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OWNERSHIP

ARCHITECT & STRUCTURAL ENGINEER

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MECHANICAL ENGINEER

bluefield engineering
Gunthers Inc.
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ELECTRICAL ENGINEER

ROCKY MOUNTAIN CONSULTING ENGINEERS, INC.
2332 West 12600 South, Suite F | Riverton, UT 84065
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CIVIL ENGINEER

LANDSCAPE ARCHITECT

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CONTRACTOR COORDINATION NOTES

1. IT IS THE CONTRACTOR 'S RESPONSIBILITY TO REVIEW AND COORDINATE THE WORK OF ALL SUB-CONTRACTORS, TRADES AND SUPPLIERS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BEFORE COMMENCING CONSTRUCTION, AND TO ASSURE THAT ALL PARTIES ARE AWARE OF ALL REQUIREMENTS, REGARDLESS OF WHERE THE REQUIREMENTS OCCUR IN THE CONTRACT DOCUMENTS, WHICH MIGHT AFFECT THE WORK OF THAT PARTY AND THAT THE MOST UP TO DATE DOCUMENTS ARE BEING REFERENCED .
2. AS PART OF THE CONTRACTORS RESPONSIBILITY TO COORDINATE THE WORK OF ALL SUB-CONTRACTORS, TRADES AND SUPPLIERS, THE CONTRACTOR SHALL ENDEAVOR TO IDENTIFY AND NOTIFY THE ARCHITECT OF ANY CONFLICTS BETWEEN THE WORK OF DIFFERENT PARTIES AT THE EARLIEST POSSIBLE DATE SO AS TO ALLOW REASONABLE AND ADEQUATE TIME FOR THE CONFLICT TO BE RESOLVED WITHOUT DELAYING THE WORK. ALL DEVIATIONS FROM THAT WHICH IS REQUIRED BY THE CONTRACT DOCUMENTS MUST BE REVIEWED IN ADVANCE BY THE ARCHITECT.
3. THE CONTRACTOR SHALL NOTIFY THE OWNER REPRESENTATIVE OF ANY CONFLICTS BETWEEN VENDOR DRAWINGS AND THE CONSTRUCTION DOCUMENTS. LATEST VENDOR DRAWINGS SHALL BE VERIFIED WITH OWNER AND ARCHITECT.
4. IN THE CASE OF CONFLICTS IN THE CONTRACT DOCUMENTS THE MOST STRINGENT REQUIREMENT GOVERNS

DEFERRED SUBMITTAL REQUIREMENTS

DEFERRED SUBMITTALS ARE THOSE PORTIONS OF DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE PERMIT APPLICATION AND HAVE RECEIVED PRIOR APPROVAL FROM THE BUILDING OFFICIAL TO BE DEFERRED. THE DEFERRED SUBMITTALS SHALL BE SUBMITTED TO THE ARCHITECT AND GENERAL CONTRACTOR WITHIN SIX WEEKS TO COMMENCEMENT OF CONSTRUCTION TO THIS PORTION OF WORK. DEFERRED SUBMITTALS SHALL BE SUBMITTED TO THE ARCHITECT AND GENERAL CONTRACTOR WITHIN FOUR WEEKS OF THE AWARD OF THE CONTRACT TO THE GENERAL CONTRACTOR. THIS PROCESS MAY VARY, BUT SHOULD ALLOW FOR POSSIBLE 4-6 WEEK REVIEW PROCESS. CONTRACTOR IS RESPONSIBLE TO COORDINATE FOR REVIEW TIMES IN CRITICAL PATH OF CONSTRUCTION.

DEFERRED SUBMITTAL PROCESS

1. THE DEFERRED SUBMITTAL SHALL FIRST BE REVIEWED BY THE GENERAL CONTRACTOR FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. THE SUBMITTAL MUST BE REVIEWED, APPROVED, STAMPED AND SIGNED BY THE GENERAL CONTRACTOR BEFORE BEING SUBMITTED TO THE ARCHITECT.
2. THE GENERAL CONTRACTOR SHALL SUBMIT THE DEFERRED SUBMITTAL TO THE ARCHITECT.
3. THE DEFERRED SUBMITTAL ITEMS WILL BE REVIEWED BY THE ENGINEER OR ARCHITECT IN RESPONSIBLE CHARGE. THE ENGINEER OR ARCHITECT WILL ATTACH A LETTER TO THE SUBMITTAL STATING THAT THE DEFERRED ITEM IS IN CONFORMANCE WITH THE DESIGN OF THE STRUCTURE.
4. THE APPROVED SUBMITTALS WILL BE RETURNED TO THE GENERAL CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CITY SUBMITTAL AND ALL APPROVALS REQUIRED BY THE CITY.
5. THE GENERAL CONTRACTOR SHALL MAINTAIN ONE SET OF THE APPROVED SUBMITTAL ON SITE FOR REFERENCE BY THE CITY INSPECTOR.
6. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY BUILDING OFFICIAL. ALL WORK COMPLETED PRIOR TO APPROVAL AND REQUIRES CHANGE OR MODIFICATION DUE TO APPROVALS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. SEE STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS FOR STRUCTURAL DEFERRED SUBMITTALS.
8. COORDINATE WITH GENERAL NOTES OF STRUCTURAL, MECHANICAL, AND ELECTRICAL FOR ADDITIONAL INSTRUCTIONS.

DEFERRED SUBMITTAL ITEMS

1. FIRE SPRINKLING DRAWINGS: FIRE SPRINKLER SYSTEM TO BE DESIGNED IN ACCORDANCE WITH NFPA 13 (ESFR), FOR RACK STORAGE OF CLASS ONE (1) THROUGH FOUR (4) COMMODITIES AND VARIOUS GROUP "A" PLASTICS. THESE DRAWINGS SHALL INCLUDE THE DESIGN CALCULATIONS, DESIGN DRAWINGS, APPROVAL FROM THE FIRE MARSHALL PRIOR TO SUBMITTING TO THE DESIGN TEAM FOR FINAL ACCEPTANCE. FIRE SPRINKLER CONTRACTOR/ DESIGN MUST VERIFY W/ LOCAL FIRE AUTHORITY. ALL FIRE SPRINKLERS HEADS TO BE PLACED AS CLOSE AS POSSIBLE TO DECKS. NO REVIEW WILL BE PERFORMED IF THE SUBMITTAL IS NOT COMPLETE. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR ANY THIRD PARTY REVIEW COSTS REQUIRED BY LOCAL JURISDICTIONS FIRE AUTHORITY.
2. FIRE ALARM DESIGN: THE FIRE ALARM DEVICES SHOWN ON THE DRAWINGS ARE DIAGRAMATIC, IT IS THE RESPONSIBILITY OF THE FIRE ALARM CONTRACTOR TO PROVIDE A SYSTEM THAT MEETS THE FULL INTENT OF NFPA 72. THE SUB CONTRACTOR WILL BE RESPONSIBLE TO TEST TO VERIFY THE REQUIREMENTS OF NFPA 72 ARE BEING MET. IF ADDITIONAL FIRE ALARM DEVICES ARE REQUIRED, THE DEVICES WILL BE THE REQUIREMENTS OF THE FIRE ALARM CONTRACTOR TO PROVIDE A COMPLETE SYSTEM TO MEET NFPA 72.

BUILDING CODES

ALL CONSTRUCTION IN ASSOCIATION WITH THIS PROJECT SHALL COMPLY WITH THE STATE ADOPTED CODES LISTED BELOW:
- 2021 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC), INCLUDING APPENDIX C AND J
- 2020 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC)
- 2021 EDITION OF THE INTERNATIONAL PLUMBING CODE (IPC)
- 2021 EDITION OF THE INTERNATIONAL MECHANICAL CODE (IMC)
- 2021 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2021 EDITION OF THE INTERNATIONAL FUEL GAS CODE (IFGC)
- 2021 INTERNATIONAL FIRE CODE (IFC)
- ICC/ANSI A117.1-2009
- UTAH STATE AMENDMENTS TO THE ABOVE MENTIONED CODES.

NOTE:

THE CONTRACTOR IS TO CONTACT THE UTAH DIVISION OF AIR QUALITY, (801) 536-4000. COMPLIANCE WITH THEIR REQUIREMENTS IS MANDATORY.

NOTES:

Fire suppression, detection and site utility drawings for fire protection, are deferred submittals and require a separate building permit. These drawings are not approved as part of this submitted package.(Deferred submittals require a signed agreement with Idaho Falls; registered design professional; and the building owner; and/or tenant).

Any Building Fire Sprinkler System Work (IFC [A] 105.7.1).
Any Building Fire Alarm System Work (IFC [A] 105.7.6).

All deferred (IBC 107.3.4.1) submittal item(s) need to be submitted within a timely manner (30 calendar days of the original building permit issuance date). The final inspection approval (IBC 110.3.10) cannot be issued and no building or structure can be used or occupied (IBC 111.1) until all the deferred submitted items are approved by the building official.

FIRE DEPARTMENT CONNECTION & EMERGENCY RESPONDER RADIO COVERAGE NOTES:

A. THE BUILDING SHALL BE CONSIDERED TO HAVE ACCEPTABLE EMERGENCY RESPONDER RADIO COVERAGE WHEN SIGNAL STRENGTH MEASUREMENTS IN 95 PERCENT OF ALL AREAS ON EACH FLOOR OF THE BUILDING MEET THE SIGNAL STRENGTH REQUIREMENTS OF SECTIONS 510.4.1.1 AND 510.4.1.2 OF THE INTERNATIONAL FIRE CODE.
B. A VALID FCC-ISSUED GENERAL RADIO OPERATOR 'S LICENSE; AND CERTIFICATION OF IN-BUILDING SYSTEM TRAINING ISSUED BY A NATIONALLY RECOGNIZED ORGANIZATION, SCHOOL OR A CERTIFICATE ISSUED BY THE MANUFACTURER OF THE EQUIPMENT BEING INSTALLED. THE EMERGENCY RESPONDER RADIO COVERAGE SYSTEM INSTALLATION AND COMPONENTS SHALL ALSO COMPLY WITH ALL APPLICABLE FEDERAL REGULATIONS INCLUDING, BUT NOT LIMITED TO, FCC 47 CFR PART 90.219.
C. PROVIDE AN ADDRESS ON THE BUILDING WHICH IS ASSIGNED BY THE CITY ENGINEERING DEPARTMENT. IF THE SPACE IS SUBDIVIDED THEN THE UNIT NUMBER OR LETTER SHALL BE PLACED ON OR NEAR THE ENTRANCE OF THE UNIT. THESE NUMBERS AND LETTERS SHALL BE VISIBLE FROM THE STREET AND BE A MINIMUM 6 INCHES HIGH AND A STROKE OF ½ INCH. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. THIS ADDRESS SHALL BE CONTRASTING COLOR OF THE BACKGROUND.
D. IN ACCORDANCE WITH IFC SECTION 510 BUILDINGS SHALL HAVE APPROVED RADIO COVERAGE FOR EMERGENCY RESPONDERS WITHIN THE BUILDING BASED UPON THE EXISTING COVERAGE LEVELS OF THE PUBLIC SAFETY COMMUNICATION SYSTEMS OF THE JURISDICTION AT THE EXTERIOR OF THE BUILDING. THIS SECTION SHALL NOT REQUIRE IMPROVEMENT OF THE EXISTING PUBLIC SAFETY COMMUNICATION SYSTEMS. THE BUILDING SHALL BE CONSIDERED TO HAVE ACCEPTABLE EMERGENCY RESPONDER RADIO COVERAGE WHEN SIGNAL STRENGTH MEASUREMENTS IN 95 PERCENT OF ALL AREAS ON EACH FLOOR OF THE BUILDING MEET THE SIGNAL STRENGTH REQUIREMENTS OF SECTIONS 510.4.1.1 AND 510.4.1.2 OF THE INTERNATIONAL FIRE CODE.
E. EMERGENCY RESPONDER RADIO SYSTEM COVERAGE SHALL BE DESIGNED IN ACCORDANCE WITH IFC SECTION 510. A SEPARATE FIRE PERMIT IS REQUIRED AS SPECIFIED IN IFC SECTION 105.7.5 (SALT LAKE CITY RADIO SYSTEM DESIGN IS BOTH AN 800 MHZ ANALOG TRUNKING SYSTEM AND A MIXED ANALOG P25 DIGITAL SYSTEM ON 800 MHZ.). THE MINIMUM QUALIFICATIONS OF THE SYSTEM DESIGNER AND LEAD INSTALLATION PERSONNEL SHALL INCLUDE: A VALID FCC-ISSUED GENERAL RADIO OPERATOR 'S LICENSE; AND CERTIFICATION OF IN-BUILDING SYSTEM TRAINING ISSUED BY A NATIONALLY RECOGNIZED ORGANIZATION, SCHOOL OR A CERTIFICATE ISSUED BY THE MANUFACTURER OF THE EQUIPMENT BEING INSTALLED. THE EMERGENCY RESPONDER RADIO COVERAGE SYSTEM INSTALLATION AND COMPONENTS SHALL ALSO COMPLY WITH ALL APPLICABLE FEDERAL REGULATIONS INCLUDING, BUT NOT LIMITED TO, FCC 47 CFR PART 90.219.

