRILLE - ALTERNATE 4

MARK	CFM RANGE	NECK SIZE	SUPPLY	RETURN	EXHAUST	TYPE	PATTERN	BASIS OF DESIGN	SCHEDULE NOTES
A10	336-450	10"	X			24" X 24" PLAQUE	4-WAY	PRICE ASPD FULL FACE ALUMINUM CONSTRUCTION	

DIFFUSER & GRILLE SCHEDULE NOTES

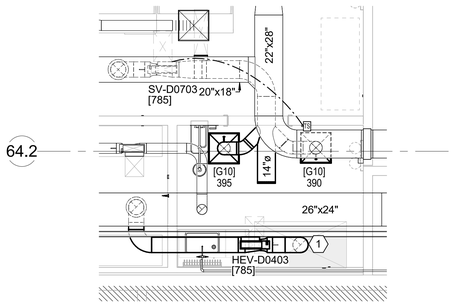
A. PROVIDE LIGHT SHIELDS FOR ALL RETURN AIR SLOTS AND BLANK-OFFS FOR ALL SLOTS NOT DESIGNATED AS SUPPLY OR RETURN.
B. MAX NC-30 FOR ALL AIR DEVICES. NC SHALL BE CALCULATED AS PER AHRI 885-2008 ASSUMING LAY-IN ACOUSTICAL TILE.
C. PROVIDE INTEGRAL OBD FOR SIDEWALL DIFFUSERS AND GRILLES.
D. ALL DIFFUSERS IN GYP. BOARD CEILINGS TO HAVE FLOATABLE EDGE TRIM.

SCHEDULE - CANOPY HOOD - ALTERNATE 4

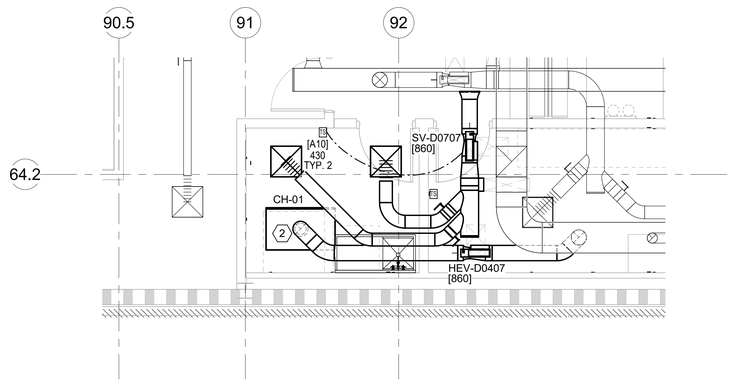
MARK	LENGTH IN	WIDTH IN	HEIGHT IN	EXHAUST FLOW	EXT. S.P. (IN W.G.)	BASIS OF DESIGN
CH-01	60	36	24	860	0.15	GREENHECK GD2-60-S

CANOPY HOOD GENERAL NOTES - (APPLIES TO ALL UNITS)

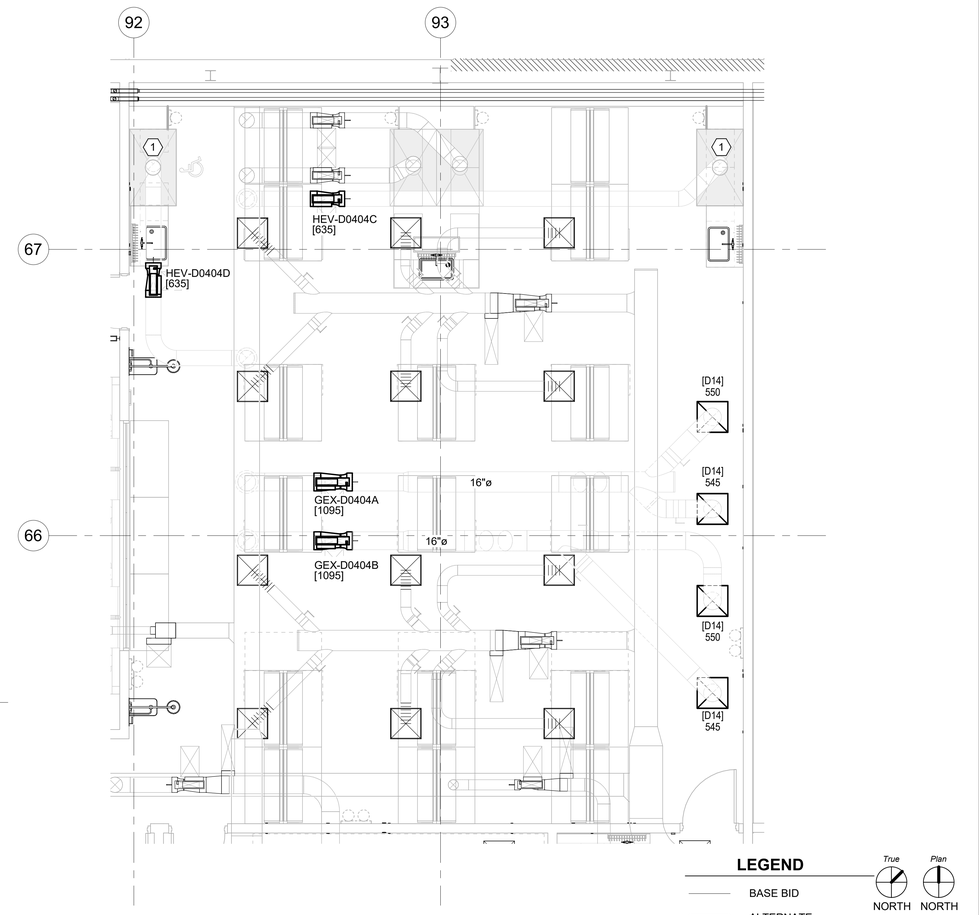
A. PROVIDE SINGLE BAFFLE CANOPY HOOD OF TYPE 430SS CONSTRUCTION.
B. PROVIDE 12" FACTORY MOUNTED COLLAR, GUTTER AND DRAIN CONNECTION.



1 LEVEL 1 ENLARGED - ALTERNATE 1
1/4" = 1'-0"



2 LEVEL 2 ENLARGED - ALTERNATE 4
1/4" = 1'-0"



3 LEVEL 2 ENLARGED - ALTERNATE 2
1/4" = 1'-0"

LEGEND
BASE BID
ALTERNATE

True NORTH Plan NORTH

1/4" = 1'-0" (0' 4' 8')

GENERAL NOTES

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B. PROVIDE DUCTWORK TRANSITIONS AS REQUIRED AT TERMINAL BOX INLET AND DISCHARGE CONNECTIONS.
C. PROVIDE TURNING VANES IN ALL RECTANGULAR DUCT ELBOWS.
D. PROVIDE ACCESS DOORS IN DUCTWORK AT FIRE DAMPERS AND FIRE/SMOKE DAMPERS. IDENTIFY ACCESS DOORS IN ACCORDANCE WITH SPECIFICATIONS.
E. INSULATE EXTERIOR OF ALL SUPPLY AIR DUCTWORK AND THE TOP OF ALL SUPPLY AIR DIFFUSERS.
F. PIPING AND DUCTWORK ARE NOT PERMITTED IN ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS, AND COMMUNICATION ROOMS.
G. PROVIDE YOUNG REGULATORS FOR ALL DAMPERS LOCATED ABOVE HARD OR INACCESSIBLE CEILINGS. YOUNG REGULATORS SHALL BE PROVIDED WITH SOLID SHAFT CONNECTION; CABLE CONNECTION TO REGULATOR WILL NOT BE ACCEPTED.
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KEYED NOTES - M-303A

1 CONNECT TO FUME HOOD WITH DUCT COLLAR.
2 CONNECT TO CANOPY HOOD. BALANCE TO 860 CFM. ROUTE 1/2" DRAIN LINE FROM CANOPY TO FLOOR DRAIN.

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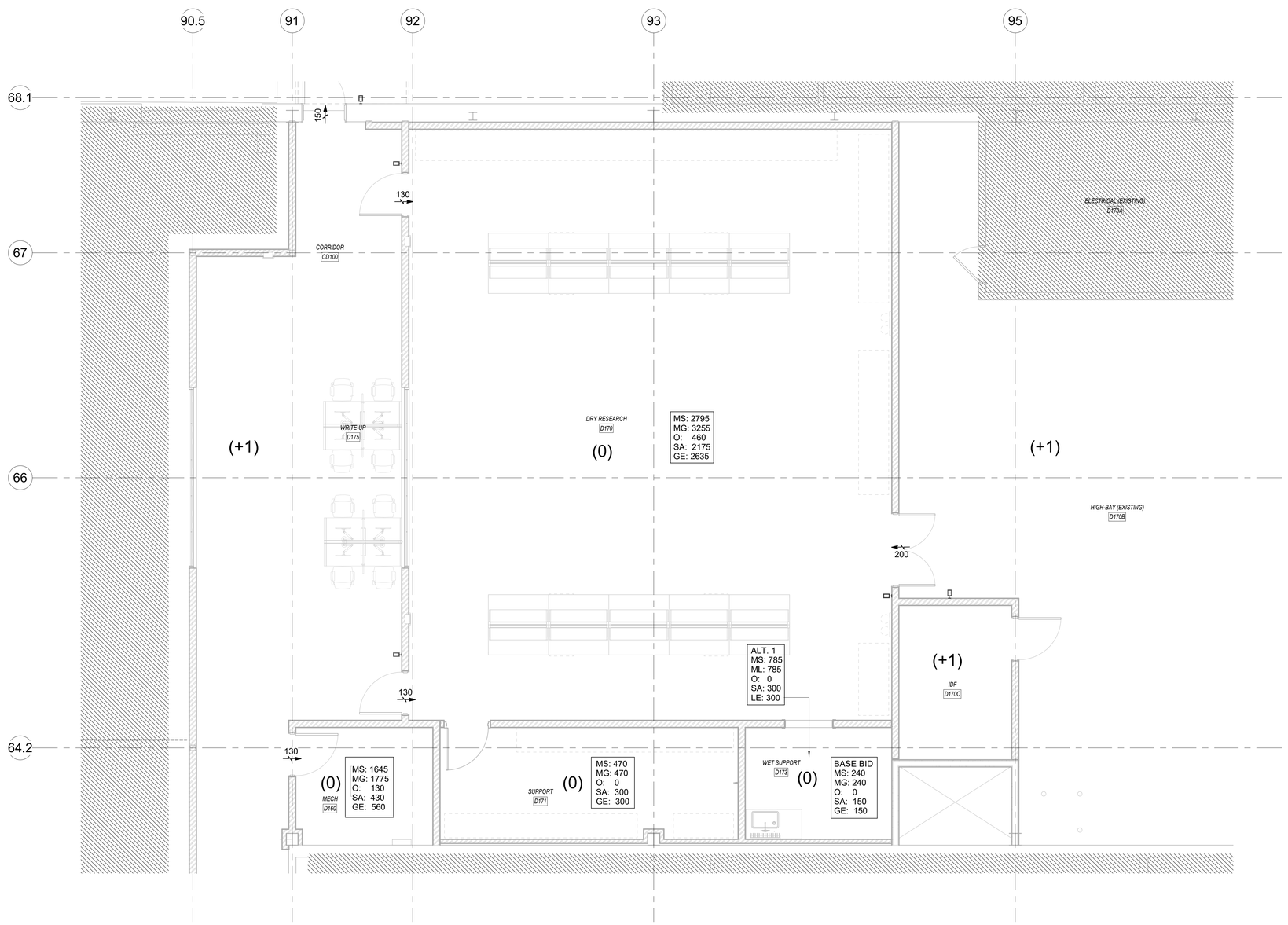
REVISIONS

NO	DESCRIPTION	DATE

M-303A

ENLARGED MECHANICAL ALTERNATES

Treanor NO. HE0569.2402.00



1 MECHANICAL AIR BALANCE PLAN - LEVEL 1
1/4" = 1'-0"

GENERAL NOTES

A. EACH [+] REPRESENTS A 0.025" IN W.G. INCREASE IN PRESSURE (POSITIVE)

B. EACH [-] REPRESENTS A 0.025" IN W.G. DECREASE IN PRESSURE (NEGATIVE)

C. DESIGN INTENT IS FOR CFM OFFSET CONTROL.

PRESSURE LEGEND

(0)	AMBIENT PRESSURE (NEUTRAL PRESSURE)
(+1)	0.025" W.G.
(+2)	0.05" W.G
(+3)	0.075" W.G.
(+4)	0.10" W.G.
(-1)	-0.025" W.G.
(-2)	-0.05" W.G.
150 →	DIRECTION AND CFM OF AIRFLOW
MS:	MAXIMUM SUPPLY AIR
MG:	MAXIMUM GENERAL EXHAUST AIR
ML:	MAXIMUM EXHAUST AIR FROM CONNECTED DEVICES
TE:	MAXIMUM TOTAL ROOM EXHAUST AIR
O:	OFFSET CFM (INTO ROOM IS POSITIVE)
SA:	MINIMUM SUPPLY AIR
GE:	MINMUM GENERAL EXHAUST AIR
LE:	MINIMUM DEVICE EXHAUST AIR

True NORTH Plan NORTH

1/4" = 1'-0" 0' 4' 8'

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NO	DESCRIPTION	DATE

M-501

AIR BALANCE DIAGRAM – LEVEL 1

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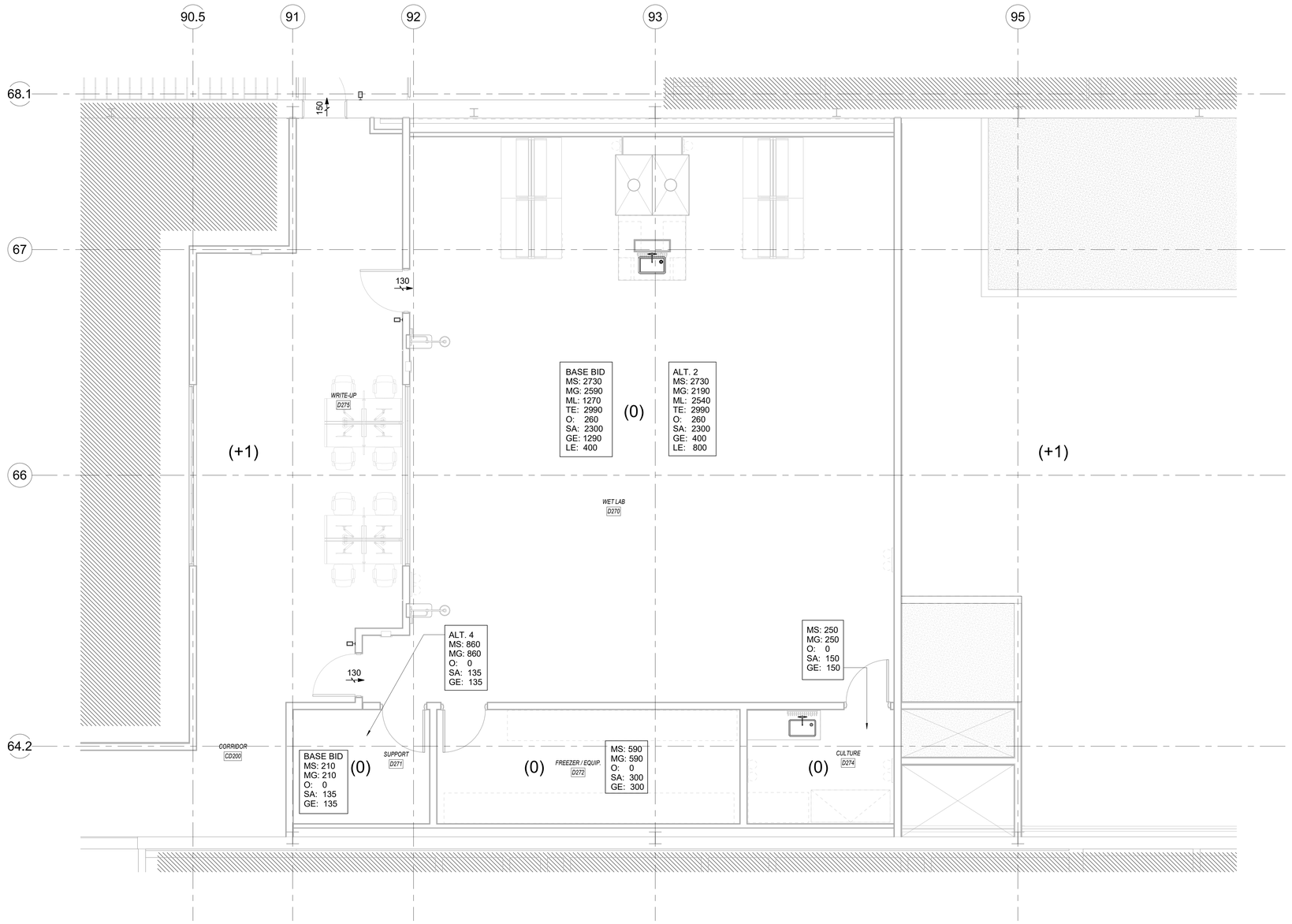

1 MECHANICAL AIR BALANCE PLAN - LEVEL 2
1/4" = 1'-0"

GENERAL NOTES

A. EACH [+] REPRESENTS A 0.025" IN W.G. INCREASE IN PRESSURE (POSITIVE)

B. EACH [-] REPRESENTS A 0.025" IN W.G. DECREASE IN PRESSURE (NEGATIVE)

C. DESIGN INTENT IS FOR CFM OFFSET CONTROL.

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(0)	AMBIENT PRESSURE (NEUTRAL PRESSURE)
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(+2)	0.05" W.G
(+3)	0.075" W.G.
(+4)	0.10" W.G.
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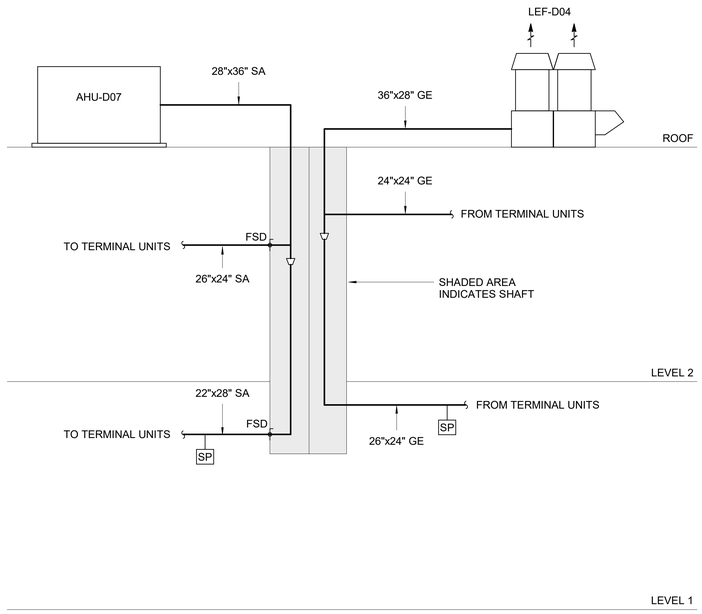
NO	DESCRIPTION	DATE

M-502

AIR BALANCE DIAGRAM – LEVEL 2

Treanor NO. HE0569.2402.00



1 AIRFLOW DIAGRAM
NO SCALE

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M-600

MECHANICAL FLOW DIAGRAMS

Treanor NO. HE0569.2402.00

AIR HANDLING UNIT SEQUENCE OF OPERATION

GENERAL

1. AIR HANDLING UNIT IS LOCATED OUTDOORS ON ROOF LEVEL. AHU CONSISTS OF A SUPPLY FAN ARRAY WITH A VFD AND N-1 REDUNDANCY, HEATING HOT WATER COIL, COOLING COIL, AND MERV 8 & MERV 11 FILTERS. AHU INCLUDES UNIT MOUNTED OUTSIDE AIR ISOLATION DAMPER.
2. THE AIR HANDLING UNIT SYSTEM SHALL OPERATE IN OCCUPIED AND SAFETY MODES AS INDICATED BELOW. THE UNIT IS NOT CONNECTED TO STANDBY POWER AND WILL NOT OPERATE DURING A POWER OUTAGE.
3. THE UNIT SHALL BE STARTED AND STOPPED THROUGH THE DDC. WHEN THE UNIT IS ENERGIZED, THE OUTSIDE AIR ISOLATION DAMPER SHALL OPEN, THE SUPPLY FANS SHALL BE ENERGIZED, AND THE ELECTRONICALLY ACTUATED CHILLED WATER VALVE AND HEATING HOT WATER VALVE SHALL BE ALLOWED TO MODULATE. WHEN THE UNIT IS STOPPED, THE SUPPLY FANS SHALL BE DE-ENERGIZED, AND THE HEATING HOT WATER VALVE, CHILLED WATER VALVE, AND ISOLATION DAMPER SHALL CLOSE.
4. AHU SYSTEM SHALL BE INTERLOCKED WITH LEF-D04. IF THE LEF HAS BEEN DISABLED, THE DDC SHALL DE-ENERGIZE AHU-D07.
5. ALL CONTROL COMPONENTS EXTERIOR TO THE UNIT SHALL BE PROVIDED WITH A NEMA 3R ENCLOSURE.

OCCUPIED MODE

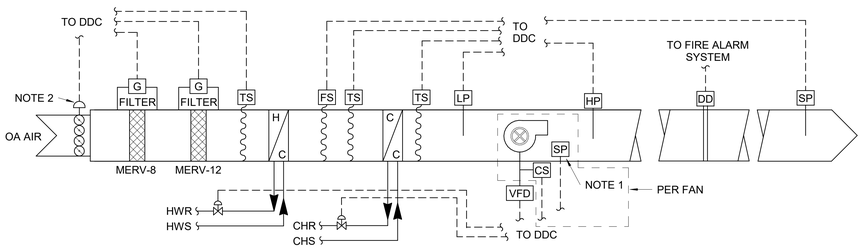
1. SUPPLY FAN VFD. A SUPPLY DUCT STATIC PRESSURE SENSOR SHALL BE LOCATED AS SHOWN ON THE PLANS. THE DDC SHALL MODULATE THE SUPPLY FAN SPEED, VIA THE VFD, TO MAINTAIN DUCT STATIC PRESSURE SETPOINT (1.0" W.G., INITIAL, ADJUSTABLE). ALL FANS IN A FAN ARRAY SHALL RECEIVE THE SAME SPEED COMMAND. SHUTDOWN OF A FAN DUE TO AN INHERENT FAULT OR FAN MOTOR FAILURE SHALL PROMPT THE REMAINING OPERATING FAN TO AUTOMATICALLY RAMP UP TO MAINTAIN DUCT STATIC PRESSURE SETPOINT.
2. CHILLED WATER COIL. A DUCT AVERAGING TEMPERATURE SENSOR LOCATED DOWNSTREAM OF THE COOLING COIL SHALL, THROUGH THE DDC, MODULATE THE NORMALLY OPEN CHILLED WATER VALVE TO MAINTAIN DISCHARGE TEMPERATURE SETPOINT (53°F, ADJUSTABLE). WHENEVER THE OUTSIDE AIR TEMPERATURE DROPS BELOW 53°F, THE CHILLED WATER VALVE SHALL CLOSE.
3. HEATING WATER COIL. A DUCT AVERAGING TEMPERATURE SENSOR LOCATED DOWNSTREAM OF THE HEATING COIL SHALL, THROUGH THE DDC, MODULATE THE NORMALLY CLOSED HOT WATER VALVE TO MAINTAIN DISCHARGE TEMPERATURE SETPOINT (50°F, ADJUSTABLE). WHENEVER THE OUTSIDE AIR TEMPERATURE RISES ABOVE 50°F, THE HOT WATER VALVE SHALL CLOSE. HOT WATER AND CHILLED WATER VALVES SHALL NOT BE ALLOWED TO MODULATE SIMULTANEOUSLY.

UNOCCUPIED MODE

1. THIS SYSTEM DOES NOT HAVE AN UNOCCUPIED MODE.

SAFETIES

1. A HIGH STATIC PRESSURE CUTOUT SWITCH LOCATED IN THE FAN DISCHARGE SHALL BE HARD-WIRED TO DE-ENERGIZE THE SUPPLY FAN WHENEVER STATIC PRESSURE EXCEEDS 4.5" W.G. (ADJUSTABLE), AND AN ALARM SHALL BE SENT TO THE DDC.
2. A LOW STATIC PRESSURE CUTOUT SWITCH LOCATED IN THE SUPPLY FAN INTAKE SHALL BE HARD-WIRED TO DE-ENERGIZE THE SUPPLY FAN WHENEVER STATIC PRESSURE EXCEEDS NEGATIVE 2" W.G. (ADJUSTABLE), AND AN ALARM SHALL BE SENT TO THE DDC.
3. A SMOKE DETECTOR LOCATED IN THE AHU DISCHARGE SHALL, THROUGH THE FIRE ALARM SYSTEM, DE-ENERGIZE THE SUPPLY FAN WHENEVER PRODUCTS OF COMBUSTION ARE SENSED. THIS SHALL BE A HARD WIRED INTERLOCK. AN INPUT FROM A FIRE ALARM RELAY SHALL SIGNAL THE AHU SHUTDOWN TO THE DDC.
4. EACH FILTER BANK (MERV 8 AND MERV 11 ARE CONSIDERED TWO BANKS) WILL HAVE A DIFFERENTIAL PRESSURE GAUGE TO INDICATE DIFFERENTIAL PRESSURE ACROSS THE FILTERS. WHEN THE DIFFERENTIAL PRESSURE EXCEEDS THE MAXIMUM SETPOINT, AN ALARM SHALL BE SENT TO THE DDC. INITIAL SET POINT TO BE 0.5" W.G. FOR MERV 8 AND 0.75" W.G. FOR MERV 11.
5. FREEZE PROTECTION.
   A. IF THE OUTSIDE AIR TEMPERATURE DROPS BELOW 38°F (ADJUSTABLE), THE DDC SHALL OPEN THE HOT WATER VALVE TO A MINIMUM POSITION OF 10% (ADJUSTABLE). ONCE THE OUTSIDE AIR TEMPERATURE RISES ABOVE 38°F, THE HOT WATER VALVE SHALL RETURN TO NORMAL OPERATION.
   B. IF THE OUTSIDE AIR TEMPERATURE DROPS BELOW 35°F (ADJUSTABLE), THE DDC SHALL OPEN THE CHILLED WATER VALVE TO A MINIMUM POSITION OF 5% (ADJUSTABLE). ONCE THE OUTSIDE AIR TEMPERATURE RISES ABOVE 35°F, THE CHILLED WATER VALVE SHALL RETURN TO NORMAL OPERATION.
   C. UPON SENSING A DROP IN PREHEAT TEMPERATURE TO 35°F, A MANUAL-RESET LOW TEMPERATURE THERMOSTAT LOCATED ON THE DISCHARGE SIDE OF THE HOT WATER COIL SHALL, THROUGH HARD-WIRE INTERLOCK, DE-ENERGIZE THE AHU SUPPLY FAN, CLOSE THE OUTSIDE AIR ISOLATION DAMPER, OPEN THE CHW AND HW VALVES FULLY, AND SEND AN ALARM TO THE DDC.
6. A CURRENT MONITOR RELAY SHALL BE USED BY THE DDC SYSTEM TO CONFIRM THE SUPPLY FANS ARE IN THE DESIRED STATE (I.E. ON OR OFF). THE DDC SYSTEM SHALL GENERATE AN ALARM IF STATUS DEVIATES FROM DDC START/STOP CONTROL SIGNAL AND DE-ENERGIZE THAT SUPPLY FAN.



NOTES:
1. SERVES AIRFLOW MEASURING STATION. PIEZO RING AND PROBES SHALL BE PROVIDED BY AHU MANUFACTURER. TRANSDUCER AND INTEGRATION TO BAS SHALL BE BY BUILDING AUTOMATION SYSTEM CONTRACTOR.
2. DAMPER SHALL BE PROVIDED BY AHU MANUFACTURER. ACTUATOR SHALL BE PROVIDED BY BUILDING AUTOMATION SYSTEM CONTRACTOR.

POINT SUMMARY

AIR HANDLING UNIT	OUTPUT: DIGITAL: START/STOP	OUTPUT: DIGITAL: OTHER	OUTPUT: DIGITAL: ON/OFF	OUTPUT: ANALOG: 4-20MA	OUTPUT: ANALOG: 0-10 VDC	OUTPUT: ANALOG: 1-18 PSI	OUTPUT: ANALOG: OTHER	INPUT: DIGITAL: AUX. CONTACT	INPUT: DIGITAL: PRESSURE SWITCH	INPUT: DIGITAL: LOW TEMP SWITCH	INPUT: DIGITAL: END SWITCH	INPUT: DIGITAL: OTHER	INPUT: DIGITAL: CUR. MON. RELAY	INPUT: ANALOG: TEMPERATURE	INPUT: ANALOG: PRESSURE	INPUT: ANALOG: FLOW (CFM, GPM)	INPUT: ANALOG: HUMIDITY	INPUT: ANALOG: OTHER	I/O: COMMUNICATIONS LINK	SOFTWARE: GRAPHIC	SOFTWARE: OTHER	SOFTWARE: ALARM	COMMENT
AIR HANDLING UNIT (AHU)																				X			
OUTSIDE AIR DAMPER		X									X											X	
FILTER DIFFERENTIAL PRESSURE (EA)															X							X	
OUTSIDE AIR TEMPERATURE														X									
HEATING COIL					X									X				X					POSITION FEEDBACK
FREEZESTAT										X												X	
COOLING COIL					X									X				X					POSITION FEEDBACK
LOW PRESSURE SWITCH									X													X	
SUPPLY FAN (ON VFD)	X			X																			
SUPPLY FAN STATUS (EA)													X									X	
SUPPLY FAN AIRFLOW MONITORING STATION (EA)																X							
HIGH PRESSURE SWITCH									X													X	
SUPPLY DUCT STATIC PRESSURE															X								
VFD FAILURE								X														X	

1 CONTROL SCHEMATIC - AIR HANDLING UNIT
NO SCALE

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
CO2	CARBON DIOXIDE SENSOR	DPS	DIFFERENTIAL PRESSURE SWITCH
TS	TEMPERATURE SENSOR	HP	HIGH PRESSURE SHUT OFF SWITCH
HS	HUMIDITY SENSOR	LP	LOW PRESSURE SHUT OFF SWITCH
MS	MOTOR STARTER	– – – –	ELECTRICAL SIGNAL
N.C.	NORMALLY CLOSED		DAMPER OR VALVE ACTUATOR
N.O.	NORMALLY OPEN	DDC	DISTRIBUTED DIGITAL CONTROL SYSTEM
DP	DIFFERENTIAL PRESSURE SENSOR	HWS/HWR	HOT WATER SUPPLY & RETURN
SP	STATIC PRESSURE SENSOR	CHS/CHR	CHILLED WATER SUPPLY & RETURN
VFD	VARIABLE FREQUENCY DRIVE	(E)/EXIST.	EXISTING
FS	FREEZE STAT	SA	SUPPLY AIR DUCT
G	FILTER GAUGE	RA	RETURN AIR DUCT
DD	DUCT SMOKE DETECTOR	EA/REA	EXHAUST/RELIEF AIR DUCT
AFMS	AIRFLOW MEASURING STATION	FD/FSD	FIRE/FIRE SMOKE DAMPER
M	TWO POSITION MOTORIZED DAMPER	OA	OUTSIDE AIR DUCT
MVD	MODULATING VOLUME DAMPER	PTOA	PRETREATED OUTSIDE AIR
CS	CURRENT SENSOR	MERV-X	ASHRAE 52 FILTER RATING

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MECHANICAL CONTROL DIAGRAM

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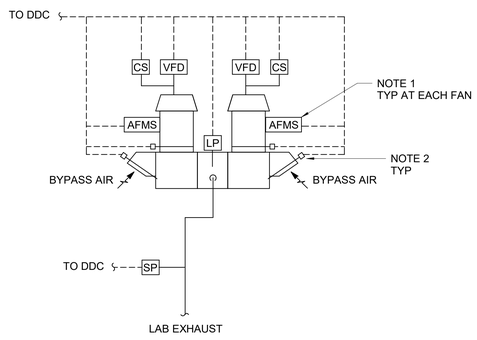

NOTES:
1. BAS CONTRACTOR SHALL PROVIDE TRANSDUCER FOR AIRFLOW MEASURING STATION. PIEZOMETER RING PROVIDED BY FAN MANUFACTURER.
2. FAN ISOLATION AND BYPASS DAMPERS SHALL BE PROVIDED BY FAN MANUFACTURER. ACTUATORS SHALL BE PROVIDED BY BAS CONTRACTOR.

POINT SUMMARY

LAB EXHAUST FANS	OUTPUT								INPUT										I/O	SOFTWARE			COMMENT
	DIGITAL				ANALOG				DIGITAL						ANALOG								
	START/STOP	OTHER	ON/OFF		4-20MA	0-10 VDC	1-18 PSI	OTHER	AUX. CONTACT	PRESSURE SWITCH	LOW TEMP SWITCH	END SWITCH	OTHER	CUR. MON. RELAY	TEMPERATURE	PRESSURE	FLOW (CFM, GPM)	HUMIDITY	OTHER	COMMUNICATIONS LINK	GRAPHIC	OTHER	ALARM	
LAB EXHAUST SYSTEM (LEF)																					X			
EXHAUST FAN (EA) (ON VFD)	X				X									X									X	
EXHAUST FAN RUNTIME (CALCULATION)																						X		
EXHAUST AIRFLOW MEASURING STATION (EA)																	X							
FAN ISOLATION DAMPER (EA)						X													X					POSITION FEEDBACK
BYPASS DAMPER (EA)						X													X					POSITION FEEDBACK
DUCT STATIC PRESSURE SENSOR																X								
LOW DUCT STATIC PRESSURE										X													X	
VDF FAILURE									X														X	

1 CONTROL SCHEMATIC - LAB EXHAUST FANS
NO SCALE

LAB EXHAUST FANS SEQUENCE OF OPERATION

GENERAL

1. THE SYSTEM CONSISTS OF TWO CONSTANT VOLUME FANS LOCATED ON THE ROOF THAT SHARE A COMMON PLENUM. FANS ARE SIZED FOR N+1 REDUNDANCY.
2. EACH FAN IS SERVED BY A VFD AND HAS A FAN ISOLATION DAMPER. THE COMMON PLENUM HAS FAN SYSTEM BYPASS DAMPERS. THE FAN SYSTEM SHALL RUN CONTINUOUSLY.
3. THE FAN SYSTEM IS NOT CONNECTED TO STANDBY POWER AND WILL NOT OPERATE IN THE EVENT OF A POWER OUTAGE.

OCCUPIED MODE

1. ONE FAN RUNS AT A TIME, WITH THE SECOND AS A REDUNDANT FAN. LEAD/LAG SEQUENCE WILL BE CONTROLLED THROUGH DDC. THE EXHAUST FANS DRAW AIR FROM A COMMON PLENUM/DUCT ON THE ROOF TO PROVIDE VARIABLE EXHAUST AIRFLOW RATE FROM THE BUILDING. FAN SHALL OPERATE AT A CONSTANT VOLUME.
2. THE DDC CONTROLLER SHALL START AND STOP EACH EXHAUST FAN THROUGH THEIR VFD. UPON SIGNAL TO START, THE DDC SYSTEM SHALL OPEN THE FAN ISOLATION DAMPER AND START FAN.
3. A DUCT STATIC PRESSURE SENSOR SHALL BE LOCATED AS SHOWN ON THE SCHEMATIC. THE DDC SYSTEM SHALL MODULATE THE BYPASS DAMPER(S) TO MAINTAIN DUCT STATIC PRESSURE SETPOINT (NEGATIVE 1" W.G., INITIAL, ADJUSTABLE). UPON A RISE IN DUCT STATIC PRESSURE, THE FAN BYPASS DAMPER(S) SHALL MODULATE OPEN. UPON A DECREASE IN DUCT STATIC PRESSURE, THE REVERSE SHALL OCCUR. THE VFD WILL NOT BE MODULATED BUT WILL BE USED TO MANUALLY BALANCE THE FANS.
4. LEAD/LAG OPERATION. THE FANS SHALL BE LEAD/LAGGED BASED ON OWNER'S SCHEDULE. THE DDC SYSTEM SHALL CALCULATE THE RUNTIME FOR EACH FAN.

UNOCCUPIED MODE

1. THIS SYSTEM DOES NOT HAVE AN UNOCCUPIED MODE.

SAFETIES

1. FAN FAILURE. THE DDC CONTROLLER SHALL MONITOR THE OPERATION OF EACH EXHAUST FAN (VIA CURRENT SENSOR). ON A LEAD FAN FAILURE, THE DDC SHALL STOP THE FAILED FAN, SHUT THE FAILED FAN ISOLATION DAMPER, OPEN THE LAG FAN ISOLATION DAMPER, START THE LAG EXHAUST FAN, AND SEND AN ALARM TO THE BAS OPERATOR. THE DDC SYSTEM SHALL SEND AN ALARM TO THE BAS OPERATOR WHEN THE DUCT STATIC PRESSURE DROPS BELOW 0.3 IN.W.G. (ADJUSTABLE).
2. A LOW STATIC PRESSURE SWITCH IN THE EXHAUST FAN PLENUM SHALL BE USED TO MONITOR SYSTEM OVER PRESSURIZATION. IF THE PLENUM PRESSURE DROPS TO -5" W.G. (ADJUSTABLE), THE DDC SYSTEM SHALL SEND AN ALARM THROUGH THE DDC SYSTEM AND DE-ENERGIZE THE EXHAUST FANS.
3. FANS SHALL BE RE-ENABLED AND RETURNED TO NORMAL OPERATION WHEN ALARMS ARE CLEARED.