FIRE NOTES:

1. FIRE PUMP ROOMS FOR ALL WATER BASED FIRE SYSTEMS (SPRINKLER AND STANDPIPE) SHALL BE CONSTRUCTED WITH THE FOLLOWING CLEARANCES:
   A. A MINIMUM OF 12 INCHES THAT IS UNOBSTRUCTED FROM ALL WALLS (INTERIOR AND EXTERIOR) TO INCLUDE MULTIPLE RISERS WHICH ARE SUPPLIED BY ONE OR MORE SUPPLY MAIN.
   B. A MINIMUM OF 36 INCHES SHALL BE PROVIDED IN FRONT OF THE APPLIANCES LISTED ABOVE.
   C. PUMP ROOMS SHALL BE PROVIDED WITH A CLEAR AND UNOBSTRUCTED PASSAGEWAY TO THE RISER ROOM OF NOT LESS THAN 72 INCHES AND THE OPENING INTO THE ROOM SHALL BE CLEAR AND UNOBSTRUCTED AND LARGE ENOUGH TO ALLOW FOR THE REMOVAL OF THE LARGEST PIECE OF EQUIPMENT, WITH DOORS SWINGING IN THE OUTWARD DIRECTION FROM THE ROOM AND THE OPENING PROVIDING A CLEAR WIDTH OF NOT LESS THAN 48 INCHES AND A CLEAR HEIGHT OF THE DOOR OPENING SHALL NOT BE LESS THAN 80 INCHES.
2. FIRE ALARM SYSTEM SHALL BE INSTALLED WHEN THERE ARE EXTINGUISHG SYSTEMS IN THE BUILDING FOR OCCUPANT NOTIFICATION.
3. AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DECIBLES (dBA) ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 dBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIED SPACE WITHIN THE BUILDING.
4. THE MAXIMUM SOUND PRESSURE LEVEL FOR AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL BE 110 dBA AT THE MINIMUM HEARING DISTANCE FROM THE AUDIBLE APPLIANCE. WHERE THE AVERAGE AMBIENT NOISE IS GREATERTHAN 95 dBA, VISIBLE ALARM NOTIFICATION APPLIANCES SHALL BE PROVIDEDIN ACCORDANCE WITH NFPA 72 AND AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL NOT BE REQUIRED.
5. FIRE ALARM SYSTEM HORN AND STROBE SHALL BE INSTALLED UNLESS WITHIN THE AREA APPLIANCES ARE INSTALLED AND THE AREA HAS THE REQUIRED db RATING AS PRESCRIBED IN INTERNATIONAL FIRE CODE 907.5.2.1.1 & VISIBLE REQUIREMENTS IN SECTION 907.5.2.3.
6. POWER PANELS WHICH SUPPLY POWER TO FIRE ALARM SYSTEMS SHALL HAVE BRANCH CIRCUITS IDENTIFIED BY RED LABELS STATING "FIRE ALARM CIRCUIT" THIS REQUIREMENT MAY BE FOUND IN NATIONAL ELECTRICAL CODE ARTICLE 760.41B.
7. WATER LATERALS THAT SUPPLY WATER BASED FIRE PROTECTION SHALL BE FERROUS PIPE WHEN IT PASSES THROUGH A FOUNDATION WALL OR UNDER FOOTING AND FOUNDATION WALLS.

VICINITY MAP:

SHEET INDEX

GENERAL	
G001	COVER
G002	CODE ANALYSIS, SCOPING, & PROJECT NOTES
G003	GENERAL NOTES & LEGENDS
G004	ADA GENERAL NOTES AND DETAILS
G005	ADA GENERAL NOTES AND DETAILS
G006	ADA RESTROOM DETAILS
G007	ADA GENERAL NOTES AND DETAILS
G008	EGRESS PLAN
G009	WALL TYPES
ARCHITECTURAL	
D100	LEVEL 01 DEMOLITION PLAN
A100	LEVEL 01 FLOOR PLAN EXISTING
A101	LEVEL 01 FLOOR PLAN
A111	ENLARGED MEZZANINE PLAN
A112	ENLARGED OFFICE PLAN
A121	LEVEL 01 EQUIPMENT PLAN
A301	BUILDING SECTIONS
A311	ENLARGED MEZZANINE SECTION
A401	STAIR PLANS AND SECTIONS
A402	STAIR PLANS AND SECTIONS
A411	STAIR AND LADDER DETAILS
A511	INTERIOR DETAILS
A512	INTERIOR DETAILS
A521	ROOF DETAILS
A601	DOOR SCHEDULES
A602	GLAZING ELEVATIONS
A611	WINDOW AND DOOR DETAILS
A711	LEVEL 01 FINISH PLAN
A712	LEVEL 01 REFLECTED CEILING PLAN
A801	RESTROOM PLANS AND ELEVATIONS
A901	INTERIOR ELEVATIONS
A902	INTERIOR ELEVATIONS
A912	CEILING DETAILS
EQ301	EQUIPMENT SECTIONS
STRUCTURAL	
S001	GENERAL STRUCTURAL NOTES
S003	GENERAL STRUCTURAL NOTES
S004	TYPICAL SCHEDULES
S005	TYPICAL SCHEDULES
S101	FOOTING AND FOUNDATION PLAN
S102	MEZZANINE FRAMING PLAN
S401	STAIR PLAN
S501	FOUNDATION DETAILS
S601	FRAMING DETAILS
MECHANICAL	
M0.0	MECHANICAL LEGENDS, GENERAL NOTES, & INDEX
M1.1	LEVEL 1 MECHANICAL PLAN
M1.2	OFFICE MECHANICAL PLAN
M1.3	CLEAN ROOM MECHANICAL PLAN
M1.4	ROOF MECHANICAL PLAN
M1.5	CLEAN ROOM MECHANICAL VIEWS
M2.1	MECHANICAL SCHEDULES
M2.2	MECHANICAL DETAILS
M3.1	MECHANICAL LOAD CALCS
M3.2	MECHANICAL LOAD CALCS
M3.3	MECHANICAL LOAD CALCS
M3.4	MECHANICAL LOAD CALCS
M3.5	MECHANICAL DIAMOND SYSTEM BUILDER
M3.6	MECHANICAL COMCHECK
PLUMBING	
P1.1	LEVEL 1 DOMESTIC PLUMBING PLAN
P1.2	LEVEL 1 DOMESTIC ENLARGED PLUMBING PLAN
P1.3	ROOF DOMESTIC PLUMBING PLAN
P2.1	LEVEL 1 DWV PLUMBING PLAN
P2.2	LEVEL 1 DWV ENLARGED PLUMBING PLAN
P2.3	ROOF DWV PLUMBING PLAN
P3.1	PLUMBING SCHEDULE
P3.2	PLUMBING DETAILS
P4.1	PLUMBING ISOMETRIC DOMESTIC
P4.2	PLUMBING ISOMETRIC DOMESTIC
P4.3	PLUMBING ISOMETRIC DOMESTIC
P4.4	PLUMBING ISOMETRIC DOMESTIC
P4.5	PLUMBING ISOMETRIC GAS
MECH/PLUMBING	
SM1.1	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.2	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.3	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.4	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.5	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.6	MECHANICAL & PLUMBING SPECIFICATIONS
ELECTRICAL	
E000	ELECTRICAL GENERAL SHEET
E101	OVERALL LIGHTING PLAN
E102	OFFICE LIGHTING PLAN
E201	OVERALL POWER PLAN
E202	OFFICE POWER PLAN
E203	ROOF TOP POWER PLAN
E501	ELECTRICAL DETAILS
E601	ELECTRICAL SCHEDULES

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Revision Schedule		
MARK	DESCRIPTION	Revision Date

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COVER

PROJECT STATUS
DATE: **PROJECT ISSUE DATE**

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TENANT IMPROVEMENT
2021 IBC CODE ANALYSIS

Code Item Reference	Code Requirement	Actual Building	Comments
Occupancy Chapter 3	B/S-1/S-2/F-1/F-2	Bldg.: B/S-1/S-2/F-1/F-2 **TI: B, S-1, S-2, F-1, F-2**	Office, Warehouse, Industrial (A-2 accessory breakroom)
Construction Type Chapter 6	II-B	II-B	**Existing Building** **New Tenant Improvement**
Height - Table 504.3	75'	H<75'	Ok
Stories - Table 504.4	3	1 + equipment mezzanines	Ok
Allowable Area Section 507 if unlimited	Unlimited	Bldg.: 85,668 SF **TI: 414 SF Mezzanine** **TI: 63,901 SF Level 1**	Ok Equipment mezzanine Main level floor area
Frontage Increase - 506.3	NA	NA	NA
Mixed Use - Section 508	NA	NA	Non-separated use per 508.3
Max. Area - Unprotected openings Table 705.8	No Limit	No Limit	Ok
Automatic Sprinkler Systems Section 903	Yes	**Yes**	**NFPA-13 ESFR. Modify as req'd for tenant improvement** (See footnote below)
Max. Floor Area Allowances per Occupant, Table 1004.5	Load Factors: 300 Accessory 15 Conference rooms 15 Breakroom 50 Locker area 150 Office 200 Production areas 500 Warehouse	**Occupancy Calculations:** **414/300 = 2 (use 4)** **1,361/15 = 91** **1,818/15 = 121** **890/50 = 18** **7,072/150 = 47** **10,163/200 = 51** **42,597/500 = 213** **Total: 543 occupants**	**Function of Space:** **Equipment mezzanine** **Conference rooms** **Breakroom** **Lockers** **Office areas & similar** **Production areas** **Warehouse** **Total occupants**
Min. Number of Exits Section 1006	Mezz. TI: 1 each mezz. Level 1: 3	Mezz. TI: 1 each mezz. Level 1: 8	Ok Ok
Common Path Table 1006.2.1	B, S, F: 100' max A-2: 75' max	Less than maximum See plan	Ok
Exit Access Travel Table 1017.2	**w/** Sprinkler: S-1, F-1: 400' S-2, F-2: 400' B: 300' A: 250'	Less than maximum See plan	Section 1017.2.2: S-1, F-1 increase Ok
Accessibility	Chapter 11		Ok
Ventilation, Temperature, Lighting	Chapter 12 and Mechanical code		Ok
Min. Roofing Class. Table 1505.1	C	C	Ok
Plumbing Facilities Table 2902.1 Water Closets Lavatories Drinking Fountain Service Sink	Plumbing fixture count TI: 5M 5W 4M 4W 1 high + 1 low 1	**Plumbing fixture count TI:** **5M 5W 1AU** **4M 4W 1AU** **2 high + 2 low** **1**	B/S(F)/A-2 1:25 first 50,1:50 / 1:100 / 1:75 1:40 first 80,1:80 / 1:100 / 1:200 1:100 / 1:1,000 (400) / 1:500 1/1/1
Fire Extinguishers			Per Fire Marshal
Energy Efficiency	Chapter 13	International Energy Conservation Code	Ok

Note: Building area is approximate and portrays gross building area for code compliance only. Additional area plans can be provided at the request of the owner for BOMA calculations, etc. The contractor shall be responsible for determining building areas for bidding purposes.

NFPA-13 ESFR Automatic Sprinkler System to be designed for rack storage class 1-4 commodities and various group "A" plastics.

FIRE-RESISTANCE RATING REQUIREMENTS (hours)

Building Element	Type II-B
Structural Frame Including Columns, Girders, Trusses	0
Bearing Walls Exterior Interior	 0 0
Nonbearing Walls and Partitions Exterior Interior	 0 0
Floor Construction Including supporting Beams and Joists	0
Roof Construction Including supporting Beams and Joists	0

Corridor fire-resistance rating = 0 hr per table 1020.2

INTERIOR WALL AND CEILING FINISH REQUIREMENTS

Sprinkled	Group A-2	Group S, F	Group B
Exit enclosures and exit passageways	B	C	B
Corridors	B	C	C
Rooms and enclosed spaces	C	C	C

See Table 803.13
Class A flame spread 0-25; Smoke developed 0-450
Class B flame spread 26-75; Smoke developed 0-450
Class C flame spread 76-200; Smoke developed 0-450

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MARK	DESCRIPTION	Revision Date

Revision Schedule

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CODE ANALYSIS, SCOPING, & PROJECT NOTES

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GENERAL PROJECT NOTES

DEFINITIONS

1. PROVIDE:
MEANS TO PROVIDE, FURNISH AND INSTALL, A COMPLETE SYSTEM AND READY FOR OPERATIONS AND USE FOR PURPOSE INTENDED INCLUDES THOSE ITEMS SPECIFIED WITHIN THE DRAWINGS AND SPECIFICATIONS AS WELL AS THOSE ITEMS THAT ARE REQUIRED TO PROVIDE A COMPLETE SYSTEM. THE CONTRACTOR AND SUB CONTRACTORS ARE REQUIRED TO PROVIDE THE FULL AND COMPLETE SYSTEM.

2. FURNISH:
MEANS TO SUPPLY, PURCHASE, PROCURE AND DELIVER COMPLETE WITH RELATED ACCESSORIES, READY FOR ASSEMBLY, APPLICATION, INSTALLATION, AND SIMILAR OPERATIONS, AS APPLICABLE IN EACH INSTANCE.

3. INSTALL:
MEANS TO CONSTRUCT, ASSEMBLE, ERECT, MOUNT, ANCHOR, PLACE, CONNECT, APPLY AND SIMILAR OPERATIONS, COMPLETE WITH RELATED ACCESSORIES, AS APPLICABLE IN EACH INSTANCE.

4. EQUIVALENT:
MEANS "EQUIVALENT AS ACCEPTED BY THE ARCHITECT," WITH RESPECT TO PRODUCTS, EQUIVALENT MEANS A LIKE DEGREE OF FEATURES, ATTRIBUTES, PERFORMANCES, OR QUALITIES DEEMED ESSENTIAL TO THE DESIGN INDICATED INSTEAD. THE TERM INTENDED TO MEAN ARCHITECT WILL CONSIDER SUBSTITUTION PROPOSALS FOR THE PRODUCT, DO NOT ASSUME THAT SUBSTITUTE PRODUCTS ARE ACCEPTABLE. SUBSTITUTIONS MADE BY THE CONTRACTOR WITHOUT FULL AND FINAL APPROVAL, MAY REQUIRE TO BE REMOVED IF NOT DEEMED ACCEPTABLE BY THE ARCHITECT. ALL COSTS ASSOCIATED TO REMOVAL OF SUBSTITUTION NOT APPROVED, AND INSTALLATION OF ACCEPTED PRODUCTS WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

GENERAL NOTES

1. SITE VISITS
VISITS TO THE JOB SITE BY ANY REPRESENTATIVE OF THE ARCHITECT DO NOT CONSTITUTE APPROVAL OF THE WORK PERFORMED BY THE CONTRACTOR OR HIS SUBCONTRACTORS, AND ARE MERELY FOR THE PURPOSE OF OBSERVING THE WORK PERFORMED.

2. DISCREPANCIES IN THE FIELD
CONTRACTOR SHALL NOTIFY ENGINEER / ARCHITECT OF ANY DISCREPANCIES, OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND / OR SPECIFICATIONS BEFORE PROCEEDING WITH ANY WORK INVOLVED. FIELD CONFIRMATION OF DISCREPANCIES SHALL BE RECORDED ON REPRODUCIBLE DOCUMENT AND IMMEDIATELY TRANSMITTED TO ARCHITECT FOR PROJECT RECORD, COORDINATION, AND NECESSARY RESOLUTION PRIOR TO CONTINUING WITH WORK. IN ALL CASES, UNLESS OTHERWISE DIRECTED, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN AND BE PERFORMED.

3. FIELD MEASUREMENTS
VERIFY FIELD MEASUREMENTS BEFORE ORDERING MATERIALS AND PREFABRICATED ITEMS. ANY NECESSARY ADJUSTMENTS BETWEEN FIELD MEASUREMENTS AND DRAWINGS SHALL BE MADE IN CONSULTATION WITH THE ARCHITECT.

4. SCALE OF DRAWINGS
DO NOT SCALE DRAWINGS. ARCHITECT SHALL NOT BE RESPONSIBLE FOR DIMENSIONS, TAKE-OFFS OR CALCULATIONS BASED ON DIGITAL MEDIA. REFER TO PRINTED DIMENSIONS ONLY. DRAWINGS OF A LARGER SCALE TAKE PRECEDENT OVER DRAWINGS OF A SMALLER SCALE.

5. CONTRACT DOCUMENTS AT SITE
THE CONTRACTOR SHALL MAINTAIN CURRENT PERMIT DRAWINGS; SHOP DRAWINGS; REVISED DRAWINGS; CLARIFICATION DRAWINGS, ADDENDA; CHANGE ORDERS; BULLETINS; INSPECTIONS; TEST CERTIFICATIONS AND RECORDS; PRODUCT SUBMITTAL DATA AND SAMPLES. FIELD OFFICE SHALL CONTAIN A CURRENT COPY OF ALL GOVERNING BUILDING CODE(S). MAKE DOCUMENTS AVAILABLE AT ALL TIMES FOR ARCHITECT 'S REVIEW. ALL DRAWINGS MUST BE CLEARLY MARKED AS TO THE FINAL APPROVED DRAWINGS.

6. RECORD DRAWINGS (AS BUILTS)
THE CONTRACTOR SHALL MAINTAIN ACCURATELY DIMENSIONED RECORDS OF ALL UNDERGROUND LINES, SERVICES, AND UTILITIES, AS WELL AS ANY DISCREPANCIES OR REQUIRED CHANGES IN THE CONTRACT DOCUMENTS. AT THE END OF THE PROJECT, FORWARD TO ARCHITECT FOR FUTURE RECORDS. ONE DIGITAL COPY OF COMPLETE RECORD DRAWINGS TO OWNER IN PDF FORMAT AFTER COMPLETING FINAL PUNCH LIST.

7. CONFLICTING DIMENSIONS
WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED SIZES; DO NOT SCALE DRAWINGS TO DETERMINE ANY LOCATIONS. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES, PRIOR TO CONTINUING WITH WORK.

8. SHOP DRAWING AND SUBMITTAL REVIEW
SHOP DRAWINGS AND SUBMITTALS SHALL BE REVIEWED BY THE ENGINEER / ARCHITECT AND OWNER PRIOR TO ORDERING, FABRICATION OR ERECTION FOR ANY PREFABRICATED OR MANUFACTURED - DESIGNED COMPONENTS. - STANDARD REVIEW TIMES FOR RFI'S AND SUBMITTALS ARE AS FOLLOWS:
RFI'S - 5 WORKING DAYS
SUBMITTALS -10 WORKING DAYS

9. SUPPORTING STRUCTURES
SIZES, LOCATIONS, LOADS, AND ANCHORAGE OF EQUIPMENT SHALL BE VERIFIED IN THE FIELD WITH EQUIPMENT MANUFACTURES (SUPPLIERS) PRIOR TO FABRICATION OR INSTALLATION OF SUPPORTING STRUCTURES.

10. TEMPORARY BRACING
TEMPORARY BRACING SHALL BE PROVIDED WHEREVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING WIND. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY, OR UNTIL ALL THE STRUCTURAL ELEMENTS ARE COMPLETED. ALL BRACING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

11. DESIGN LOADS
DURING AND AFTER CONSTRCITON THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOAD.

12. INTENT OF THE DOCUMENTS
DRAWINGS AND SPECIFICATIONS ARE INTENDED TO PROVIDE THE BASIS FOR THE PROPER COMPLETION OF THE PROJECT, SUITABLE FOR THE INTENDED USE OF THE OWNER. ITEMS NOT EXPRESSLY SET FORTH WITHIN THE DRAWINGS AND SPECS, BUT WHICH ARE REASONABLY IMPLIED FOR COMPLETION OF A COMPLETE SYSTEM, OR NECESSARY, FOR THE PROPER PERFORMANCE OF THE WORK SHALL BE INCLUDED.

13. DRAWINGS AND SPECIFICATIONS
SPECIFICATIONS ARE INTENDED TO BE COMPLIMENTARY AND SUPPLEMENTAL TO THE DRAWINGS, NO RELATIVE IMPORTANCE OF DRAWINGS VERSUS SPECIFICATIONS HAS BEEN ESTABLISHED AND NONE SHOULD BE ASSUMED, BUT THE MOST STRINGENT CONDITIONS SHOULD BE ASSUMED FOR ALL BIDDING AND CONSTRUCTION REQUIREMENTS. IN THE EVENT OF DISCREPANCIES OR CONFLICTS, THE ARCHITECT SHALL BE CONSULTED IN ORDER TO RENDER AN INTERPRETATION. BIDDING, PRICING OR CONSTRUCTION DONE PRIOR TO RECEIVING FINAL BUILDING DEPARTMENT PERMITS IS AT THE CONTRACTORS OWN RISK. CHANGES TO THE DRAWINGS MAY BE REQUIRED AS PART OF THE PLAN CHECK AND/ OR OWNER REVIEW PROCESS. J.M. WILLIAMS AND ASSOCIATES/AE URBIA AND ITS CONSULTING ENGINEERS WILL NOT BE HELD LIABLE FOR, NOR COMPENSATE FOR, CHANGES TO THESE DRAWINGS BEFORE FINAL JURISDICTION AND OWNER APPROVAL IS OBTAINED.

14. WORK NOT INCLUDED
ANY ITEM INDICATED ON THE DRAWINGS AS "N.I.C." (NOT IN CONTRACT), OR OTHERWISE DESIGNATED TO BE DONE BY OTHERS IS NOT A PART OF THE CONTRACT. INSTALLATION AND/OR BACKING MAY BE REQUIRED FOR SOME EQUIPMENT FURNISHED BY OWNER OR OWNER 'S SUBCONTRACTOR. REFER TO DRAWINGS FOR SPECIFIC REQUIREMENTS.