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MECHANICAL CONTROL DIAGRAM

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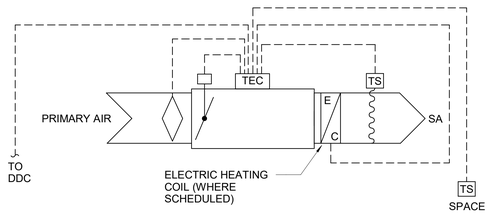
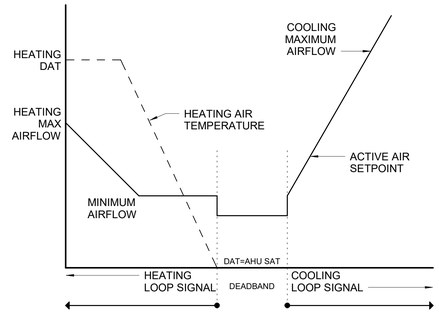




SPACE TEMPERATURE
SINGLE DUCT TEMPERATURE CONTROL CHART

POINT SUMMARY																											
	OUTPUT								INPUT													I/O	SOFTWARE			
	DIGITAL			ANALOG					DIGITAL						ANALOG											
SINGLE DUCT TERMINAL	START/STOP	OPEN/CLOSE	ON/OFF	4-20MA	0-10 VDC	1-18 PSI		OTHER	AUX. CONTACT	PRESSURE SWITCH	LOW TEMP SWITCH	END SWITCH	SMOKE DET. AUX.	CUR. MON. RELAY	TEMPERATURE	PRESSURE	FLOW (CFM, GPM)	HUMIDITY	OTHER	CO2	COMMUNICATIONS LINK	GRAPHIC	OTHER	ALARM	COMMENT
TERMINAL UNITS																						X			
HEATING COIL (WHERE SCHEDULED)					X																				
PRIMARY AIR DAMPER					X												X								
DISCHARGE AIR TEMPERATURE															X										
SPACE TEMPERATURE															X										

1 CONTROL SCHEMATIC - SINGLE DUCT TERMINAL BOX (ELEC HEAT)
NO SCALE

SINGLE DUCT TERMINAL BOX (CV, VV) WITH ELECTRIC REHEAT COIL SEQUENCE OF OPERATION

GENERAL

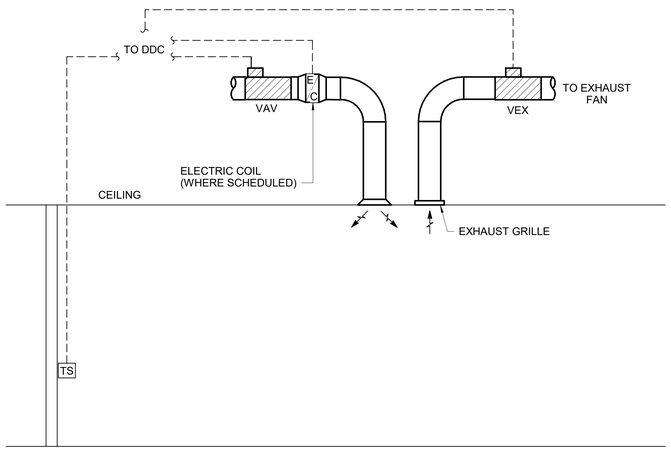
1. THE VAV BOXES SHALL BE CONTROLLED BY A FACTORY MOUNTED TERMINAL EQUIPMENT CONTROLLER (TEC). THE TEC SHALL USE PROPORTIONAL + INTEGRAL LOGIC OR OTHER TECHNOLOGY WITH SIMILAR PERFORMANCE. PROPORTIONAL-ONLY CONTROL IS NOT ACCEPTABLE, ALTHOUGH THE INTEGRAL GAIN SHALL BE SMALL RELATIVE TO THE PROPORTIONAL GAIN. P AND I GAINS SHALL BE ADJUSTABLE BY THE OPERATOR.
2. THE VAV TERMINAL UNIT IS CONTROLLED WITHIN USER DEFINED MAXIMUM AND MINIMUM SUPPLY AIR VOLUME SETTINGS. THE CONTROLLER MONITORS THE SPACE TEMPERATURE SENSOR AND AIR VELOCITY SENSOR AND MODULATES THE SUPPLY AIR DAMPER IN SEQUENCE WITH THE ELECTRIC HEATING COIL TO MAINTAIN THE ROOM TEMPERATURE AT SET POINT (ADJUSTABLE).
3. THE BOX SHALL BE ENABLED WHENEVER THE ASSOCIATED AHU IS IN OPERATION. WHEN THE BOX IS DISABLED, THE PRIMARY AIR DAMPER SHALL BE CLOSED AND ELECTRIC COIL DE-ENERGIZED.
4. REFER TO M-000 FOR SPACE TEMPERATURE SETPOINTS.

OCCUPIED MODE

1. COOLING
   A. THE COOLING LOOP SHALL BE ENABLED WHENEVER THE SPACE TEMPERATURE IS ABOVE THE CURRENT ZONE COOLING SET POINT TEMPERATURE AND DISABLED WHEN SPACE TEMPERATURE IS BELOW THE CURRENT ZONE COOLING SET POINT TEMPERATURE AND THE LOOP OUTPUT IS ZERO FOR 30 SECONDS.
   B. THE COOLING LOOP SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE COOLING SET POINT. THE OUTPUT OF THE LOOP SHALL BE A SOFTWARE POINT RANGING FROM 0% (NO COOLING, MINIMUM AIRFLOW) TO 100% (FULL COOLING, MAXIMUM AIRFLOW). THE ELECTRIC COIL SHALL BE DE-ENERGIZED.
2. DEADBAND
   A. WHEN THE ZONE IS IN DEADBAND (BETWEEN HEATING SET POINT AND COOLING SET POINT), THE ACTIVE AIRFLOW SET POINT SHALL BE THE MINIMUM AIRFLOW SET POINT. THE ELECTRIC COIL SHALL BE DE-ENERGIZED.
3. HEATING (WHERE HEATING COIL SCHEDULED)
   A. THE HEATING LOOP SHALL BE ENABLED WHENEVER THE SPACE TEMPERATURE IS BELOW THE CURRENT ZONE HEATING SET POINT TEMPERATURE AND DISABLED WHEN SPACE TEMPERATURE IS ABOVE THE CURRENT ZONE HEATING SET POINT TEMPERATURE AND THE LOOP OUTPUT IS ZERO FOR 30 SECONDS.
   B. THE HEATING LOOP SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE HEATING SET POINT. THE OUTPUT OF THE LOOP SHALL BE A SOFTWARE POINT RANGING FROM 0% (NO HEATING) TO 100% (FULL HEATING).
   C. WHEN THE ZONE IS IN HEATING, THE HEATING LOOP SHALL MAINTAIN SPACE TEMPERATURE AT THE HEATING SET POINT AS FOLLOWS:
      a. FROM 0%-50%, THE ELECTRIC COIL SHALL MODULATE TO MAINTAIN SPACE HEATING SET POINT TO A MAX DISCHARGE AIR TEMP AS SCHEDULED. THE ACTIVE AIR SET POINT IS EQUAL TO THE HEATING COIL MINIMUM AIRFLOW.
      b. FROM 51%-100%, THE HEATING LOOP OUTPUT SHALL MODULATE THE ACTIVE AIRFLOW SET POINT FROM THE MINIMUM AIRFLOW SET POINT TO THE MAXIMUM HEATING AIRFLOW SET POINT TO MAINTAIN SPACE HEATING SET POINT, AND MODULATE THE ELECTRIC COIL TO MAINTAIN SCHEDULED DISCHARGE AIR TEMPERATURE.
4. THE TEC SHALL MONITOR THE INLET AIR FLOW AND MODULATE THE DAMPER TO MAINTAIN PRESSURE INDEPENDENT CONTROL AT DESIGN AIR FLOW (ADJUSTABLE).
5. THE TEC SHALL MONITOR THE DISCHARGE AIR TEMPERATURE FOR ALL TERMINAL BOXES.

UNOCCUPIED MODE

1. THE SPACES DO NOT HAVE AN UNOCCUPIED MODE.



2 CONTROL SCHEMATIC - TERMINAL BOX ROOM PRESSURIZATION
NO SCALE

TERMINAL BOX ROOM PRESSURIZATION SEQUENCE OF OPERATION

1. THE ROOM SHALL CONSIST OF A SUPPLY BOX (VAV) AND AN EXHAUST BOX (VEX).
2. THE SUPPLY BOX SHALL MODULATE BETWEEN THE SCHEDULED MAXIMUM AND MINIMUM AIRFLOW TO MAINTAIN SPACE TEMPERATURE PER THE SEQUENCE DESCRIBED IN 1/M-702. WHEN THE SPACE TEMPERATURE DECREASES BELOW THE HEATING SETPOINT AND THE VAV BOX IS AT MINIMUM AIRFLOW, THE ELECTRIC REHEAT COIL (WHERE SCHEDULED) SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE.
3. THE EXHAUST BOX SHALL MODULATE TO MAINTAIN THE OFFSET SETPOINT (ADJUSTABLE) ACCORDING TO THE TABLE BELOW. POSITIVE (+) OFFSET INDICATES FLOW ENTERING THE AREA.

VAV BOX	VEX BOX	OFFSET SETPOINT
VAV-D0701	VEX-D0401	-540 CFM
VAV-D0702	VEX-D0402	130 CFM
VAV-D0703	VEX-D0403	-410 CFM

POINT SUMMARY																											
	OUTPUT								INPUT													I/O	SOFTWARE			
	DIGITAL			ANALOG					DIGITAL						ANALOG											
ROOM PRESSURIZATION	START/STOP	OTHER	ON/OFF	4-20MA	0-10 VDC	1-18 PSI		OTHER	AUX. CONTACT	PRESSURE SWITCH	LOW TEMP SWITCH	END SWITCH	OTHER	CUR. MON. RELAY	TEMPERATURE	PRESSURE	FLOW (CFM, GPM)	HUMIDITY	OTHER		COMMUNICATIONS LINK	GRAPHIC	OTHER	ALARM	COMMENT
SPACE TEMPERATURE															X											
SUPPLY BOX REHEAT COIL					X										X											WHERE SCHEDULED
SUPPLY DAMPER					X																					PER VAV
SUPPLY AIRFLOW																	X									PER VAV
EXHAUST DAMPER					X																					PER VEX
EXHAUST AIRFLOW																	X									PER VEX

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REVISIONS

NO	DESCRIPTION	DATE

M-702

MECHANICAL CONTROL DIAGRAM

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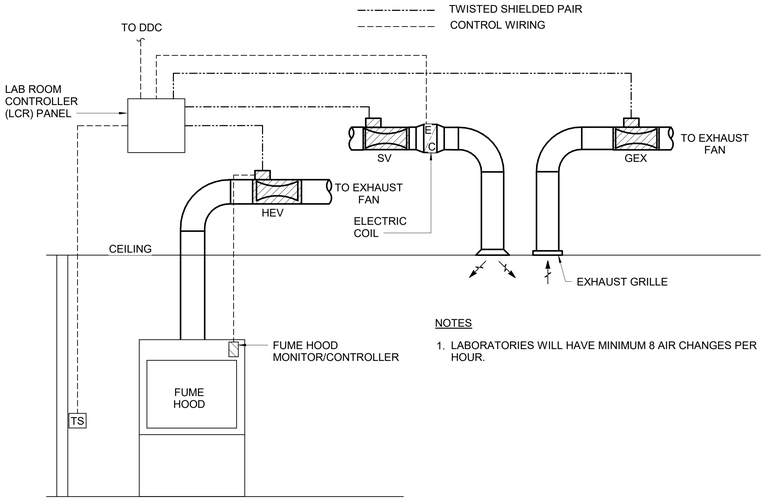

NOTES

1. LABORATORIES WILL HAVE MINIMUM 8 AIR CHANGES PER HOUR.

POINT SUMMARY

LAB WITH FUME HOOD	OUTPUT DIGITAL START/STOP	OUTPUT DIGITAL OTHER	OUTPUT DIGITAL ON/OFF	OUTPUT ANALOG 4-20MA	OUTPUT ANALOG 0-10 VDC	OUTPUT ANALOG 1-18 PSI	OUTPUT ANALOG OTHER	INPUT DIGITAL AUX. CONTACT	INPUT DIGITAL PRESSURE SWITCH	INPUT DIGITAL LOW TEMP SWITCH	INPUT DIGITAL END SWITCH	INPUT DIGITAL OTHER	INPUT DIGITAL CUR. MON. RELAY	INPUT ANALOG TEMPERATURE	INPUT ANALOG PRESSURE	INPUT ANALOG FLOW (CFM, GPM)	INPUT ANALOG HUMIDITY	INPUT ANALOG OTHER	I/O COMMUNICATIONS LINK	SOFTWARE GRAPHIC	SOFTWARE OTHER	SOFTWARE ALARM	COMMENT
CHEMICAL FUME HOODS (EA)																				X			
SASH HEIGHT																		X					
EXHAUST VALVE (HEV)					X											X							
PURGE BUTTON					X																		
FACE VELOCITY																					X	X	
HIGH FLOW ALARM																						X	
LOW FLOW ALARM																						X	
LABORATORIES (EA)																				X			
INFORMATION FROM THE LRC SYSTEM																				X			
SPACE TEMPERATURE														X									
SUPPLY VALVE REHEAT COIL					X									X									
ROOM SUPPLY AIR (SV)					X											X							
TOTAL EXHAUST AIR																					X		FLOW
GENERAL EXHAUST (GEX)					X											X							
FUME HOOD																							SEE FUME HOOD
COMPONENT FAILURE																				X		X	
CRITICAL ALARM																				X		X	
HIGH/LOW TEMPERATURE																						X	
HIGH/LOW SUPPLY AIRFLOW																						X	
HIGH/LOW EXHAUST AIRFLOW																						X	

1 CONTROL SCHEMATIC - TYPICAL LAB WITH FUME HOOD CONTROL

NO SCALE

LABORATORY WITH FUME HOOD SEQUENCE OF OPERATION

GENERAL

1. THE LABORATORY ENVELOPE SHALL CONSIST OF ONE LABORATORY ROOM SERVED BY ONE LABORATORY ROOM CONTROLLER, ONE SUPPLY TERMINAL (SV), FUME HOOD(S) TERMINAL (HEV), AND A GENERAL EXHAUST (GEX) TERMINAL. FOR LARGER LABORATORIES, WHERE TWO SUPPLY TERMINALS (SV) ARE INSTALLED, TREAT THE LABORATORY AS TWO SEPARATE LABORATORIES, EACH WITH ITS OWN SV, HEV, AND GEX TERMINAL.

OCCUPIED MODE

1. EACH FUME HOOD SHALL ACT INDEPENDENTLY TO MAINTAIN A 100 FOOT PER MINUTE (ADJUSTABLE) CONSTANT AVERAGE FACE VELOCITY AT SASH POSITION INDICATED ON SHEET M-000.
2. THE LAB CONTROL SYSTEM (LRC) SHALL MAINTAIN A CONSTANT OFFSET (ADJUSTABLE) BETWEEN THE SUM OF THE LABORATORY ROOM TOTAL EXHAUSTS (GENERAL AND FUME HOODS, AS APPLICABLE) AND THE MAKEUP/SUPPLY AIR VOLUME. THIS OFFSET SHALL BE INDEPENDENT OF THE EXHAUST VOLUME MAGNITUDE, AND SHALL REPRESENT THE VOLUME OF AIR THAT WILL ENTER THE ROOM FROM THE CORRIDOR OR OTHER ADJACENT SPACES. REFER TO SCHEDULES FOR OFFSET AIRFLOW FOR EACH SPACE AND AIR BALANCE PLAN.
3. THE SYSTEM SHALL INCREASE FLOW AT THE GENERAL EXHAUST VALVE UNDER THE CONDITIONS WHERE ADDITIONAL EXHAUST IS REQUIRED TO MAINTAIN THE ROOM'S AIRFLOW BALANCE.
4. THE OUTPUT SIGNAL FROM THE LABORATORY ROOM TEMPERATURE SENSOR SHALL BE PROPORTIONAL TO THE REQUIRED SUPPLY AIR VOLUME NEEDED TO MAINTAIN ROOM TEMPERATURE SETPOINT.
5. THE CONTROL SIGNAL FOR THE MAKEUP/SUPPLY AIR VALVE SHALL BE GENERATED BY COMPARING THE TEMPERATURE SENSOR SIGNAL TO THE TOTAL HOOD MAKEUP AIR SIGNAL. THE HIGHER OF THESE TWO SIGNALS SHALL BE SELECTED AND USED AS A VOLUME SETPOINT TO CONTROL THE MAKEUP/SUPPLY AIR CONTROL VALVE.
6. ON A CALL FOR INCREASED VOLUME THROUGH THE FUME HOOD TO MAINTAIN CONSTANT FACE VELOCITY AS THE SASH IS OPENED, THE CONTROLLER SHALL MODULATE THE GENERAL EXHAUST VALVE TO MINIMUM POSITION TO MAINTAIN LABORATORY PRESSURIZATION WITHOUT INCREASED ENERGY USAGE. WITH THE GENERAL EXHAUST VALVE AT MINIMUM POSITION, THE MAKEUP/SUPPLY AIR VALVE SHALL MODULATE OPEN TO MAINTAIN THE LABORATORY PRESSURIZATION. THE SPACE TEMPERATURE SENSOR SHALL MODULATE THE REHEAT COIL TO MAINTAIN ROOM TEMPERATURE SETPOINT. ON A DECREASE IN FUME HOOD VOLUME, THE REVERSE SHALL OCCUR.
7. WITH THE SUPPLY AIR VALVE AT MINIMUM VOLUME AND THE REHEAT COIL AT MAX OUTPUT, AN INCREASE IN LABORATORY TEMPERATURE SHALL CAUSE THE CONTROLLER TO MODULATE THE REHEAT COIL SCR CONTROLLER TO MAINTAIN SPACE SETPOINT. UPON A FURTHER INCREASE IN SPACE TEMPERATURE, THE LABORATORY CONTROLLER, IN ORDER TO MAINTAIN SPACE TEMPERATURE SETPOINT, SHALL MODULATE THE GENERAL EXHAUST VALVE OPEN, AND MODULATE THE MAKEUP/SUPPLY AIR VALVE TO TRACK THE GENERAL EXHAUST VALVE, INCREASING THE FLOW OF CONDITIONED AIR TO THE SPACE. ON A DECREASE IN SPACE TEMPERATURE, THE REVERSE SHALL OCCUR.
8. THE SYSTEM SHALL ALLOW A PREPROGRAMMED AND ADJUSTABLE MINIMUM FLOW SETPOINT FOR EACH FUME HOOD'S EXHAUST FLOW.
9. REFER TO THE I/O SUMMARY FOR ANY ADDITIONAL POINTS REQUIRED.
10. FOR CONSTANT VOLUME HOODS OR EQUIPMENT, THE EXHAUST VALVE SHALL MAINTAIN THE SCHEDULED CFM. THE VALVE SHALL HAVE THE CAPABILITY OF BEING REPROGRAMMED FOR ANOTHER CFM FROM THE OPERATOR WORKSTATION.

UNOCCUPIED MODES.

1. LABORATORIES SHALL NOT HAVE AN UNOCCUPIED MODE. THEREFORE, REDUCTION OF AIR CHANGES SHALL NOT OCCUR DURING UNOCCUPIED PERIODS.

SAFETIES

1. THE DDC SYSTEM SHALL ALARM BASED UPON THE ITEMS INDICATED IN THE POINT SUMMARY.
2. AHU SHUT-DOWN. UPON SHUT-DOWN OF THE AHU BY THE FIRE ALARM SYSTEM DUE TO THE DUCT SMOKE DETECTION, HIGH STATIC PRESSURE SWITCH, LOW STATIC PRESSURE SWITCH, OR LOW TEMPERATURE THERMOSTAT (FREEZESTAT), THE LABORATORY GENERAL EXHAUST TERMINALS FOR THE LABORATORIES SERVED BY THE SHUT-DOWN AHU SHALL BE OVERRIDDEN TO ZERO FLOW BY THE DDC SYSTEM (DOES NOT AFFECT HEV TERMINALS). THE GENERAL EXHAUST TERMINALS SHALL BE PLACED BACK INTO NORMAL OPERATION WHEN THE AHU IS BACK IN OPERATION.

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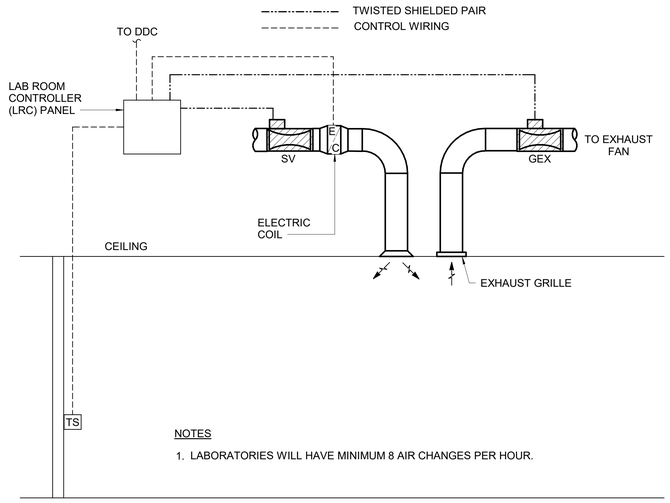
M-703

MECHANICAL CONTROL DIAGRAM

Treanor NO. HE0569.2402.00



NOTES

1. LABORATORIES WILL HAVE MINIMUM 8 AIR CHANGES PER HOUR.

LABORATORY CONTROL SEQUENCE OF OPERATION

GENERAL

1. THE LABORATORY ENVELOPE SHALL CONSIST OF ONE LABORATORY ROOM SERVED BY ONE LABORATORY ROOM CONTROLLER (LRC), ONE SUPPLY TERMINAL (SV), AND A GENERAL EXHAUST (GEX) TERMINAL. FOR LARGER LABORATORIES, WHERE TWO SUPPLY TERMINALS (SV) ARE INSTALLED, TREAT THE LABORATORY AS TWO SEPARATE LABORATORIES, EACH WITH ITS OWN SV AND GEX TERMINAL.

OCCUPIED MODE

1. THE LAB CONTROL SYSTEM (LRC) SHALL MAINTAIN A CONSTANT OFFSET (ADJ.) BETWEEN THE LABORATORY ROOM TOTAL EXHAUST AND THE MAKEUP/SUPPLY AIR VOLUME. THIS OFFSET SHALL BE INDEPENDENT OF THE EXHAUST VOLUME MAGNITUDE, AND SHALL REPRESENT THE VOLUME OF AIR THAT WILL ENTER THE ROOM FROM THE CORRIDOR OR OTHER ADJACENT SPACES. REFER TO SCHEDULES FOR OFFSET AIRFLOW FOR EACH SPACE.
2. THE SYSTEM SHALL INCREASE FLOW AT THE GENERAL EXHAUST VALVE UNDER THE CONDITIONS WHERE ADDITIONAL EXHAUST IS REQUIRED TO MAINTAIN THE ROOM'S AIRFLOW BALANCE.
3. THE OUTPUT SIGNAL FROM THE LABORATORY ROOM TEMPERATURE SENSOR SHALL BE PROPORTIONAL TO THE REQUIRED SUPPLY AIR VOLUME NEEDED TO MAINTAIN ROOM TEMPERATURE SETPOINT. THE CONTROL SIGNAL FOR THE MAKEUP/SUPPLY AIR VALVE SHALL BE GENERATED BY THE TEMPERATURE SENSOR SIGNAL.
4. WHEN THE SPACE TEMPERATURE DROPS BELOW THE HEATING SETPOINT AND THE SUPPLY AIR VALVE IS AT MINIMUM AIRFLOW, THE LRC SHALL MODULATE THE REHEAT COIL TO MAINTAIN ROOM TEMPERATURE SETPOINT.
5. REFER TO THE I/O SUMMARY FOR ANY ADDITIONAL POINTS REQUIRED.

UNOCCUPIED MODE

1. THE LABORATORIES DO NOT HAVE AN UNOCCUPIED MODE.

SAFETIES

1. THE DDC SYSTEM SHALL ALARM BASED UPON THE ITEMS INDICATED IN THE POINT SUMMARY.

POINT SUMMARY

LAB CONTROL	OUTPUT									INPUT										I/O	SOFTWARE			COMMENT
	DIGITAL			ANALOG				DIGITAL						ANALOG										
	START/STOP	OTHER	ON/OFF	4-20MA	0-10 VDC	1-18 PSI	OTHER	AUX. CONTACT	PRESSURE SWITCH	LOW TEMP SWITCH	END SWITCH	OTHER	CUR. MON. RELAY	TEMPERATURE	PRESSURE	FLOW (CFM, GPM)	HUMIDITY	OTHER	COMMUNICATIONS LINK	GRAPHIC	OTHER	ALARM	
LABORATORIES (EA)																				X			
INFORMATION FROM THE LRC SYSTEM																				X			
SPACE TEMPERATURE														X									
SUPPLY VALVE REHEAT COIL					X									X									
ROOM SUPPLY AIR (SV)					X											X							
GENERAL EXHAUST (GEX)					X											X							
COMPONENT FAILURE																				X		X	
CRITICAL ALARM																				X		X	
HIGH/LOW TEMPERATURE																						X	
HIGH/LOW SUPPLY AIRFLOW																						X	
HIGH/LOW EXHAUST AIRFLOW																						X	

1 CONTROL SCHEMATIC - TYPICAL LAB CONTROL
NO SCALE

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M-704

MECHANICAL CONTROL DIAGRAM

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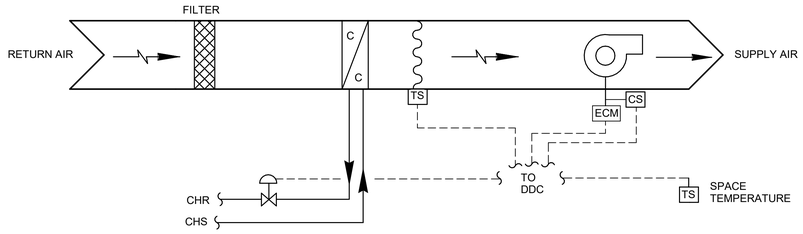

POINT SUMMARY																												
	OUTPUT								INPUT												I/O	SOFTWARE			
	DIGITAL				ANALOG				DIGITAL							ANALOG												
FAN COIL UNIT	START/STOP	OTHER	ON/OFF	4-20MA	0-10 VDC	1-18 PSI	OTHER		AUX. CONTACT	PRESSURE SWITCH	LOW TEMP SWITCH	END SWITCH	OTHER	CUR. MON. RELAY		TEMPERATURE	PRESSURE	FLOW (CFM, GPM)	HUMIDITY	OTHER	COMMUNICATIONS LINK	GRAPHIC	OTHER	ALARM	COMMENT
FAN COIL UNITS																						X			
SUPPLY FAN (ECM)	X													X										X	
DISCHARGE AIR TEMPERATURE																X									
COOLING COIL CONTROL VALVE					X																				
SPACE TEMPERATURE (ADJUSTABLE)																X								X	

FAN COIL UNIT SEQUENCE OF OPERATION

1. FCU SHALL CONSIST OF A SUPPLY FAN, MERV-6 PRE-FILTER, AND COOLING COIL.
2. THE UNIT IS INTENDED TO OPERATE CONTINUOUSLY. FCU SHALL BE STARTED AND STOPPED THROUGH THE DDC. WHEN THE UNIT IS ENERGIZED, DDC SHALL MODULATE THE NORMALLY OPEN CHW VALVE TO MAINTAIN ROOM TEMPERATURE SETPOINT 72°F (ADJUSTABLE).

SPACE TYPE	SETPOINT
IDF ROOM	72°F

3. A CURRENT SENSOR WILL BE UTILIZED TO VERIFY PROOF OF RUN.
4. IF THE SPACE REACHES A TEMPERATURE OF 76°F (ADJUSTABLE), A HIGH SPACE TEMPERATURE ALARM SHALL BE SENT TO THE DDC.

1 CONTROL SCHEMATIC - FAN COIL UNIT
NO SCALE

POINT SUMMARY																												
	OUTPUT								INPUT												I/O	SOFTWARE			
	DIGITAL				ANALOG				DIGITAL							ANALOG												
MISCELLANEOUS MECHANICAL	START/STOP	OTHER	ON/OFF	4-20MA	0-10 VDC	1-18 PSI	OTHER		AUX. CONTACT	PRESSURE SWITCH	LOW TEMP SWITCH	END SWITCH	OTHER	CUR. MON. RELAY		TEMPERATURE	PRESSURE	FLOW (CFM, GPM)	HUMIDITY	OTHER	COMMUNICATIONS LINK	GRAPHIC	OTHER	ALARM	COMMENT
VFD (TYPICAL, VIA BACNET)																						X			
START/STOP	X																					X			
SPEED SIGNAL					X																				
SPEED FEEDBACK																				X					
RUNTIME HOURS																				X					
HAND/AUTO SELECTION INDICATION													X												
DRIVE AMPS																				X					
FAILURE													X												

POINT SUMMARY																												
	OUTPUT								INPUT												I/O	SOFTWARE			
	DIGITAL				ANALOG				DIGITAL							ANALOG												
MISCELLANEOUS PLUMBING	START/STOP	OTHER	ON/OFF	4-20MA	0-10 VDC	1-18 PSI	OTHER		AUX. CONTACT	PRESSURE SWITCH	LOW TEMP SWITCH	END SWITCH	OTHER	CUR. MON. RELAY		TEMPERATURE	PRESSURE	FLOW (CFM, GPM)	HUMIDITY	OTHER	COMMUNICATIONS LINK	GRAPHIC	OTHER	ALARM	COMMENT
RO/DI WATER SYSTEM																					X	X			ALTERNATE 4
LOW CONDUCTIVITY ALARM									X															X	
TANK HIGH LEVEL ALARM									X															X	
TANK LOW LEVEL ALARM									X															X	
PUMP ALARM									X															X	
UV LIGHT OUT ALARM									X															X	

MISCELLANEOUS EQUIPMENT SEQUENCE OF OPERATION

MECHANICAL EQUIPMENT

1. VARIABLE FREQUENCY DRIVES. THE DDC SYSTEM SHALL MONITOR THE POINTS INDICATED IN THE POINT SUMMARY.

PLUMBING EQUIPMENT (ALTERNATE 4)

1. THE DDC SHALL MONITOR ALARMS (VIA AUX. CONTACTS) FOR RO WATER SYSTEM AS INDICATED IN THE POINT SUMMARY AND AS FOLLOWS (DISPLAY STATUS OF ALL ITEMS INDICATED BELOW).
2. RO WATER SYSTEM. THE RO WATER WILL BE PROVIDED WITH A CONTROL PANEL WITH DRY CONTACTS. THE SYSTEM SHALL ALARM BASED ON THE FOLLOWING: STORAGE TANK LOW WATER ALARM, CONDUCTIVITY ALARM, UV LIGHT OUT, STORAGE TANK HIGH WATER ALARM, AND PRESSURIZATION PUMP FAILURE.

2 CONTROL SCHEMATIC - MISCELLANEOUS POINTS
NO SCALE

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MECHANICAL CONTROL DIAGRAM

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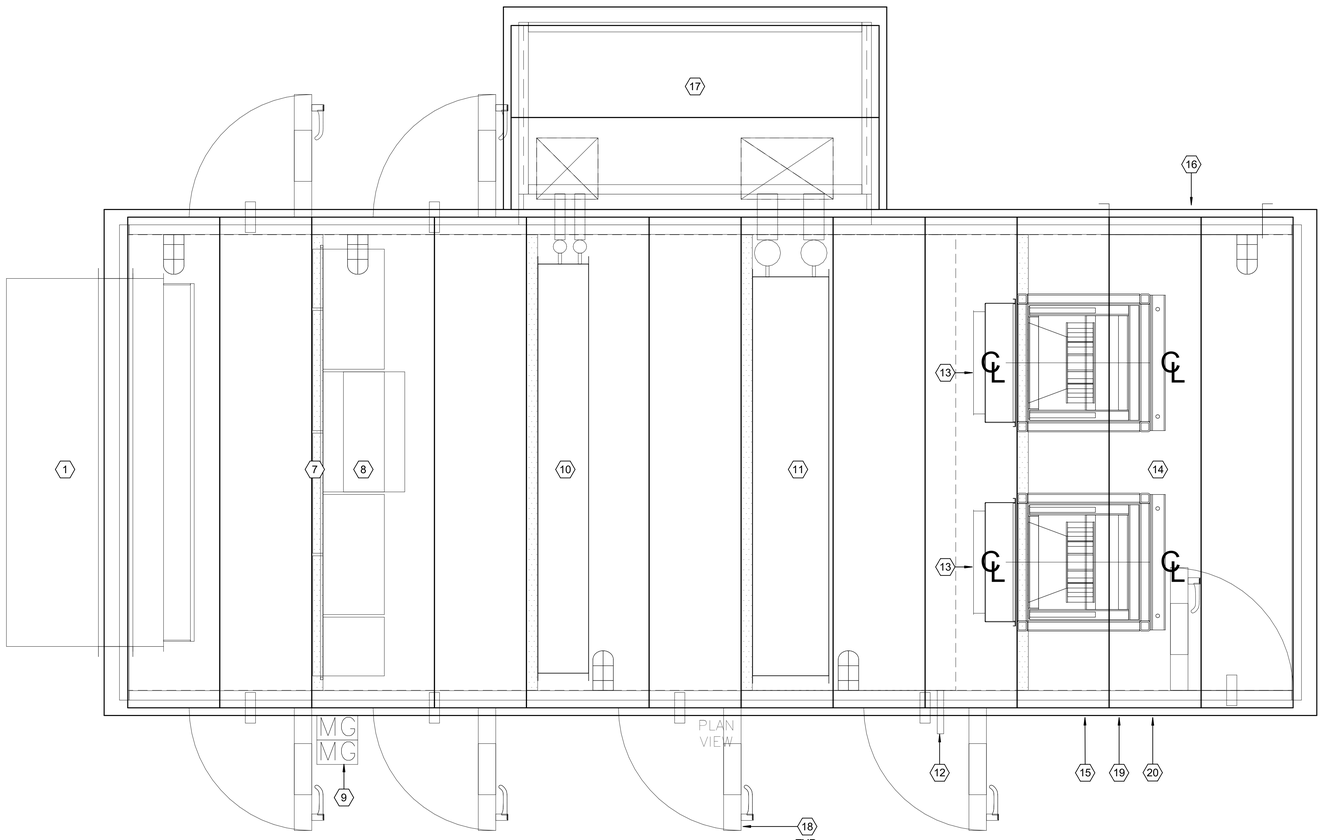

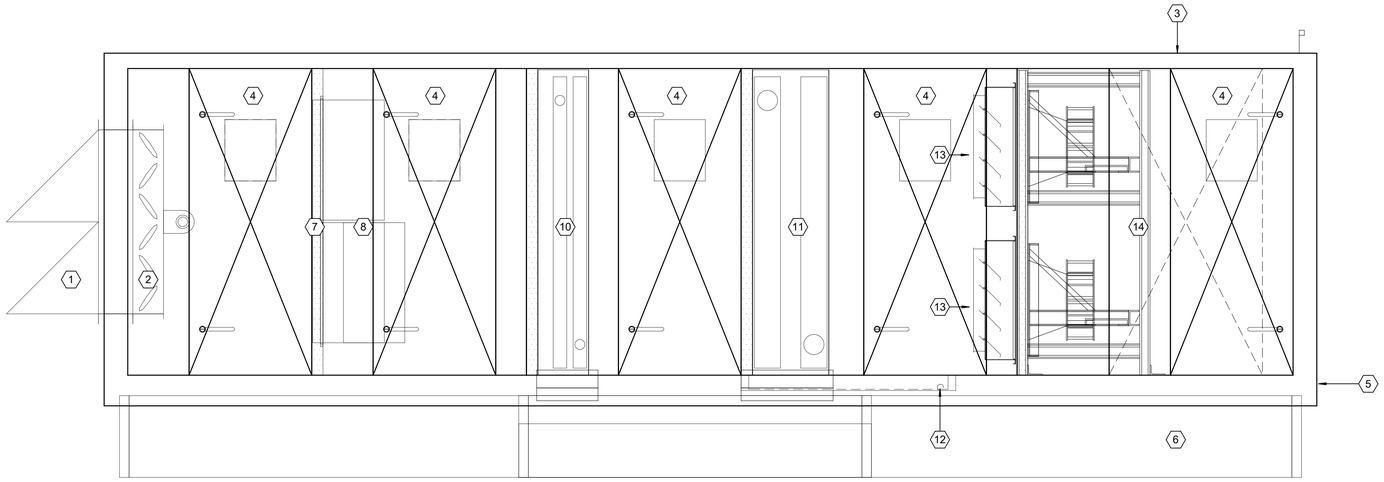

ELEVATION
VIEW

1 AIR HANDLING UNIT COMPONENT DIAGRAM
NO SCALE

KEYED NOTES - M-800

1. OUTSIDE AIR INTAKE WITH WEATHERHOOD. INTAKE OPENING SHALL BE MINIMUM 12" ABOVE THE FINISHED ROOF.
2. AHU MANUFACTURER TO PROVIDE A UNIT MOUNTED MOTORIZED ISOLATION DAMPER.
3. OUTDOOR AHU SHALL HAVE A SLOPED ROOF TO PREVENT PONDING OF WATER.
4. AHU MANUFACTURER TO FURNISH AND INSTALL LIGHTS IN ALL SECTIONS.
5. MINIMUM 6" HIGH BASERAIL.
6. AHU MANUFACTURER TO FURNISH ROOF CURB.
7. FILTER SECTION. FURNISH AND INSTALL MERV-8 PREFILTER BANK.
8. FILTER SECTION. FURNISH AND INSTALL MERV-11 FILTER BANK.
9. FILTER DIFFERENTIAL PRESSURE GAUGE LOCATED ON EXTERIOR OF UNIT. FURNISH AND INSTALL A FILTER GAUGE PER FILTER BANK.
10. HOT WATER PREHEAT COIL SECTION.
11. CHILLED WATER COOLING COIL SECTION.
12. CONDENSATE DRAIN PAN WITH DRAIN CONNECTION.
13. PROVIDE EACH FAN WITH A COUNTERBALANCE GRAVITY BACKDRAFT DAMPER.
14. SUPPLY FAN ARRAY SECTION. REFER TO AHU SCHEDULE FOR FAN QUANTITY.
15. MOTOR CONTROL PANEL FOR ELECTRICAL CONNECTION TO AHU. EXACT LOCATION TO BE DETERMINED BY AHU MANUFACTURER.
16. SUPPLY AIR OUTLET OPENING. COORDINATE LOCATION AND SIZE WITH MECHANICAL DRAWINGS.
17. INSULATED PIPING VESTIBULE WITH ACCESS DOOR. COORDINATE LOCATION WITH MECHANICAL PLANS. PIPING VESTIBULE DEPTH SHALL BE MINIMUM 36".
18. FULL HEIGHT ACCESS DOOR WITH WINDOW AT EVERY SECTION. FOR POSITIVELY PRESSURIZED SECTIONS, PROVIDE INWARD OPENING DOORS OR DOORS WITH HANDLES THAT WILL CATCH TO RELIEVE PRESSURE PRIOR TO COMPLETELY OPENING.
19. GFI 120V CONVENIENCE OUTLET TO JUNCTION BOX FOR CONNECTION BY DIVISION 26.
20. LIGHT SWITCH SHALL OPERATE ALL LIGHTS. MANUFACTURER TO FACTORY WIRE ALL LIGHTS TO A SINGLE POINT CONNECTION.

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M-800

MECHANICAL COMPONENT DIAGRAM

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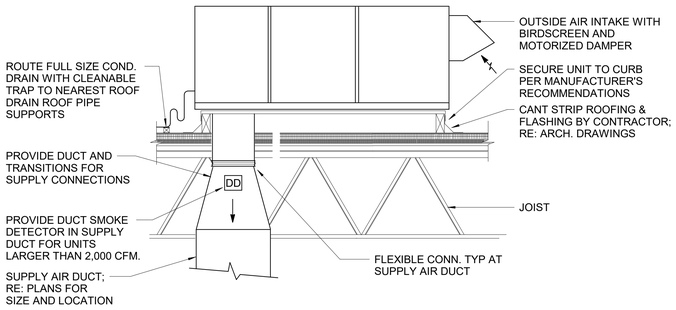
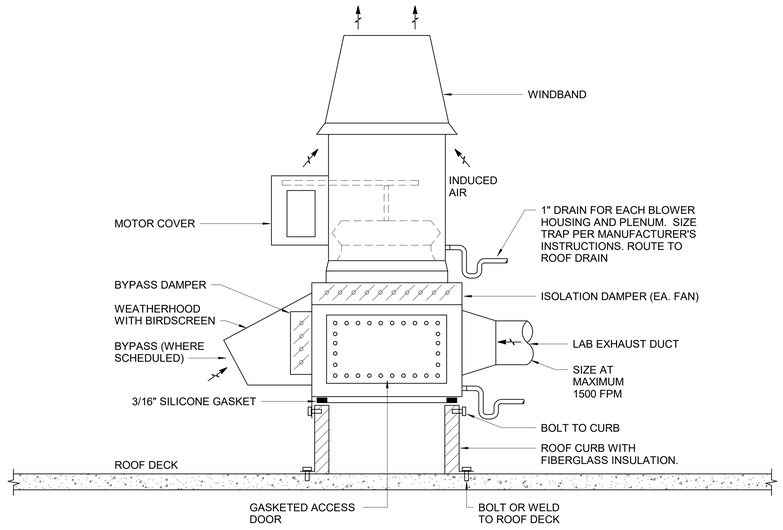


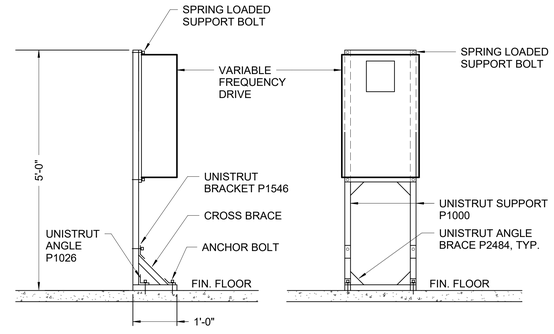
NOTES:

1. LIFT AND INSTALL RTU PER MFG. INSTALLATION INSTRUCTIONS.
2. REFER TO SPECIFICATIONS FOR ACCESSORY REQUIREMENTS, e.g. HUMIDIFIER.
3. CONTRACTOR SHALL COORDINATE CURB HEIGHT REQUIRED FOR PROPER FLASHING.

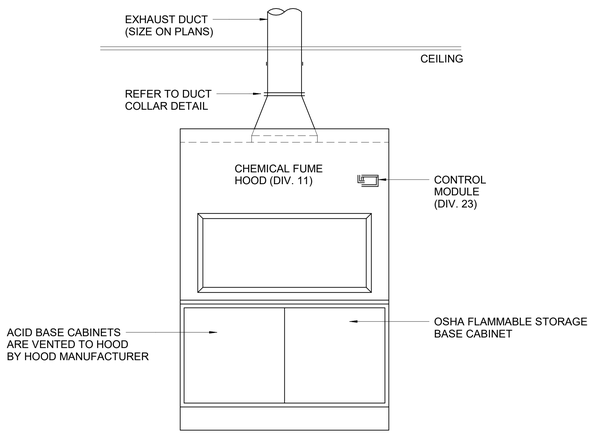
1 ROOF TOP AIR HANDLING UNIT
NO SCALE



2 EXHAUST FAN W/ SIDE INLET
NO SCALE



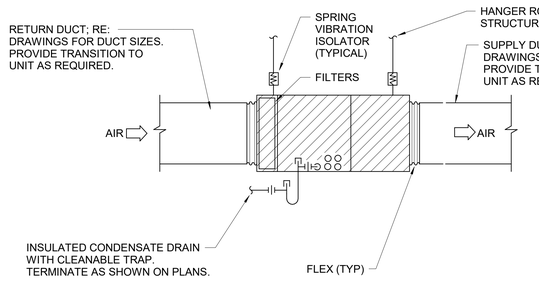
3 EQUIPMENT VFD SUPPORT (STRUT FRAMING)
NO SCALE



NOTES:

1. FLAMMABLE STORAGE CABINETS ARE NOT VENTED.
2. GENERAL CONTRACTOR TO COORDINATE INSTALLATION OF ALL UTILITIES AT EACH HOOD TO ALLOW ACCESS AT ALL VALVES, OUTLETS, ETC.

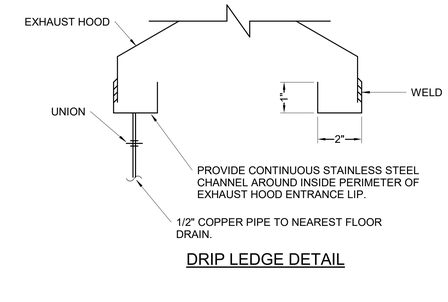
4 FUME HOOD (NON VENTED CABINET)
NO SCALE



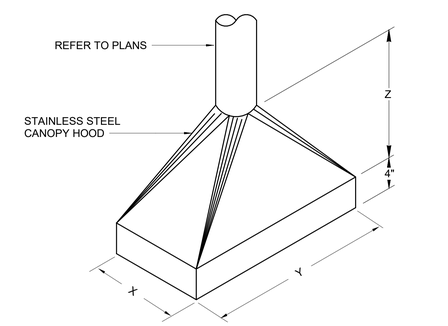
NOTES:

1. REFER TO DETAILS ON M-901 FOR COIL CONNECTION PIPING.

5 FAN COIL - HORIZONTAL DUCTED
NO SCALE



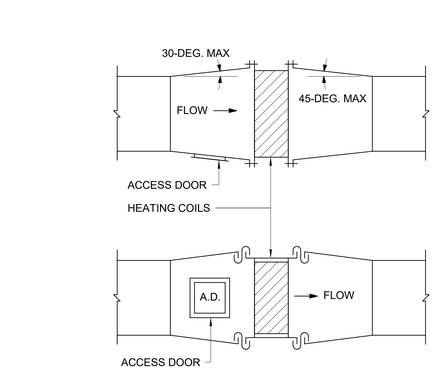
DRIP LEDGE DETAIL



NOTES:

1. INSTALL HOOD CENTERED ABOVE ENTRY AND EXIT DOORS. BOTTOM OF HOOD SHALL NOT INTERFERE WITH DOOR SWING OR OPERATION OF STERILIZER.
2. SUPPORT HOOD BY INSTALLING STAINLESS STEEL ANGLES AT THE BOTTOM OF EACH CORNER (4 PER HOOD) AND SUPPORT THE ANGLES USING A MIN. 1/2" THREADED S.S. RODS. PROVIDE S.S. ESCUTCHEON WHERE THE HANGER RODS PENETRATE THE CEILING.
3. REFER TO DRIP LEDGE DETAIL.

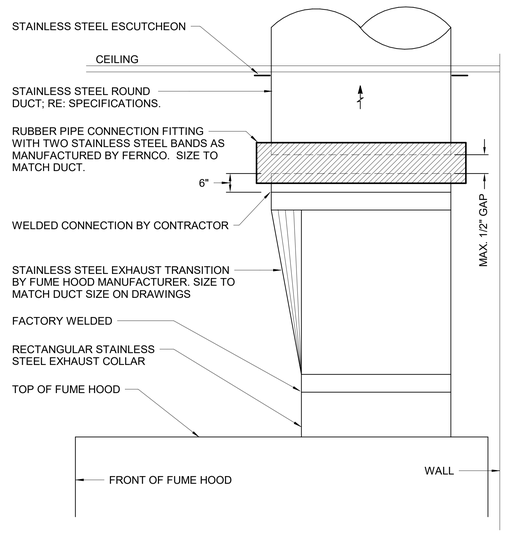
6 LAB CONNECTION - (CANOPY HOOD)
NO SCALE



NOTES:

1. HEATING COILS MAY BE DIRECTLY CONNECTED TO DUCT.
2. INSULATE COIL U-BENDS.
3. PROVIDE EXTENSION HANDLES FOR ACCESS DOOR CLOSERS.

7 DUCT CONNECTION - REMOTE HEATING COIL
NO SCALE



8 HOOD CONNECTION (DUCT COLLAR)
NO SCALE

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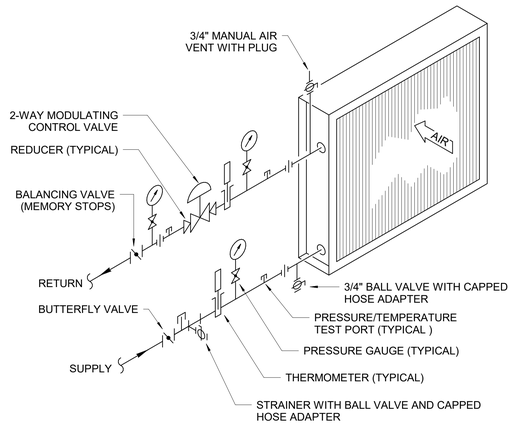
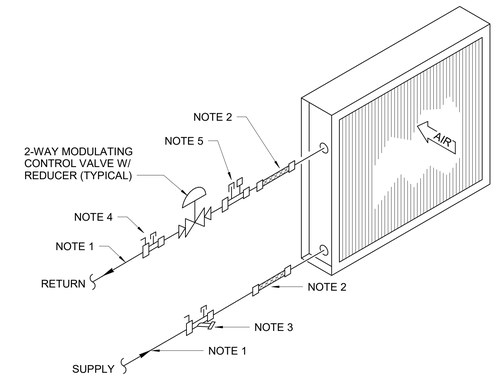


NOTES:

1. WHERE PIPE SIZE IS 2" OR SMALLER, PROVIDE BALL VALVE IN LIEU OF BUTTERFLY ISOLATION VALVE.
2. INSTALL UNIONS OR FLANGES IN PIPE LOCATIONS OUT OF WAY TO PERMIT COIL REMOVAL.
3. FOR TERMINAL AND FAN COIL UNITS PIPING, PROVIDE PRESSURE/TEMPERATURE TEST PLUGS ONLY. PRESSURE GAUGES AND THERMOMETERS ARE NOT REQUIRED.
4. PROVIDE REDUCERS AT EQUIPMENT CONNECTIONS AS REQUIRED.
5. CONNECT COILS IN COUNTER FLOW ARRANGEMENT.
6. PROVIDE UNIONS OR FLANGES IMMEDIATELY UPSTREAM AND DOWNSTREAM OF CONTROL VALVE.
7. 3/4" BALL VALVE WITH CAPPED HOSE ADAPTER CAN BE OMITTED IF STRAINER IS AT LOW PART OF PIPING.

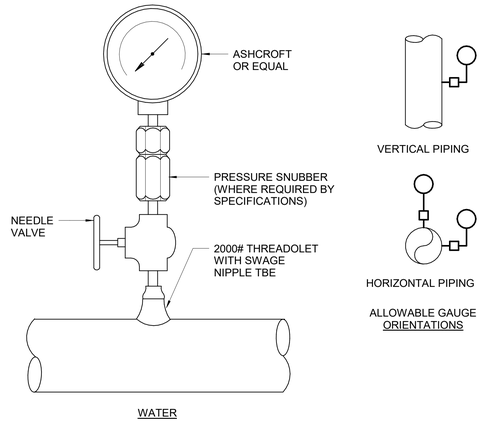
1 COIL CONNECTION - 2WAY CONTROL VALVE
NO SCALE



NOTES:

1. MINIMUM 3/4" PIPING SIZE OR LARGER WHERE SHOWN ON DRAWINGS.
2. MAX. 18" STAINLESS STEEL HOSE WITH UNION CONNECTION.
3. COMBINATION BALL VALVE, PRESSURE / TEMPERATURE PORT, STRAINER WITH BLOWDOWN VALVE AND UNION END.
4. COMBINATION BALL VALVE WITH MEMORY STOP, PRESSURE / TEMPERATURE PORT AND UNION END.
5. COMBINATION UNION, PRESSURE / TEMPERATURE TEST POINT, AND MANUAL AIR VENT.

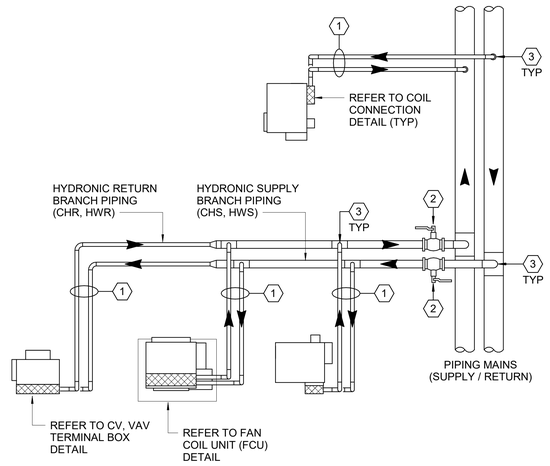
2 COIL CONNECTION - 2WAY CONTROL VALVE W/ COIL PACK
NO SCALE



NOTES:

1. GAUGE RANGE TO BE FROM 0 PSIG TO 125% OF DESIGN OPERATING PRESSURE.
2. GAUGE SHOWN INSTALLED IN HORIZONTAL PIPING. REFER TO ALLOWABLE GAUGE ORIENTATION FOR OTHER ACCEPTABLE CONFIGURATIONS.

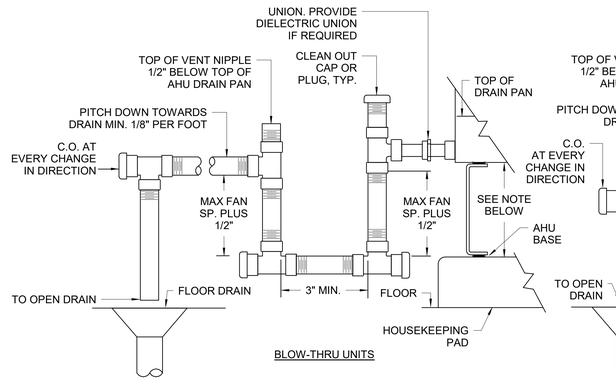
3 PIPE - PRESSURE GAUGE (WATER)
NO SCALE



KEYED NOTES:

1. BRANCH PIPING TO EQUIPMENT SHALL BE 3/4" UNLESS OTHERWISE NOTED.
2. PROVIDE ISOLATION VALVE AT BRANCH PIPING TAP OFF WHERE PIPING SERVES MORE THAN ONE PIECE OF EQUIPMENT. PROVIDE BALL VALVE ON PIPING 2" AND SMALLER, AND BUTTERFLY VALVE ON PIPING 2 1/2" AND LARGER.
3. PROVIDE TOP TAP OFF WHENEVER POSSIBLE.

4 PIPE - BRANCH RUNOUT DESIGN
NO SCALE

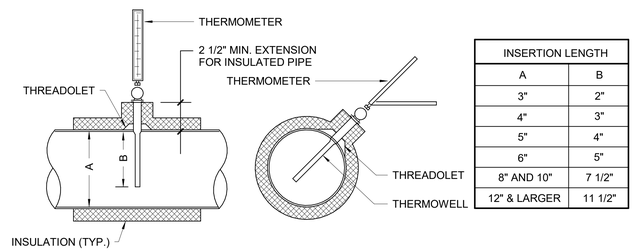


NOTES (APPLIES TO BOTH BLOW-THRU AND DRAW-THRU UNITS):

1. MAX S.P. REFERS TO THE MAXIMUM STATIC PRESSURE PRODUCED BY THE FAN AS INDICATED IN AHU SCHEDULE.
2. HEIGHT OF THE AHU BASE TO BE NO LESS THAN THE CALCULATED HEIGHT OF THE P-TRAP PLUS ONE INCH FOR CLEANING, PLUS AN ADDITIONAL 1/8" PER FOOT AS REQUIRED FOR ROUTING THE CONDENSATE TO THE FLOOR DRAIN.
3. INSULATE CONDENSATE PIPING; RE: SPECIFICATIONS.
4. CONDENSATE DRAIN SIZING CHART: PROVIDE DRAIN PIPING AS SHOWN BELOW OR SIZE SAME DRAIN PORT, WHICHEVER IS GREATER.

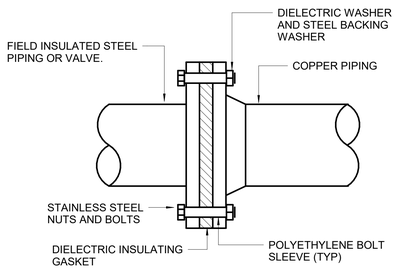
TOTAL COOLING COIL BTU	DRAIN SIZE (MIN.)
0-24,000	3/4"
24,001-60,000	1"
60,001-360,000	1-1/4"
360,001-600,000	1-1/2"
600,001-2,040,000	2"
2,040,001-3,600,000	3"

5 CONDENSATE DRAIN
NO SCALE

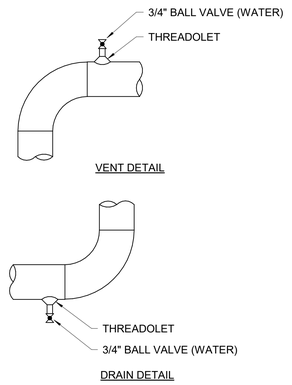


INSERTION LENGTH	
A	B
3"	2"
4"	3"
5"	4"
6"	5"
8" AND 10"	7 1/2"
12" & LARGER	11 1/2"

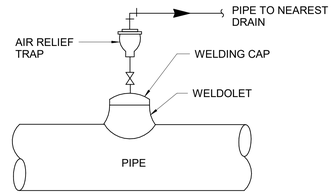
6 PIPE - THERMOMETER (HORIZONTAL)
NO SCALE



7 DIELECTRIC FLANGE DETAIL
NO SCALE



8 PIPE - DRAIN AND VENT
NO SCALE



9 AIR RELIEF VALVE DETAIL
NO SCALE

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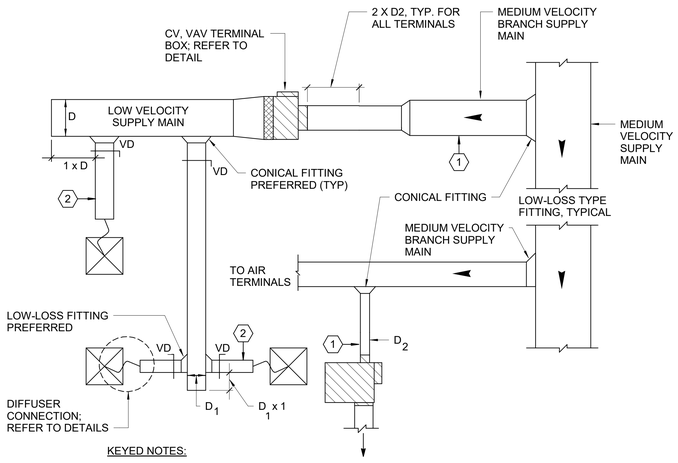
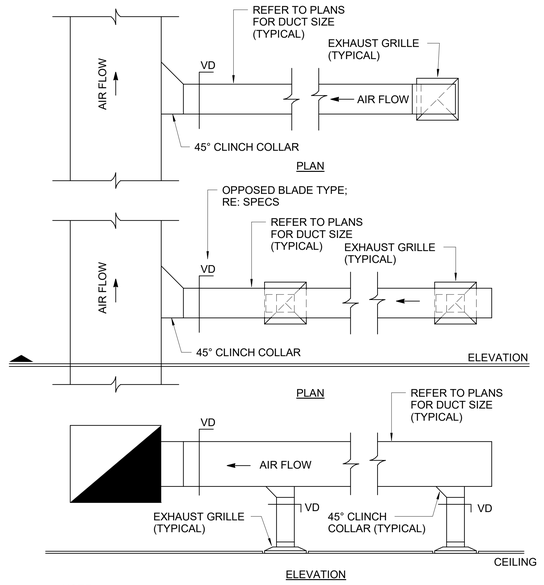


KEYED NOTES:

1. SAME SIZE AS BOX INLET UNLESS INDICATED ON DRAWINGS.
2. RUNOUTS TO DIFFUSERS SHALL BE SAME AS DIFFUSER NECK SIZE UNLESS INDICATED ON DRAWINGS.

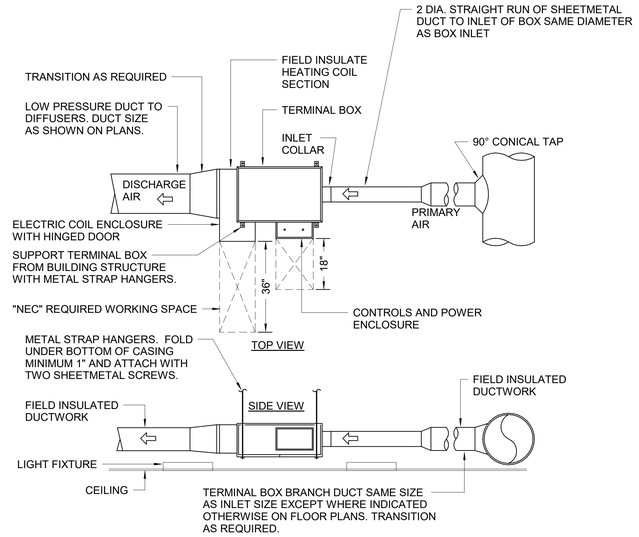
1 DUCT CONNECTION - BRANCH TAKE-OFF
NO SCALE



NOTE:

45° CLINCH COLLAR MAY NOT BE SHOWN ON PLANS AT ALL LOCATIONS. 45° CLINCH COLLAR MUST BE PROVIDED.

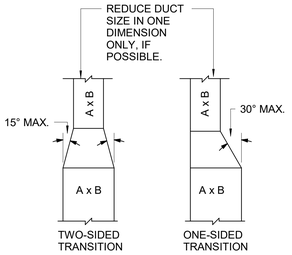
2 EXHAUST GRILLE & RECTANGULAR BRANCH
NO SCALE



NOTES:

1. DO NOT INSTALL TERMINAL BOX DIRECTLY OVER LIGHT FIXTURES.
2. DO NOT INSTALL TERMINAL BOX OVER CABLE TRAY.
3. REFER TO PLANS FOR DUCT SIZES.

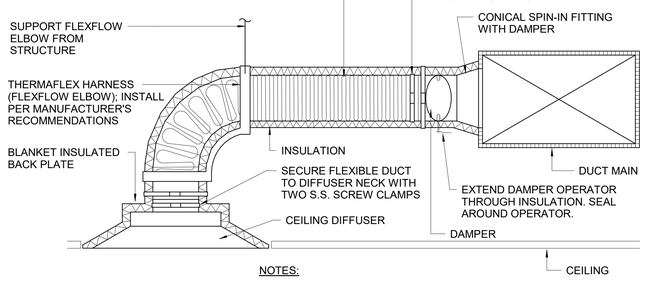
3 TERMINAL BOX W/ ELEC HEAT (CV & VAV)
NO SCALE



NOTES:

1. FLAT ON ONE SIDE AND/OR FLAT ON BOTTOM PREFERRED.

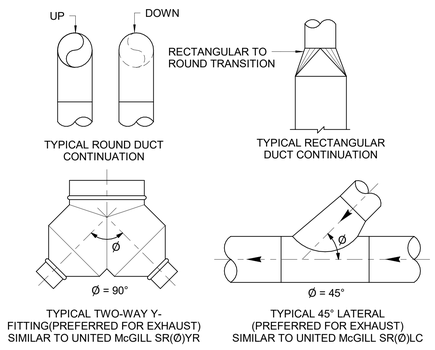
4 DUCT CONNECTION - RECTANGULAR TRANSITIONS
NO SCALE



NOTES:

1. SEAL ALL JOINTS PER SPECIFICATIONS.
2. FLEX DUCT SAG LIMITED TO 1/2" PER FOOT.
3. MAX 30° OFFSET ALLOWED IN FLEX DUCT ROUTING.

5 CEILING DIFFUSER CONNECTION
NO SCALE



6 DUCT STANDARDS - ROUND
NO SCALE

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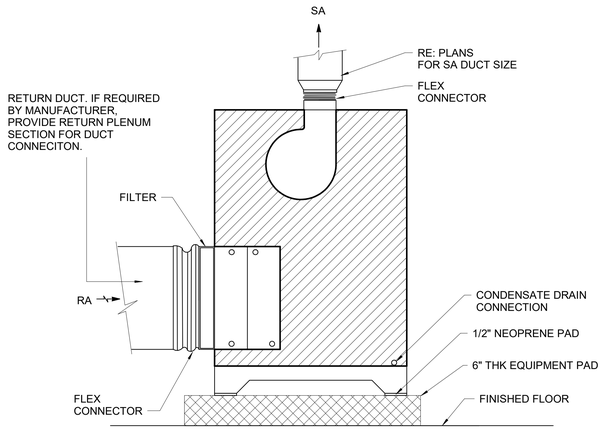
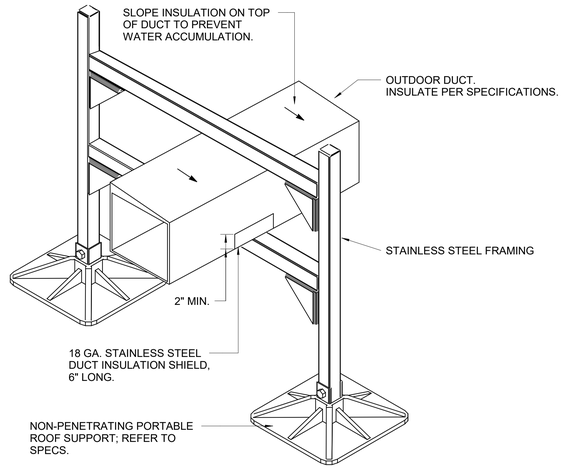
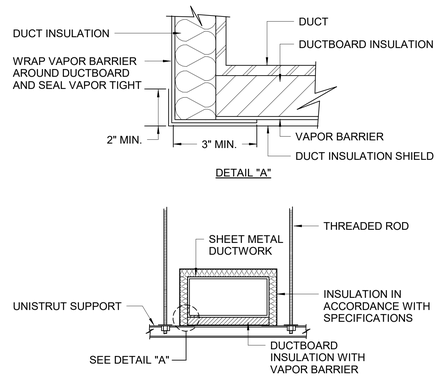


1 FAN COIL - VERTICAL FLOOR MOUNTED
NO SCALE



2 SUPPORT - DUCT (PORTABLE)
NO SCALE



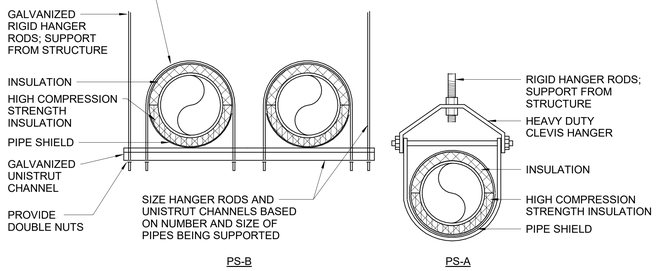
3 SUPPORT - DUCT RECTANGULAR (STRUT FRAMING)
NO SCALE

NOTES:

1. PAINT SUPPORT SAME AS PIPING.
2. PROVIDE GRINNELL FIGURE 201 ON PIPING 2" AND SMALLER.
3. INSULATE PIPING PER THE SPECIFICATIONS.

4 SUPPORT - PIPE (RISER CLAMP)
NO SCALE

HANGER ROD SCHEDULE (CLEVIS)			
PIPE SIZE	ROD SIZE	PIPE SIZE	ROD SIZE
UP TO 2"	3/8"	4" thru 5"	5/8"
2 1/2" thru 3"	1/2"	6" thru 14"	7/8"



PS-B PS-A

5 SUPPORT - PIPE (STRUT FRAMING & CLEVIS)
NO SCALE

6 SUPPORT CONNECTION - BEAM CLAMP
NO SCALE

7 SUPPORT CONNECTION - C CLAMP
NO SCALE

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MECHANICAL DETAILS

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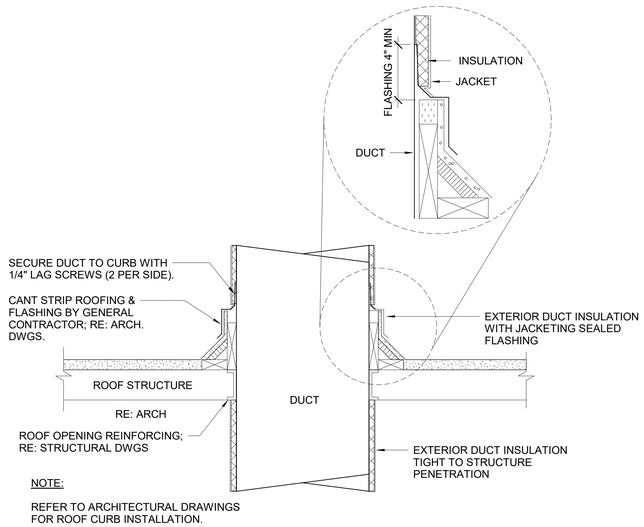
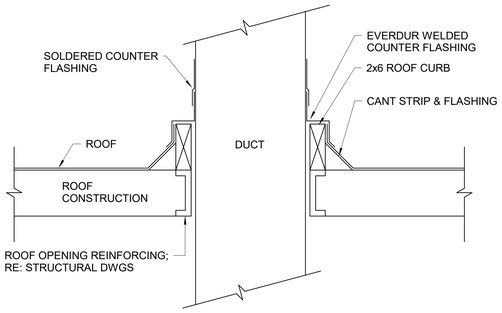


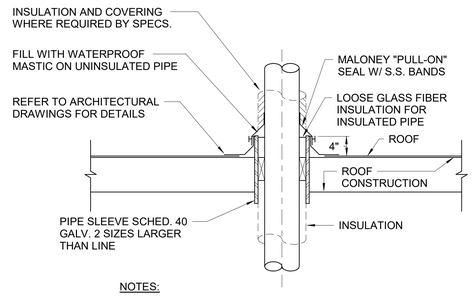
NOTE:

REFER TO ARCHITECTURAL DRAWINGS FOR ROOF CURB INSTALLATION.

1 DUCT THRU ROOF (INSULATED)
NO SCALE



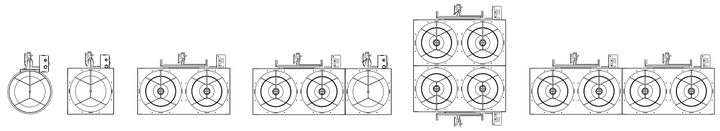
2 DUCT THRU ROOF (NON-INSULATED DUCTWORK)
NO SCALE

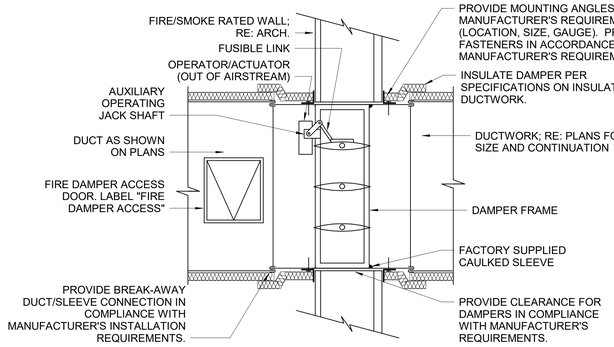


NOTES:

1. ON PIPE LESS THAN LESS 2", INCREASE TO 2" THRU ROOF.

3 PIPE PENETRATION THRU ROOF
NO SCALE

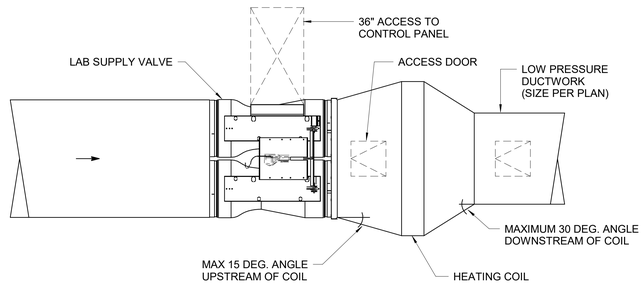




NOTES:

1. PROVIDE ACCESS DOORS IN DUCT WORK ON ACCESSIBLE SIDE OF FIRE-RATED WALL.
2. REFER TO ARCHITECTURAL PLANS FOR FRAMING DETAIL.
3. INSTALLATION SHALL CONFORM TO UL STANDARD 555S AND SMACNA "FIRE, SMOKE AND RADIATION DAMPER INSTALLATION GUIDE FOR HVAC SYSTEMS".
4. THIS DETAIL ALSO APPLIES TO MULTI-BLADE FIRE DAMPERS.

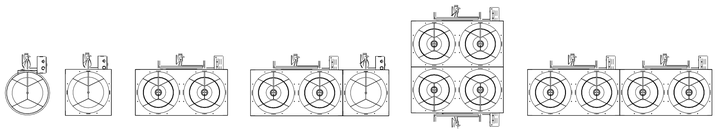
4 PENETRATION THRU FIRE RATED WALL (FIRE/SMOKE DAMPER)
NO SCALE

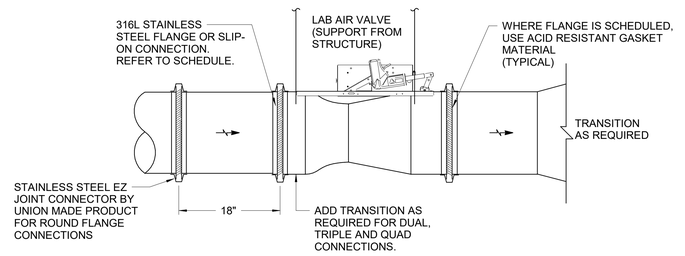


NOTES:

1. REFER COIL INSTALLATION DETAILS.
2. INSULATE HEATING COIL AND TUBE ENDS SAME AS ADJACENT DUCTWORK.
3. SUPPORT LAB SUPPLY VALVE INDEPENDENTLY FROM DUCTWORK.
4. BASED ON PHOENIX VALVES.

5 TERMINAL UNIT VALVE (LAB SUPPLY) PHOENIX
NO SCALE





NOTES:

1. WHERE FLANGE CONNECTIONS ARE SCHEDULED, PROVIDE PIPE TYPE GASKET EQUAL TO SEALEX BY THERMOSEAL INC.
2. SUPPORT VALVE INDEPENDENT OF ATTACHED DUCTWORK.
3. PROVIDE 18" ACCESS TO CONTROL PANEL.
4. BASED ON PHOENIX VALVES.

6 TERMINAL UNIT VALVE (LAB & GEN. EXHAUST) PHOENIX
NO SCALE

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PLUMBING LEGEND

SYMBOL	ABBREV.	DESCRIPTION	SYMBOL	ABBREV.	DESCRIPTION
AW-1 / 3"		ACID WASTE STACK NO.			THERMOMETER
		STACK SIZE			UNION
SAN-1 / 4"		SANITARY STACK NO.			STRAINER
		STACK SIZE			REDUCER
SD-1 / 4"	1214 SQ.FT.	STORM DRAIN NO.			GAUGE
		STACK SIZE - EQUIVALENT AREA			BALL VALVE
SAN	SAN	SANITARY WASTE			GATE VALVE
SV	SV	SANITARY VENT			BUTTERFLY VALVE
PSAN	PSAN	PRESSURIZED SANITARY			CHECK VALVE
GW	GW	GREASE WASTE			PLUG VALVE
LW	LW	LAB WASTE			SOLENOID VALVE
LWV	LWV	LAB WASTE VENT		PRV	PRESS. REDUCING VALVE
CD	CD	CONDENSATE DRAINAGE		RV	PRESSURE RELIEF VALVE
TP	TP	TRAP PRIMER	⌀	FCO	FLOOR CLEANOUT
PSD	PSD	PRESSURIZED STORM SEWER		CO	CLEANOUT
SD	SD	STORM DRAIN		VTR	VENT THRU ROOF
OD	OD	STORM OVERFLOW DRAIN		AFF	ABOVE FINISHED FLOOR
DCW	DCW	DOMESTIC COLD WATER		BFF	BELOW FINISHED FLOOR
DHW	DHW	DOMESTIC HOT WATER		COG	CLEANOUT AT GRADE
DHWR	DHWR	DOM. HOT WATER RETURN		FL	FLOW LINE
G	G	NATURAL GAS		VB	VACUUM BREAKER
D	D	DRAIN		WCO	WALL CLEANOUT
ROS	ROS	REVERSE OSMOSIS WATER SUPPLY		AP	ACCESS PANEL
ROR	ROR	REVERSE OSMOSIS WATER RETURN		DW	DISHWASHER
DTV	DTV	DAY TANK VENT		FPS	FEET PER SECOND
DI	DI	DEIONIZED WATER		GPM	GALLONS PER MINUTE
SW	SW	SOFTENED WATER		CFH	CUBIC FEET PER HOUR
AI	AI	AIR INTAKE		SCFM	STANDARD CUBIC FT PER MIN.
LN2	LN2	LIQUID NITROGEN (LABORATORY)		FH	FUME HOOD
FOS	FOS	FUEL OIL SUPPLY		BSC	BIOLOGICAL SAFETY CABINET
FOR	FOR	FUEL OIL RETURN		BOP	BOTTOM OF PIPE
FOF	FOF	FUEL OIL FILL		UG	UNDERGROUND
FOV	FOV	FUEL OIL VENT		POC	POINT OF CONNECTION
MW	MW	MAKEUP WATER (NON-POTABLE)		POD	POINT OF DISCONNECTION
RW	RW	RECLAIMED WATER	(E)		EXISTING
MA	MA	MEDICAL COMPRESSED AIR (50 PSI)	(HP)		HIGH PRESSURE
MV	MV	MEDICAL VACUUM			
VE	VE	VACUUM EXHAUST			
CO2	CO2	CARBON DIOXIDE (LABORATORY)			
N2	N2	NITROGEN (MEDICAL)			
O2	O2	OXYGEN (MEDICAL)			
N2O	N2O	NITROUS OXIDE (MEDICAL)			
LA	LA	LABORATORY COMP. AIR (100 PSI)			
LV	LV	LABORATORY VACUUM			
N2-L	N2-L	NITROGEN (LABORATORY)			
O2-L	O2-L	OXYGEN (LABORATORY)			
IR	IR	IRRIGATION WATER			
O2-E	O2-E	OXYGEN (EMERGENCY)			

GENERAL NOTES

1. PRIOR TO WORK CONTRACTOR SHALL COORDINATE PLUMBING WORK WITH OTHER TRADES.
2. PROVIDE A UNION DOWNSTREAM FROM EACH THREADED VALVE.
3. PROVIDE A SEPARATE P-TRAP AT EACH PLUMBING FIXTURE, UNLESS TRAP IS BUILT INTO FIXTURE.
4. REFER TO ARCHITECTURAL DRAWINGS FOR PLUMBING FIXTURE MOUNTING HEIGHTS.
5. MAKE ROUGH-IN AND FINAL CONNECTION TO ALL PLUMBING FIXTURES.
6. ALL NEW WORK SHALL CONFORM TO THE 2021 EDITION OF THE INTERNATIONAL PLUMBING CODE UNLESS OTHERWISE NOTED OR SHOWN.
7. DRAWINGS ARE DIAGRAMMATIC IN NATURE, NOT ALL REQUIRED PIPE ELBOWS, TEES, AND ASSOCIATED FITTINGS ARE SHOWN. CONTRACTOR SHALL PROVIDE A COMPLETE WORKING PLUMBING SYSTEM PER THE SPECIFICATIONS AND PLUMBING CODE.
8. FIRE PROTECTION PIPING SHALL BE COORDINATED AROUND OTHER TRADES, SUCH AS PLUMBING, HVAC AND ELECTRICAL.
9. PROVIDE A BALL VALVE W/ IN-LINE Y-STRAINER OR A FILTER TYPE BALL VALVE UPSTREAM OF ALL TRAP PRIMERS.
10. VERIFY LOCATION OF ALL FLOOR DRAINS WITH THE EQUIPMENT ROUGH-IN LOCATION.
11. PROVIDE A VACUUM BREAKER ON DOMESTIC COLD WATER SUPPLY TO FUME HOOD FAUCETS AND EMERGENCY EYEWASH UNITS. PROVIDE A HIGH HAZARD VACUUM, BREAKER OR BACKFLOW PREVENTER (AS INDICATED ON FLOOR PLANS) ON THE DOMESTIC WATER SUPPLY LINES TO LAB EQUIPMENT.
12. TRAP PRIMER PIPING SHALL NOT CONNECT DIRECTLY TO FLOOR DRAIN/ FLOOR SINK BODIES. CONNECT TRAP PRIMER PIPING TO FLOOR DRAIN P-TRAP EQUIPPED WITH TRAP PRIMER TAP.
13. CONTRACTOR SHALL OBTAIN ARCHITECT/ENGINEER APPROVAL FOR ALL ACCESS PANEL LOCATIONS.
14. PROVIDE AN ISOLATION VALVE FOR EACH SINGLE PLUMBING FIXTURE, OR WHERE FIXTURES ARE GROUPED ONE VALVE PER GROUP, REFER TO FLOOR PLANS.
15. COORDINATE INSTALLATION OF SHOWER CONTROLS & DRAIN WITH SHOWER ENCLOSURE.
16. INSTALL PRESSURE & TEMPERATURE PORTS IN UPSTREAM AND DOWNSTREAM PIPING CONNECTING TO PUMPS, WATER HEATERS AND COMPRESSORS.
17. INSTALL PRESSURE & TEMPERATURE PORTS WITHIN 3 PIPE DIAMETERS OF EACH PRESSURE OR TEMPERATURE SENSOR FOR USE IN CALIBRATION AND VERIFICATION.
18. PROVIDE "PROSET" TRAP GUARD FOR EACH FLOOR DRAIN, TRENCH DRAIN AND FLOOR SINK, UNLESS OTHERWISE INDICATED.