15. FURNISHINGS BY OWNER
ALL FURNITURE, PLANTS, INTERIOR SIGNAGE, FILES / FILING CABINETS, APPLIANCES, OFFICE EQUIPMENT TO BE FURNISHED, INSTALLED AND PAID FOR BY THE OWNER / TENANT, UNLESS NOTED OTHERWISE.

16. CODE CONFORMANCE
ALL WORK SHALL CONFORM TO THE LATEST ADOPTED EDITIONS OF ALL APPLICABLE BUILDING CODES, THE AMERICANS WITH DISABILITIES ACT, AS WELL AS ALL OTHER LOCAL GOVERNING CODES AND ORDINANCES:
a. PLUMBING:
ALL PLUMBING WORK SHALL BE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL PLUMBING CODE, AND LOCAL ORDINANCES. ALL PLUMBING WORK AND FIXTURES MUST MEET THE APPROVAL OF THE OWNER, CONTRACTOR, ARCHITECT/ENGINEER, TENANT AND THE BUILDING OFFICIAL.
b. HVAC:
ALL HVAC WORK SHALL BE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL MECHANICAL CODE, AND LOCAL ORDINANCES. HVAC WORK, UNITS, AND CONTROLS, MUST MEET THE APPROVAL OF THE OWNER, CONTRACTOR, ARCHITECT/ENGINEER, TENANT, AND THE BUILDING OFFICIAL.
c. ELECTRICAL:
ALL ELECTRICAL WORK SHALL BE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE ICC ELECTRICAL CODE AND LOCAL ORDINANCES. ALL ELECTRICAL WORK, FIXTURES, SWITCHES, ETC.,, MUST MEET APPROVAL OF THE OWNER, CONTRACTOR, ARCHITECT / ENGINEER, TENANT AND BUILDING OFFICIAL.
d. REST ROOMS, ETC., SHALL COMPLY WITH THE LATEST ADA REQUIREMENTS, NATIONAL AND LOCAL.
e. CONSTRUCTION MUST BE IN COMPLIANCE WITH THE INTERNATIONAL ENERGY CONSERVATION CODE.
f. CONSTRUCTION MUST BE IN COMPLIANCE WITH THE CURRENT INTERNATIONAL FIRE CODE.

17. REFERENCE STANDARDS
COMPLY WITH ASSOCIATION, TRADE, FEDERAL, COMMERCIAL, ASTM, AND OTHER SIMILAR STANDARDS REFERENCED WITHIN INDIVIDUAL SECTIONS, EXCEPT WHERE MORE EXPLICIT OR STRINGENT REQUIREMENTS ARE INDICATED, OR REQUIRED BY APPLICABLE CODES. REFERENCE STANDARDS HAVE SAME FORCE AND EFFECT AS IF BOUND INTO CONTRACT DOCUMENTS. SHOULD SPECIFIED REFERENCE STANDARDS CONFLICT WITH CONTACT DOCUMENTS, REQUEST CLARIFICATION FROM ARCHITECT BEFORE PROCEEDING.

18. APPROVAL
ALL WORK MUST MEET THE APPROVAL OF THE BUILDING OWNERS, THE TENANT (IF APPLICABLE), THE DESIGNER, AND THE BUILDING AND ZONING DEPARTMENTS.

19. CHANGES
ANY AND ALL CHANGES OR VARIATIONS FROM THESE DOCUMENTS MUST BE APPROVED IN WRITING BY THE OWNERSHIP PRIOR TO MAKING THEM.

CONTRACTOR REQUIREMENTS

1 EXISTING CONDITIONS
THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL EXISTING SITE CONDITIONS, UTILITIES, CONNECTIONS, LOCATIONS, ETC. AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

2 EXISTING UTILITIES
IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES, WHETHER SHOWN HEREIN OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE FOR THE REPAIR OR REPLACEMENT OF UTILITIES AND ALL OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH EXECUTION OF WORK.

3 CODE COMPLIANCE
THE CONTRACTOR SHALL BE REQUIRED TO MEET ALL NATIONAL, STATE AND LOCAL, AND RELATED CODES FOR STANDARD CONSTRUCTION PRACTICES.

4 SHOP DRAWINGS & SUBMITTALS
SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL TO THE ARCHITECT/OWNER. SHOP DRAWING REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THIS PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATONGIVEN IN THE CONTRACT DOCUMENTS.

CONTRACTOR IS RESPONSIBLE FOR:

a. DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE
b. FABRICATION PROCESSESS AND TECHNIQUES OF CONSTRUCTION
c. QUANTITIES OF MATERIALS AND GOODS
d. COORDINATION OF HIS WORK WITH THAT OF ALL OTHER TRADES
e. ORDERING THE CORRECT PRODUCTS AND MATERIALS (INCLUDING COLORS)
f. THE SATISFACTORY PERFORMANCE OF HIS WORK

5 INSTALLATION STANDARDS
ALL MANUFACTURED MATERIALS AND PRODUCTS SHALL BE APPLIED, INSTALLED, CONNECTED, CLEANED AND CONDITIONED IN ACCORDANCE WITH THE MANUFACTURER 'S PRINTED INSTRUCTIONS. ALL REFERENCES TO STANDARDS OR TO MANUFACTURER 'S SPECIFICATIONS SHALL BE TO THE LATEST EDITIONS OR LATEST AMENDMENTS.

6 INSPECTIONS
ANY SPECIAL INSPECTIONS, TESTS, AND OTHER SERVICES SPECIFIED OR REQUIRED ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE TO BE PAID BY THE OWNER. REFER TO INDIVIDUAL SELECTIONS FOR ADDITIONAL REQUIREMENTS. EMPLOYMENT OF TESTING LABORATORY SHALL IN NO WAY RELIEVE CONTRACTOR OF OBLIGATION TO PERFORM WORK IN ACCORDANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS.

7 PROJECT LOG
MAINTAIN DAILY LOG CONTAINING ALL INFORMATION REGARDING CONSTRUCTION OPERATIONS AND OTHER OCCURRENCES PERTAINING TO THE PROJECT. MAKE LOG AVAILABLE FOR ARCHITECT'S REVIEW.

8 WORK PROGRESS SCHEDULE
MAINTAIN AN UPDATED WORK PROGRESS SCHEDULE POSTED IN A VISIBLE PLACE LOCATED IN FIELD OFFICE. UPDATE SCHEDULE DAILY TO REFLECT WORK PROGRESS.

9 BUILDING PERMITS
THE GENERAL BUILDING PERMITS SHALL BE PAID FOR BY THE OWNER AND SECURED BY THE GENERAL CONTRACTOR. ALL OTHER REQUIRED PERMITS SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR OR SUBCONTRACTOR DIRECTLY RESPONSIBLE.

10 FINAL APPROVALS
CONTRACTOR SHALL ASSIST OWNER IN OBTAINING FINAL APPROVAL OF LOCAL HEALTH DEPARTMENT AND THE TEMPORARY AND FINAL CERTIFICATES OF OCCUPANCY.

11 REQUIRED LICENSES
ADDITIONAL REQUIRED CITY AND COUNTY LICENSES SHALL BE ACQUIRED AND PAID FOR BY THE INDIVIDUAL TRADES.

12 WORKMAN'S COMPENSATION
ALL CONTRACTORS SHALL HAVE VALID CERTIFICATES OF WORKMAN'S COMPENSATION OF FILE WITH THE APPROPRIATE AGENCIES.

13 SAFETY
CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE SAFETY OF THE OCCUPANTS AND WORKERS AT ALL TIMES, AND SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOB SITE.

14. CONTRACTOR'S FIELD OFFICE
PROVIDE AND MAINTAIN A FIELD OFFICE ON THE PREMISES WHERE DIRECTED. OFFICE SHALL BE OF NEAT, SUBSTANTIAL CONSTRUCTION, PROVIDE HANGING PLAN FILES AND MAINTAIN WITH ALL CURRENT DRAWINGS.
a. STORAGE STRUCTURE: PROVIDE AND MAINTAIN, WHERE DIRECTED, A WATERTIGHT STORAGE STRUCTURE FOR ALL MATERIALS WHICH MIGHT BE DAMAGED BY WEATHER, INCLUDING STORAGE FACILITIES FOR CONCRETE TEST SAMPLES, OR OTHER MATERIAL SAMPLES REQUIRED FOR WORK.
b. COSTS: PAY COSTS FOR A LOCAL BUSINESS TELEPHONE FOR USE BY CONTRACTOR, OWNER AND ARCHITECT THROUGHOUT CONTRACT PERIOD.
c. COMMUNICATION EQUIPMENT: PROVIDE A TELEPHONE ON SITE. ASSIGN A RESPONSIBLE PERSON TO ANSWER ALL TELEPHONE CALLS IN EVENT THE SUPERINTENDENT IS ABSENT FROM THE PREMISES. PROVIDE APPROVED MEANS TO ESTABLISH URGENT COMMUNICATIONS (CELLULAR TELEPHONE OR PAGER).

15. TEMPORARY FACILITIES
PROVIDE TEMPORARY FACILITIES AND CONNECTIONS AS REQUIRED FOR THE PROPER COMPLETION OF THE PROJECT. PROVIDE AND MAINTAIN TEMPORARY UTILITY SERVICES. PROVIDE SUITABLE WASTE DISPOSAL UNITSAND EMPTY REGULARLY. DO NOT PERMIT ACCUMULATION OF TRASH AND WASTE MATERIALS. PROVIDE TEMPORARY SANITARY FACILITIES AS REQUIRED.

16. STORAGE AND PROTECTION
STORE AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER 'S INSTRUCTIONS WITH LABELS INTACT AND LEGIBLE. STORE SENSITIVE PRODUCTS IN WEATHERTIGHT, CLIMATE CONTROLLED ENCLOSURES. PROVIDE OFFSITE STORAGE AND PROTECTION WHEN SITE DOES NOT PERMIT ON SITE STORAGE.

17. FIELD QUALITY CONTROL
EMPLOY ONLY EXPERIENCED INSTALLERS AND FURNISH EVIDENCE OF EXPERIENCE IF REQUESTED. USE OF ANY SUBCONTRACTOR OR INSTALLER IS SUBJECT TO OWNER 'S APPROVAL.
EMPLOY FULL-TIME, COMPETENT SUPERINTENDENT AS WELL AS NECESSARY ASSISTANTS. SUPERINTENDENT SHALL REPRESENT THE CONTRACTOR
AND ALL COMMUNICATIONS GIVEN TO THE SUPERINTENDENT SHALL BE AS BINDING AS IF GIVEN TO THE CONTRACTOR.

18. SOURCE QUALITY CONTROL
PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS, WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS, UNLESS MORE STRINGENT CRITERIA ARE SPECIFIED IN INDIVIDUAL SECTIONS. USE OF ANY SUPPLIER IS SUBJECT TO OWNER 'S APPROVAL.

19. PRODUCT HANDLING
TRANSPORT AND HANDLE PRODUCTS IN ACCORDANCE WITH MANUFACTURER 'S INSTRUCTIONS. DELIVER PRODUCTS IN UNDAMAGED CONDITION, IN MANUFACTURER 'S ORIGINAL UNOPENED CONTAINER 'S OR PACKING. WITH IDENTIFYING LABELS INTACT AND LEGIBLE. PROMPTLY INSPECT SHIPMENTS TO ENSURE THAT PRODUCTS COMPLY WITH REQUIREMENTS OF CONTRACT DOCUMENTS, QUANTITIES ARE CORRECT, AND PRODUCTS ARE UNDAMAGED.