SHOCK ARRESTOR SCHEDULE

SYMBOL	FIXTURE UNIT	PIPE SIZE	ZURN SHOCK STOP NUMBER
A	1-11	1/2"	100
B	12-32	3/4"	200
C	33-60	1"	300
D	61-113	1"	400
E	114-154	1"	500
F	155-330	1"	600

NOTE:
WHERE SYMBOL OCCURS ON THE PLUMBING PLANS OR PLUMBING DETAIL SHEETS, REFER TO ARRESTOR SCHEDULE ABOVE.

PLUMBING ROUGH-IN SCHEDULE

MINIMUM SIZES (INCHES)					DESCRIPTION (REFER TO SPEC SECTION 22 40 00)
FIXTURE	WASTE	VENT	HOT WATER	COLD WATER	
WC-1	4	2	-	1	WALL HUNG WATER CLOSET WITH 1.28 GPF SENSOR FLUSH VALVE
WC-2	4	2	-	1	ADA WALL HUNG WATER CLOSET WITH 1.28 GPF SENSOR FLUSH VALVE
U-1	2	2	-	3/4	WALL HUNG URINAL WITH 0.125 GPF SENSOR FLUSH VALVE
U-2	2	2	-	3/4	3/4" ADA WALL HUNG WITH .125 GPF SENSOR FLUSH VALVE
L-1	2	1 1/2	1/2	1/2	ADA UNDER COUNTER MTD. LAVATORY WITH 0.5 GPM SENSOR FAUCET
L-2	2	1 1/2	1/2	1/2	ADA WALL HUNG LAVATORY WITH 1.5 GPM MANUAL FAUCET
L-3	2	2	1/2	1/2	ADA WALL HUNG LAVATORY WITH MANUAL FAUCET AND EYEWASH
L-4	2	2	1/2	1/2	ADA WALL HUNG WITH 1.5GPM SENSOR FAUCET.
SK-1	2	2	1/2	1/2	ADA COUNTER MOUNTED SINGLE COMPARTMENT SINK WITH 1.5 GPM FAUCET
SK-2	2	2	1/2	1/2	ADA COUNTER MOUNTED SINGLE COMPARTMENT SINK WITH 1.5 GPM FAUCET
SK-3	2	2	1/2	1/2	COUNTER MOUNTED SINGLE COMPARTMENT SINK W/ SINGLE DRAINBOARD & 2.2 GMP FAUCET
SK-4	2	2	1/2	1/2	COUNTER MOUNTED SINGE COMPARTMENT W/ TWO DRAINBOARDS & 2.2 GPM FAUCET
SK-5	2	2	1/2	1/2	COUNTER MOUNTED SINGE COMPARTMENT W/ TWO DRAINBOARDS & 2.2 GPM FAUCET
RB-1	-	-	-	1/2	REFRIG. ROUGH-IN BOX
WB-1	2	2	1/2	1/2	WASHING MACHINE ROUGH-IN BOX
MS-1	3	2	1/2	1/2	FLOOR MOUNTED MOP SINK
SH-1	2	2	1/2	1/2	SINGLE STALL SHOWER W/ 1.5 GPM SHOWER HEAD
FD-1	4	2	-	-	FLOOR DRAIN IN FINISHED AREAS
FD-2	4	2	-	-	8" ROUND GALVANIZED CAST IRON
FD-3	4	2	-	-	12" X12" GALVANIZED WITH 1/2 GRATE
FD-4	4	2	-	-	2" RAISED GALVANIZED CAST FLOOR DRAIN (CONDENSATE COLLECTION)
FS-1	4	2	-	-	12" X12" FLOOR SINK WITH 1/2 GRATE
FS-2	4	2	-	-	16"X16" FLOOR SINK WITH 1/2 GRATE
TD-1	4	2	-	-	8" WIDE TRENCH DRAIN
AD-1	4	2	-	-	8" DIA. GALVANIZED CAST IRON DRAIN W/ GALV. DUCTILE IRON GRATE
HB-1	-	-	-	3/4	CHROME PLATED HOSE BIBB W/ VACUUM BREAKER
HB-2	-	-	-	3/4	BRONZE HOSE BIBB W/ VACUUM BREAKER
HB-3	-	-	-	3/4	NON-FREEZE WALL HYDRANT W/ VACUUM BREAKER
HB-4	-	-	-	3/4	MILD TEMPERATURE WALL HYDRANT W/ VACUUM BREAKER
HB-5	2	2	-	3/4	FREESTANDING NON- FREEZE HYDRANT
EDF-1	2	1 1/2	-	1/2	BI-LEVEL ADA ELECTRIC DRINKING FOUNTAIN
EDF-2	2	1 1/2	-	1/2	SINGLE NON ADA ELECTRIC DRINKING FOUNTAIN
EDF-3	2	1 1/2	-	1/2	SINGLE NON ADA ELECTRIC DRINKING FOUNTAIN
EDF-4	2	1 1/2	-	1/2	SINGLE NON ADA ELECTRIC DRINKING FOUNTAIN
ES-1	2	2	1	1	EMERGENCY SHOWER DECK MOUNTED WITH DUAL SPRAY HEAD

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P-001

PLUMBING LEGEND, GENERAL NOTES AND SPECIFICATIONS

Treanor NO. HE0569.2402.00

LEGEND

EXISTING WORK

DEMO WORK

GENERAL NOTES

A. REFER TO SHEET TITLED "P-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE DEMOLITION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.

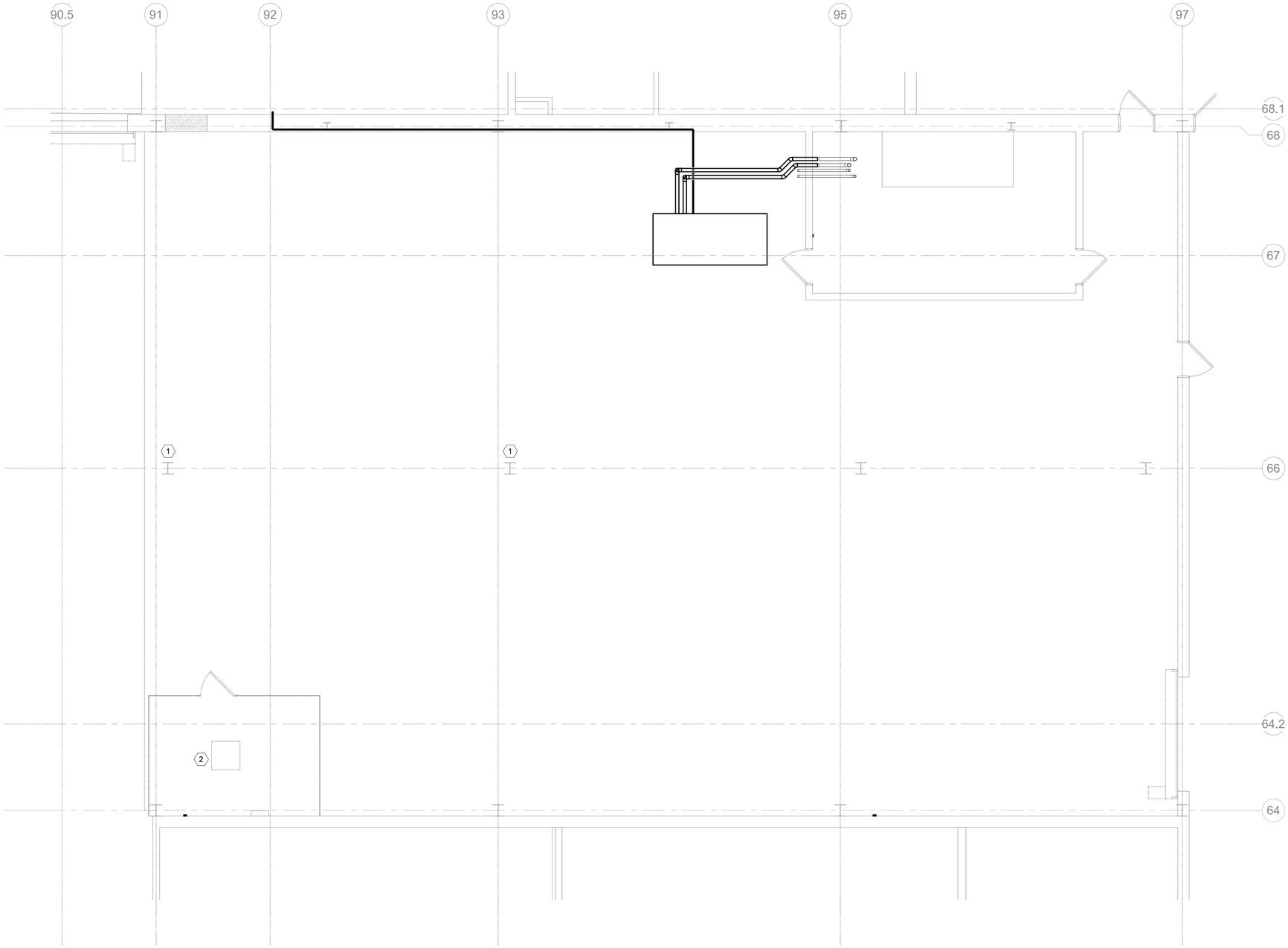
C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - PD-301

1 DEMO EXISTING COMPRESSED AIR PIPING THAT RUNS DOWN ALONG COLUMN AND CAP AT MAIN ABOVE THE NEW LEVEL 2 CEILING.

2 EXISTING COMPRESSED AIR EQUIPMENT TO REMAIN.



1 LEVEL 1 PLUMBING DEMO PLAN
1/4" = 1'-0"

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PD-301

FIRST LEVEL PLUMBING DEMO PLAN

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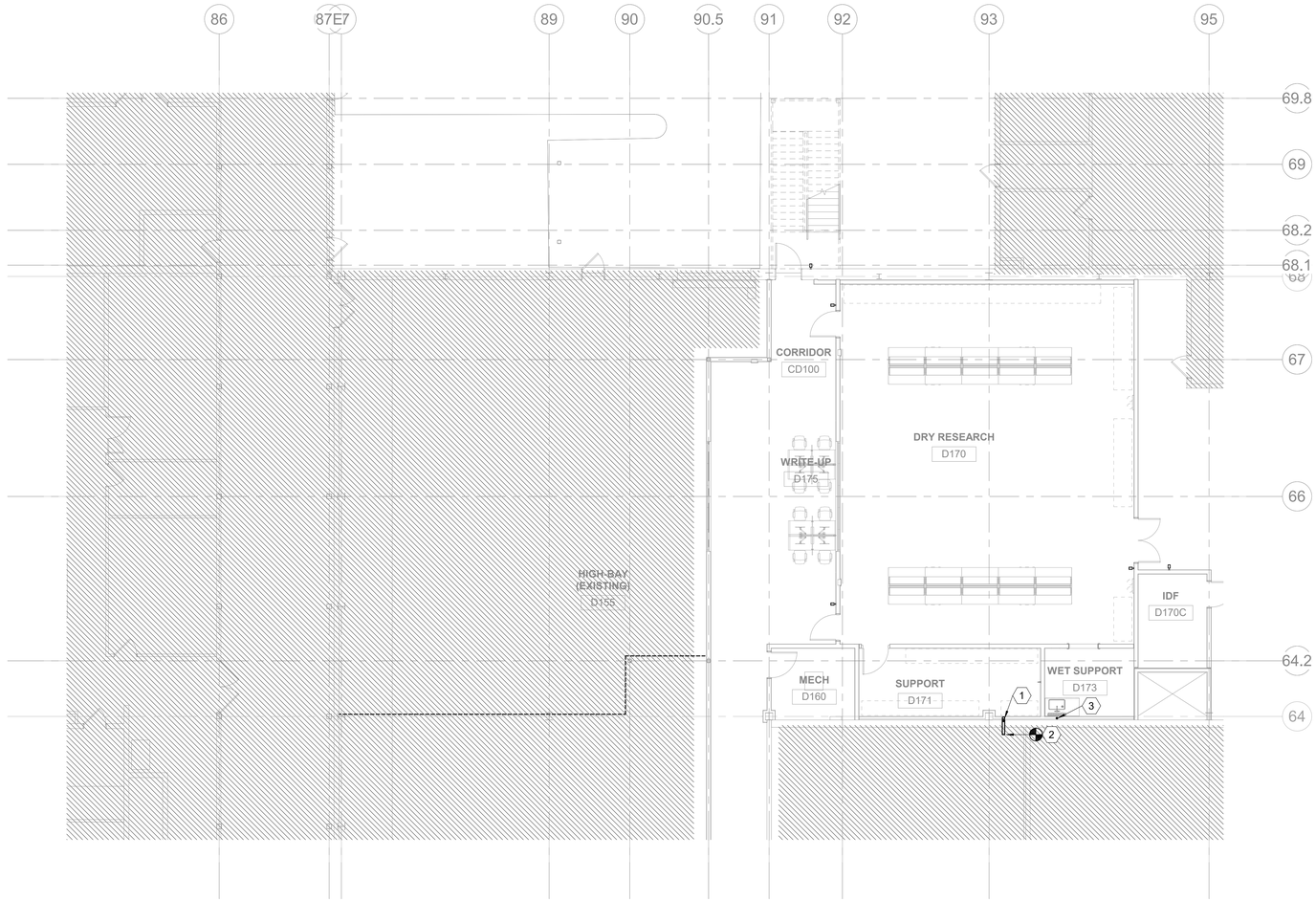

1 UNDERSLAB PIPING PLAN
1/8" = 1'-0"

LEGEND

EXISTING WORK

NEW WORK

GENERAL NOTES

A. REFER TO SHEET TITLED "P-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE RENOVATION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - P-100

1 3" SAN UP.

2 CONNECT NEW 3" SAN TO EXISTING 3" SANITARY IN-WALL. IF THE EXISTING PIPING DOES NOT EXTEND UP INTO WALL, CONNECT TO BELOW SLAB 3" SANITARY WASTE MAIN IN THIS APPROXIMATE AREA. FIELD VERIFY EXACT LOCATION OF EXISTING PIPING PRIOR TO WORK. PATCH AND REPAIR EXISTING CONSTRUCTION TO MATCH EXISTING CONDITIONS.

3 CONNECT IN WALL TO 3" SANITARY PIPE COMING DOWN FROM ABOVE.

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P-100

UNDERSLAB PLUMBING PLAN

Treanor NO. HE0569.2402.00

LEGEND

EXISTING WORK

NEW WORK

GENERAL NOTES

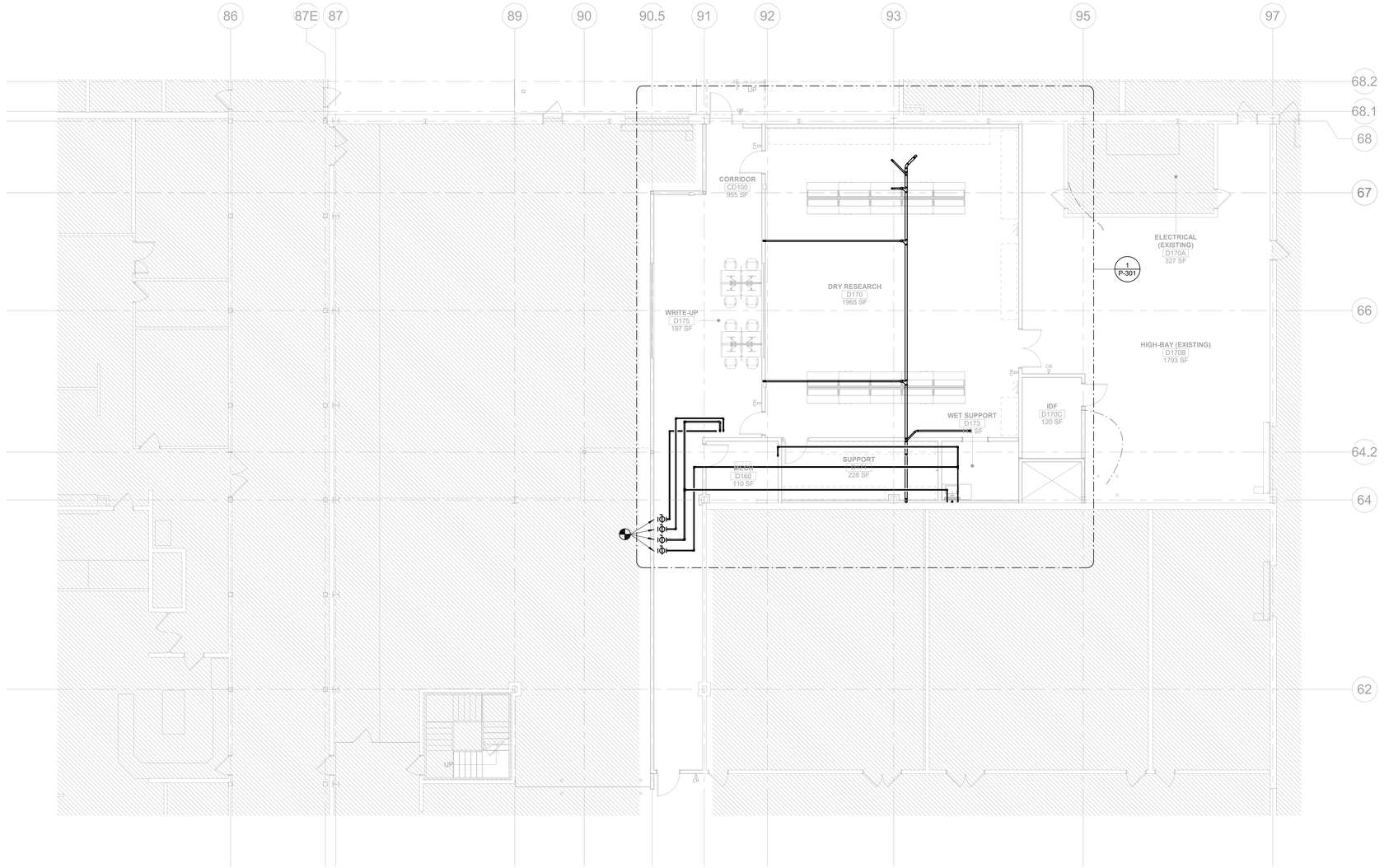
A. REFER TO SHEET TITLED "P-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE RENOVATION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - P-101



1 LEVEL 1 OVERALL PLUMBING PLAN
1/8" = 1'-0"

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P-101

LEVEL 1 OVERALL PLUMBING PLAN - BASE BID

Treanor NO. HE0569.2402.00

LEGEND

EXISTING WORK

NEW WORK

GENERAL NOTES

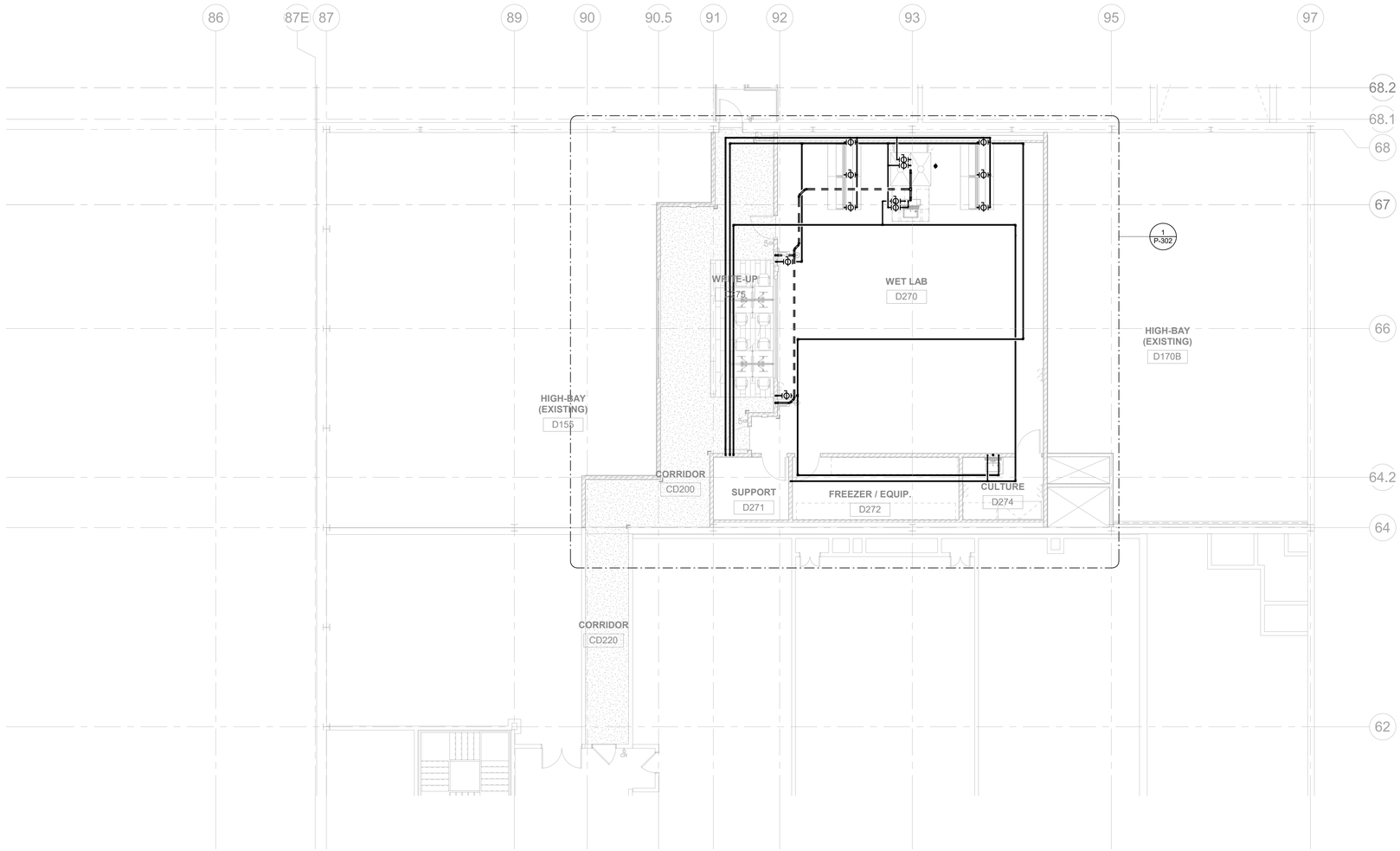
A. REFER TO SHEET TITLED "P-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE RENOVATION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - P-102



1 LEVEL 2 OVERALL PLUMBING PLAN - BASE BID
1/8" = 1'-0"

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P-102

LEVEL 2 OVERALL PLUMBING PLAN - BASE BID

Treanor NO. HE0569.2402.00

KEYED NOTES - P-301

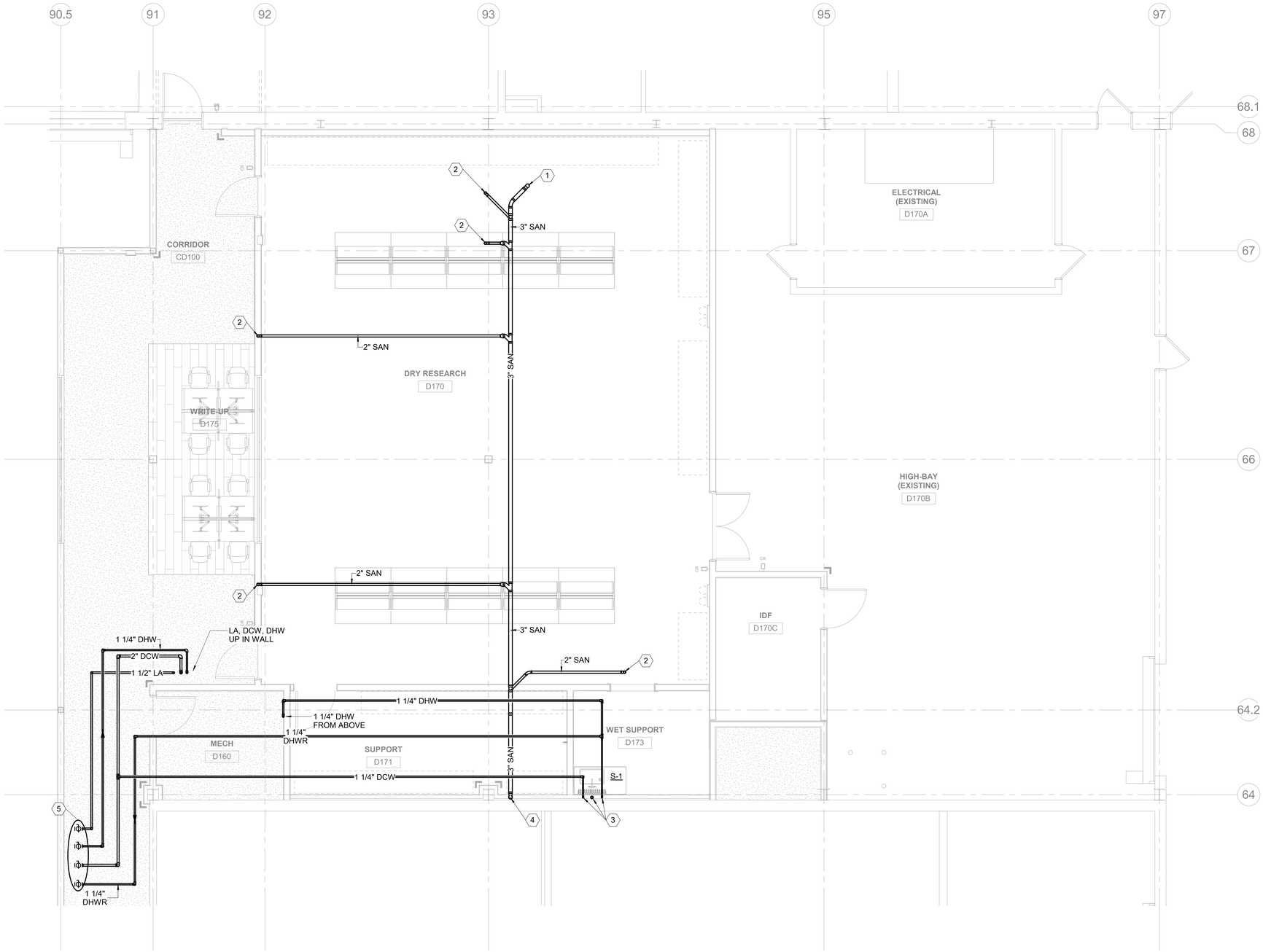
1 UP TO FCO.
2 2" SANITARY UP TO FIXTURE FROM FLOOR ABOVE
3 ROUGH-IN AND CONNECT 1/2" DCW AND DHW DOWN TO LAB SINK. 2" SAN DOWN WITH 2" VENT. PROVIDE UDNERCOUNTER DILUTION TRAP, SIMILAR TO ZURN Z9A PHIX.
4 CONNECT NEW 3" SAN TO EXISTING 3" SANITARY IN-WALL. IF THE EXISTING PIPING DOES NOT EXTEND UP INTO WALL, CONNECT TO BELOW SLAB 3" SANITARY WASTE MAIN IN THIS APPROXIMATE AREA. FIELD VERIFY EXACT LOCATION OF EXISTING PIPING PRIOR TO WORK. PATCH AND REPAIR EXISTING CONSTRUCTION TO MATCH EXISTING CONDITIONS.
5 CONNECT NEW 1 1/4" DCW AND DHW, AND 1 1/2" LA TO EXISTING LINES APPROXIMATELY IN THIS LOCATION. FIELD VERIFY EXISTING LOCATION OF UTILITIES PRIOR TO WORK. FOR THE DHW POINT OF CONNECTION, THE INTENT IS TO EXTEND THE EXISTING LOOP TO THE NEW LAB AS SHOWN ON THESE PLANS

LEGEND

EXISTING WORK
NEW WORK

GENERAL NOTES

A. REFER TO SHEET TITLED "P-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.
B. ITEMS SHOWN IN BOLD INDICATE RENOVATION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.
C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.
D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.



1 LEVEL 1 PLUMBING PLAN - BASE BID
1/4" = 1'-0"

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P-301

FIRST LEVEL PLUMBING PLAN - BASE BID

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KEYED NOTES - P-302

1 1 1/4" DCW DOWN TO EMERGENCY SHOWER. 2" SAN DOWN WITH 2" SV UP.

2 ROUGH-IN AND CONNECT 1/2" DCW AND DHW DOWN TO LAB SINK. 2" SAN DOWN WITH 2" VENT. PROVIDE UDNERCOUNTER DILUTION TRAP, SIMILAR TO ZURN Z9A PHIX.

3 1/2" DCW, 1/2" LA, DOWN TO FUME HOOD. 2" LW DOWN WITH 2" LV UP.

4 ROUGH-IN AND CONNECT 1/2" DCW AND DHW DOWN TO LAB SINKS. 2" SAN DOWN WITH 2" SV UP.

5 1/2" LA DOWN TO WORK BENCH.

8 3" VTR.

LEGEND

EXISTING WORK

NEW WORK

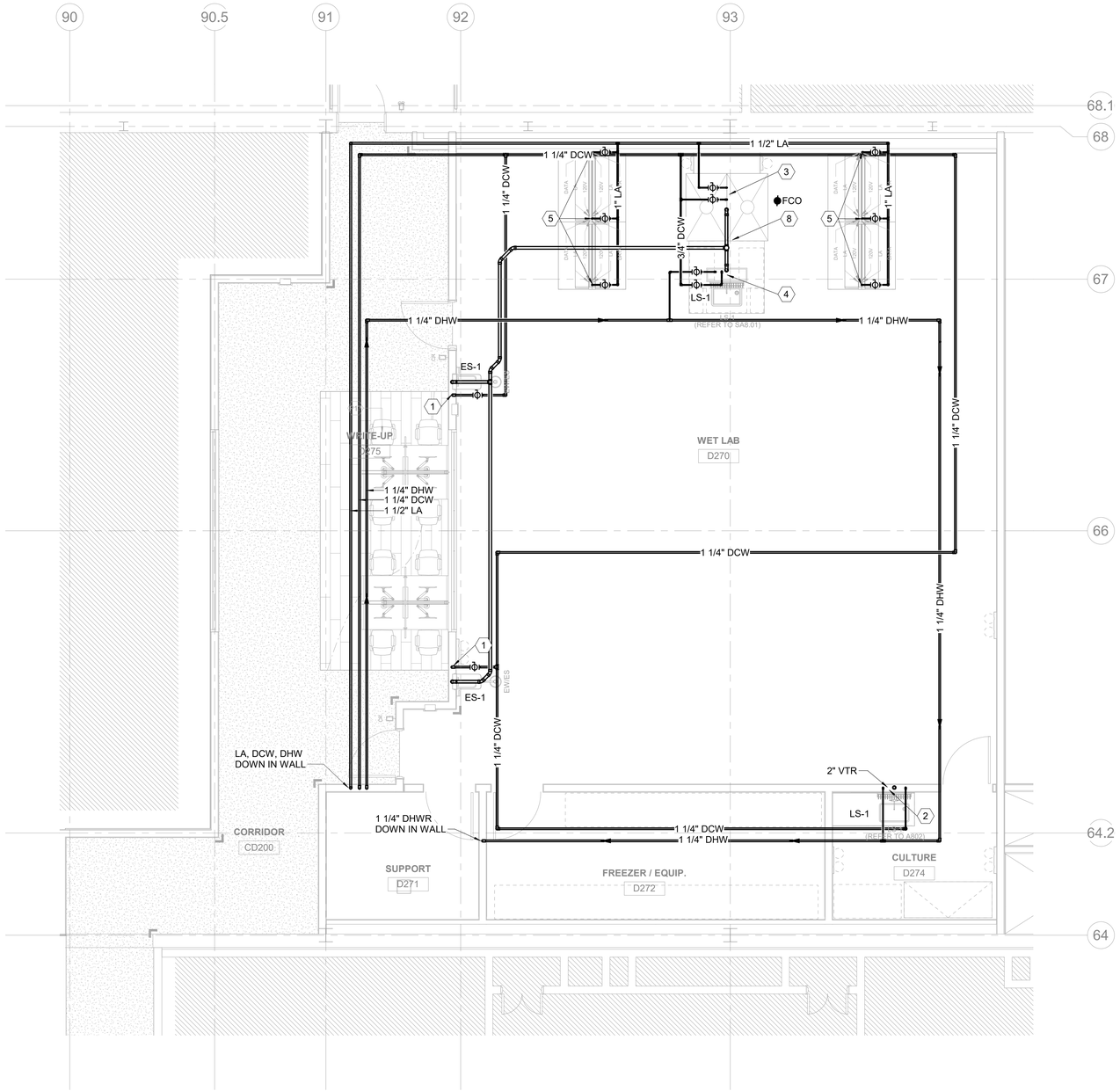
GENERAL NOTES

A. REFER TO SHEET TITLED "P-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE RENOVATION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.



1 LEVEL 2 PLUMBING PLAN - BASE BID
1/4" = 1'-0"

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SECOND LEVEL PLUMBING PLAN - BASE BID

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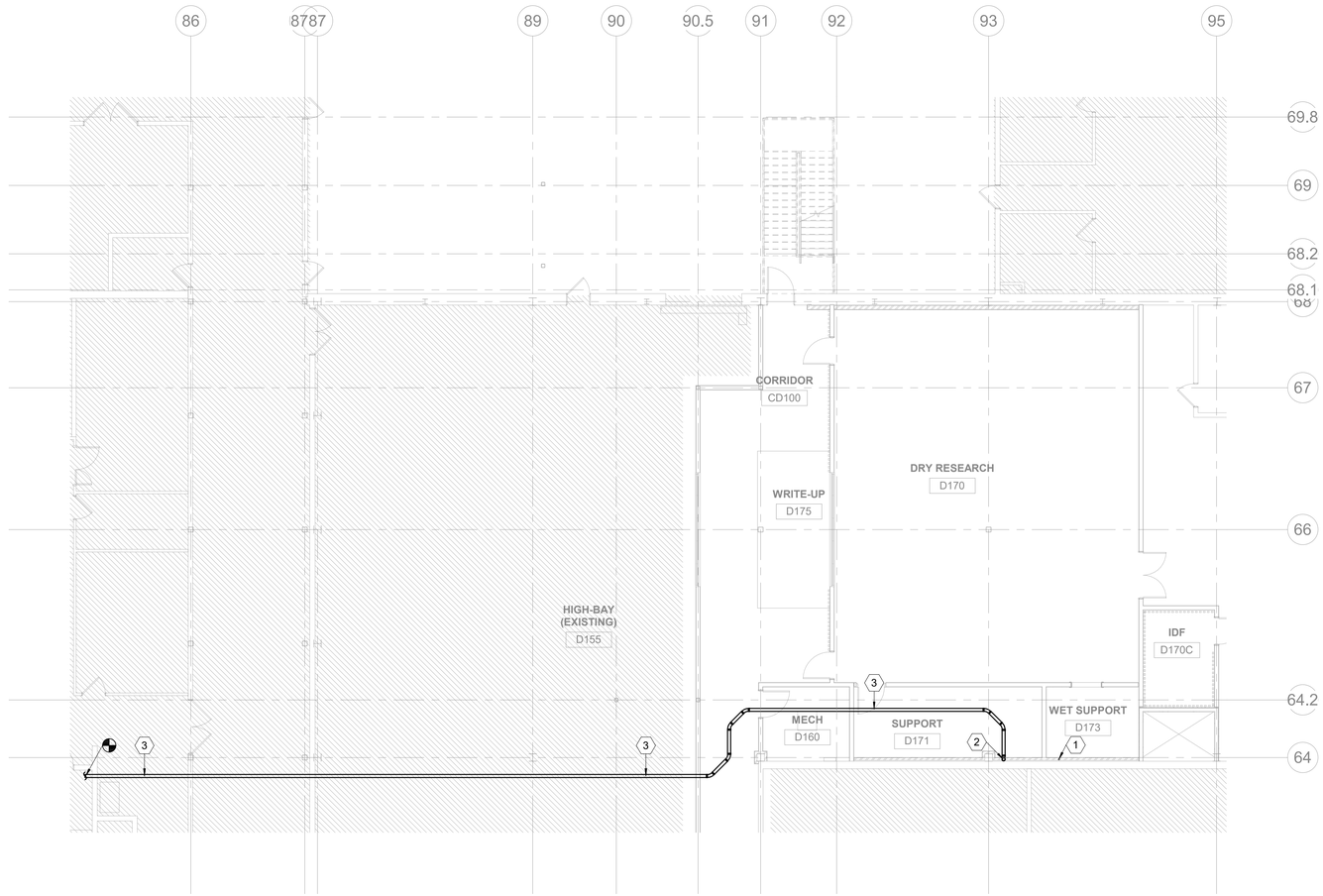

1 UNDERFLOOR PLUMBING PLAN - ALTERNATE
1/8" = 1'-0"

LEGEND

EXISTING WORK

ALTERNATE WORK

GENERAL NOTES

A. REFER TO SHEET TITLED "P-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE ALTERNATE SCOPE OF WORK. ITEMS SHOWN LIGHT ARE BASE BID TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - P-303

1 CONNECT IN WALL TO 3" SANITARY PIPE COMING DOWN FROM ABOVE.

2 4" SAN UP.

3 SAWCUT EXISTING SLAB FOR INSTALLATION OF NEW SANITARY WATER PIPING. PATCH AND REPAOR CONCRETE TO MATCH EXISTING FLOOR FINISH.

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P-303

UNDERSLAB PLUMBING PLAN - ALTERNATE

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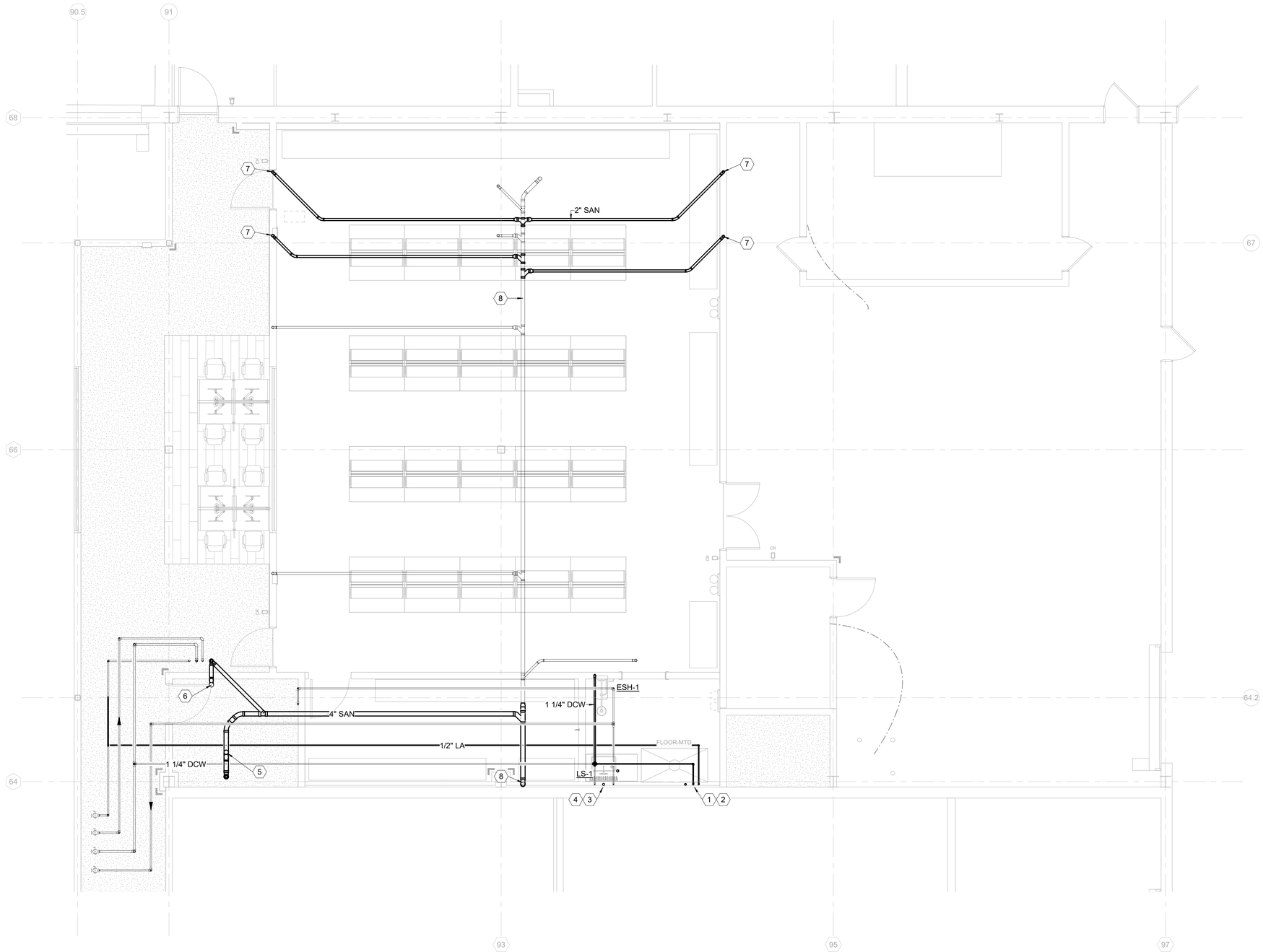

1 LEVEL 1 PLUMBING PLAN - ALTERNATE
1/4" = 1'-0"

LEGEND

EXISTING WORK

ALTERNATE WORK

GENERAL NOTES

A. REFER TO SHEET TITLED "P-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE ALTERNATE SCOPE OF WORK. ITEMS SHOWN LIGHT ARE BASE BID TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - P-304

1 1/2" DCW AND LA DOWN TO FUME HOOD. 2" SAN DOWN WITH 2" VENT.