20. COMPLIANCE WITH MANUFACTURER'S INSTRUCTIONS
HANDLE, INSTALL, ERECT, CONNECT, CONDITION, USE, ADJUST, AND CLEAN PRODUCTS IN STRICT ACCORDANCE WITH MANUFACTURER 'S INSTRUCTION AND IN CONFORMITY WITH SPECIFIED REQUIREMENTS, INCLUDING EACH STEP IN SEQUENCE. DO NOT OMIT PREPARATORY STEPS OR INSTALLATION PROCEDURES
UNLESS SPECIFICALLY MODIFIED OR EXEMPTED BY CONTRACT DOCUMENTS. SHOULD JOB CONDITIONS OR SPECIFIED REQUIREMENTS CONFLICT WITH MANUFACTURER 'S INSTRUCTIONS, REQUEST CLARIFICATION IN WRITING FROM ARCHITECT BEFORE PROCEEDING. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH PROPER APPEARANCE.

21. MANUFACTURER'S FIELD SERVICES
WHEN SPECIFIED IN INDIVIDUAL SECTIONS, REQUIRE MATERIAL OR PRODUCT SUPPLIERS OR MANUFACTURERS TO PROVIDE QUALIFIED STAFF PERSONNEL TO OBSERVE SITE CONDITIONS, CONDITIONS OF SURFACES, QUALITY OF WORKMANSHIP, AND CONDITIONS OF INSTALLATION AS APPLICABLE AND TO INITIATE ADDITIONAL INSTRUCTIONS WHEN NECESSARY.

22. SUBSTITUTIONS
PROPOSALS FOR SUBSTITUTION OF MATERIALS, EQUIPMENT, AND METHODS WILL ONLY BE CONSIDERED WHEN ACCOMPANIED BY FULL AND COMPLETE TECHNICAL DATA AS WELL AS ANY OTHER INFORMATION REQUIREDTO EVALUATE THE PROPOSED SUBSTITUTION. SUBSTITUTIONS ARE UNACCEPTABLE UNLESS SPECIFICALLY APPROVED BY THE ARCHITECT. IN THE EVENT OF SUBSTITUTION PROPOSALS AFTER THE CONTRACT HAS BEEN AWARDED, ALL SUCH PROPOSALS SHALL BE ACCOMPANIED BY SUBSTANTIAL COST SAVINGS FOR THE OWNER.

23. AVAILABILITY OF PRODUCTS
VERIFY PRIOR TO CONSTRUCTION START THAT ALL SPECIFIED ITEMS WILL BE AVAILABLE IN TIME FOR INSTALLATION DURING ORDERLY AND TIMELY PROGRESS OF THE WORK. IN THE EVENT SPECIFIED ITEM OR ITEM WILL NOT BE SO AVAILABLE, NOTIFY THE ARCHITECT PRIOR TO START OF CONSTRUCTION. COST OF DELAYS
BECAUSE OF NON-AVAILABILITY OF SPECIFIED ITEMS OR SUBSTITUTED ITEMS, WHEN THE CONTRACTOR COULD HAVE AVOIDED SUCH DELAYS, WILL BE BORNE BY THE CONTRACTOR.

24. PRODUCTS AND MATERIALS
PROVIDE PRODUCTS AND MATERIALS SPECIFIED. REQUEST ARCHITECTS SELECTION OF COLORS AND ACCESSORIES IN SUFFICIENT TIME TO AVOID DELAYING PROGRESS OF THE WORK.

25. VERIFICATION OF WORK
CONTRACTOR SHALL VERIFY, AND BE RESPONSIBLE FOR, ALL WORK AND MATERIALS - INCLUDING THOSE FURNISHED BY SUBCONTRACTORS. CONTRACTOR SHALL VERIFY ALL CONDITIONS, DIMENSIONS AND ELEVATIONS, ETC., AT THE SITE AND SHALL COORDINATE WORK PERFORMED BY ALL TRADES.

26. CONFORMANCE WITH DOCUMENTS
ANY AND ALL CHANGES OR VARIATIONS FROM THESE DOCUMENTS MUST BE APPROVED IN WRITING PRIOR TO MAKING THEM.

27. NON-CONFORMING WORK
ANY WORK THAT DOES NOT CONFORM TO THE CONTRACT DOCUMENTS SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.

28. PRODUCT IDENTIFICATIONS
NAMEPLATES, TRADEMARKS, LOGOS, AND OTHER IDENTIFYING MARKS ON PRODUCTS ARE NOT PERMITTED ON SURFACES EXPOSED TO VIEW IN PUBLIC AREAS, INTERIOR OR EXTERIOR. PLUMBING, MECHANICAL, AND ELECTRICAL EQUIPMENT NOT EXPOSED TO PUBLIC VIEW ARE EXCLUDED FROM FOREGOING LIMITATION.
REQUIRED UL OR FM LABELS ARE ALSO EXCLUDED.

29. PROTECTION OF ADJACENT WORK
PROVIDE TEMPORARY PROTECTION FOR ADJACENT AREAS TO PREVENT DAMAGE BY INSTALLATION OF NEW WORK OR DEMOLITION OF EXISTING CONSTRUCTION. PROMPTLY REPAIR ANY DAMAGE AT NO ADDITIONAL COST TO THE OWNER. PROTECT ADJACENT AREAS FROM CONTAMINATION BY CONSTRUCTION DUST AND
DEBRIS. PROVIDE TEMPORARY BARRICADES AS NECESSARY TO ENSURE PROTECTION OF THE PUBLIC. MAINTAIN EGRESS WITHIN AND AROUND CONSTRUCTION AREAS.

30. DAMAGED PRODUCTS
DO NOT USE PRODUCTS IN WORK, WHICH HAVE DETERIORATED, BECOME DAMAGED, OR ARE OTHERWISE UNFIT FOR USE. RESTORE UNITS DAMAGED DURING INSTALLATION. REPLACE UNITS, WHICH CANNOT BE RESTORED AT NO ADDITIONAL EXPENSE TO THE OWNER.

31. SECURITY
PROVIDE FACILITIES TO PROTECT WORK FROM UNAUTHORIZED ENTRY, VANDALISM, AND THEFT. CONDUCT OPERATIONS IN MANNER TO AVOID RISK OF LOSS, THEFT, OR DAMAGE BY VANDALISM.

32. TEMPORARY CONTROLS
a. HEAT:
PRIOR TO ENCLOSURE, PROVIDE HEATING AS NECESSARY TO PROTECT MATERIALS, PRODUCTS, AND FINISHES FROM DAMAGE DUE TO TEMPERATURE OR HUMIDITY. ENCLOSURE IS DEFINED AS STATE OF CONSTRUCTION WHEN EXTERIOR WALLS ARE ERECTED, DOORS AND WINDOWS ARE INSTALLED AND GLAZED, ROOF DECK AND ROOFING ARE COMPLETE, AND WHEN OTHER OPENINGS IN EXTERIOR ENVELOPE ARE EQUIPPED WITH TEMPORARY CLOSURES, EXCEPT WHERE INDICATED OTHERWISE IN INDIVIDUAL SPECIFICATION SECTIONS, MAINTAIN MINIMUM AMBIENT TEMPERATURE OF 50 DEGREES FIN AREAS WHERE CONSTRUCTION IS IN PROGRESS.
b. VENTILATION:
VENTILATE ENCLOSED AREAS TO ASSIST CURE OF MATERIALS, TO DISSIPATE HUMIDITY, AND TO PREVENACCUMULATION OF DUST, FUMES, VAPORS, OR GASES.
c. BARRIERS AND CLOSURES:
PROVIDE BARRIERS TO PREVENT UNAUTHORIZED ENTRY TO CONSTRUCTION AREAS AND TO PROTECT EXISTING FACILITIES AND ADJACENT PROPERTIES FROM DAMAGE FROM CONSTRUCTION OPERATION
d. FIRE PROTECTION:
COMPLY WITH LOCAL FIRE PROTECTION CODE AND GOVERNING AUTHORITIES. PROVIDE AND MAINTAIN ADEQUATE FIRE PROTECTION INCLUDING, WITHOUT LIMITATION, FIRE EXTINGUISHERS AND OTHER APPROPRIATE EQUIPMENT FOR FIRE EXTINGUISHING READY FOR IMMEDIATE USE. MAINTAIN ANY REQUIRED FIRE ALARM SYSTEMS IN OPERATION DURING CONSTRUCTION. DISTRIBUTE EQUIPMENT AROUND SITE AND PARTICULARLY IN IMMEDIATE VICINITY OF PERFORMANCE OF WELDING OR SIMILAR HAZARDOUS WORK.

33. INTERRUPTION OF SERVICES
INTERRUPTIONS TO ANY SERVICE FOR THE PURPOSE OF MAKING OR BREAKING A CONNECTION SHALL BE MADE ONLY AFTER CONSULTATION WITH THE OWNER AND SHALL BE AT SUCH TIME AND OF SUCH DURATION AS MAY BE DIRECTED.

34. EXCAVATIONS OR TRENCHING
KEEP THE INTERVALS BETWEEN EXCAVATION OR TRENCHING, INSTALLATION OF CONDUIT OR PIPING, AND BACK FILLING OPERATIONS TO AN ABSOLUTE MINIMUM. PROVIDE SUITABLE TEMPORARY COVERS FOR EXCAVATIONS OR TRENCHING CROSSING ROADWAYS, WALKS, OR OTHER TRAFFIC WAYS AS REQUIRED BY GOVERNING AGENCIES.

35. CUTTING AND PATCHING
DO NOT CUT AND PATCH IN A MANNER THAT WOULD RESULT IN A FAILURE OF THE WORK TO PERFORM AS INTENDED, DECREASE FIRE PERFORMANCE, DECREASE ACOUSTICAL PERFORMANCE, DECREASE ENERGY PERFORMANCE, DECREASE OPERATIONAL LIFE, OR DECREASE SAFETY FACTORS. DO NOT REMOVE OR ALTER
STRUCTURAL COMPONENTS WITHOUT WRITTEN APPROVAL FROM THE ARCHITECT. CUT WITH TOOLS APPROPRIATE FOR MATERIALS TO BE CUT, PATCH WITH MATERIALS AND METHODS TO PRODUCE PATCH THAT IS NOT VISIBLE FROM A DISTANCE OF THREE FEET.

36. COORDINATION AND CLEARANCES
VERIFY AND COORDINATE CLEARANCES, DIMENSIONS, AND INSTALLATION OF ADJOINING CONSTRUCTION, EQUIPMENT, PIPING, DUCTS, CONDUITS, OR OTHER MECHANICAL OR ELECTRICAL ITEMS OR APPARATUS. VERIFY DIMENSIONS FOR PRODUCTS TO BE FITTED INTO WORK.
a. ATTACHMENTS AND CONNECTIONS:
PROVIDE ATTACHMENT AND CONNECTION DEVICES METHODS FOR SECURING AND ANCHORING WORK. SECURE IN PLACE WITH DEVICES DESIGNATED AND SIZED TO WITHSTAND STRESSES, VIBRATION, PHYSICAL DISTORTION, OR DISFIGUREMENT.
b. EXPANSION AND MOVEMENT:
ALLOW FOR EXPANSION OF MATERIALS AND BUILDING MOVEMENT.
c. ISOLATION OF DISSIMILAR ITEMS:
ISOLATE EACH UNIT OF WORK FROM INCOMPATIBLE WORK AS NECESSARY TO PREVENT DETERIORATION AND ELECTROLYTIC ACTION.
d. MAINTENANCE:
CLEAN AND PERFORM MAINTENANCE ON INSTALLED WORK AS FREQUENTLY AS NECESSARY THROUGH REMAINDER OF CONSTRUCTION PERIOD. LUBRICATE OPERABLE COMPONENTS TO ENSURE OPERABILITY WITHOUT DAMAGING EFFECTS.
e. ADJUSTMENTS: ADJUST OPERATING PRODUCTS AND EQUIPMENT TO ENSURE SMOOTH AND UNHINDERED OPERATION.