2 CONNECT SAN VENT IN WITH OTHER FUME HOODS ON SECOND FLOOR.

3 ROUGH-IN AND CONNECT 1/2" DCW AND DHW DOWN TO LAB SINK. 2" SAN DOWN WITH 2" VENT. PROVIDE UDNERCOUNTER DILUTION TRAP, SIMILAR TO ZURN Z9A PHIX.

4 CONNECT SINK VENT IN WITH OTHER SINK FIXTURE ON SECOND FLOOR.

5 4" LW UP.

6 3" LW UP.

7 2" LW UP.

8 PIPING SHOWN LIGHT IS PROVIDED IN THE BASE BID SCOPE OF WORK.

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UNIVERSITY OF NORTH TEXAS DISCOVERY PARK D170 LAB FIT-OUT

3940 N Elm Street
Denton, TX 76207

UNT UNIVERSITY OF NORTH TEXAS

Issued For:	ISSUE FOR CONSTRUCTION
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REVISIONS

NO	DESCRIPTION	DATE

P-304

FIRST LEVEL PLUMBING PLAN - ALTERNATE

Treanor NO. HE0569.2402.00

RO CARBON FILTER SCHEDULE

PART NUMBER	VALVE	MINERAL TANK SIZE	MEDIA CUBIC FT.	GRAVEL (LBS)	SERVICE FLOW (GPM)	DROP (PSI)	BACK WASH (GPM)	DIMENSIONS (INCHES)			SHIPPING WEIGHT (LBS)
								HEIGHT	LENGTH	WIDTH	
WSAC-1.5	W100TC	10 X 54	1.5	10	6	<15	5.3	62	16	11	105

RO TANK SCHEDULE

MODEL	TOTAL TANK VOLUME		HEIGHT		FLOOR TO CL		DIAMETER		CL TO FITTING END		CONNECTION	TOTAL WEIGHT		TOTAL DRAWDOWN 20/40		30/50		40/60	
	GAL	LITERS	IN	CM	IN	CM	IN	CM	IN	CM		LBS	KILOS	GAL	LITERS	GAL	LITERS	GAL	LITERS
FL 28	82	310.4	64.7	163.3	2.25	5.7	21.4	54.4	11.9	30.2	1 1/4" NTP	69.5	31.5	33.0	120.7	27.9	102.0	24.1	88.4

RO SYSTEM SCHEDULE

MODEL	OUTPUT GPD	PRODUCT FLOW (GPM/GPH)	REJECT FLOW (GPM)	RECOVERY RATE	MEMBRANE QUANTITY	MEMBRANE SIZE	PUMP HP	INLET CONNECTION	PRODUCT CONNECTION	REJECT CONNECTION
WSRO-1.6K	1600	1.1/66.0	1.1	50%	1	4" X 40"	3/4	3/4"	1/2"	1/2"

KEYED NOTES - P-305

1. 4" SAN DOWN, 2" SV UP.
2. 3" SAN DOWN, 2" SV UP.
3. ROUGH-IN AND CONNECT 1/2" DCW AND DHW DOWN TO LAB SINK. 2" SAN DOWN WITH 2" VENT. PROVIDE UDNERCOUNTER DILUTION TRAP, SIMILAR TO ZURN Z9A PHIX.
4. 1/2" DCW, 1/2" LA, DOWN TO FUME HOOD. 2" SAN DOWN WITH 2" SV UP.
5. PIPING SHOWN LIGHT IS PROVIDED IN THE BASE BID SCOPE OF WORK.
6. 3/4" LA DOWN TO LAB BENCH.

LEGEND

EXISTING WORK

ALTERNATE WORK

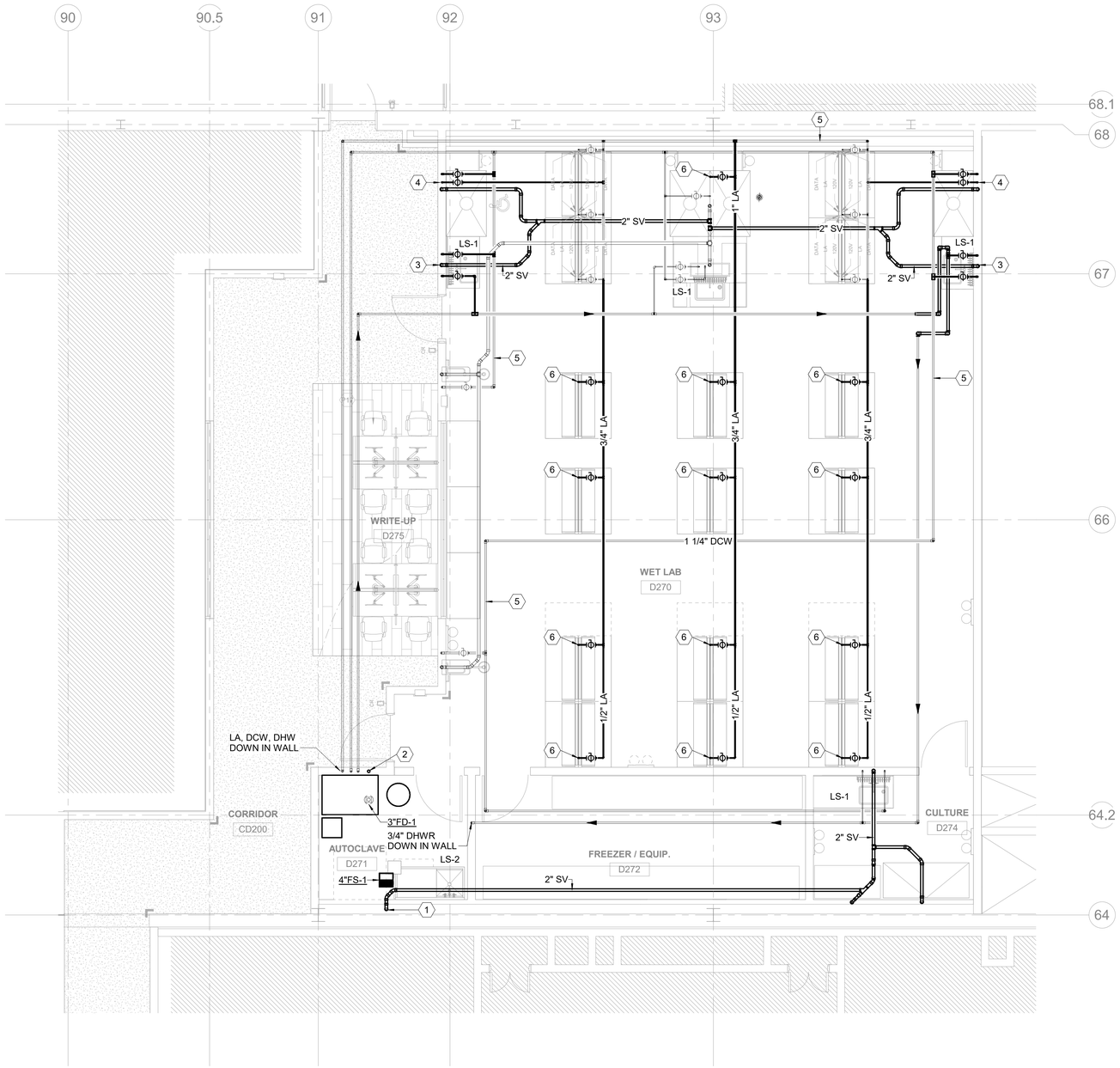
GENERAL NOTES

A. REFER TO SHEET TITLED "P-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE ALTERNATE SCOPE OF WORK. ITEMS SHOWN LIGHT ARE BASE BID TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.



1 LEVEL 2 PLUMBING PLAN - ALTERNATE
1/4" = 1'-0"

Tx. Registration # F-20213

CALEB HOLOBAUGH 130940 LICENSED PROFESSIONAL ENGINEER 3/31/2025

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SECOND LEVEL PLUMBING PLAN - ALTERNATE

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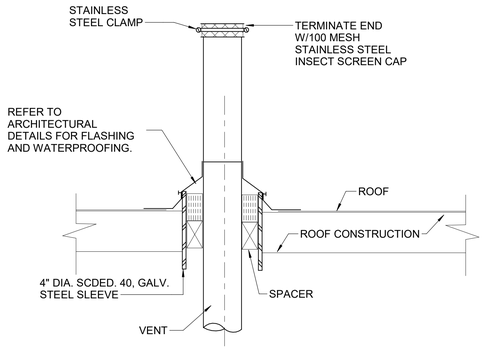
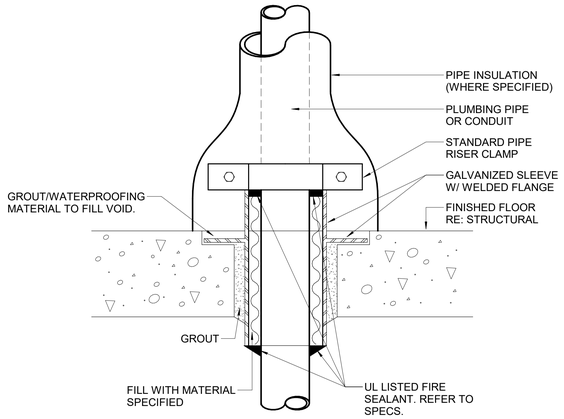
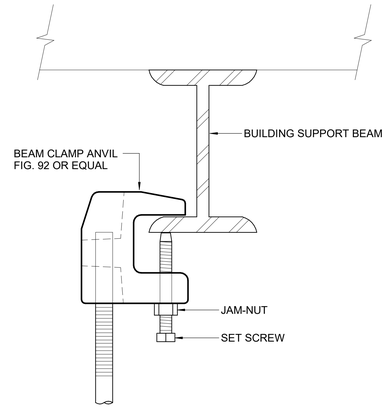


NOTE: REFER TO ARCH DWGS. FOR WATERPROOFING DETAIL.

1 VENT THRU ROOF DETAIL
NO SCALE

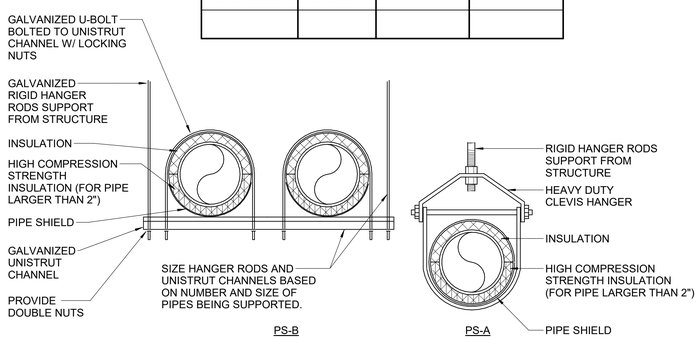


2 PIPE PENETRATION THRU EXISTING SLAB
NO SCALE

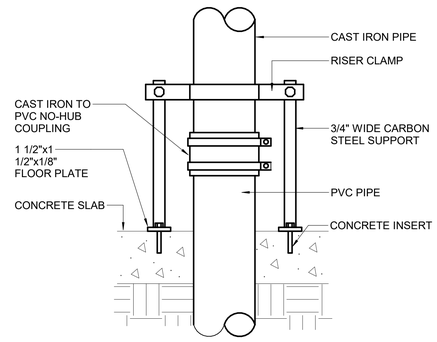


3 C-CLAMP TYPE SUPPORT DETAIL
NO SCALE

HANGER ROD SCHEDULE (CLEVIS)			
PIPE SIZE	ROD SIZE	PIPE SIZE	ROD SIZE
UP TO 2"	3/8" DIA.	4" thru 5"	5/8"
2 1/2" thru 3"	1/2" DIA.	6" thru 14"	7/8"



4 TYPICAL PIPE SUPPORT DETAIL
NO SCALE



5 CAST IRON TO PVC SUPPORT
NO SCALE

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P-900

PLUMBING DETAILS

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ELECTRICAL ONE-LINE AND CONTROL SYMBOLS

- SURGE SUPRESSOR, METAL OXIDE VARISTOR (MOV) MAXIMUM CONTINUOUS OPERATING VOLTAGE (MCOV) AS NOTED
- POWER TRANSFORMER
- MOLDED OR INSULATED CASE CIRCUIT BREAKER
- (ST) CIRCUIT BREAKER WITH SHUNT TRIP COIL
- DISCONNECT SWITCH, NON-FUSIBLE
- DISCONNECT SWITCH, FUSIBLE
- FUSE
- TRANSFER SWITCH
- CURRENT TRANSFORMER
- CURRENT TRANSFORMER, ZERO SEQUENCE
- VOLTAGE OR POWER TRANSFORMER
- DELTA CONNECTED
- OPEN DELTA CONNECTED
- WYE CONNECTED
- GROUND
- GROUNDED WYE
- (50/51) PROTECTIVE RELAY FUNCTION, ANSI DESIGNATION AS NOTED
- (K) KEY INTERLOCK
- (SPD) SURGE PROTECTIVE DEVICE
- SPACE HEATER
- (DM) DIGITAL MULTI-METER
- (M) METER
- GENERATOR THREE PHASE SIZE AS NOTED
- (5) MOTOR, THREE-PHASE, HP AS NOTED
- (M) 1/4 MOTOR, SINGLE PHASE, HP AS NOTED
- VARIABLE FREQUENCY DRIVE
- MAGNETIC MOTOR STARTER
- OVERLOAD
- (C) CONTACTOR COIL
- (R) CONTROL RELAY
- CONTACT, NORMALLY OPEN
- CONTACT, NORMALLY CLOSED
- INDICATING LAMP, COLOR AS NOTED, R RED, G GREEN, A AMBER, W WHITE
- SELECTOR SWITCH
- OFF / HAND / AUTO SELECTOR SWITCH, HAND-OFF-AUTOMATIC
- ON / OFF SELECTOR SWITCH, ON-OFF
- NORMALLY OPEN PUSHBUTTON, MOMENTARY CONTACT
- NORMALLY CLOSED PUSHBUTTON, MAINTAINED CONTACT
- PUSHBUTTON, MAINTAINED CONTACT
- PANELBOARD
- (CP) CONTROL PANEL
- CONNECTION POINT
- EQUIPMENT ENCLOSURE

FIRE ALARM SYMBOLS

- (MFAP) MAIN FIRE ALARM PANEL
- (FAAP) FIRE ALARM ANNUNCIATOR PANEL
- (FACP) FIRE ALARM CONTROL PANEL
- (F) MANUAL FIRE ALARM PULL STATION
- (DH) FIRE ALARM DOOR HOLD OPEN
- (IM) FIRE ALARM INPUT MODULE
- (FSD) FIRE/SMOKE DAMPER
- (FS) FIRE ALARM FLOW SWITCH
- (TS) FIRE ALARM TAMPER SWITCH
- (S) SMOKE DETECTOR
- (H) HEAT DETECTOR
- (D) DUCT MOUNTED SMOKE DETECTOR
- (RM) FIRE ALARM RELAY MODULE
- (F) FIRE ALARM SPEAKER STROBE
- (V) FIRE ALARM VISUAL NOTIFICATION DEVICE
- (F) FIRE ALARM SPEAKER STROBE - CEILING MOUNTED
- (S) FIRE ALARM VISUAL NOTIFICATION DEVICE - CEILING MOUNTED

KEYED NOTES SYMBOL (#)

ELECTRICAL PLAN SYMBOLS

HALF SHADE CRITICAL POWER — FULL SHADE LIFE SAFETY POWER

- Y DUPLEX RECEPTACLE ESSENTIAL SYSTEMS
- Y QUADRUPLEX RECEPTACLE ESSENTIAL SYSTEMS

- X LUMINAIRE
- X LUMINAIRE
- X LUMINAIRE - EMERGENCY POWER
- X LUMINAIRE - WALL WASH
- X 2'X4' LUMINAIRE
- X 2'X4' LUMINAIRE - EMERGENCY POWER
- X 1'X4' LUMINAIRE
- X 1'X4' LUMINAIRE - EMERGENCY POWER
- X LUMINAIRE WALL MOUNTED
- X LUMINAIRE WALL MOUNTED - EMERGENCY POWER
- X 2'X2' LUMINAIRE
- X 2'X2' LUMINAIRE - EMERGENCY POWER
- X TWIN HEAD WALL MOUNTED EMERGENCY LUMINAIRE - BATTERY OPERATED
- X POLE MOUNTED LUMINAIRE
- X EXIT SIGN WITH DIRECTIONAL ARROWS AS INDICATED SHADING INDICATES NUMBER OF FACES & CONFIGURATION
- X EXIT SIGN WALL MOUNTED

SUBSCRIPT DENOTES
X LETTER DENOTES TYPE

- → DIRECTION ARROW FOR EXIT SIGN
- ↔ DIRECTION ARROW FOR EXIT SIGN
- S SINGLE POLE SNAP SWITCH
- S_3 THREE WAY SNAP SWITCH
- S_4 FOUR WAY SNAP SWITCH
- S_K KEY OPERATED SNAP SWITCH
- S_D DIMMER SWITCH
- S_M SINGLE POLE HP RATED MOTOR DISCONNECT SWITCH
- S_{RL} RAISE/LOWER SWITCH
- S_T MANUAL TIMER SWITCH - O - 2 HOUR
- S_{WP} SINGLE POLE SNAP SWITCH WITH WEATHERPROOF COVER

- a SINGLE RECEPTACLE, SUBSCRIPT IS DEFINED AS FOLLOWS: a = NEMA 6-30R; b = 480V, 3-PHASE PLUS GND, 50A, HUBBELL #CS8165C, OAS; c = NEMA 15-30R
- Y DUPLEX RECEPTACLE
- Y SWITCHED RECEPTACLE
- Y QUADRUPLEX RECEPTACLE
- Y SINGLE RECEPTACLE MOUNTED FLUSH IN FLOOR BOX
- Y SINGLE RECEPTACLE, SPECIAL PURPOSE MOUNTED FLUSH IN FLOOR BOX
- Y DUPLEX RECEPTACLE MOUNTED FLUSH IN FLOOR BOX
- Y QUADRUPLEX RECEPTACLE MOUNTED FLUSH IN FLOOR BOX

Y SUBSCRIPT DENOTES

WP	WEATHERPROOF
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
E	EMERGENCY
CM	MOUNTED FLUSH IN CEILING OR SURFACE OF STRUCTURE ABOVE

- (OS) OCCUPANCY SENSOR WALL MOUNTED - DUAL TECHNOLOGY
- (OS) OCCUPANCY SENSOR CEILING MOUNTED -360° COVERAGE - DUAL TECHNOLOGY
- (OS) AX OCCUPANCY SENSOR CEILING MOUNTED -360° COVERAGE - DUAL TECHNOLOGY AUXILARY CONTACT FOR HVAC SETBACK
- (PE) PHOTO ELECTRIC SWITCH
- (LC) LIGHTING CONTACTOR
- (LCP) LIGHTING CONTROL PANEL
- (J) JUNCTION OR PULLBOX, WALL MOUNTED
- (J) JUNCTION OR PULLBOX, CEILING MOUNTED
- (J) JUNCTION OR PULLBOX, FLUSH MOUNTED IN FLOOR OR FLOORBOX AS NOTED ON PLANS
- DISCONNECT SWITCH, NON FUSIBLE, 30A, 3P UON
- DISCONNECT SWITCH, FUSIBLE, 30A, 3P UON
- STARTER, NEMA SIZE '1' UON
- COMBINATION SWITCH STARTER, NEMA SIZE '1' UON
- (CB) ENCLOSED CIRCUIT BREAKER TYPE AND SIZE AS NOTED
- (R) RELAY
- PUSH BUTTON
- (K) KIRK KEY INTERLOCK

- EXISTING PANELBOARD SURFACE MOUNTED
- EXISTING PANELBOARD FLUSH MOUNTED
- LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARD - SURFACE MOUNTED
- LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARD - FLUSH MOUNTED
- POWER/DISTRIBUTION PANELBOARD - SURFACE MOUNTED
- POWER/DISTRIBUTION PANELBOARD - FLUSH MOUNTED
- EMERGENCY PANELBOARD-SURFACE MOUNTED
- EMERGENCY PANELBOARD-FLUSH MOUNTED
- (T) TRANSFORMER
- GROUND ROD
- GROUNDING SYSTEM TEST WELL
- LIGHTNING PROTECTION AIR TERMINAL
- DIGITAL MULTI-METER
- CONTINUATION
- CONDUIT EXPOSED
- EMERGENCY PANELBOARD-SURFACE MOUNTED
- CONDUIT CAPPED
- CONDUIT TURNED DOWN
- CONDUIT TURNED UP
- HOMERUN - REFER TO ONE LINE DIAGRAM AND PANEL SCHEDULES FOR CONDOCTOR QUANTITIES
- (M) 1/6 MOTOR SINGLE PHASE - HP AS NOTED
- (5) MOTOR THREE PHASE - HP AS NOTED
- GENERATOR THREE PHASE SIZE AS NOTED
- LP LIGHTNING PROTECTION CONDUCTOR
- G GROUNDING CONDUCTOR
- SINGLE CHANNEL SURFACE MOUNTED RACEWAY -HOMERUN ARROW DESIGNATES THE PANEL -"#" DESIGNATES THE CIRCUIT NUMBER

ABBREVIATIONS

A,AMP	AMPERES	LCP	LIGHTING CONTROL PANEL
AC	ALTERNATING CURRENT, AIR COMPRESSOR	LED	LIGHT EMITTING DIODE
ACC	AIR COOLED CHILLER	LP	LIGHTNING PROTECTION
AD	AIR DRYER	LR	LOCAL-REMOTE
AF	AMPERE FRAME	LRA	LOCKED ROTOR AMPERES
AFF	ABOVE FINISHED FLOOR	LS	LONG TIME, SHORT TIME
AFG	ABOVE FINISHED GRADE	LSI	LONG TIME, SHORT TIME, INSTANTANEOUS
AHU	AIR HANDLING UNIT	LSG	LONG TIME, SHORT TIME, GROUND
AIC	AMPERES INTERRUPTING CAPACITY	LSIG	LONG TIME, SHORT TIME, INSTANTANEOUS, GROUND
AL	ALUMINUM		
ARCH	ARCHITECT, ARCHITECTURAL	LI	LONG TIME, INSTANTANEOUS
AT	AMPERE TRIP	LIG	LONG TIME, INSTANTANEOUS, GROUND
ATS	AUTOMATIC TRANSFER SWITCH		
AUX	AUXILIARY	mA	MILLIAMPS
AV	AUDIO VISUAL	MAX	MAXIMUM
AWG	AMERICAN WIRE GAUGE	MCB	MAIN CIRCUIT BREAKER
		MCC	MOTOR CONTROL CENTER
B	BOILER	MCP	MOTOR CIRCUIT PROTECTOR
BF	BALLAST FACTOR	MECH	MECHANICAL
BAS	BUILDING AUTOMATION SYSTEM	MFAP	MAIN FIRE DETECTION & ALARM PANEL
BCP	BOILER CONTROL PANEL	MFR	MANUFACTURER
BFP	BOILER FEEDWATER PUMP	MH	METAL HALIDE
BKR	BREAKER	MLO	MAIN LUGS ONLY
BLDG	BUILDING	MOV	METAL OXIDE VARISTOR
BFDF	BOILER FORCED DRAFT FAN	MTD	MOUNTED
BIDF	BOILER INDUCED DRAFT FAN	MV-90, 105	MEDIUM VOLTAGE CABLE 90C, 105C
		MVA	MEGA VOLT AMPERES
CL	CENTERLINE	MW	MEGA WATTS
C	CONDUIT		
CAFSS	CLEAN AGENT FIRE SUPPRESSION SYSTEM	N, NEU	NEUTRAL
CAOP	CHILLER AUXILIARY OIL PUMP	NC	NORMALLY CLOSED
CATV	CABLE TELEVISION SYSTEM	NEC	NATIONAL ELECTRICAL CODE
CB	CIRCUIT BREAKER	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
CCP	CHILLER CONTROL PANEL		
CCTV	CLOSED CIRCUIT TELEVISION SYSTEM	NIC	NOT IN CONTRACT
CDP	CONDENSATE PUMP	NO	NORMALLY OPEN
CH	CHILLER	#	NUMBER
CHP	CHILLED WATER PUMP	NTS	NOT TO SCALE
CKT	CIRCUIT		
CLG	CEILING	OAS	OR APPROVED SUBSTITUTION
CMH	COMMUNICATIONS MANHOLE	OCPD	OVERCURRENT PROTECTIVE DEVICE
COAX	COAXIAL CABLE	OC	ON CENTER
CONT	CONTINUATION	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
COORD	COORDINATION, COORDINATE	OFOI	OWNER FURNISHED, OWNER INSTALLED
CP	CONTROL PANEL	OH	OVERHEAD
CPT	CONTROL POWER TRANSFORMER	OL	OVERLOAD
CSU	COLLEGE STATION UTILITIES		
CT	CURRENT TRANSFORMER, COOLING TOWER	P	POLE
CTF	COOLING TOWER FAN	PA	PUBLIC ADDRESS
CTR	CONTROLLER, CENTER	PB	PULL BOX
CU	COPPER, CONDENSING UNIT	PCHP	PRIMARY CHILLED WATER PUMP
CV	CONSTANT VOLUME TERMINAL UNIT	PDU	POWER DISTRIBUTION UNIT
CWP	CONDENSER WATER PUMP	PF	POWER FACTOR
		PFCC	POWER FACTOR CORRECTION CAPACITOR
DA	DEAERATOR	PH	PHASE
DATACOM	DATA AND/OR COMMUNICATION	PIR	PASSIVE INFRARED
DB	DUCT BANK	PLC	PROGRAMMABLE LOGIC CONTROLLER
DC	DIRECT CURRENT	PMH	POWER MANHOLE
DCT	DIMMING CONTROLLER	PMT	PAD MOUNT
DCS	DISTRIBUTED CONTROL SYSTEM	PNL	PANELBOARD
DDC	DIRECT DIGITAL CONTROL	PS	PROGRAMMED START
DEMO	DEMOLITION	PVC	POLYVINYL CHLORIDE
DIP	DEIONIZED WATER PUMP	PVC-RGS	PVC COATED RIGID GALVANIZED STEEL CONDUIT
DIV	DIVISION		
DPDT	DOUBLE POLE, DOUBLE THROW	RAC	RIGID ALUMINUM CONDUIT
DPST	DOUBLE POLE, SINGLE THROW	RCPT	RECEPTACLE
DWG	DRAWING	RE	REFER TO, REGARDING, REFERENCE
DWP	DOMESTIC WATER PUMP	RFAP	REMOTE FIRE DETECTION & ALARM PANEL
		RGS	RIGID GALVANIZED STEEL CONDUIT
E, EM	EMERGENCY	RL	RAISE-LOWER
EA	EACH	RMS	ROOT MEAN SQUARE
EC	EMPTY CONDUIT	ROP	REVERSE OSMOSIS PUMP
EDF	ELECTRIC DRINKING FOUNTAIN	RS	RAPID START
EF	EXHAUST FAN	RTD	RESISTANCE TEMPERATURE DETECTOR
EG	EQUIPMENT GROUND	RVAT	REDUCED-VOLTAGE AUTO TRANSFORMER
EGP	ELECTRONIC GRADE PANEL		
ELS	EMERGENCY LIFE SAFETY	SCADA	SUPERVISORY CONTROL & DATA ACQUISITION
EMS	ENERGY MANAGEMENT SYSTEM	SCH	SCHEDULE
EMT	ELECTRIC METALLIC TUBING	SCHP	SECONDARY CHILLED WATER PUMP
EPR	ETHYLENE-PROPYLENE RUBBER	SEP	SEWAGE EJECTOR PUMP
EIWH	ELECTRIC INSTANT WATER HEATER	SF	SUPPLY FAN
EXIST	EXISTING	SHLD	SHIELDED
		SP	SUMP PUMP
FA	FIRE DETECTION AND ALARM SYSTEM	SPD	SURGE PROTECTION DEVICE
FCU	FAN COIL UNIT	SPDT	SINGLE POLE, DOUBLE THROW
FCV	FAN-CONSTANT VOLUME TERMINAL UNIT	SPST	SINGLE POLE, SINGLE THROW
FLA	FULL LOAD AMPS	SPF	STAIRWELL PRESSURIZATION FAN
FO	FIBER OPTIC(S)	SS	STAINLESS STEEL
FP	FIRE PUMP	SSOL	SOLID STATE OVER LOAD
FSD	FIRE SMOKE DAMPER	STD	STANDARD
FUT	FUTURE	STP	SHIELDED TWISTED PAIR
FVNR	FULL VOLTAGE NON-REVERSING	SW	SWITCH
FVV	FAN-VARIABLE VOLUME TERMINAL UNIT	SWBD	SWITCHBOARD
		SWGR	SWITCHGEAR
GAOP	GEAR AUXILIARY OIL PUMP	SYML	SYMMETRICAL
GEN	GENERATOR	SYNCH	SYNCHRONOUS
GFCI	GROUND FAULT CIRCUIT INTERRUPTER		
GFEP	GROUND FAULT EQUIPMENT PROTECTION	TELECOM	TELECOMMUNICATIONS
G, GND	GROUND	TOP	TURBINE OIL PUMP
GRAP	GENERATOR REMOTE ANNUNCIATOR PANEL	TSP	TWISTED SHIELDED PAIR
GWH	GAS-FIRED WATER HEATER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
		TYP	TYPICAL
H	HOT		
HID	HIGH INTENSITY DISCHARGE	UG	UNDERGROUND
HMT	HARMONIC MITIGATING TRANSFORMER	UH	UNIT HEATER
HOA	HAND OFF AUTOMATIC	UL	UNDERWRITER'S LABORATORY
HP	HORSEPOWER	UON	UNLESS OTHERWISE NOTED
HPS	HIGH PRESSURE SODIUM	UPS	UNINTERRUPTIBLE POWER SUPPLY
HRG	HIGH RESISTANCE GROUND	UTP	UNSHIELDED TWISTED PAIR
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING		
HWC	HOT WATER CIRCULATING PUMP	V	VOLTS
HWP	HEATING WATER PUMP	VA	VOLT AMPERES
		VAC	VOLTS ALTERNATING CURRECT
I/O	INPUT/OUTPUT	VAR	VOLT AMPERES REACTIVE
IG	ISOLATED GROUND	VDC	VOLTS DIRECT CURRENT
IR	INFRARED	VFD	VARIABLE FREQUENCY DRIVE
IRR	IRRIGATION	VP	VACUUM PUMP
IS	INSTANT START	VT	VOLTAGE TRANSFORMER
		VV	VARIABLE VOLUME TERMINAL UNIT
J, JB	JUNCTION BOX		
JP	JOCKEY PUMP	W	WIRE
		W/	WITH
K	KILO, THOUSAND	WG	WIRE GUARD
KA	KILOAMPERES	WH	WATER HEATER
KAIC	THOUSAND AMPERES INTERRUPTING CAPACITY	WP	WEATHERPROOF
KCMIL	THOUSAND CIRCULAR MILS	XFMR	TRANSFORMER
KV	KILOVOLT		
KVA	KILOVOLT AMPERES	Y	WYE
KW	KILOWATT		
KWH	KILOWATT-HOUR	Z	IMPEDANCE
LTG	LIGHTING		
LC	LIGHTING CONTACTOR		

00-DRAWING LIST - ELECTRICAL

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04/01/2025

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E001

ELECTRICAL LEGEND SYMBOLS AND ABBREVIATIONS

Treanor NO. XX#####.##

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER AND CATALOG NUMBER	DESCRIPTION	VOLTAGE	LAMPS	MOUNTING	MAX WATTS	REMARKS
LA	H.E. WILLIAMS #PT-22-L26-840-DIM-UNV APPROVED EQUAL	2X2 TROFFER	120/277	LED 4000K 80 CRI 2600 LM	RECESSED	22	STANDARD WITH 0-10V DIMMING DRIVER.
LD	H.E. WILLIAMS #6DR-L15-840-DIM-UNV APPROVED EQUAL	6" DOWNLIGHT	120/277	LED 4000K 80 CRI 1500 LM	RECESSED	18	STANDARD WITH 0-10V DIMMING DRIVER.
LL 8	LUMINWERX #VIA4P-80CRI-1000LMF-40K-8FT-UNV-D1 APPROVED EQUAL	8' LINEAR PENDANT	120/277	LED 4000K 80 CRI 8000 LM	PENDANT	75	STANDARD WITH 0-10V DIMMING DRIVER.
LM	H.E. WILLIAMS #76R-4-L72-840-DIM-UNV APPROVED EQUAL	4' INDUSTRIAL STRIP	120/277	LED 4000K 80 CRI 7200 LM	SURFACE MOUNTED	50	STANDARD WITH 0-10V DIMMING DRIVER.
SP	LOUIS POULSEN #5747932973 APPROVED EQUAL	PEDESTRIAN LIGHT FIXTURE, TYPE V WIDE COLOR: MATCH EXISTING POLE: 14' ROUND STEEL POLE. SINGLE HEAD, POST TOP MOUNT, 110 MPH WITH 1.3 GUST FACTOR	277	LED 4000K 80 CRI 4800 LM	POLE MOUNTED	71	STANDARD WITH 0-10V DIMMING DRIVER. PHOTOCELL CONTROL.
SW	COOPER # IST-SA1-E-740-U-T3 APPROVED EQUAL	WALLPACK	277	LED 4000K 70 CRI 7200 LM	WALL MOUNTED	58	STANDARD WITH 0-10V DIMMING DRIVER. PHOTOCELL CONTROL.
XA	DUAL-LITE #LE-C-S-R-(DIRECTION)-N-E-I LITHONIA #LRP1RC(DIRECTION) 120/277 SURE-LITES	SINGLE FACE EDGE LIT LED EXIT SIGN, BRUSHED ALUMINUM HOUSING, VIRGIN ACRYLIC PANEL, RED LETTER ON MIRROR BACKROUND, DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS, TOP MOUNT.	277	LED	CEILING	3	UNSWITCHED
XB	DUAL-LITE #LE-C-D-R-(DIRECTION)-N-E-I-M LITHONIA #LRP2RMR(DIRECTION) 120/277 SURE-LITES	DOUBLE FACE EDGE LIT LED EXIT SIGN, BRUSHED ALUMINUM HOUSING, VIRGIN ACRYLIC PANEL, RED LETTER ON MIRROR BACKROUND, DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS, TOP MOUNT.	277	LED	CEILING	6	UNSWITCHED

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E002

LUMINAIRE SCHEDULE

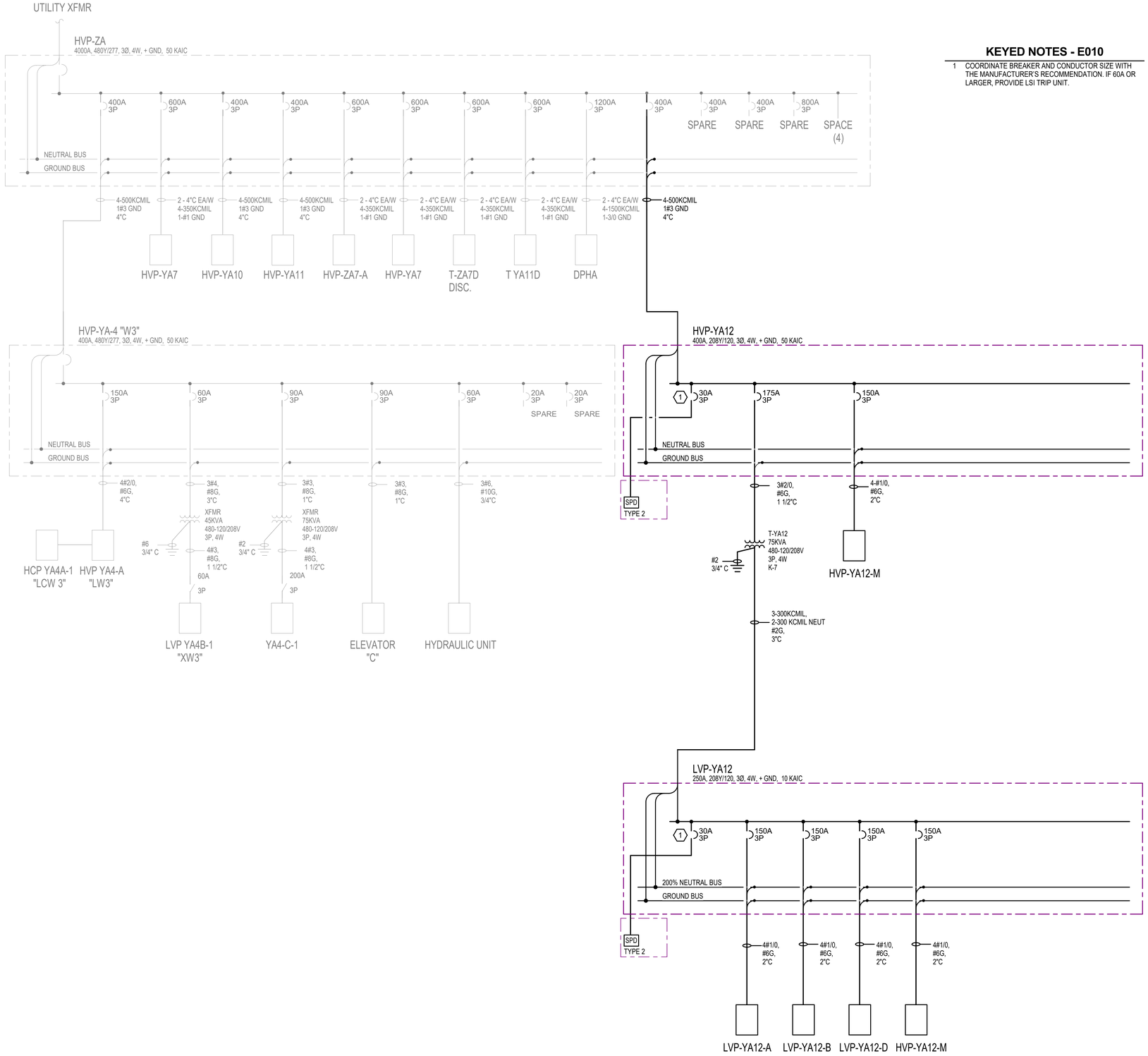
Treanor NO. XX##### ##

GENERAL NOTES - E010

A ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN. ITEMS SHOWN BOLD ARE NEW.