37. EXAMINATION OF CONDITIONS
EXAMINE SUBSTRATES AND CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. DO NOT COMMENCE WORK OVER UNSATISFACTORY CONDITIONS DETRIMENTAL TO PROPER AND TIMELY EXECUTION OF WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. COMMENCEMENT OF INSTALLATION CONSTITUTES ACCEPTANCE OF CONDITIONS AND COSTS OF ANY CORRECTIVE MEASURES ARE RESPONSIBILITY OF CONTRACTOR.

38. BACKING SUPPORT
CONTRACTOR SHALL PROVIDE BACKING SUPPORT OF ALL WALL, CEILING, AND PARTITION MOUNTED ITEMS SUCH AS TABLE BRACKETS, LIGHT FIXTURES, ARTIFACTS, SHELVING, EQUIPMENT, AND TELEVISIONS. COORDINATE LOCATIONS AND REQUIREMENTS WITH THE PLUMBING, MECHANICAL, ELECTRICAL DRAWINGS.

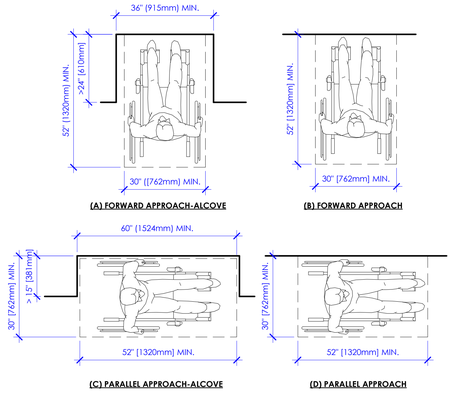
39. SECURE OPENINGS
EXTERIOR OPENINGS SHALL COMPLY WITH ALL SECURITY REQUIREMENTS AS OUTLINED IN ALL LOCAL BUILDING CODES AND ORDINANCES.

40. GLAZING REQUIREMENTS
GLASS AND GLAZING FOR ALL WINDOWS SHALL COMPLY WITH ALL APPLICABLE BUILDING CODES. IN ADDITION ALL WINDOWS MUST MEET THE "AAMA" WINDOW STANDARDS FOR INSTALLATION. THE CONTRACTOR SHALL OBTAIN, AND SHALL FOLLOW ALL REQUIREMENTS OF THE "AAMA" STANDARDS IN ADDITION TO THE MANUFACTURER SPECIFICATIONS AND ARCHITECTURAL DETAILS INCLUDED WITHIN THE DRAWINGS.

41. ROOFING REQUIREMENTS
ROOFING WORK SHALL BE PERFORMED AND ALL PENETRATIONS THROUGH THE ROOFING MEMBRANE SHALL BE PATCHED OR FLASHED AS PER THE MANUFACTURER'S STANDARDS.

42. ROOF ACCESS
ROOF OBSTRUCTIONS SUCH AS TELEVISION ANTENNAE, SOLAR PANELS, AND GUY WIRES SHALL NOT BE LOCATED OR INSTALLED IN SUCH A WAY AS TO PREVENT FIRE DEPARTMENT ACCESS OR EGRESS IN THE EVENT OF A FIRE.

43 FINISH FLAME SPREAD REQUIREMENTS
INTERIOR WALL AND CEILING FINISHES SHALL NOT EXCEED FLAME SP



(A) FORWARD APPROACH-ALCOVE (B) FORWARD APPROACH

(C) PARALLEL APPROACH-ALCOVE (D) PARALLEL APPROACH

C5 G004 TYPICAL FLOOR CLEARANCES (ANSI A117.1-2017)

1/2" = 1'-0"

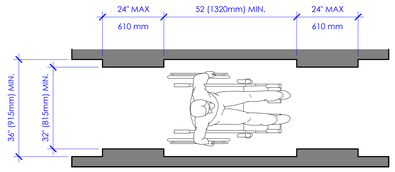


FIGURE 403.5.1 (A)
CLEAR WIDTH OF AN ACCESSIBLE ROUTE - NEW BUILDINGS - INTERIOR

D4 G004 CLEAR WIDTH OF ACCESSIBLE ROUTE

1/2" = 1'-0"

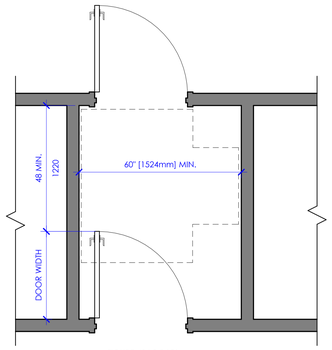


FIGURE 404.2.5 (C)
TWO DOORS OR GATES IN A SERIES - NEW BUILDINGS

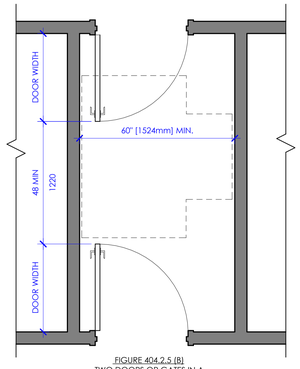
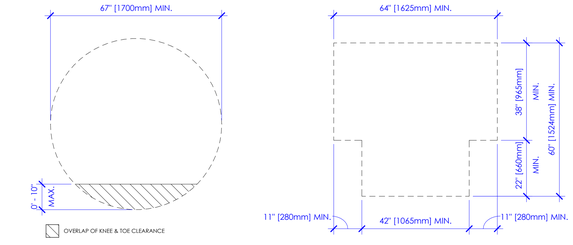


FIGURE 404.2.5 (B)
TWO DOORS OR GATES IN A SERIES - NEW BUILDINGS



(A) CIRCULAR (B) T-SHAPED

D2 G004 TURNING FLOOR CLEARANCE (ANSI A117.1.2017)

1/2" = 1'-0"

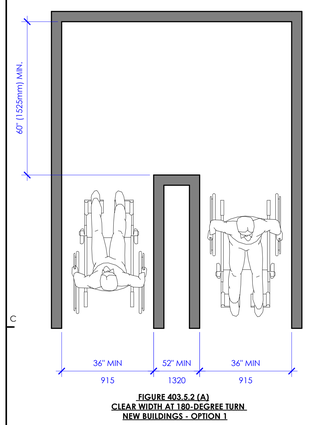


FIGURE 403.5.2 (A)
CLEAR WIDTH AT 180-DEGREE TURN
NEW BUILDINGS - OPTION 1

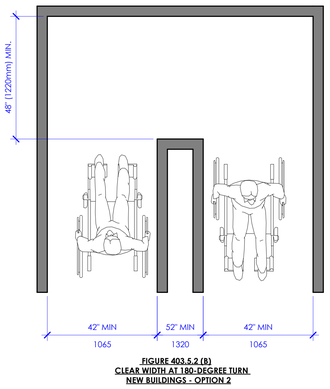


FIGURE 403.5.2 (B)
CLEAR WIDTH AT 180-DEGREE TURN
NEW BUILDINGS - OPTION 2

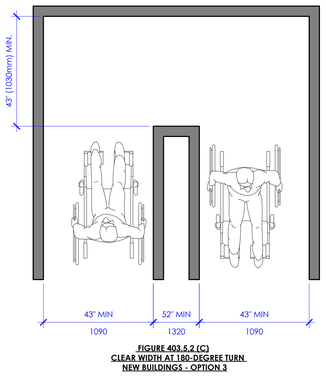


FIGURE 403.5.2 (C)
CLEAR WIDTH AT 180-DEGREE TURN
NEW BUILDINGS - OPTION 3

B5 G004 CLEAR WIDTH 180-DEGREE TURNS

1/2" = 1'-0"

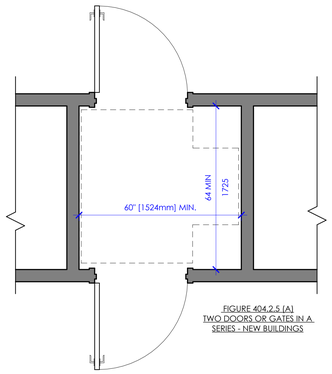


FIGURE 404.2.5 (A)
TWO DOORS OR GATES IN A SERIES - NEW BUILDINGS

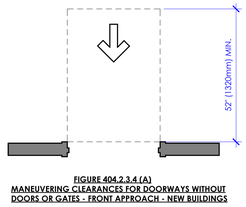


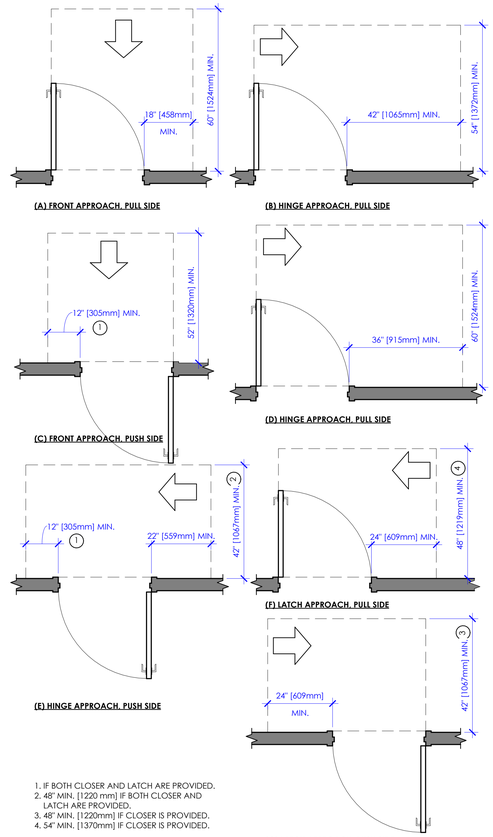
FIGURE 404.2.3.4 (A)
MANEUVERING CLEARANCES FOR DOORWAYS WITHOUT DOORS OR GATES - FRONT APPROACH - NEW BUILDINGS

C3 G004 CLEARANCE FOR DOORS

1/2" = 1'-0"

B3 G004 MANEUVERING CLEARANCES (A)

1/2" = 1'-0"



(A) FRONT APPROACH, PULL SIDE (B) HINGE APPROACH, PULL SIDE

(C) FRONT APPROACH, PUSH SIDE (D) HINGE APPROACH, PULL SIDE

(E) HINGE APPROACH, PUSH SIDE (F) LATCH APPROACH, PULL SIDE

(G) LATCH APPROACH, PUSH SIDE

1. IF BOTH CLOSER AND LATCH ARE PROVIDED, 48" MIN. [1220 mm] IF BOTH CLOSER AND LATCH ARE PROVIDED.
3. 48" MIN. [1220mm] IF CLOSER IS PROVIDED.
4. 54" MIN. [1370mm] IF CLOSER IS PROVIDED.