KEYED NOTES - E010

1 COORDINATE BREAKER AND CONDUCTOR SIZE WITH THE MANUFACTURER'S RECOMMENDATION. IF 60A OR LARGER, PROVIDE LSI TRIP UNIT.



1 ONE LINE DIAGRAM
NO SCALE

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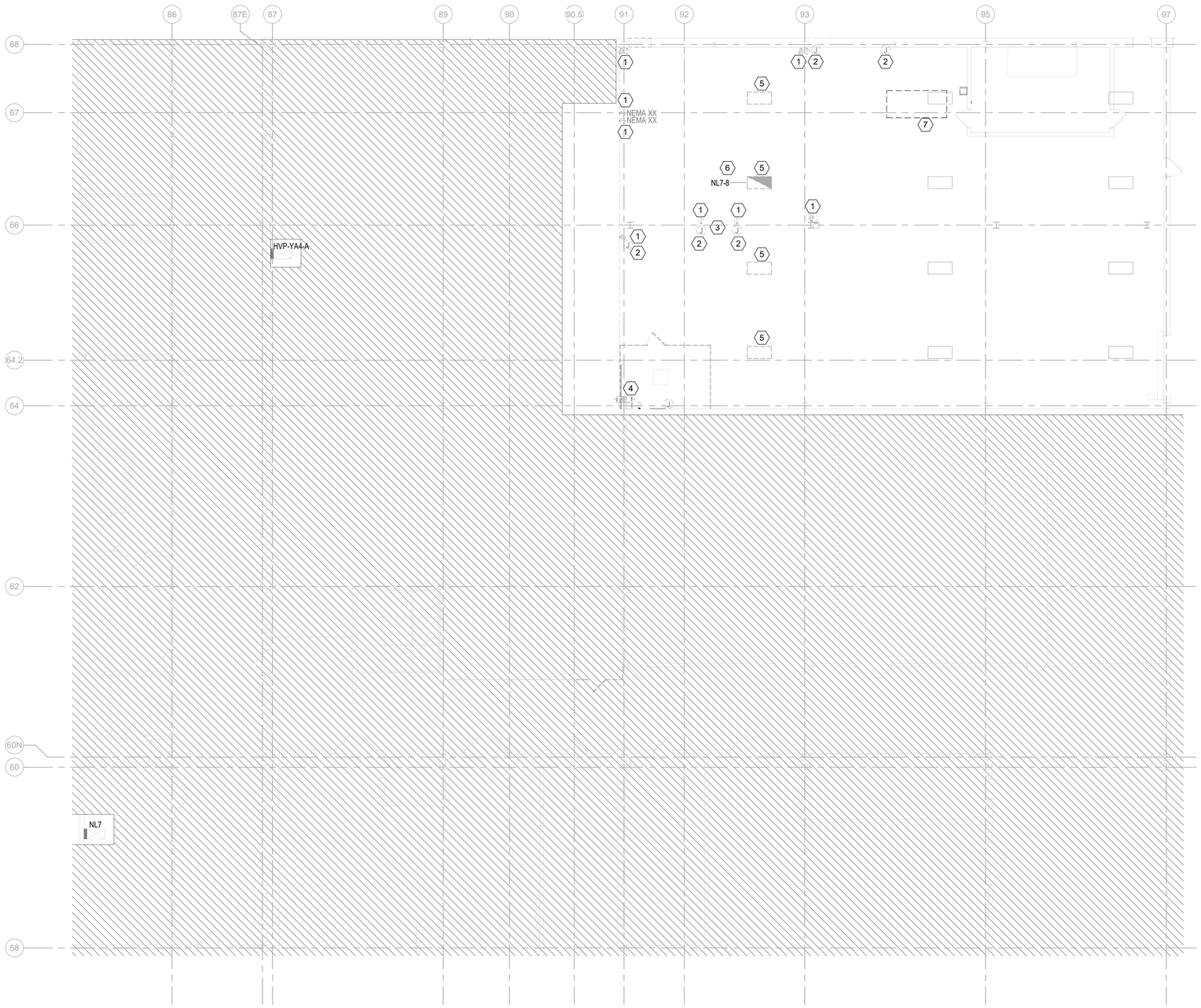
E010

ONE LINE DIAGRAMS

Treanor NO. XX##### ##



1 LEVEL 1 DEMOLITION
1/8" = 1'-0"

True NORTH Plan NORTH

1/8" = 1'-0" 0' 8' 16'

GENERAL NOTES - E010

A ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN. ITEMS SHOWN BOLD ARE NEW.

KEYED NOTES - ED101

1 REMOVE RECEPTACLES. REMOVE CONDUIT AND CONDUCTORS BACK TO LAST POINT OF ACTIVE SERVICE. IF THE LAST POINT OF ACTIVE SERVICE IS THE PANEL TURN OFF BREAKER AND LABEL SPARE.

2 REMOVE JUNCTION BOX. REMOVE CONDUIT AND CONDUCTORS BACK TO LAST POINT OF ACTIVE SERVICE. REUSE CONDUIT FOR NEW WORK.

3 REMOVE SUPPORTS. REMOVE BOLTS AND FILL HOLES IN CONCRETE.

4 RELOCATE AS NECESSARY.

5 REMOVE LIGHTING FIXTURE. REMOVE CONDUIT AND CONDUCTORS BACK TO LAST POINT OF ACTIVE SERVICE. IF THE LAST POINT OF ACTIVE SERVICE IS THE PANEL TURN OFF BREAKER AND LABEL SPARE.

6 REUSE CIRCUIT FOR NEW WORK. VERIFY CIRCUIT NL7-8 IS USED TO SERVE LIFE SAFETY LIGHTING IN THE AREA.

7 REMOVE AND RELOCATE POWER AND CONTROLS FROM EXISTING FAN COIL UNIT.

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ED101

ELECTRICAL DEMOLITION PLAN

Treanor NO. XX##### ##

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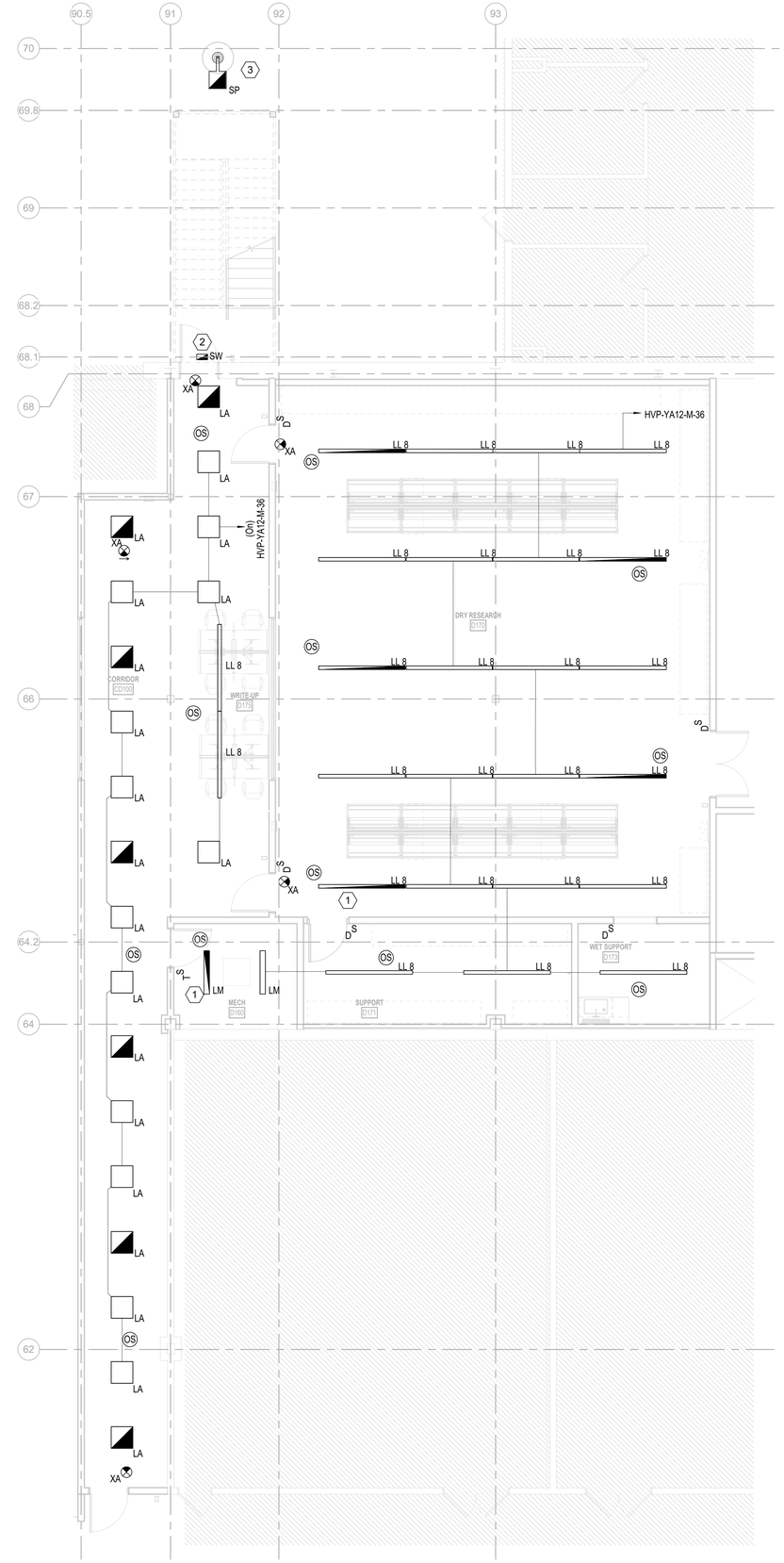

1 LEVEL 1 LIGHTING PLAN
3/16" = 1'-0"

GENERAL NOTES - E101

A ALL EMERGENCY LUMINAIRES AND EXIT LIGHTS ARE TO REMAIN UNSWITCHED, UON.

B LIGHTED EXIT SIGNS ARE SHOWN FOR QUANTITIES AND GENERAL LOCATIONS. COORDINATE WITH ARCHITECT FOR EXACT LOCATION OF LIGHTED EXIT SIGNS.

C SINGLE-FACE EXIT SIGNS ARE TYPE XA, UON. DOUBLE-FACE SIGNS ARE TYPE XB, UON.

D COORDINATE ELECTRICAL WORK WITH ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, AND PLUMBING SO AS TO AVOID INTERFERENCE WITH OR COMPROMISE OF OTHER SYSTEMS.

E SEE ENLARGED ELECTRICAL PLANS FOR LOCATION OF LIGHTING BRANCH CIRCUIT PANELBOARDS AND LIGHTING CONTACTORS.

F LIFE SAFETY LIGHTING ON THIS SHEET IS SERVED FROM CIRCUIT PREVIOUSLY USED IN THE AREA. VERIFY CIRCUIT NL7-8. SEE DEMOLITION PLANS FOR ADDITIONAL INFORMATION.

G COORDINATE FINAL LUMINAIRE LOCATION WITH ARCHITECTURAL REFLECTING CEILING PLANS.

KEYED NOTES - E101

1 PROVIDE UL924 RELAYS FOR CONTROL OF EMERGENCY LIGHTING. PROVIDE RELAY FLUSH IN CEILING TILE SO THAT THE INDICATOR LIGHTS ARE VISABLE FROM BELOW. LOCATE THE RELAY AT THE ENTRY DOOR INTERIOR TO THE ROOM. PROVIDE THE NUMBER OF RELAYS NECESSARY FOR SWITCHING/DIMMING SCHEME.

2 UNT-DP STANDARD BUILDING MOUNTED LIGHT. MOUNT A EXTERIOR OCCUPANCY SENSOR TO CONTROL EXTERIOR LIGHTS. CONNECT BACK TO EXTERIOR LIGHTING CIRCUIT INDICATED ON LEVEL 2.

3 UNT-DP STANDARD PEDESTRIAN LIGHT ON A 14 FOOT POLE. CONNECT BACK TO EXTERIOR LIGHTING CIRCUIT INDICATED ON LEVEL 2.

True NORTH
Plan NORTH

3/16"=1'-0" 0' 6' 12'

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E101

LEVEL 01 LIGHTING PLAN

Treanor NO. XX##### ##

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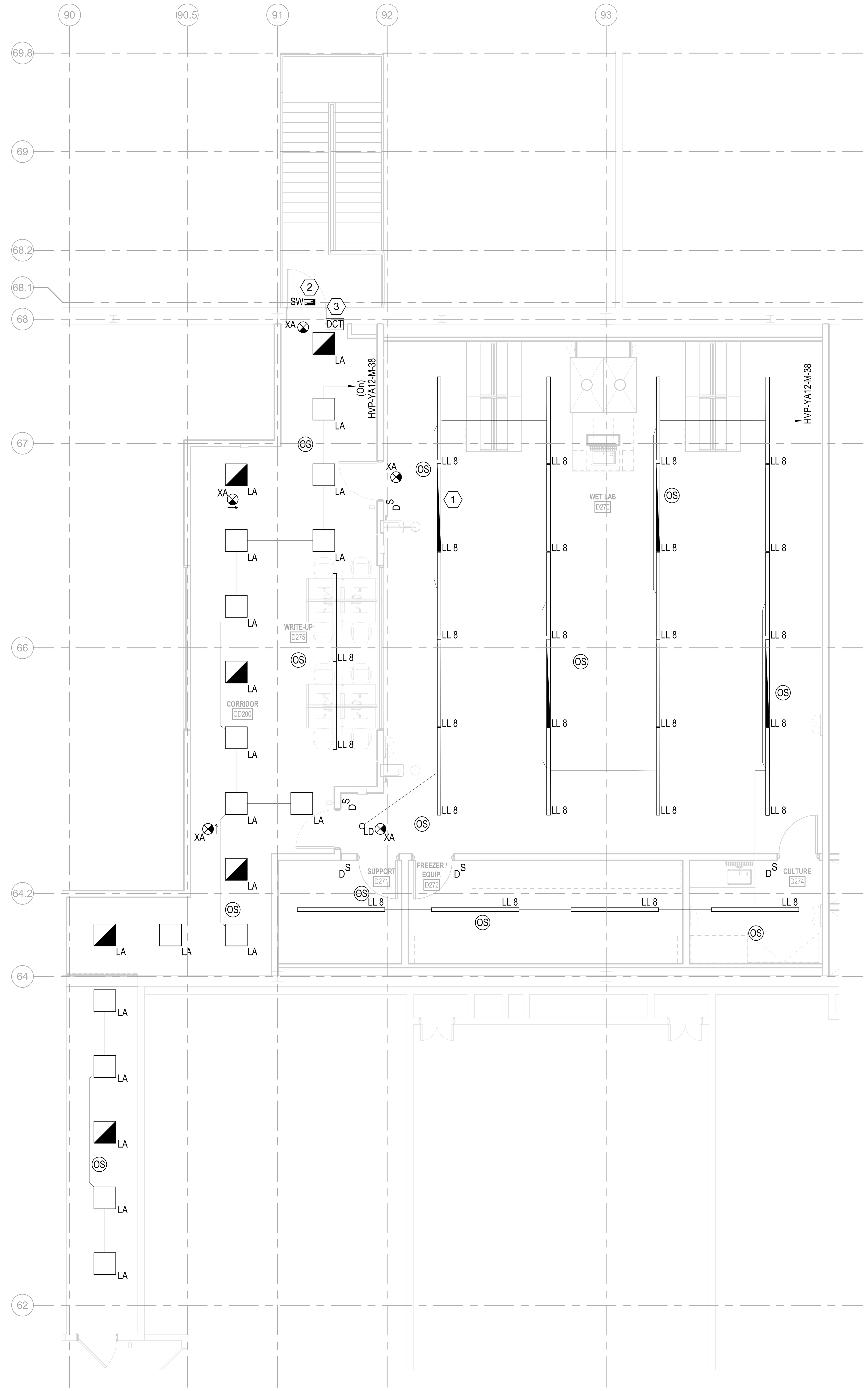

1 LEVEL 2 LIGHTING PLAN
3/16" = 1'-0"

GENERAL NOTES - E102

A ALL EMERGENCY LUMINAIRES AND EXIT LIGHTS ARE TO REMAIN UNSWITCHED, UON.

B LIGHTED EXIT SIGNS ARE SHOWN FOR QUANTITIES AND GENERAL LOCATIONS. COORDINATE WITH ARCHITECT FOR EXACT LOCATION OF LIGHTED EXIT SIGNS.

C SINGLE-FACE EXIT SIGNS ARE TYPE XA, UON. DOUBLE-FACE SIGNS ARE TYPE XB, UON.

D COORDINATE ELECTRICAL WORK WITH ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, AND PLUMBING SO AS TO AVOID INTERFERENCE WITH OR COMPROMISE OF OTHER SYSTEMS.

E SEE ENLARGED ELECTRICAL PLANS FOR LOCATION OF LIGHTING BRANCH CIRCUIT PANELBOARDS AND LIGHTING CONTACTORS.

F LIFE SAFETY LIGHTING ON THIS SHEET IS SERVED FROM CIRCUIT PREVIOUSLY USED IN THE AREA. VERIFY CIRCUIT NL7-8. SEE DEMOLITION PLANS FOR ADDITIONAL INFORMATION.

G COORDINATE FINAL LUMINAIRE LOCATION WITH ARCHITECTURAL REFLECTING CEILING PLANS.

KEYED NOTES - E102

1 PROVIDE UL924 RELAYS FOR CONTROL OF EMERGENCY LIGHTING. PROVIDE RELAY FLUSH IN CEILING TILE SO THAT THE INDICATOR LIGHTS ARE VISABLE FROM BELOW. LOCATE THE RELAY AT THE ENTRY DOOR INTERIOR TO THE ROOM. PROVIDE THE NUMBER OF RELAYS NECESSARY FOR SWITCHING/DIMMING SCHEME.

2 UNT-DP STANDARD BUILDING MOUNTED LIGHT. MOUNT A EXTERIOR OCCUPANCY SENSOR TO CONTROL EXTERIOR LIGHTS. CONNECT TO SPARE BREAKER IN EXISTING PANEL NL7. PROVIDE PHOTOCELL AT THE ROOF LEVEL FOR EXTERIOR LIGHTING CONTROL. PROVIDE 2#10 ,#10G, 3/4"C

3 DIMMING CONTROLLER FOR EXTERIOR LIGHTING. MOUNT ABOVE THE CEILING IN AN ACCESSIBLE LOCATION. PROVIDE EXTERIOR OCCUPANCY SENSOR FOR THE EXTERIOR DIMMING CONTROLLER. REFER TO THE EXTERIOR CONTROL DETAIL.

True NORTH Plan NORTH

3/16"=1'-0" 0' 6' 12'

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E102

LEVEL 02 LIGHTING PLAN

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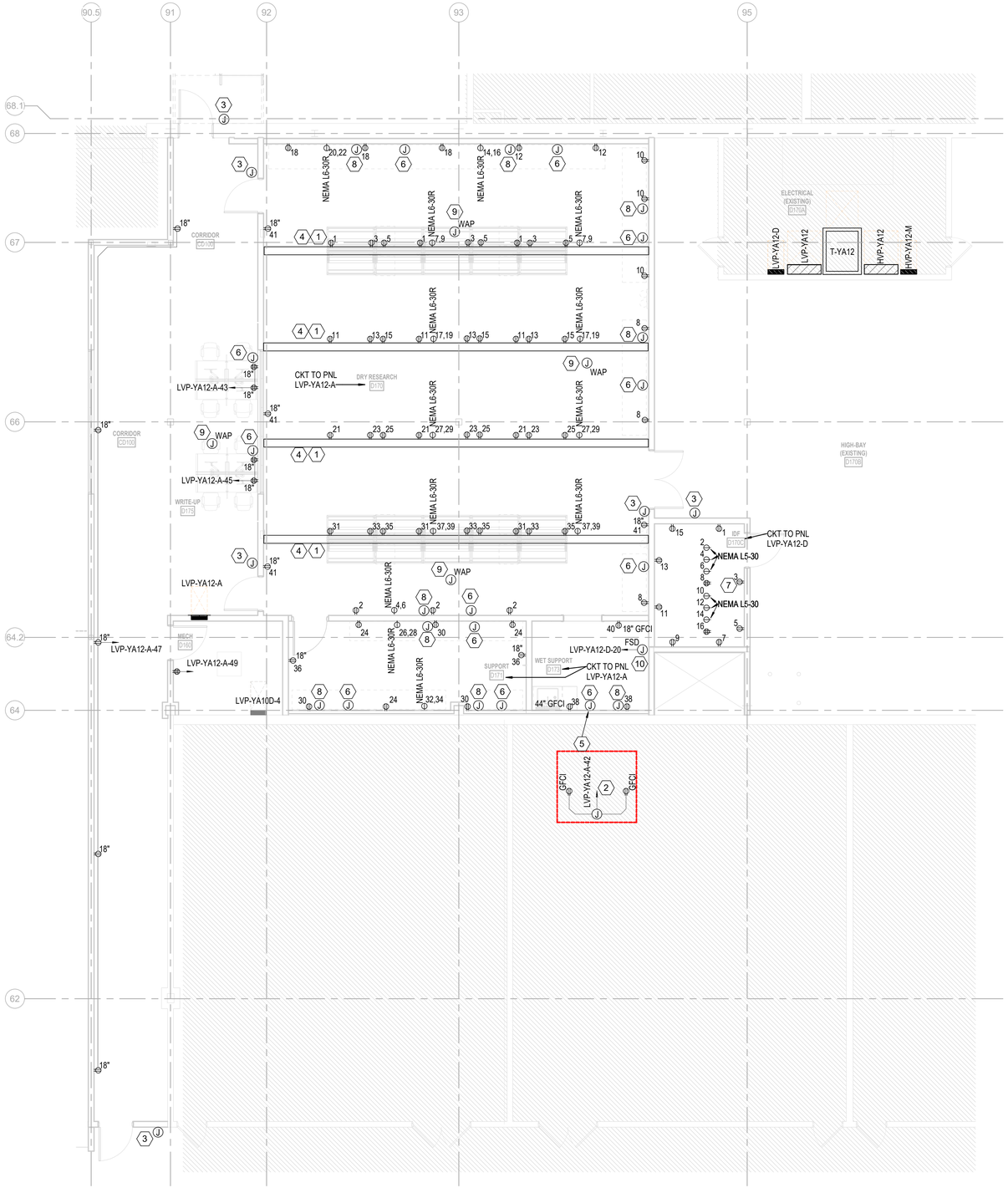

1 LEVEL 1 - POWER PLAN
3/16" = 1'-0"

GENERAL NOTES - E201

A REFER TO TELECOM DRAWINGS FOR LOCATION OF TELECOM, SECURITY, A/V OUTLETS, ADDITIONAL POWER AND OTHER COMMUNICATIONS SYSTEMS DEVICES. COORDINATE WITH COMMUNICATION SUPPLIER FOR LOCATIONS AND REQUIREMENTS.

B FINAL DIMENSIONS OF FLOOR BOX AND POKE-THROUGH LOCATIONS BY ARCHITECT. COORDINATE WITH STRUCTURAL PRIOR TO PENETRATION OF STRUCTURAL SLAB.

C ALL RECEPTACLES ARE MOUNTED 44" UON. VERIFY HEIGHT AND ALIGMENT OF DEVICES WITH ARCHITECTURAL DRAWINGS. COORDINATE OUTLET/RECEPTACLE LOCATIONS WITH MILL WORK, CASEWORK, ETC.

D LOCATE ALL LOCAL DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT ADJACENT TO, BUT SEPARATE FROM, EQUIPMENT SERVED. PROVIDE SECURELY-ANCHORED METAL FRAMING PER SECTION 260529.

E UPDATE PANELBOARD SCHEDULES UPON COMPLETION OF PROJECT TO REFLECT FINAL CIRCUIT NUMBERS AND DESCRIPTIONS.

KEYED NOTES - E201

1 LAB CEILING SERVICE PANEL. PROVIDE RECEPTACLES AS SHOWN. ALL RECEPTACLES SHALL BE TWIST LOCK; NEMA L5-20 UNLESS OTHERWISE NOTED.

2 PROVIDE JUNCTION BOX ABOVE CEILING FOR SINGLE POINT POWER CONNECTION TO FUME HOOD. COORDINATE LOCATION AND CONNECTION WITH EQUIPMENT. PROVIDE GFCI RECEPTICALS.

3 BACK BOX FOR CARD READER. PROVIDE 3/4" CONDUITS FROM THE READER BOX, HINGE, STRIKE AND DOOR POSITION SWITCH BACK TO AN 8"X8" BOX LOCATED ON THE SECURE SIDE OF THE DOOR. PROVIDE A 1" CONDUIT FROM THE 8"X8" BOX TO AN ACCESSIBLE LOCATION IN THE ADJACENT HALLWAY. COORDINATE LOCATIONS WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. PROVIDE PULL STRING IN EMPTY RACEWAYS.

4 COORDINATE BACKBOX FOR TELECOMMUNICATION DEVICE IN THE CEILING SERVICE PANEL. COORDINATE LOCATIONS WITH THE OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.

5 PROVIDE UNDER ALTERNATE BID #1. SEE ARCHITECTURAL DRAWINGS FOR FURTHER ALTERNATE SCOPE OF WORK.

6 PROVIDE EMPTY JUNCTION BOX FOR FUTURE USE AS A RECEPTACLE MOUNTED AT 44". PROVIDE CONDUIT ROUTED FROM JUNCTION BOX TO AN ACCESSIBLE SPACE IN THE CEILING.

7 POWER TO THE ACCESS CONTROL PANEL. COORDINATE FINAL LOCATION AND CONNECTION TO THE EQUIPMENT.

8 BACKBOX FOR TELECOMMUNICATION DEVICE. PROVIDE 1 1/4" CONDUIT TO AN ACCESSIBLE SPACE ABOVE THE CEILING. COORDINATE LOCATIONS WITH THE OWNERS REPRESENTATIVE PRIOR TO INSTALLATION. PROVIDE PULL STRING IN EMPTY RACEWAYS.

9 PROVIDE BACKBOX FOR THE WAP. COORDINATE FINAL LOCATION WITH UNT ITS.

10 BACKBOX FOR FIRE SMOKE DAMPER. COORDINATE FINAL LOCATION.

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E201

LEVEL 01 POWER PLAN

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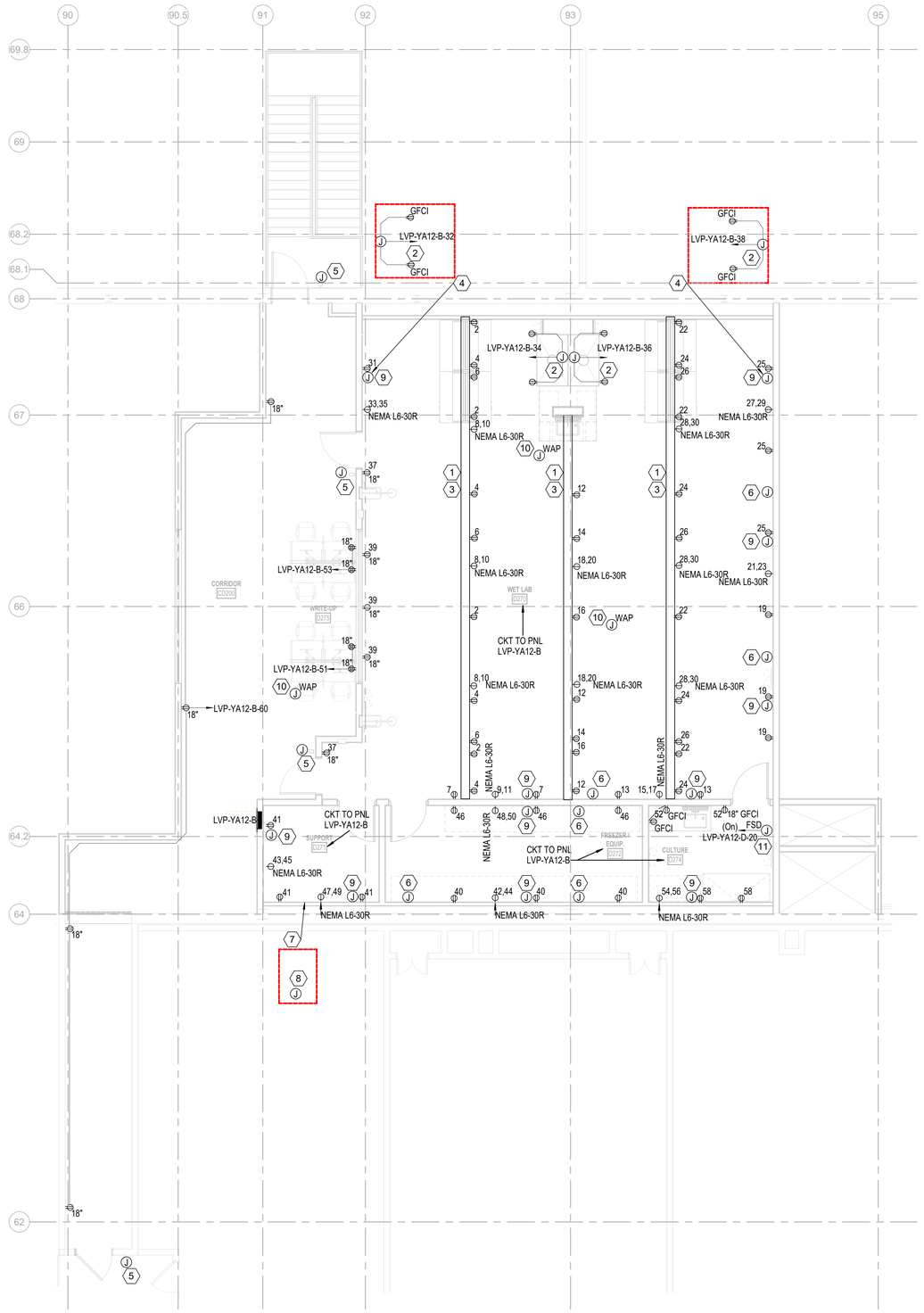
True NORTH Plan NORTH

3/16"=1'-0" 0' 6' 12'



1 LEVEL 2 POWER PLAN
3/16" = 1'-0"

GENERAL NOTES - E202

A REFER TO TELECOM DRAWINGS FOR LOCATION OF TELECOM, SECURITY, A/V OUTLETS, ADDITIONAL POWER AND OTHER COMMUNICATIONS SYSTEMS DEVICES. COORDINATE WITH COMMUNICATION SUPPLIER FOR LOCATIONS AND REQUIREMENTS.

B FINAL DIMENSIONS OF FLOOR BOX AND POKE-THROUGH LOCATIONS BY ARCHITECT. COORDINATE WITH STRUCTURAL PRIOR TO PENETRATION OF STRUCTURAL SLAB.

C ALL RECEPTACLES ARE MOUNTED 44" UON. VERIFY HEIGHT AND ALIGMENT OF DEVICES WITH ARCHITECTURAL DRAWINGS. COORDINATE OUTLET/RECEPTACLE LOCATIONS WITH MILL WORK, CASEWORK, ETC.

D LOCATE ALL LOCAL DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT ADJACENT TO, BUT SEPARATE FROM, EQUIPMENT SERVED. PROVIDE SECURELY-ANCHORED METAL FRAMING PER SECTION 260529.

E UPDATE PANELBOARD SCHEDULES UPON COMPLETION OF PROJECT TO REFLECT FINAL CIRCUIT NUMBERS AND DESCRIPTIONS.

KEYED NOTES - E202

1 LAB CEILING SERVICE PANEL. PROVIDE RECEPTACLES AS SHOWN. ALL RECEPTACLES SHALL BE TWIST LOCK; NEMA L5-20 UON.

2 PROVIDE JUNCTION BOX ABOVE CEILING FOR SINGLE POINT POWER CONNECTION TO FUME HOOD. COORDINATE LOCATION AND CONNECTION WITH EQUIPMENT. PROVIDE GFCI RECEPTICALS.

3 COORDINATE BACKBOX FOR TELECOMMUNICATION DEVICE IN THE CEILING SERVICE PANEL. COORDINATE LOCATIONS WITH THE OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.

4 PROVIDE UNDER ALTERNATE BID #2. SEE ARCHITECTURAL DRAWINGS FOR FURTHER ALTERNATE SCOPE OF WORK.

5 BACK BOX FOR CARD READER. PROVIDE 3/4" CONDUITS FROM THE READER BOX, HINGE, STRIKE AND DOOR POSITION SWITCH BACK TO AN 8"X8" BOX LOCATED ON THE SECURE SIDE OF THE DOOR. PROVIDE A 1" CONDUIT FROM THE 8"X8" BOX TO AN ACCESSIBLE LOCATION IN THE ADJACENT HALLWAY. COORDINATE LOCATIONS WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. PROVIDE PULL STRING IN EMPTY RACEWAYS.

6 PROVIDE EMPTY JUNCTION BOX FOR FUTURE USE AS A RECEPTACLE MOUNTED AT 44". PROVIDE CONDUIT ROUTED FROM JUNCTION BOX TO AN ACCESABLE SPACE IN THE CEILING.

7 PROVIDE UNDER ALTERNATE BID #4. SEE ARCHITECTURAL DRAWINGS FOR FURTHER ALTERNATE SCOPE OF WORK.

8 PROVIDE EMPTY JUNCTION BOX FOR FUTURE USE AS A RECEPTACLE. PROVIDE 1" CONDUIT BACK TO PANEL HVP-YA12. PROVIDE 3/4" CONDUIT BACK TO PANEL LVP-YA12-B. BOTH CONDUITS WILL BE STUBBED TO AN ACCESSABLE CEILING SPACE APPROXIMATELY 2' OF CENTERLINE OF PLAN SOUTH WALL. PROVIDE PULL STRING IN EMPTY CONDUITS.

9 BACKBOX FOR TELECOMMUNICATION DEVICE. PROVIDE 1 1/4" CONDUIT TO AN ACCESSIBLE SPACE ABOVE THE CEILING. COORDINATE LOCATIONS WITH THE OWNERS REPRESENTATIVE PRIOR TO INSTALLATION. PROVIDE PULL STRING IN EMPTY RACEWAYS.

10 PROVIDE BACKBOX FOR THE WAP. COORDINATE FINAL LOCATION WITH UNT ITS.

11 BACKBOX FOR FIRE SMOKE DAMPER. COORDINATE FINAL LOCATION.

True NORTH Plan NORTH

3/16"=1'-0" 0' 6' 12'

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E202

LEVEL 02 POWER PLAN

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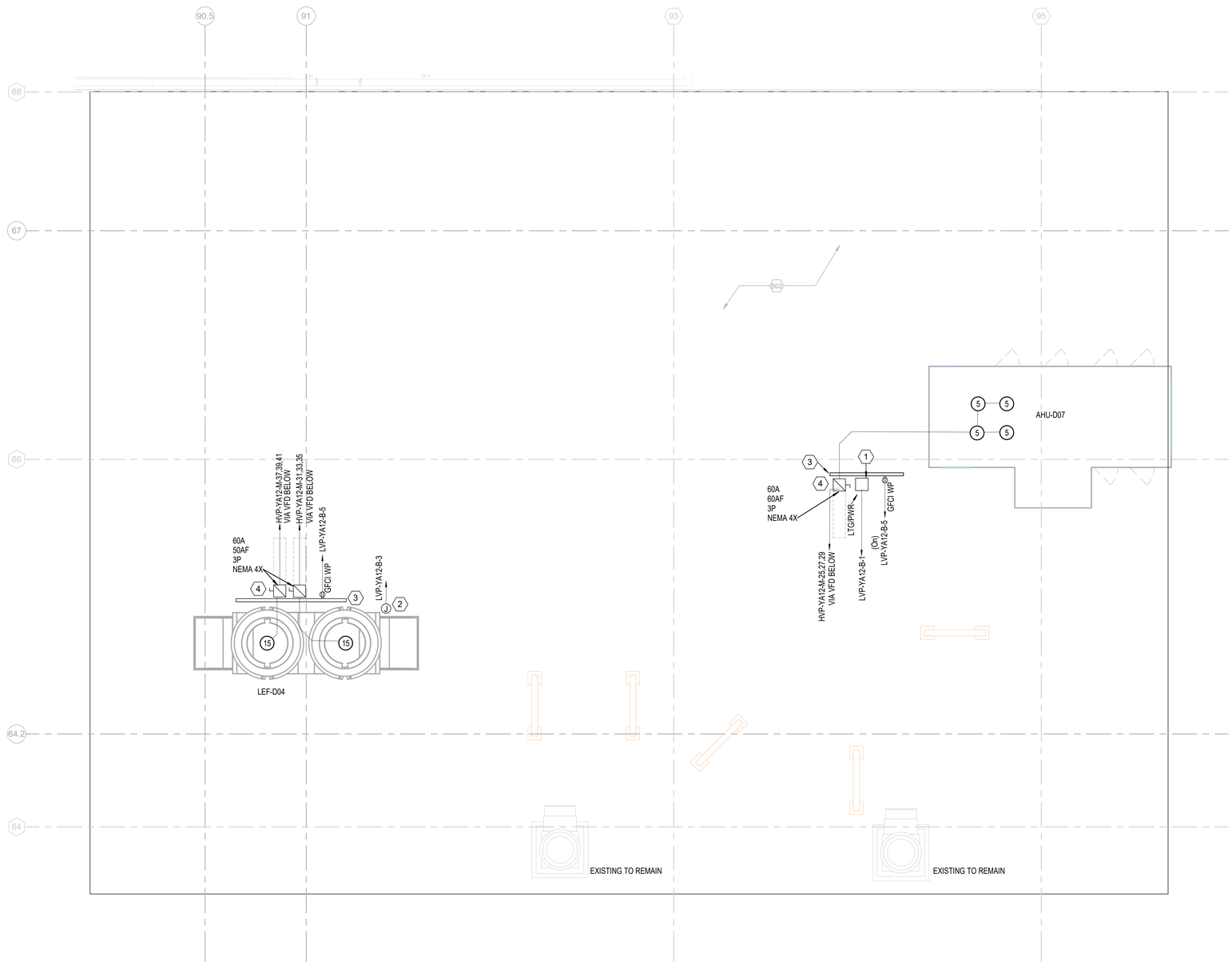

1 ROOF - POWER PLAN
1/4" = 1'-0"

GENERAL NOTES - E203

A REFER TO TELECOM DRAWINGS FOR LOCATION OF TELECOM, SECURITY, A/V OUTLETS, ADDITIONAL POWER AND OTHER COMMUNICATIONS SYSTEMS DEVICES. COORDINATE WITH COMMUNICATION SUPPLIER FOR LOCATIONS AND REQUIREMENTS.

B FINAL DIMENSIONS OF FLOOR BOX AND POKE-THROUGH LOCATIONS BY ARCHITECT. COORDINATE WITH STRUCTURAL PRIOR TO PENETRATION OF STRUCTURAL SLAB.

C ALL RECEPTACLES ARE MOUNTED 18" UON. VERIFY HEIGHT AND ALIGMENT OF DEVICES WITH ARCHITECTURAL DRAWINGS. COORDINATE OUTLET/RECEPTACLE LOCATIONS WITH MILL WORK, CASEWORK, ETC.

D LOCATE ALL LOCAL DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT ADJACENT TO, BUT SEPARATE FROM, EQUIPMENT SERVED. PROVIDE SECURELY-ANCHORED METAL FRAMING PER SECTION 260529.

E UPDATE PANELBOARD SCHEDULES UPON COMPLETION OF PROJECT TO REFLECT FINAL CIRCUIT NUMBERS AND DESCRIPTIONS.

F ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN. ITEMS SHOWN BOLD ARE NEW.