B2 G004 MANEUVERING CLEARANCES @ MANUAL SWING DR. (ANSI A117.1-2017)

1/2" = 1'-0"

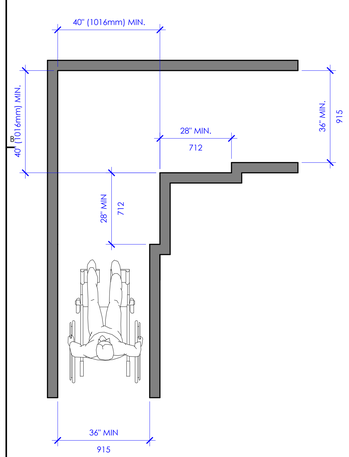


FIGURE 403.5.3.1 (A)
CLEAR WIDTH AT 90-DEGREE TURN
NEW BUILDINGS - OPTION 1

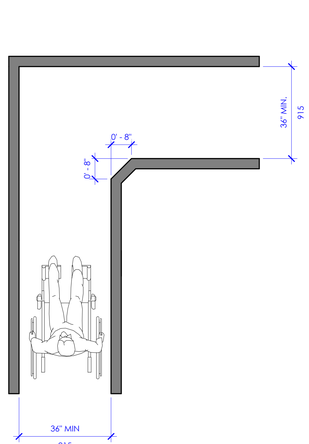


FIGURE 403.5.3.1 (B)
CLEAR WIDTH AT 90-DEGREE TURN
NEW BUILDINGS - OPTION 2

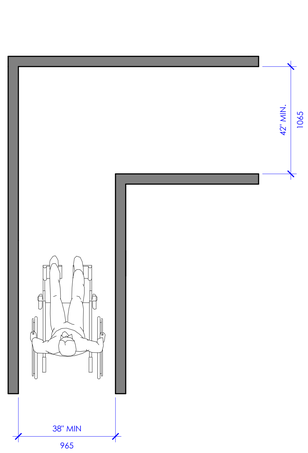


FIGURE 403.5.3.1 (C)
CLEAR WIDTH AT 90-DEGREE TURN
NEW BUILDINGS - OPTION 3

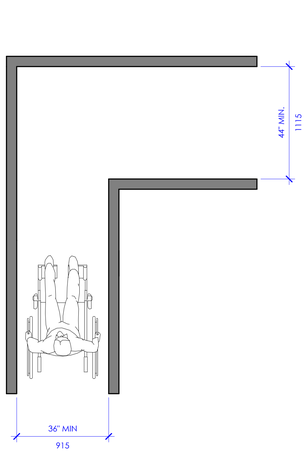


FIGURE 403.5.3.1 (D)
CLEAR WIDTH AT 90-DEGREE TURN
NEW BUILDINGS - OPTION 4

A5 G004 CLEAR WIDTH AT 90-DEGREE TURNS

1/2" = 1'-0"

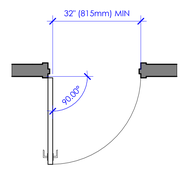


FIGURE 404.2.2 (A)
CLEAR WIDTH OF DOORWAYS - HINGED DOOR

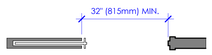


FIGURE 404.2.2 (B)
CLEAR WIDTH OF DOORWAYS - SLIDING DOOR



FIGURE 404.2.2 (C)
CLEAR WIDTH OF DOORWAYS - FOLDING DOOR

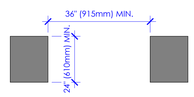


FIGURE 404.2.2 (D)
CLEAR WIDTH OF DOORWAYS - DOORWAYS WITHIN DOOR

A3 G004 DOORWAYS CLEARANCES

1/2" = 1'-0"

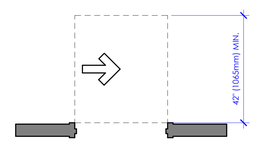


FIGURE 404.2.3.4 (C)
MANEUVERING CLEARANCES FOR DOORWAYS WITHOUT DOORS OR GATES - SIDE APPROACH

A2 G004 MANEUVERING CLEARANCES (C)

1/2" = 1'-0"

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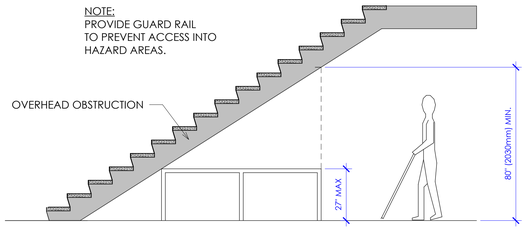
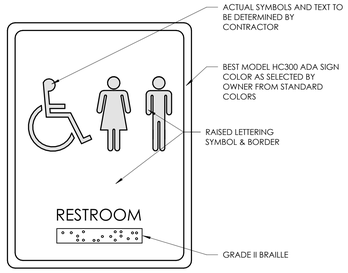


FIGURE 307.4
REDUCED VERTICAL CLEARANCE

D5 G005 REDUCED VERTICAL ADA CLEARANCES
3/8" = 1'-0"



D4 G005 REQUIRED SIGN
6" = 1'-0"

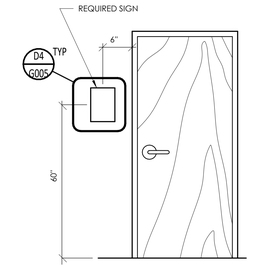
LETTERS AND NUMBER:
1. CHARACTER WIDTH TO BE 55-110% OF THE CHARACTER HEIGHT. STROKE THICKNESS TO BE 10-15% OF CHARACTER HEIGHT.
2. CONTRAST CHARACTERS AND SYMBOLS WITH BACKGROUND. CHARACTERS ARE TO BE SANS SERIF FONT.
3. SEE DETAIL BELOW FOR SIGN LAYOUT.

SIGNS / PICTOGRAMS:
4. PICTOGRAMS / PICTORIAL SYMBOL SIGNS SHALL BE ACCOMPANIED BY THE EQUIVALENT VERBAL DESCRIPTION PLACED DIRECTLY BELOW THE PICTOGRAM. THE BORDER DIMENSION SHALL BE 6" MINIMUM HEIGHT.
5. CHARACTERS AND BACKGROUNDS SHALL BE OF NON-GLARE CONTRASTING COLORS.
6. SIGNS / PICTOGRAMS SHALL BE INSTALLED ON THE WALL ADJACENT TO DOOR LEADING TO THE ROOM OR SPACE THEY DESCRIBE AND AT 60" AFF TO SIGN CENTERLINE AND WHERE A PERSON MAY APPROACH WITHIN 3" OF SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE DOOR SWING AREA.
7. VERTICAL CLEARANCE AT SUSPENDED SIGNS WITH MINIMUM HEADROOM OF 80" REQUIRE MINIMUM 3" CHARACTER HEIGHT MEASURED BY USING UPPERCASE "X", CHARACTERS AND NUMBERS SHALL BE SIZED ACCORDING TO VIEWING DISTANCE FROM WHICH READ, LOWER CASE CHARACTERS PERMITTED.

SIGN LOCATIONS:
8. ALL ACCESSIBLE ENTRANCES IDENTIFIED WITH MINIMUM OF ONE STANDARD SIGN.
9. ADDITIONAL DIRECTIONAL SIGNS ALONG ACCESSIBLE PATH OF TRAVEL ARE REQUIRED.
10. BUILDING REMODELED TO PROVIDE ACCESSIBLE SANITARY FACILITIES FOR PUBLIC USE SHALL HAVE INFORMATION POSTED IN THE LOBBY AS PART OF THE BUILDING DIRECTORY.

INTERNATIONAL SYMBOL OF ACCESSIBILITY:
11. STANDARD USED TO IDENTIFY ACCESSIBLE FACILITIES.
12. WHITE FIGURE ON BLUE BACKGROUND. COLOR 15090 ON FEDERAL STANDARD 595A.
13. WHEN ENFORCING AGENCY DETERMINES, IF APPROPRIATE, SPECIAL DESIGNS AND COLORS MAY BE APPROVED.

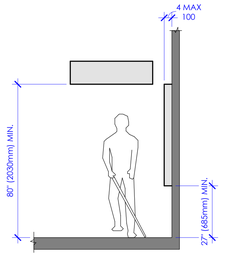
BRAILLE:
14. USE CONTRASTED GRADE 2 BRAILLE.
15. SEE DETAIL BELOW FOR SPACING & SIZE
16. DOTS TO BE RAISED MINIMUM 0.025 INCH ABOVE BACKGROUND.



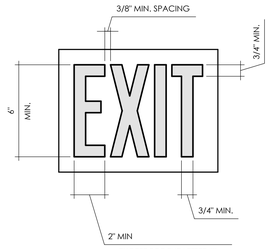
D1 G005 RESTROOM SIGN
1/2" = 1'-0"

DOOR TYPE:
1. MINIMUM 10" HIGH SMOOTH SURFACE AT DOOR BOTTOM, EITHER ATTACHED PANEL OR BOTTOM RAIL.

HARDWARE:
2. OPEN FROM INSIDE WITHOUT USE OF KEY OR SPECIAL KNOWLEDGE OR EFFORT.
3. OPEN BY SINGLE EFFORT LEVER-TYPE DEVICE (NOT REQUIRING GRASPING).
4. MOUNTED 36" TO 42".
5. MAXIMUM 8.5 LBS EFFORT TO OPERATE EXTERIOR DOOR, 5 LBS FOR INTERIOR.

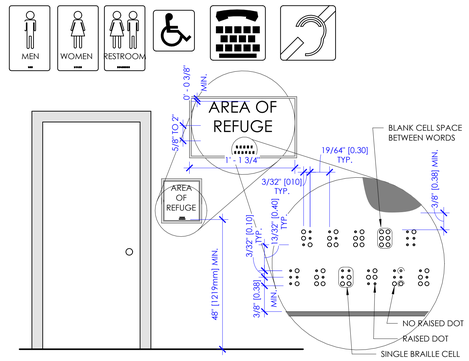


C5 G005 LIMITS OF PROTRUDING OBJECTS (ANSI A117.1-2017)
3/8" = 1'-0"

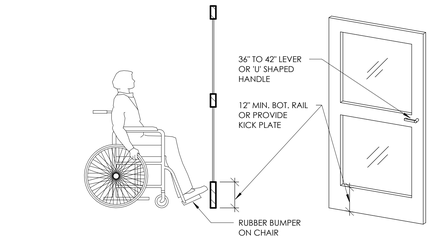


NOTES:
1. PROVIDE INTERNALLY LIT SIGN POWERED BY EMERGENCY POWER SYSTEM.
2. SIGN TO REMAIN ILLUMINATED AT ALL TIMES.

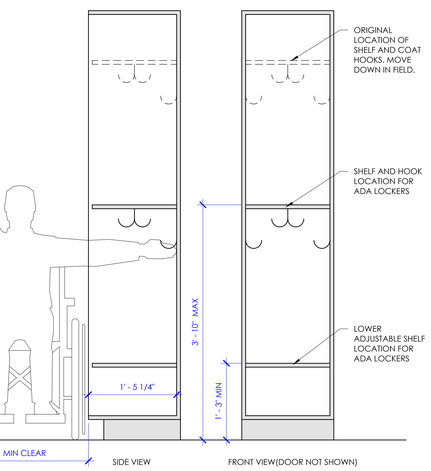
C4 G005 EXIT SIGN DETAIL
3" = 1'-0"



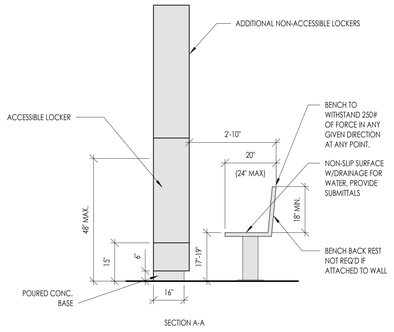
C3 G005 TYPICAL SIGNAGE DIMENSIONS & LAYOUT
1/2" = 1'-0"

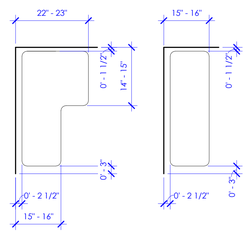


C1 G005 ADA DOOR REQUIREMENTS
1/2" = 1'-0"

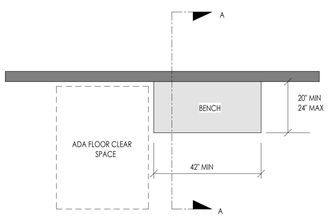


B5 G005 ADA LOCKER DETAILS
1" = 1'-0"

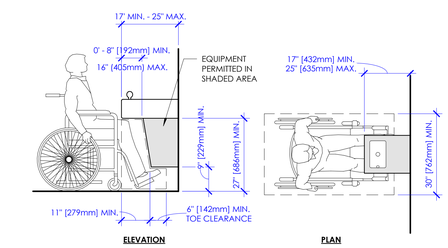




B3 G005 ADA SHOWER SEAT DETAILS1
1/2" = 1'-0"

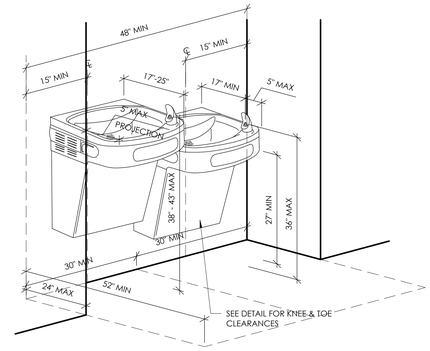


B4 G005 LOCKER DETAIL/BENCH
1/2" = 1'-0"



NOTE: DRINKING FOUNTAINS TO BE PROVIDED WITH TENANT IMPROVEMENT.