KEYED NOTES - E203

1 FOR SINGLE POINT CONNECTION TO LIGHTING AND RECEPTACLES INSIDE THE AIR HANDLER.

2 COORDINATE POWER TO LAB EXHAUST FAN ACTUATORS.

3 ROOF MOUNTED RACK.

4 COORDINATE FINAL LOCATION WITH MECHANICAL EQUIPMENT.

True NORTH Plan NORTH

1/4" = 1'-0" 0' 4' 8'

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LEVEL ROOF POWER PLAN

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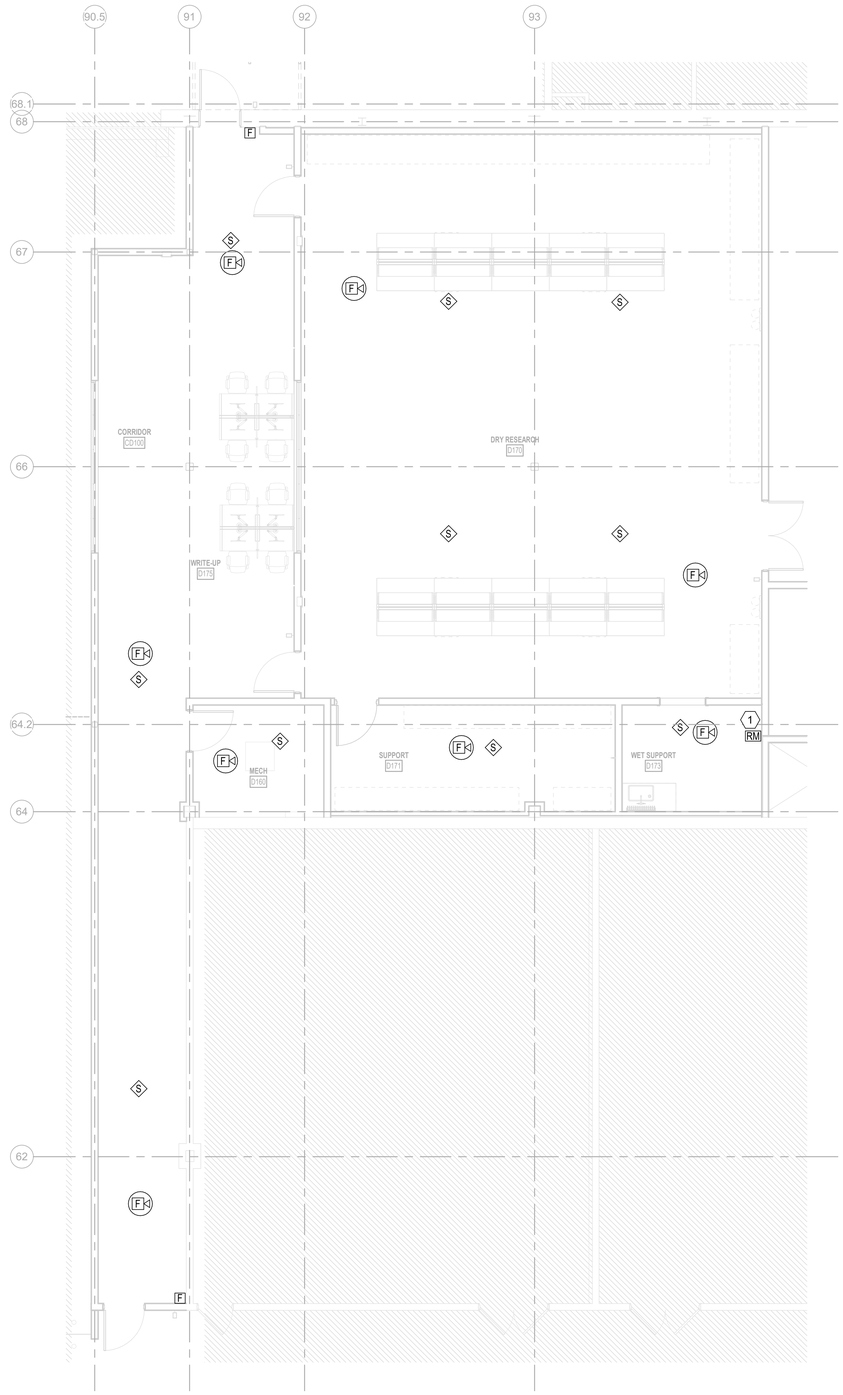

1 LEVEL 1 FIRE ALARM PLAN
3/16" = 1'-0"

GENERAL NOTES - E301

A PROVIDE FIRE ALARM SYSTEM IN COMPLIANCE WITH NFPA 72 FIRE ALARM CODE AND NFPA 101 LIFE SAFETY CODE AND SECTIONS 26 31 00.

B INSTALL FA NOTIFICATION DEVICES PER NFPA 72. MOUNT VISUAL & COMBINATION NOTIFICATION DEVICES IN CEILING PREFERABLY OR WALL WITH ENTIRE LENS BETWEEN 80" & 96" AFF. SEE ELECTRICAL DETAILS.

C COORDINATE DUCT DETECTOR LOCATIONS WITH DIVISION 23 FOR HVAC DUCTWORK, AHU'S, FCU'S AND FSD'S AS APPLICABLE. PLACE DUCT DETECTORS IN STRAIGHT DUCT WITHIN 5 FEET OF FSD WHERE POSSIBLE. PLACE DUCT DETECTORS IN UPSTREAM AIRFLOW SIDE OF FSD. SEE MECHANICAL DRAWINGS AND DETAILS FOR HVAC DUCTWORK AND EQUIPMENT LOCATIONS.

D COORDINATE DETECTORS AND DEVICE LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL REFLECTED CEILING PLAN (RCP). RELOCATE FIRE ALARM DETECTORS AND DEVICES TO RESOLVE INTERFERENCE AND CONFLICTS. FINAL LOCATION SHALL CONFORM TO NFPA 72 AND UL REQUIREMENTS.

E CONNECT ALL SMOKE DAMPERS ON THIS FLOOR TO 120V CIRCUIT. SEE POWER PLANS FOR CIRCUIT.

F ALIGN FIRE ALARM ZONES TO SMOKE COMPARTMENTS PER NFPA REQUIREMENTS.

G PROVIDE FIRE ALARM NOTIFICATION AND DETECTION DEVICES PER SPECIFICATION 26 31 00.

H PROVIDE CANDELA RATINGS FOR VISUAL NOTIFICATION APPLIANCES PER NFPA 72 REQUIREMENTS.

KEYED NOTES - E301

1 CONNECT FIRE SMOKE DAMPER RELAY INTO EXISTING FIRE ALARM SYSTEM.

True NORTH Plan NORTH

3/16"=1'-0" 0' 6' 12'

Tx. Registration # F-20213

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Date: 04.01.2025

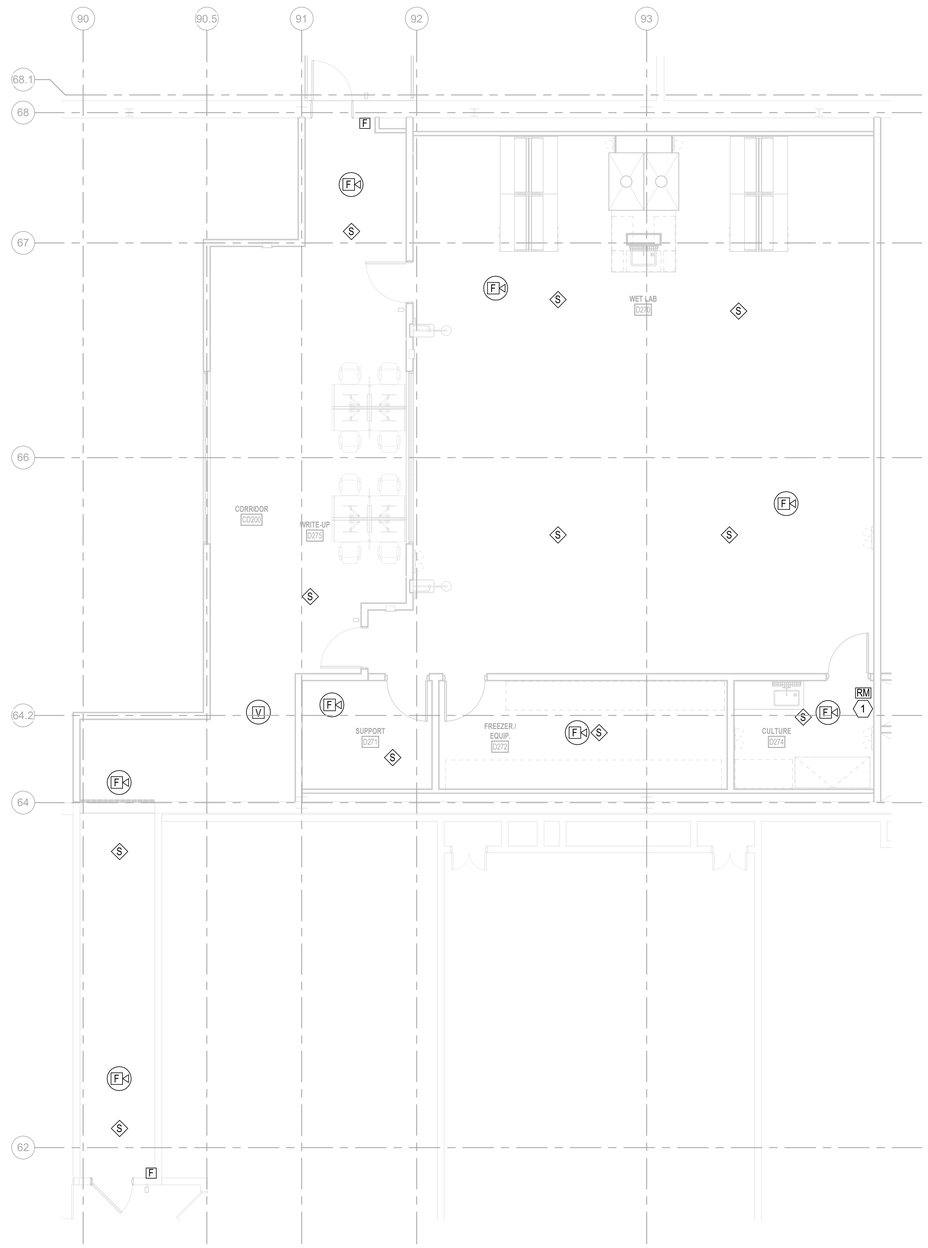
REVISIONS

NO	DESCRIPTION	DATE

E301

LEVEL 01 FIRE ALARM PLAN

Treanor NO. XX##### ##



1 LEVEL 2 FIRE ALARM PLAN
3/16" = 1'-0"

GENERAL NOTES - E302

A PROVIDE FIRE ALARM SYSTEM IN COMPLIANCE WITH NFPA 72 FIRE ALARM CODE AND NFPA 101 LIFE SAFETY CODE AND SECTIONS 26 31 00.

B INSTALL FA NOTIFICATION DEVICES PER NFPA 72. MOUNT VISUAL & COMBINATION NOTIFICATION DEVICES IN CEILING PREFERABLY OR WALL WITH ENTIRE LENS BETWEEN 80" & 96" AFF. SEE ELECTRICAL DETAILS.

C COORDINATE DUCT DETECTOR LOCATIONS WITH DIVISION 23 FOR HVAC DUCTWORK, AHU'S, FCU'S AND FSD'S AS APPLICABLE. PLACE DUCT DETECTORS IN STRAIGHT DUCT WITHIN 5 FEET OF FSD WHERE POSSIBLE. PLACE DUCT DETECTORS IN UPSTREAM AIRFLOW SIDE OF FSD. SEE MECHANICAL DRAWINGS AND DETAILS FOR HVAC DUCTWORK AND EQUIPMENT LOCATIONS.

D COORDINATE DETECTORS AND DEVICE LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL REFLECTED CEILING PLAN (RCP). RELOCATE FIRE ALARM DETECTORS AND DEVICES TO RESOLVE INTERFERENCE AND CONFLICTS. FINAL LOCATION SHALL CONFORM TO NFPA 72 AND UL REQUIREMENTS.

E CONNECT ALL SMOKE DAMPERS ON THIS FLOOR TO 120V CIRCUIT. SEE POWER PLANS FOR CIRCUIT.

F ALIGN FIRE ALARM ZONES TO SMOKE COMPARTMENTS PER NFPA REQUIREMENTS.

G PROVIDE FIRE ALARM NOTIFICATION AND DETECTION DEVICES PER SPECIFICATION 26 31 00.

H PROVIDE CANDELA RATINGS FOR VISUAL NOTIFICATION APPLIANCES PER NFPA 72 REQUIREMENTS.

KEYED NOTES - E302

1 CONNECT FIRE SMOKE DAMPER RELAY INTO EXISTING FIRE ALARM SYSTEM.

True NORTH / Plan NORTH

3/16"=1'-0" 0' 6' 12'

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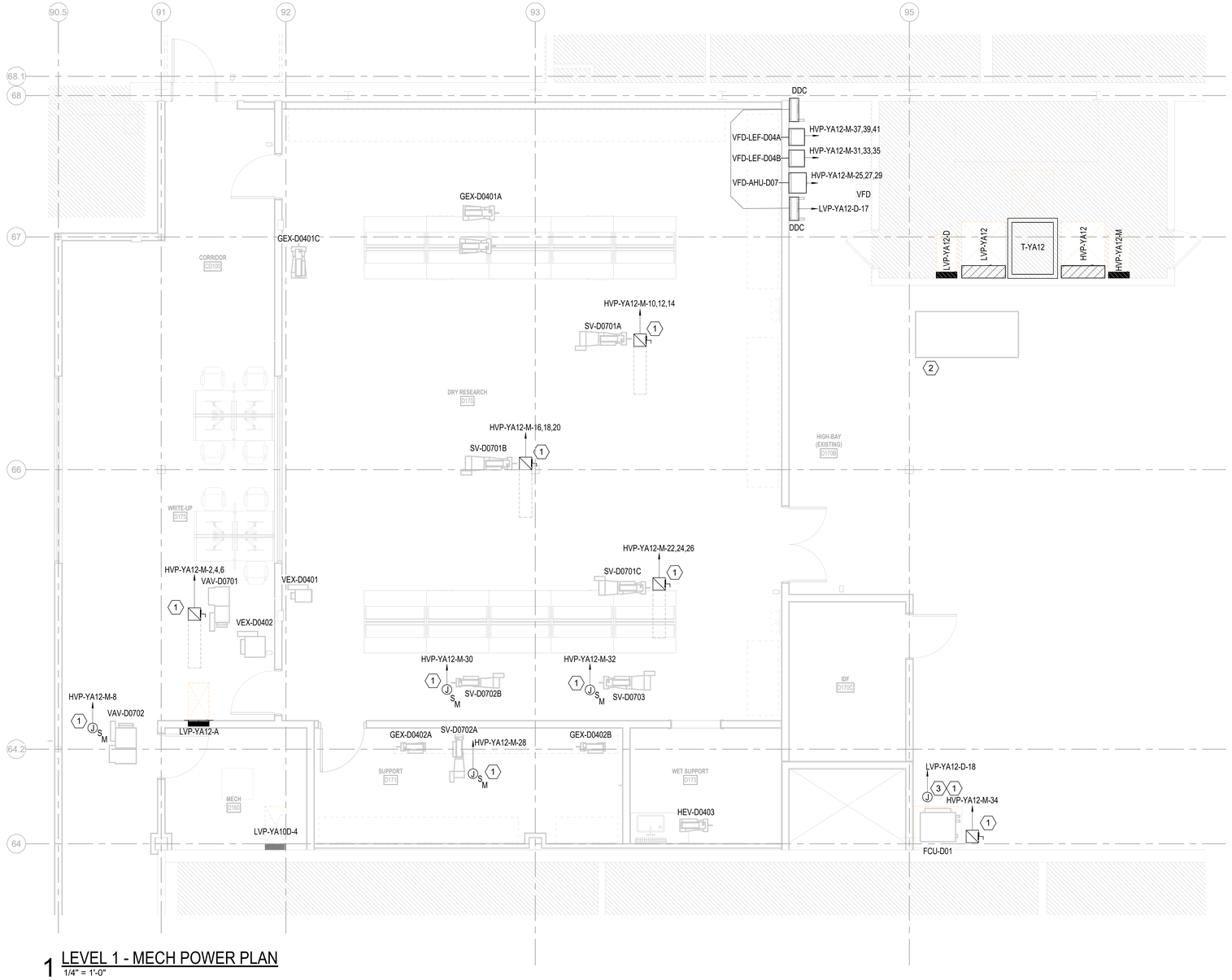
REVISIONS

NO	DESCRIPTION	DATE

E302

LEVEL 02 FIRE ALARM PLAN

Treanor NO. XX#####.##



1 LEVEL 1 - MECH POWER PLAN
1/4" = 1'-0"

GENERAL NOTES - E401

A CONNECT ALL CONTROL POWER TO SV BOXES ON THIS PLAN TO 20A SPARE BREAKER IN PANEL LVP-YA12-D. SEE SHEET ED101 FOR LOCATION OF PANEL. ALL BOXES SHALL BE SERVED FROM ONE CIRCUIT. PROVIDE 2#10 , #10G, 3/4"C. SEE MECHANICAL DRAWINGS FOR LOCATION AND QUANTITIES. PROVIDE MOTOR RATED SNAP SWITCH AT ACCESSIBLE ABOVE CEILING LOCATION, SEPARATE BUT ADJACENT TO SV BOXES.

B LOCATE ALL LOCAL DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT ADJACENT TO, BUT SEPARATE FROM, EQUIPMENT SERVED. PROVIDE SECURELY-ANCHORED METAL FRAMING PER SECTION 260529.

KEYED NOTES - E401

1 COORDINATE FINAL LOCATION WITH MECHANICAL EQUIPMENT.

2 RELOCATED FAN COIL UNIT.

3 JUNCTION BOX FOR FCU CONDENSATE PUMP.COORDINATE FINAL LOCATION AND CONNECTION WITH MECHANICAL EQUIPMENT.

True NORTH Plan NORTH

1/4" = 1'-0" 0' 4' 8'

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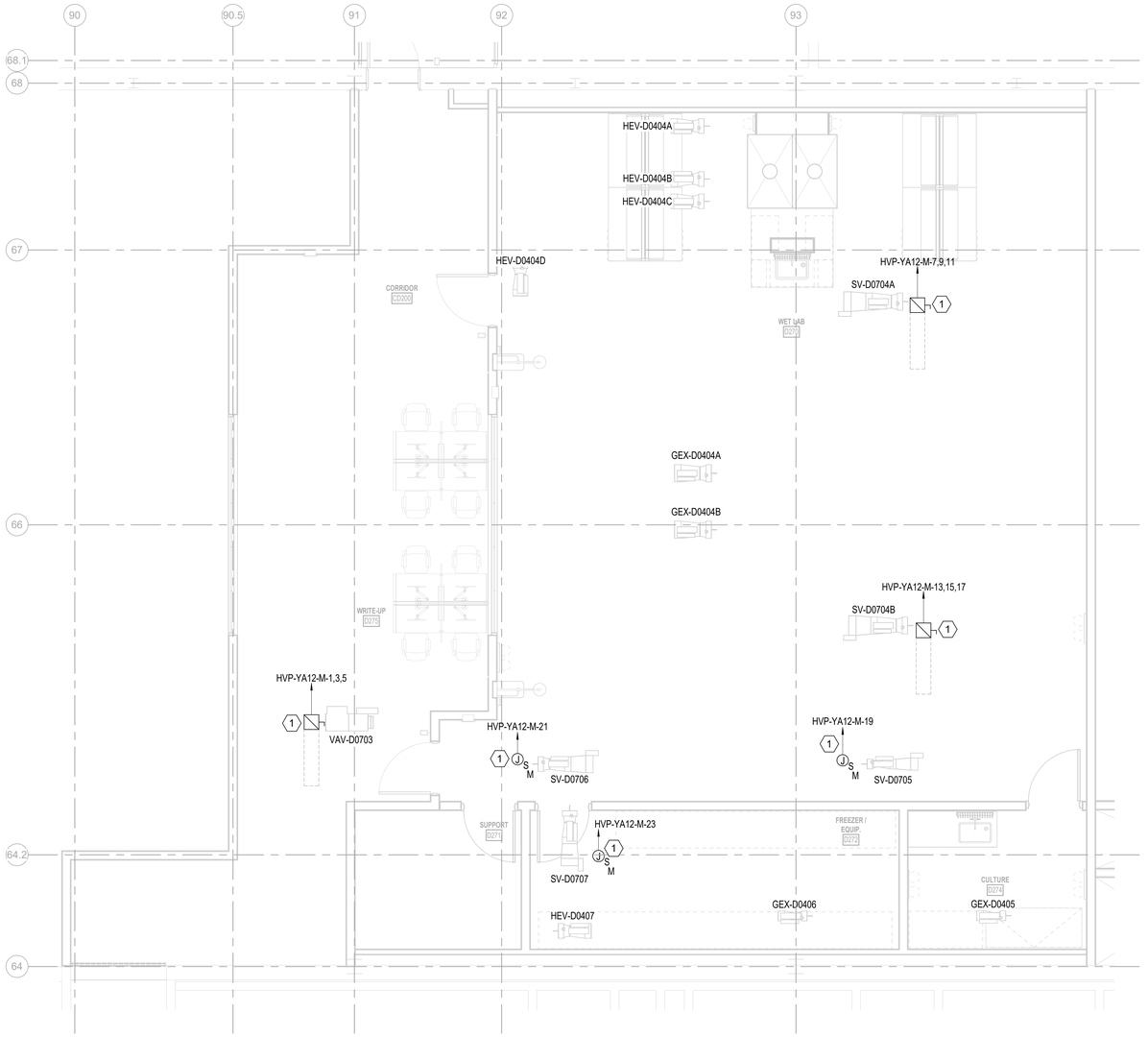
REVISIONS

NO	DESCRIPTION	DATE

E401

LEVEL 01 MECH POWER PLAN

Treanor NO. XX##### ##



1 LEVEL 2 MECH POWER PLAN
1/4" = 1'-0"

GENERAL NOTES - E402

A CONNECT ALL CONTROL POWER TO SV BOXES ON THIS PLAN TO 20A SPARE BREAKER IN PANEL LVP-YA12-D. SEE SHEET ED101 FOR LOCATION OF PANEL. ALL BOXES SHALL BE SERVED FROM ONE CIRCUIT. PROVIDE 2#10 , #10G, 3/4"C. SEE MECHANICAL DRAWINGS FOR LOCATION AND QUANTITIES. PROVIDE MOTOR RATED SNAP SWITCH AT ACCESSIBLE ABOVE CEILING LOCATION, SEPARATE BUT ADJACENT TO SV BOXES. COORDINATE CONNECTION WITH EQUIPMENT.

B LOCATE ALL LOCAL DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT ADJACENT TO, BUT SEPARATE FROM, EQUIPMENT SERVED. PROVIDE SECURELY-ANCHORED METAL FRAMING PER SECTION 260529.

KEYED NOTES - E402

1 COORDINATE FINAL LOCATION WITH MECHANICAL EQUIPMENT.

True NORTH Plan NORTH

1/4" = 1'-0" 0' 4' 8'

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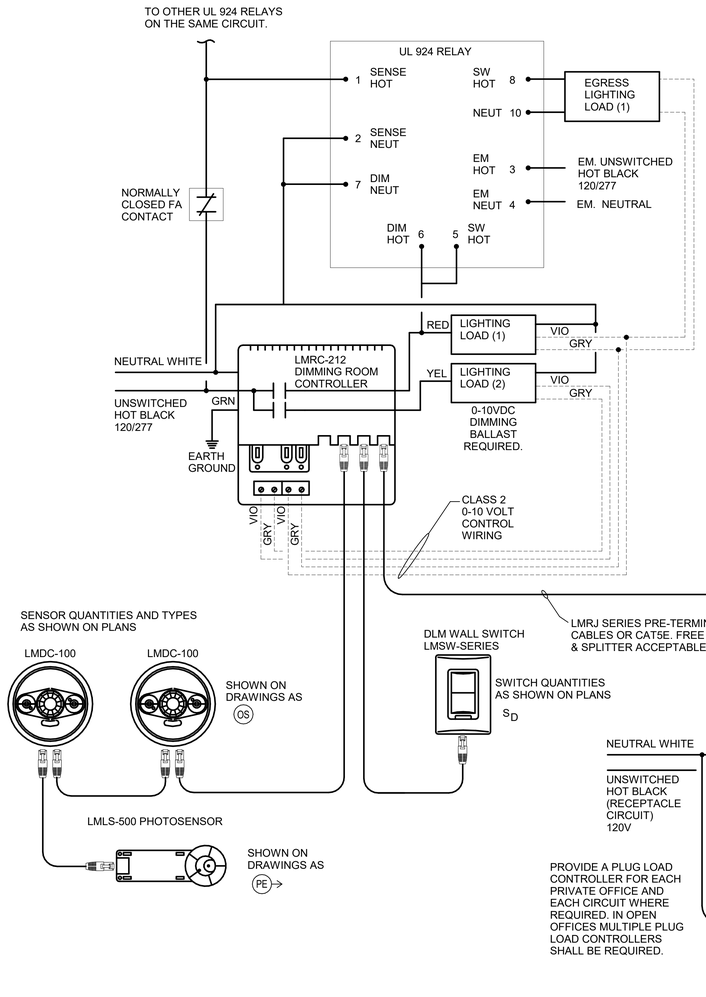
NO	DESCRIPTION	DATE

E402

LEVEL 02 MECH POWER PLAN

Treanor NO. XX##### ##

Autodesk Docs://HE0589.2402.00 - UNT DP D170 Fit-Out/G1192-002-01_Elec_R24.rvt
3/31/2025 1:04:54 PM



NOTES:

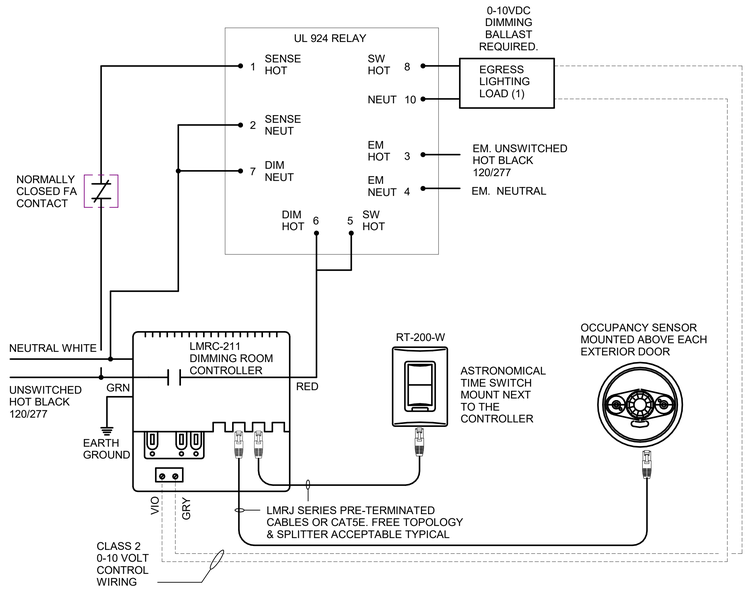
1. BASIS OF DESIGN IS WATTSTOPPER. EQUALS FROM ACUITY, COOPER, CRESTRON, LUTRON, LEVITON, AND HUBBELL ARE ACCEPTABLE. CONTRACTOR SHALL SUBMIT A SHOP DRAWING FROM THE ACCEPTABLE EQUAL MANUFACTURER.
2. OCCUPANCY SENSOR LOCATIONS ARE DIAGRAMMATIC. CONTRACTOR SHALL SUBMIT A SHOP DRAWING INDICATING COMPLETE COVERAGE.
3. GROUND CONDUCTORS NOT SHOWN.
4. REFER TO PLANS FOR REQUIRED DEVICES IN EACH SPACE.
5. NORMALLY CLOSED FIRE ALARM RELAY: FIRE ALARM TO OPEN RELAY IN AN ALARM EVENT TO BRING EMERGENCY LIGHTS TO FULL BRIGHT. VERIFY WITH MANUFACTURER THAT ONE FA RELAY CAN SUPPORT MULTIPLE UL 924 RELAYS. [NFPA 101 7.8.1.2.2 (5)]
6. SET OCCUPANCY SENSOR TIMEOUT TO MAX ALLOWED BY APPLICABLE ENERGY CODE.

SEQUENCE OF OPERATION - GENERAL:

1. LIGHTING LOAD SHALL BE AUTOMATIC ON TO 50%.
2. REMAINING LOAD SHALL BE MANUAL ON.
3. LIGHTING LOAD CAN BE RAISED/ LOWERED WITH DIMMER SWITCH.
4. LIGHTING LOAD SHALL BE AUTOMATIC OFF FROM THE OCCUPANCY SENSORS.

1 TYPICAL LIGHTING CONTROL WITH 0-10V DIMMING CONTROL DIAGRAM - INTERIOR

NO SCALE



NOTES:

1. BASIS OF DESIGN IS WATTSTOPPER. EQUALS FROM ACUITY, COOPER, CRESTRON, LUTRON, LEVITON, AND HUBBELL ARE ACCEPTABLE. CONTRACTOR SHALL SUBMIT A SHOP DRAWING FROM THE ACCEPTABLE EQUAL MANUFACTURER.
2. OCCUPANCY SENSOR LOCATIONS ARE DIAGRAMMATIC. CONTRACTOR SHALL SUBMIT A SHOP DRAWING INDICATING COMPLETE COVERAGE.
3. GROUND CONDUCTORS NOT SHOWN.
4. REFER TO PLANS FOR REQUIRED DEVICES IN EACH SPACE.
5. NORMALLY CLOSED FIRE ALARM RELAY: FIRE ALARM TO OPEN RELAY IN AN ALARM EVENT TO BRING EMERGENCY LIGHTS TO FULL BRIGHT. VERIFY WITH MANUFACTURER THAT ONE FA RELAY CAN SUPPORT MULTIPLE UL 924 RELAYS. [NFPA 101 7.8.1.2.2 (5)]
6. SET OCCUPANCY SENSOR TIMEOUT TO MAX ALLOWED BY APPLICABLE ENERGY CODE.

SEQUENCE OF OPERATION - GENERAL:

1. EXTEREIOR LIGHTS SHALL TURN ON TO 100% WITH EXTERIOR OCCUPANCY SENSORS.
2. WHEN THE OCCUPANCY SENSORS HAVE TIMMED OUT, THE EXTERIOR LIGHTING SHALL DIM TO 50%.
3. A TIME OF DAY SCHEDULE SHALL BE PROGRAMMED FOR ONE HOUR BEFORE DUSK AND ONE HOUR AFTER DAWN.
4. ACTIVATION OF THE FIRE ALARM SYSTEM WILL FORCE THE LIGHTS TO FULL OUTPUT.

2 TYPICAL LIGHTING CONTROL WITH 0-10V DIMMING CONTROL DIAGRAM - EXTERIOR

NO SCALE

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Date:	04.01.2025

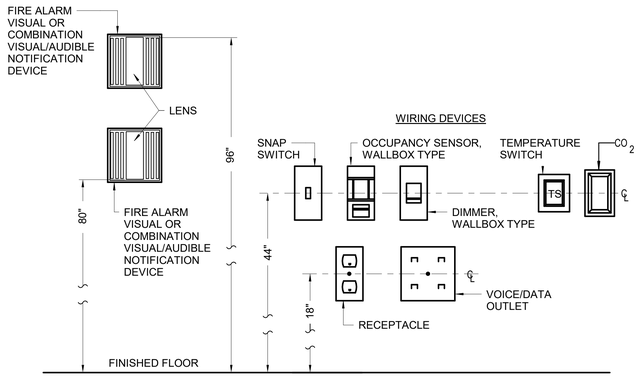
REVISIONS

NO	DESCRIPTION	DATE

E601

ELECTRICAL DETAILS

Treanor NO. XX##### ##

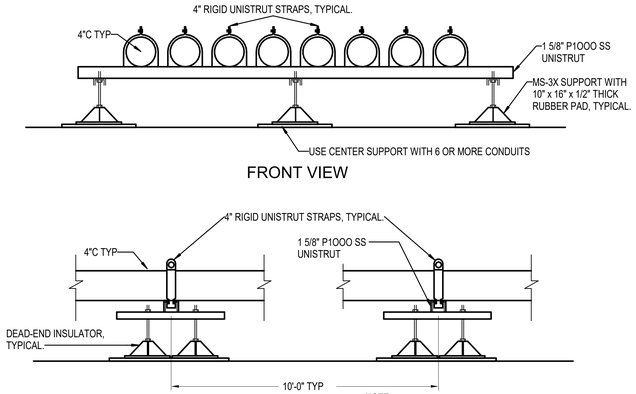


NOTES:

A. ENTIRE LENS OF FAS VISUAL NOTIFICATION DEVICE (STROBE) MUST BE INSTALLED BETWEEN 80" AND 96".

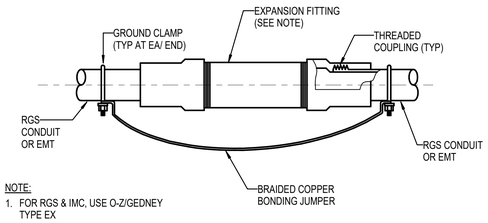
B. MOUNTING HEIGHT SHALL BE CONSISTENT THROUGHOUT PROJECT.

01 TYPICAL DEVICE ELEVATION AND MOUNTING DETAIL
NO SCALE



NOTE:
STRUT SUPPORT BASE FOR 4" CONDUITS ON ROOF SHALL USE 3 BASE SUPPORTS FOR MORE THAN 6 CONDUITS AND LESS THAN 4 CONDUITS SHALL USE 2 BASE SUPPORTS.

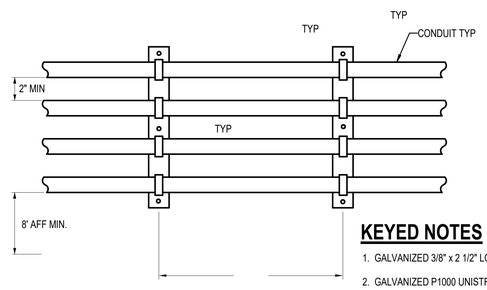
2 ROOF BRIDGING SYSTEM - 6 OR MORE CONDUITS
NO SCALE



NOTE:

1. FOR RGS & IMC, USE O-Z/GEDNEY TYPE EX
2. EXPANSION FITTING, OAS. FOR EMT, USE O-Z/GEDNEY TYPE EXPANSION FITTING, OAS.

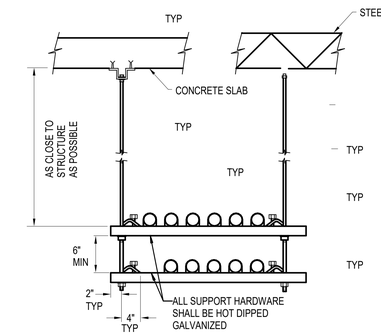
3 EXPANSION FITTING DETAIL
NO SCALE



KEYED NOTES

1. GALVANIZED 3/8" x 2 1/2" LONG CONCRETE ANCHOR.
2. GALVANIZED P1000 UNISTRUT CHANNEL OAS.
3. CONDUIT CLAMP.
4. SUPPORT EMT AT 10'-0" MINIMUM SPACING. SUPPORT RGS PER NEC.

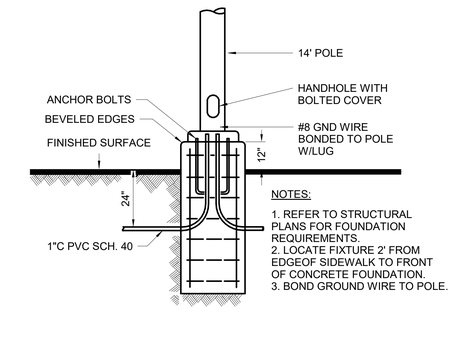
4 TYPICAL WALL MOUNTED CONDUIT RACK
NO SCALE



KEYED NOTES:

1. GALVANIZED 3/8" x 2 1/2" LONG CONCRETE ANCHOR.
2. GALVANIZED P2682 UNISTRUT BEAM CLAMP WITH HANGER CLEVIS OAS.
3. GALVANIZED 3/8" DIAMETER ALL-THREAD ROD.
4. GALVANIZED P1386 UNISTRUT BEAM CLAMP OAS.
5. GALVANIZED P1000 UNISTRUT CHANNEL OAS.
6. SUPPORT EMT AT 10'-0" MINIMUM SPACING. SUPPORT RGS PER NEC.
7. GALVANIZED 3/8" HEX NUT AND LOCKWASHER.
8. CONDUIT CLAMP.
9. FASTEN TO STEEL STRUCTURE WITH BEAM CLAMPS AND MISC. STEEL, TYP.

5 CONDUIT SUPPORT DETAIL TRAPEZE
NO SCALE



NOTES:

1. REFER TO STRUCTURAL PLANS FOR FOUNDATION REQUIREMENTS.
2. LOCATE FIXTURE 2' FROM EDGEOF SIDEWALK TO FRONT OF CONCRETE FOUNDATION.
3. BOND GROUND WIRE TO POLE.

6 LIGHTING POLE FOUNDATION TYPICAL DETAIL
NO SCALE

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3940 N Elm Street
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UNT UNIVERSITY OF NORTH TEXAS

Issued For:	ISSUE FOR CONSTRUCTION
Date:	04.01.2025

REVISIONS

NO	DESCRIPTION	DATE

E602

ELECTRICAL DETAILS

Treanor NO. XX#####.##

Panel: LVP-YA12-A

UNIVERSITY OF NORTH TEXAS — DISCOVERY PARK D170 LAB FIT-OUT

Location:	CORRIDOR CD100	Volts:	120/208 Wye	Bus Rating:	225A	Feed Through:	NO
Supply...	LVP-YA12	Phases:	3	MCB:	150A	Sub-Feed:	
Mounting:	Recessed	A.I.C....	10,000	MLO:	NO	Neutral Rating:	100.00%
Enclosure:	Type 1						

Notes:

Wires & Conduit	Ckt No.	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Ckt No.	Wires & Conduit
2#12, #12G, 3/4"C	1	CSP RCPTS RM D170	20 A	1	540 VA / 540 VA			1	20 A	RCPTS RM D170	2	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	3	CSP RCPTS RM D170	20 A	1		540 VA / 90 VA					4	2#10, #10G, 3/4"C
2#12, #12G, 3/4"C	5	CSP RCPTS RM D170	20 A	1			540 VA / 90 VA	2	30 A	208V RCPTS RM D170	6	
2#10, #10G, 3/4"C	7	208V CSP RCPTS RM D170	30 A	2	180 VA / 1040 VA			1	20 A	RCPTS RM D170	8	2#12, #12G, 3/4"C
	9					180 VA / 540 VA		1	20 A	RCPTS RM D170	10	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	11	CSP RCPTS RM D170	20 A	1			540 VA / 860 VA	1	20 A	RCPTS RM D170	12	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	13	CSP RCPTS RM D170	20 A	1	540 VA / 90 VA						14	2#10, #10G, 3/4"C
2#12, #12G, 3/4"C	15	CSP RCPTS RM D170	20 A	1		540 VA / 90 VA		2	30 A	208V RCPTS RM D170	16	
2#10, #10G, 3/4"C	17	208V CSP RCPTS RM D170	30 A	2			180 VA / 540 VA	1	20 A	RCPTS RM D170	18	2#12, #12G, 3/4"C
	19				180 VA / 90 VA						20	2#10, #10G, 3/4"C
2#12, #12G, 3/4"C	21	CSP RCPTS RM D170	20 A	1		540 VA / 90 VA		2	30 A	208V RCPTS RM D170	22	
2#12, #12G, 3/4"C	23	CSP RCPTS RM D170	20 A	1			540 VA / 540 VA	1	20 A	RCPTS RM D171	24	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	25	CSP RCPTS RM D170	20 A	1	540 VA / 90 VA						26	2#10, #10G, 3/4"C
2#10, #10G, 3/4"C	27	208V CSP RCPTS RM D170	30 A	2		180 VA / 90 VA		2	30 A	208V RCPT RM D171	28	
	29						180 VA / 540 VA	1	20 A	RCPTS RM D171	30	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	31	CSP RCPTS RM D170	20 A	1	540 VA / 90 VA						32	2#10, #10G, 3/4"C
2#12, #12G, 3/4"C	33	CSP RCPTS RM D170	20 A	1		540 VA / 90 VA		2	30 A	208 V RCPT RM D171	34	
2#12, #12G, 3/4"C	35	CSP RCPTS RM D170	20 A	1			540 VA / 360 VA	1	20 A	RCPTS RM D171	36	2#12, #12G, 3/4"C
2#10, #10G, 3/4"C	37	208V CSP RCPTS RM D170	30 A	2	180 VA / 360 VA			1	20 A	RCPTS RM D173	38	2#12, #12G, 3/4"C
	39					180 VA / 180 VA		1	20 A	RCPTS RM D173	40	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	41	CONVENIENCE RCPTS RM D170	20 A	1			720 VA / 500 VA	1	20 A	FUME HOOD RM D173 (ALT)	42	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	43	QUAD RCPTS RM D175	20 A	1	360 VA / 0 VA			1	20 A	SPARE	44	
2#12, #12G, 3/4"C	45	QUAD RCPTS RM D175	20 A	1		360 VA / 0 VA		1	20 A	SPARE	46	
2#12, #12G, 3/4"C	47	RCPTS CORRIDOR	20 A	1			540 VA / 0 VA	1	20 A	SPARE	48	
2#12, #12G, 3/4"C	49	MECH ROOM RCPT	20 A	1	180 VA / 0 VA			1	--	SPACE	50	
	51	SPARE	20 A	1		0 VA / 0 VA		1	--	SPACE	52	
	53	SPARE	20 A	1			0 VA / 0 VA	1	--	SPACE	54	
	55	SPARE	20 A	1	0 VA / 0 VA			1	--	SPACE	56	
	57	SPARE	20 A	1		0 VA / 0 VA		1	--	SPACE	58	
	59	SPARE	20 A	1			0 VA / 0 VA	1	--	SPACE	60	
				Total Load:	5540 VA	4230 VA	7210 VA					
				Total Amps:	48 A	35 A	62 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
RECEPTACLES	16980 VA	79.45%	13490 VA		
				Total Conn. Load:	16980 VA
				Total Est. Demand:	13490 VA
				Total Conn. Current:	47 A
				Total Est. Demand Current:	37 A

Notes:

Panel: LVP-YA12-B

UNIVERSITY OF NORTH TEXAS — DISCOVERY PARK D170 LAB FIT-OUT

Location:	CORRIDOR CD200	Volts:	120/208 Wye	Bus Rating:	225A	Feed Through:	NO
Supply...	LVP-YA12	Phases:	3	MCB:	150A	Sub-Feed:	
Mounting:	Recessed	A.I.C....	10,000	MLO:	NO	Neutral Rating:	100.00%
Enclosure:	Type 1						

Notes:

Wires & Conduit	Ckt No.	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Ckt No.	Wires & Conduit
2#12, #12G, 3/4"C	1	DDC MECH ROOF	20 A	1	1080 VA / 720 VA			1	20 A	CSP RCPT RM D270	2	2#12, #12G, 3/4"C
2#12 , #12G, 3/4"C	3	LAB EXHAUST FAN ACTUATORS.	20 A	1		1080 VA / 720 VA		1	20 A	CSP RCPT RM D270	4	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	5	ROOF RCPT	20 A	1			360 VA / 540 VA	1	20 A	CSP RCPT RM D270	6	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	7	RCPT RM D270	20 A	1	360 VA / 270 VA						8	2#10, #10G, 3/4"C
2#10, #10G, 3/4"C	9	208V RCPT RM D270	30 A	2		90 VA / 270 VA		2	30 A	208V CSP RCPT RM D270	10	
	11						90 VA / 540 VA	1	20 A	CSP RCPT RM D270	12	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	13	RCPT RM D270	20 A	1	360 VA / 360 VA			1	20 A	CSP RCPT RM D270	14	2#12, #12G, 3/4"C
2#10, #10G, 3/4"C	15	208V RCPT RM D270	30 A	2		90 VA / 360 VA		1	20 A	CSP RCPT RM D270	16	2#12, #12G, 3/4"C
	17						90 VA / 180 VA	2	30 A	208V CSP RCPT RM D270	18	2#10, #10G, 3/4"C
2#12, #12G, 3/4"C	19	RCPT RM D270	20 A	1	540 VA / 180 VA						20	
2#10, #10G, 3/4"C	21	208V RCPT RM D270	30 A	2		90 VA / 720 VA		1	20 A	CSP RCPT RM D270	22	2#12, #12G, 3/4"C
	23						90 VA / 720 VA	1	20 A	CSP RCPT RM D270	24	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	25	RCPT RM D270	20 A	1	540 VA / 540 VA			1	20 A	CSP RCPT RM D270	26	2#12, #12G, 3/4"C
2#10, #10G, 3/4"C	27	208V RCPT RM D270	30 A	2		90 VA / 270 VA		2	30 A	208V CSP RCPT RM D270	28	2#10, #10G, 3/4"C
	29						90 VA / 270 VA				30	
2#12, #12G, 3/4"C	31	RCPT RM D270	20 A	1	180 VA / 860 VA			1	20 A	FUME HOOD RM D270 (ALT)	32	2#12, #12G, 3/4"C
2#10, #10G, 3/4"C	33	208V RCPT RM D270	30 A	2		90 VA / 860 VA		1	20 A	FUME HOOD RM D270	34	2#12, #12G, 3/4"C
	35						90 VA / 860 VA	1	20 A	FUME HOOD RM D270	36	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	37	CONVENIENCE RCPT RM D270	20 A	1	360 VA / 860 VA			1	20 A	FUME HOOD RM D270 (ALT)	38	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	39	RCPT RM D270	20 A	1		540 VA / 1040 VA		1	20 A	RCPT RM D272	40	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	41	RCPT RM D271	20 A	1			540 VA / 90 VA	2	30 A	208V RCPT RM D272	42	2#10, #10G, 3/4"C
2#12, #12G, 3/4"C	43	208V RCPT RM D271	30 A	2	90 VA / 90 VA						44	
	45					90 VA / 540 VA		1	20 A	RCPT RM D272	46	2#12, #12G, 3/4"C
2#10, #10G, 3/4"C	47	208V RCPT RM D271	30 A	2			90 VA / 90 VA	2	30 A	208V RCPT RM D272	48	2#10, #10G, 3/4"C
	49				90 VA / 90 VA						50	
2#12, #12G, 3/4"C	51	QUAD RCPT RM D275	20 A	1		360 VA / 540 VA		1	20 A	RCPT RM D274	52	2#12, #12G, 3/4"C
2#12, #12G, 3/4"C	53	QUAD RCPT RM D275	20 A	1			360 VA / 90 VA	2	30 A	208V RCPT RM D274	54	2#10, #10G, 3/4"C
	55	SPARE	20 A	1	0 VA / 90 VA						56	
	57	SPARE	20 A	1		0 VA / 360 VA		1	20 A	RCPT RM D274	58	2#12, #12G, 3/4"C
	59	SPARE	20 A	1			0 VA / 720 VA	1	20 A	RCPTS CORRIDOR	60	2#12, #12G, 3/4"C
				Total Load:	7660 VA	8200 VA	5900 VA					
				Total Amps:	66 A	71 A	49 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
RECEPTACLES	21760 VA	72.98%	15880 VA		
				Total Conn. Load:	21760 VA
				Total Est. Demand:	15880 VA
				Total Conn. Current:	60 A
				Total Est. Demand Current:	44 A

Notes:

Panel: LVP-YA12-D

UNIVERSITY OF NORTH TEXAS — DISCOVERY PARK D170 LAB FIT-OUT

Location:	ELECTRICAL (EXISTING) D170A	Volts:	120/208 Wye	Bus Rating:	250A	Feed Through:	NO
Supply...	LVP-YA12	Phases:	3	MCB:	NO MCB	Sub-Feed:	
Mounting:	Recessed	A.I.C....	10,000	MLO:	YES	Neutral Rating:	100.00%
Enclosure:	Type 1						

Notes:

Wires & Conduit	Ckt No.	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Ckt No.	Wires & Conduit
2#10, #10G, 3/4"C	1	RCPT RM D170C	20 A	1	180 VA / 180 VA			1	20 A	RACK RCPT RM D170C (NEMA L5-30)	2	2#10, #10G, 3/4"C
2#10, #10G, 3/4"C	3	RCPT RM D170C	20 A	1		180 VA / 180 VA		1	20 A	RACK RCPT RM D170C (NEMA L5-30)	4	2#10, #10G, 3/4"C
2#10, #10G, 3/4"C	5	RCPT RM D170C	20 A	1			180 VA / 180 VA	1	20 A	RACK RCPT RM D170C (NEMA L5-30)	6	2#10, #10G, 3/4"C
2#10, #10G, 3/4"C	7	RCPT RM D170C	20 A	1	180 VA / 180 VA			1	20 A	RACK RCPT RM D170C	8	2#10, #10G, 3/4"C
2#10, #10G, 3/4"C	9	RCPT RM D170C	20 A	1		180 VA / 180 VA		1	20 A	RACK RCPT RM D170C (NEMA L5-30)	10	2#10, #10G, 3/4"C
2#10, #10G, 3/4"C	11	RCPT RM D170C	20 A	1			180 VA / 180 VA	1	20 A	RACK RCPT RM D170C (NEMA L5-30)	12	2#10, #10G, 3/4"C
2#10, #10G, 3/4"C	13	RCPT RM D170C	20 A	1	180 VA / 180 VA			1	20 A	RACK RCPT RM D170C (NEMA L5-30)	14	2#10, #10G, 3/4"C
2#10, #10G, 3/4"C	15	RCPT RM D170C	20 A	1		180 VA / 180 VA		1	20 A	RACK RCPT RM D170C	16	2#10, #10G, 3/4"C
2#12, #12G, 3/4"C	17	DDC PNLS LVL 1	20 A	1			1000 VA / 1290 VA	1	20 A	FCU CONDENSATE PUMP	18	2#10, #10G, 3/4"C
	19	SPARE	20 A	1	0 VA / 1000 VA			1	20 A	RECEPTACLES	20	
	21	SPARE	20 A	1		0 VA / 0 VA		1	--	SPACE	22	
	23	SPARE	20 A	1			0 VA / 0 VA	1	--	SPACE	24	
	25	SPARE	20 A	1	0 VA / 0 VA			1	--	SPACE	26	
	27	SPARE	20 A	1		0 VA / 0 VA		1	--	SPACE	28	
	29	SPARE	20 A	1			0 VA / 0 VA	1	--	SPACE	30	
	31	SPARE	20 A	1	0 VA / 0 VA			1	--	SPACE	32	
	33	SPACE	--	1		0 VA / 0 VA		1	--	SPACE	34	
	35	SPACE	--	1			0 VA / 0 VA	1	--	SPACE	36	
	37	SPACE	--	1	0 VA / 0 VA			1	--	SPACE	38	
	39	SPACE	--	1		0 VA / 0 VA		1	--	SPACE	40	
	41	SPACE	--	1			0 VA / 0 VA	1	--	SPACE	42	
				Total Load:	2080 VA	1080 VA	3010 VA					
				Total Amps:	19 A	9 A	26 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
RECEPTACLES	6170 VA	100.00%	6170 VA		
				Total Conn. Load:	6170 VA
				Total Est. Demand:	6170 VA
				Total Conn. Current:	17 A
				Total Est. Demand Current:	17 A

Notes:

Panel: HVP-YA12-M

UNIVERSITY OF NORTH TEXAS — DISCOVERY PARK D170 LAB FIT-OUT

Location:	ELECTRICAL (EXISTING) D170A	Volts:	480/277 Wye	Bus Rating:	150A	Feed Through:	NO
Supply...		Phases:	3	MCB:	NO MCB	Sub-Feed:	
Mounting:	SURFACE	A.I.C....	50,000	MLO:	YES	Neutral Rating:	100.00%
Enclosure:	Type 1						

Notes:

Wires & Conduit	Ckt No.	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Ckt No.	Wires & Conduit
3#12, #12G, 3/4"C	1	VAV-D0703	20 A	3	1403 VA / 1773 VA			3	20 A	VAV-D0701	2	3#12, #12G, 3/4"C
	3					1403 VA / 1773 VA					4	
	5						1403 VA / 1773 VA				6	
3#12, #12G, 3/4"C	7	SV-D0704A	20 A	3	0 VA / 1640 VA			1	20 A	VAV-D0702	8	2#12, #12G, 3/4"C
	9					0 VA / 0 VA					10	
	11						0 VA / 0 VA	3	20 A	SV-D0701A	12	3#12, #12G, 3/4"C
3#12, #12G, 3/4"C	13	SV-D0704B	20 A	3	0 VA / 0 VA						14	
	15					0 VA / 0 VA					16	
	17						0 VA / 0 VA	3	20 A	SV-D0701B	18	3#12, #12G, 3/4"C
2#12 , #12G, 3/4"C	19	SV-D0705	20 A	1	1290 VA / 0 VA						20	
2#12 , #12G, 3/4"C	21	SV-D0706	20 A	1		2580 VA / 0 VA					22	
2#12 , #12G, 3/4"C	23	SV-D0707	20 A	1			1160 VA / 0 VA	3	20 A	SV-D0701C	24	3#12, #12G, 3/4"C
	25				8592 VA / 0 VA						26	
3#8, #10G, 3/4"C	27	AHU-D7	60 A	3		8592 VA / 1290 VA		1	20 A	SV-D0702A	28	2#12, #12G, 3/4"C
	29						8592 VA / 1290 VA	1	20 A	SV-D0702B	30	2#12, #12G, 3/4"C
	31				5986 VA / 1290 VA			1	20 A	SV-D0703	32	2#12, #12G, 3/4"C
3#10, #10G, 3/4"C	33	LEF-1	50 A	3		5986 VA / 0 VA		1	20 A	FCU-D01	34	2#12 , #12G, 3/4"C
	35						5986 VA / 0 VA	1	20 A	LVL 1 LTG	36	2#10, #10G, 3/4"C
	37				5986 VA / 0 VA			1	20 A	Lighting	38	
3#10, #10G, 3/4"C	39	LEF-2	50 A	3		5986 VA / 0 VA		1	20 A	SPARE	40	
	41						5986 VA / 0 VA	1	20 A	SPARE	42	
	43	SPACE	--	1	0 VA / 0 VA			1	--	SPACE	44	
	45	SPACE	--	1		0 VA / 0 VA		1	--	SPACE	46	
	47	SPACE	--	1			0 VA / 0 VA	1	--	SPACE	48	
	49	SPACE	--	1	0 VA / 0 VA			1	--	SPACE	50	
	51	SPACE	--	1		0 VA / 0 VA		1	--	SPACE	52	
	53	SPACE	--	1			0 VA / 0 VA	1	--	SPACE	54	
	55	SPACE	--	1	0 VA / 0 VA			1	--	SPACE	56	
	57	SPACE	--	1		0 VA / 0 VA		1	--	SPACE	58	
	59	SPACE	--	1			0 VA / 0 VA	1	--	SPACE	60	
				Total Load:	27961 VA	27611 VA	26191 VA					
				Total Amps:	102 A	100 A	95 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
LIGHTING	0 VA	0.00%	0 VA		
Motor	61194 VA	107.13%	65559 VA	Total Conn. Load:	72234 VA
RECEPTACLES	11040 VA	95.29%	10520 VA	Total Est. Demand:	76079 VA
				Total Conn. Current:	87 A
				Total Est. Demand Current:	92 A

Notes:

PANELBOARD LEGEND

-	LVP-YA12-A	LVP-YA12-B
-	LVP-YA12-D	LVP-YA12-M

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NO	DESCRIPTION	DATE

E701

ELECTRICAL PANELBOARD SCHEDULES

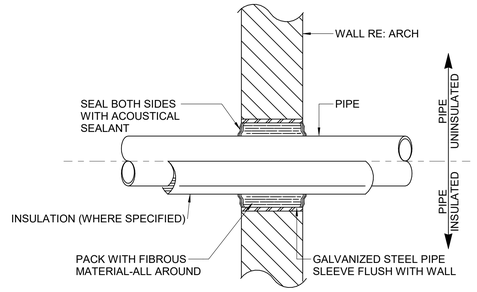
Treanor NO. XX#####.##

FIRE PROTECTION LEGEND

SYMBOL	ABBREV.	DESCRIPTION	SYMBOL	ABBREV.	DESCRIPTION
F-1 / 6"		FIRE STANDPIPE & SIZE			THERMOMETER
		STANDPIPE NO.			UNION
F	F	FIRE WATER			STRAINER
FLD	FLD	FIRE LINE DRAIN			REDUCER
AS	AS	WET AUTOMATIC SPRINKLERS			GAUGE
DPS	DPS	DRY-PIPE SYSTEM			BALL VALVE
PAS	PAS	PREACTION SPRINKLER SYSTEM			OS&Y GATE VALVE
	FDV	FIRE DEPARTMENT VALVE			BUTTERFLY VALVE
	FVC	FIRE VALVE CABINET			CHECK VALVE
	TS	TAMPER SWITCH (SUPERVISORY SWITCH)			SPRINKLER SYSTEM INSPECTOR'S TEST ASSEMBLY
			F	FS	FLOW SWITCH

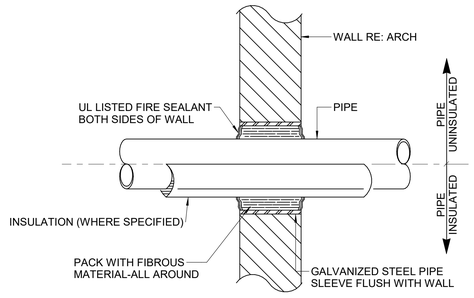
FIRE PROTECTION GENERAL NOTES

1. REWORK THE EXISTING FIRE SPRINKLER SYSTEM PER THE RENOVATED LAYOUT OF THE AREA IN ACCORDANCE WITH 2019 EDITION OF NFPA 13, TO PROVIDE SPIRNKLERED FLOOR COVERAGE FOR THE ENTIRE RENOVATED AREA AND AS INDICATED ON THE FLOOR PLANS.
2. FIRE PROTECTION PIPING SHALL BE COORDINATED AROUND OTHER TRADES, SUCH AS PLUMBING, HVAC AND ELECTRICAL.
3. REFER TO REFLECTED CEILING PLANS FOR FIRE SPRINKLER HEAD LAYOUT, WHERE HEAD LAYOUTS ARE NOT SHOWN CONTRACTOR SHALL PROVIDE SUBMITTAL WITH HEAD LAYOUTS FOR A/E TO REVIEW PRIOR TO HYDRAULIC CALCULATIONS & SHOP DRAWING SUBMITTALS OF SYSTEM.
4. A SUPERVISORY SWITCH (TAMPER SWITCH) SHALL BE PROVIDED ON EACH VALVE USED FOR CONTROLLING THE FIRE PROTECTION SYSTEM FOR THE SPRINKLER SYSTEM, AS SPECIFIED.
5. FIRE SPRINKLER SUBMITTALS SHALL BE REVIEWED AND APPROVED BY AHJ PRIOR TO WORK.
6. IN AREAS WITHOUT CEILINGS WHERE THERE ARE OBSTRUCTIONS OVER 48" WIDE SUSPENDED ADDITIONAL SPRINKLERS SHALL BE PROVIDED TO PROTECT THE AREA BELOW THE OBSTRUCTIONS.



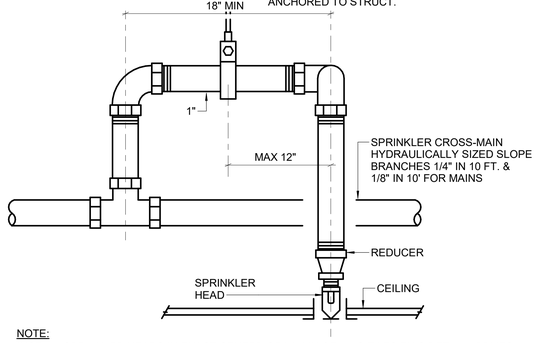
NOTES:
1. WHERE PIPING IS EXPOSED TO VIEW PROVIDE WITH ESCUTCHEON.

3 PIPE PENETRATION THRU NON-RATED WALL
NO SCALE



NOTES:
1. WHERE PIPING IS EXPOSED TO VIEW PROVIDE WITH ESCUTCHEON.

2 PIPE PENETRATION THRU FIRE-RATED WALL
NO SCALE



NOTE:
INSTALL SPRINKLER HEADS IN EXACT CENTER OF LAY-IN CEILING TILES THIS DETAIL APPLIES IN ALL LOCATIONS WHERE SPRINKLER HEADS ARE LOCATED IN SUSPENDED CEILINGS.

1 SPRINKLER IN CEILING DETAIL
NO SCALE

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FP-001

FIRE PROTECTION LEGEND AND DETAILS

Treanor NO. HE0569.2402.00

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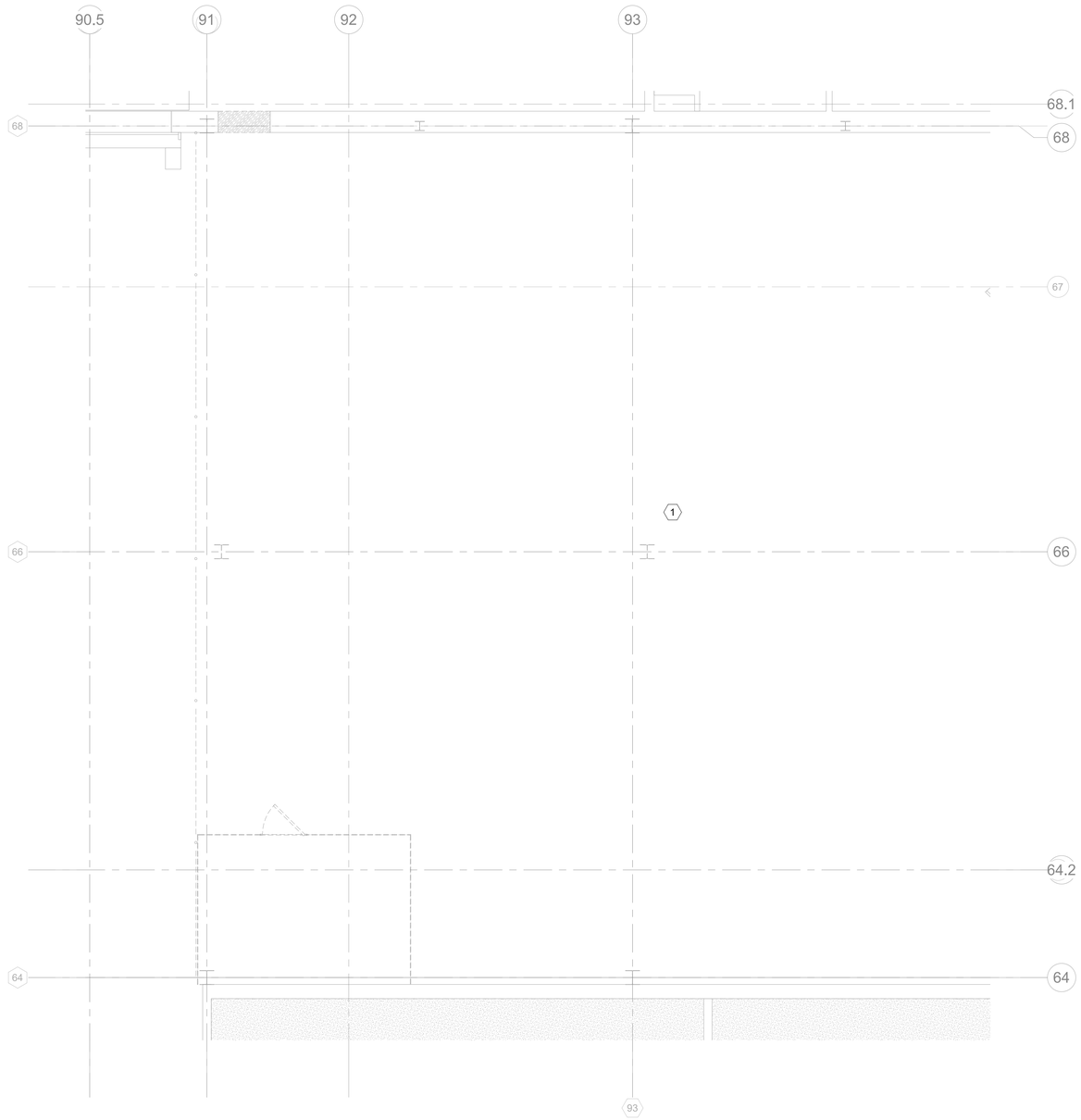

1 LEVEL 1 FIRE PROTECTION DEMO PLAN
1/4" = 1'-0"

LEGEND

EXISTING WORK

DEMO WORK

GENERAL NOTES

A. REFER TO SHEET TITLED "FP-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE DEMOLITION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - FPD-101

1 THIS AREA IS CURRENTLY A TWO-FLOOR VOLUME SPACE. THE EXISTING SPRINKLER SYSTEM SERVING THIS AREA WILL BE REWORKED PER THE SCOPE SHOWN IN THE RENOVATION DRAWINGS.

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FPD-101

LEVEL 1 - FIRE PROTECTION DEMO PLAN

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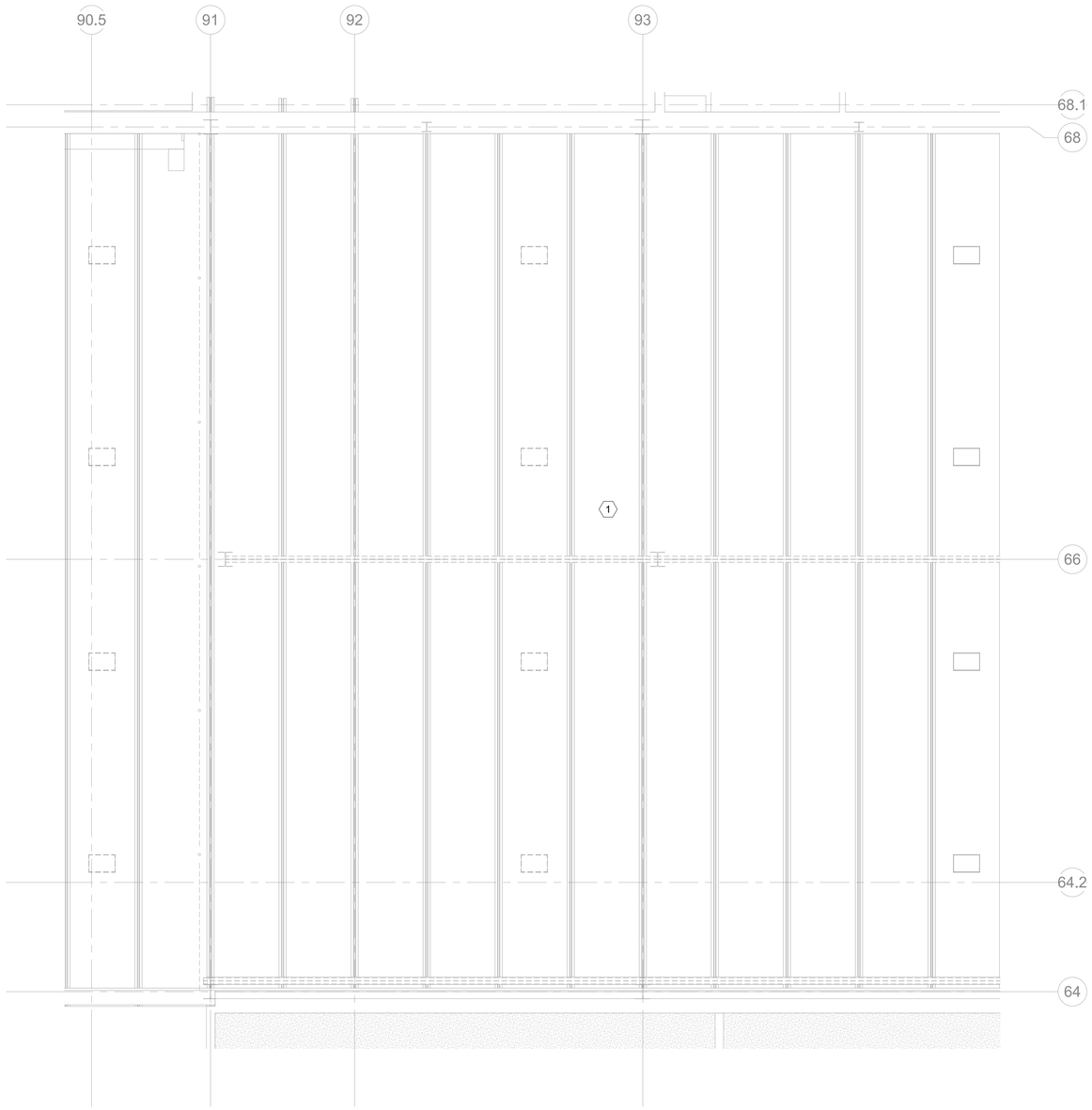

1 LEVEL 2 FIRE PROTECTION DEMO PLAN
1/4" = 1'-0"

LEGEND

EXISTING WORK

DEMO WORK

GENERAL NOTES

A. REFER TO SHEET TITLED "FP-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE DEMOLITION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - FPD-102

1 THIS AREA IS CURRENTLY A TWO-FLOOR VOLUME SPACE. THE EXISTING SPRINKLER SYSTEM SERVING THIS AREA WILL BE REWORKED PER THE SCOPE SHOWN IN THE RENOVATION DRAWINGS.

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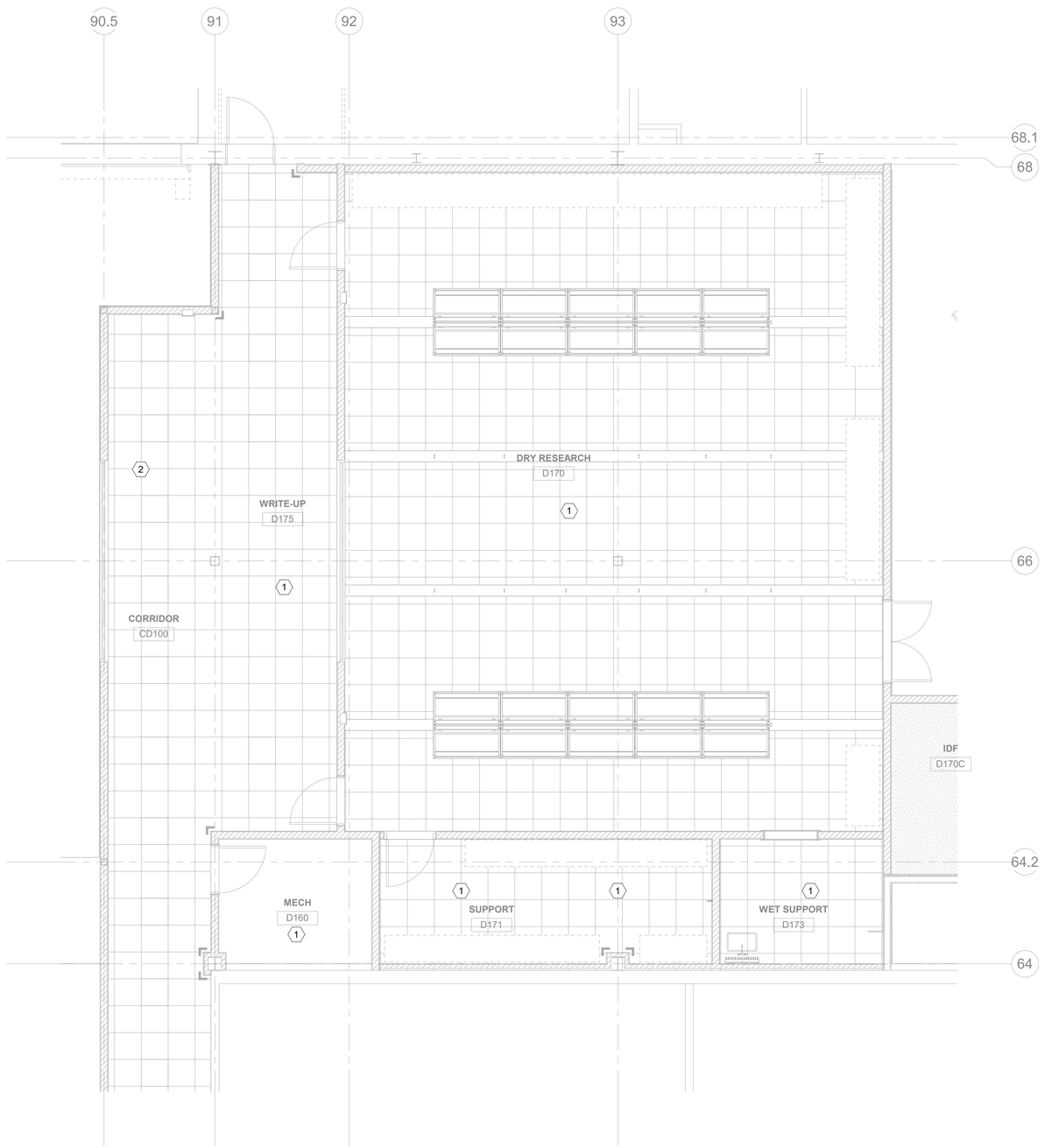
NO	DESCRIPTION	DATE

FPD-102

LEVEL 2 - FIRE PROTECTION DEMO PLAN

Treanor NO. HE0569.2402.00



1 LEVEL 1 FIRE PROTECTION PLAN - BASE BID
1/4" = 1'-0"

LEGEND

EXISTING WORK

NEW WORK

GENERAL NOTES

A. REFER TO SHEET TITLED "FP-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE RENOVATION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - FP-101

1 REWORK EXISTING WET AUTOMATIC SPRINKLER SYSTEM FOR 100% COVERAGE FOR ROOM/AREA FOR ORDINARY HAZARD GROUP 1 OCCUPANCY AS OUTLINED IN NFPA 13 AND THE SPECIFICATIONS.

2 REWORK EXISTING WET AUTOMATIC SPRINKLER SYSTEM FOR 100% COVERAGE FOR ROOM/AREA FOR LIGHT HAZARD OCCUPANCY AS OUTLINED IN NFPA 13 AND THE SPECIFICATIONS.

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Issued For:	ISSUE FOR CONSTRUCTION
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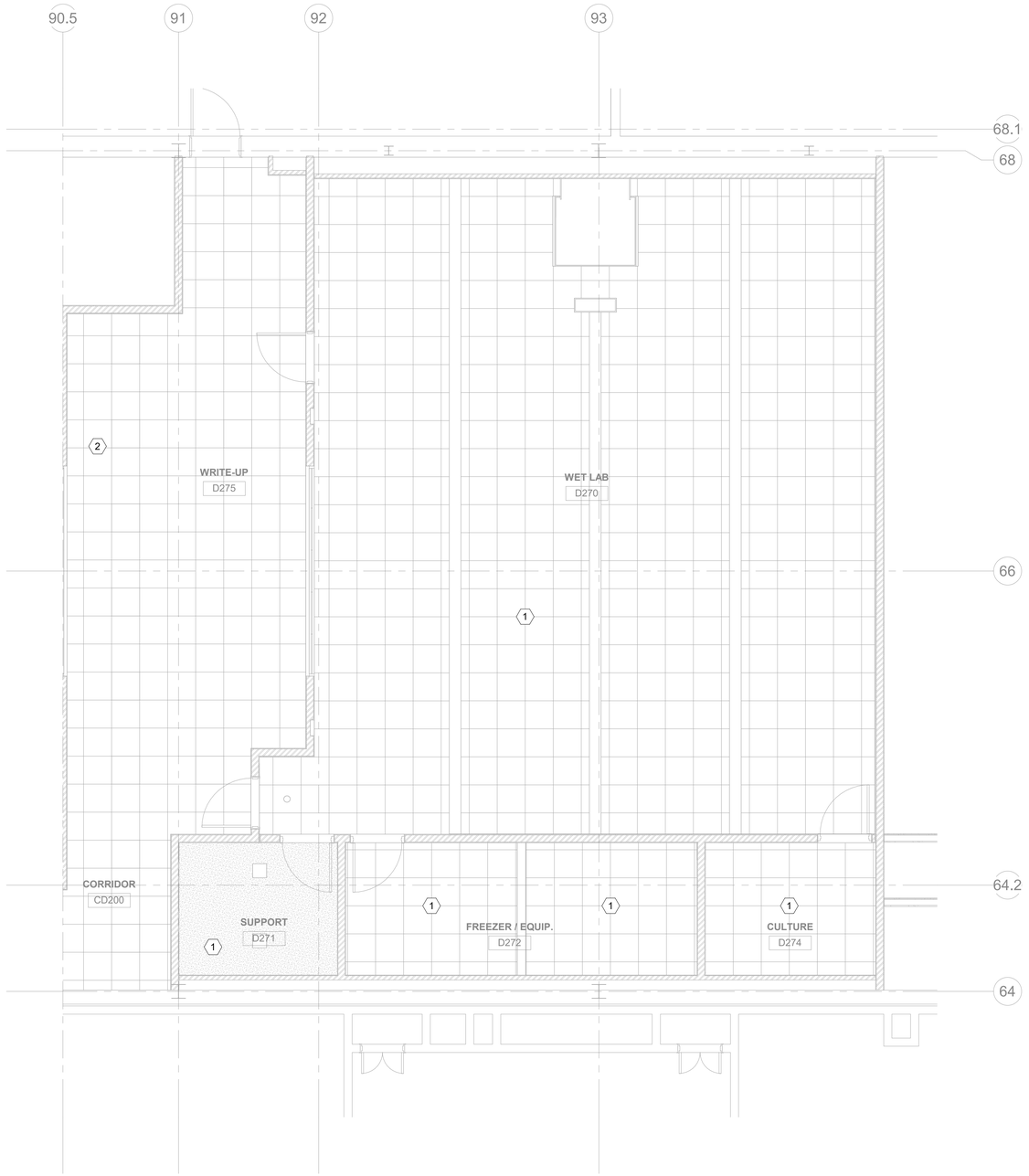
REVISIONS

NO	DESCRIPTION	DATE

FP-101

LEVEL 1 - FIRE PROTECTION PLAN

Treanor NO. HE0569.2402.00



1 LEVEL 2 FIRE PROTECTION PLAN - BASE BID
1/4" = 1'-0"

LEGEND

EXISTING WORK

NEW WORK

GENERAL NOTES

A. REFER TO SHEET TITLED "FP-001" FOR LEGEND, NOTES, AND DETAILS THAT APPLY TO THIS SHEET.

B. ITEMS SHOWN IN BOLD INDICATE RENOVATION SCOPE OF WORK. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN.

C. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. COORDINATE DOWNTIME WITH OWNER PRIOR TO WORK.

KEYED NOTES - FP-102

1 REWORK EXISTING WET AUTOMATIC SPRINKLER SYSTEM FOR 100% COVERAGE FOR ROOM/AREA FOR ORDINARY HAZARD GROUP 1 OCCUPANCY AS OUTLINED IN NFPA 13 AND THE SPECIFICATIONS.

2 REWORK EXISTING WET AUTOMATIC SPRINKLER SYSTEM FOR 100% COVERAGE FOR ROOM/AREA FOR LIGHT HAZARD OCCUPANCY AS OUTLINED IN NFPA 13 AND THE SPECIFICATIONS.

Tx. Registration # F-20213
STATE OF TEXAS
CALEB HOLOBAUGH
130940
LICENSED
PROFESSIONAL ENGINEER
3/31/2025

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LEVEL 2 - FIRE PROTECTION PLAN

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