B2 G005 TOE/KNEE CLEARANCES (ANSI A117.1-2017)
1/2" = 1'-0"



B1 G005 ADA DRINKING FOUNTAIN REQUIREMENTS
1/2" = 1'-0"

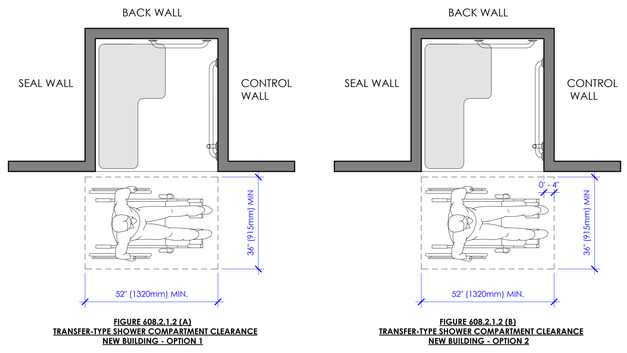
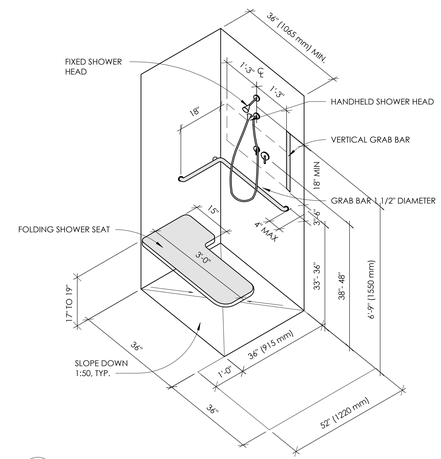


FIGURE 608.2.1.2 (A)
TRANSFER-TYPE SHOWER COMPARTMENT CLEARANCE
NEW BUILDING - OPTION 1

FIGURE 608.2.1.2 (B)
TRANSFER-TYPE SHOWER COMPARTMENT CLEARANCE
NEW BUILDING - OPTION 2

A3 G005 HANDICAP SHOWER CLEARANCES
1/2" = 1'-0"



A1 G005 ADA SHOWERS
1/2" = 1'-0"

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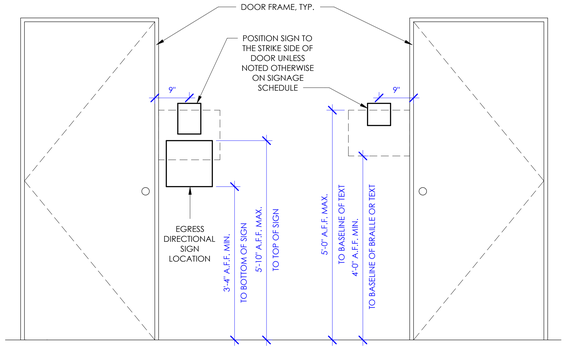
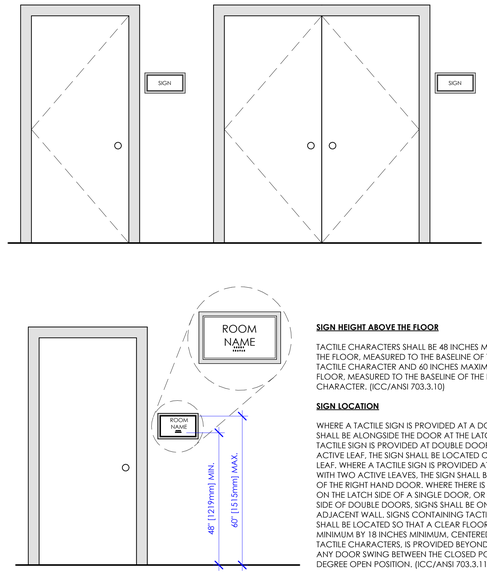


D5 G006 **SIGN MOUNTING LOCATIONS**
3/4" = 1'-0"



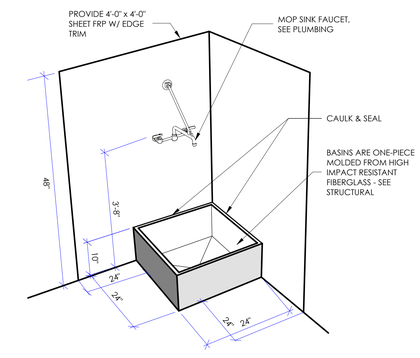
SIGN HEIGHT ABOVE THE FLOOR

TACTILE CHARACTERS SHALL BE 48 INCHES MINIMUM ABOVE THE FLOOR, MEASURED TO THE BASELINE OF THE LOWEST TACTILE CHARACTER AND 60 INCHES MAXIMUM ABOVE THE FLOOR, MEASURED TO THE BASELINE OF THE HIGHEST TACTILE CHARACTER. (ICC/ANSI 703.3.10)

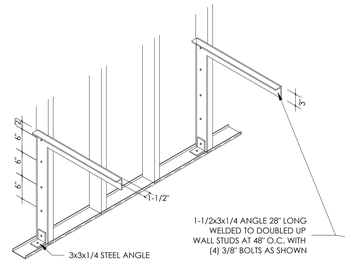
SIGN LOCATION

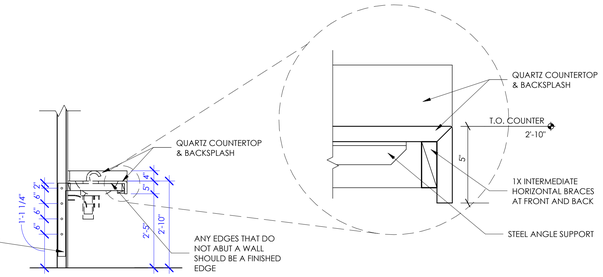
WHERE A TACTILE SIGN IS PROVIDED AT A DOOR, THE SIGN SHALL BE ALONGSIDE THE DOOR AT THE LATCH SIDE. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH ONE ACTIVE LEAF, THE SIGN SHALL BE LOCATED ON THE INACTIVE LEAF. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH TWO ACTIVE LEAVES, THE SIGN SHALL BE TO THE RIGHT OF THE RIGHT HAND DOOR. WHERE THERE IS NO WALL SPACE ON THE LATCH SIDE OF A SINGLE DOOR, OR TO THE RIGHT SIDE OF DOUBLE DOORS, SIGNS SHALL BE ON THE NEAREST ADJACENT WALL. SIGNS CONTAINING TACTILE CHARACTERS SHALL BE LOCATED SO THAT A CLEAR FLOOR AREA 18 INCHES MINIMUM BY 18 INCHES MINIMUM, CENTERED ON THE TACTILE CHARACTERS, IS PROVIDED BEYOND THE ARC OF THE ANY DOOR SWING BETWEEN THE CLOSED POSITION AND 45 DEGREE OPEN POSITION. (ICC/ANSI 703.3.11)

C4 G006 **SIGNAGE MOUNTING LOCATIONS**
1/2" = 1'-0"

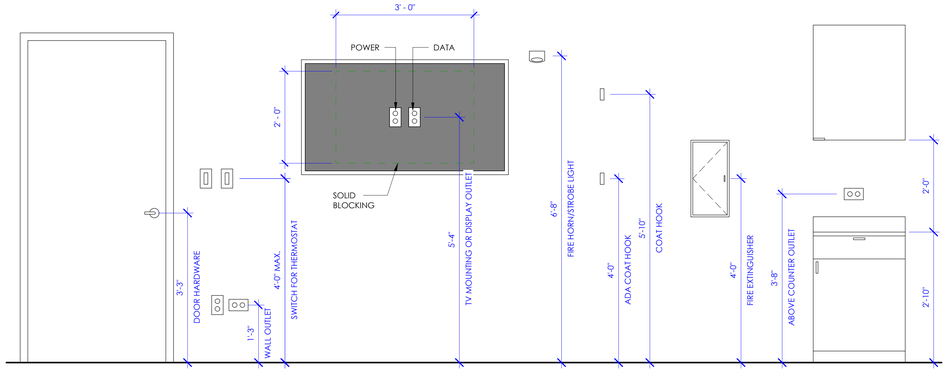


B4 G006 **UTILITY SINK**
1/2" = 1'-0"





D2 G006 **BATHROOM COUNTER DETAILS**
1/2" = 1'-0"



A2 G006 **TYPICAL MOUNTING HEIGHTS**
3/4" = 1'-0"

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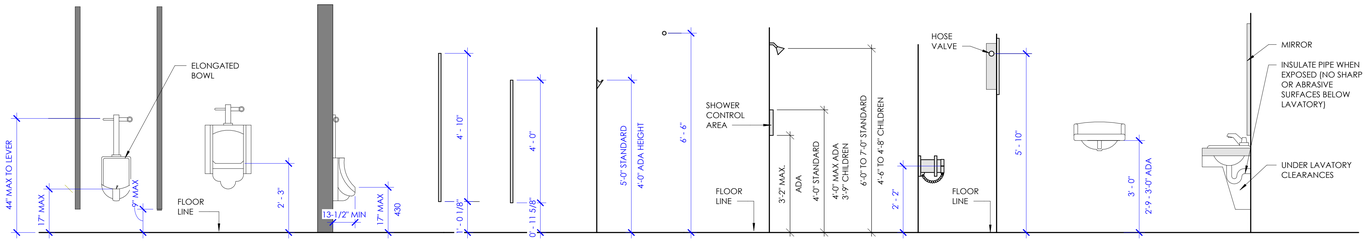
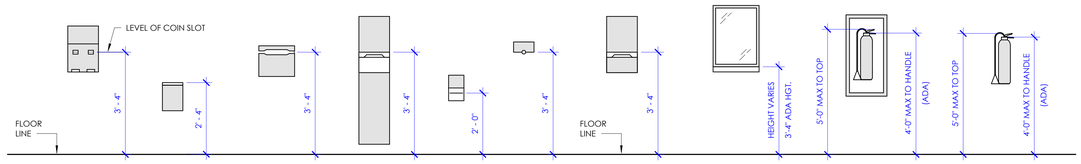


ACCESSIBLE URINAL (FRONT VIEW) | **TYPICAL URINAL** (FRONT VIEW) | **FIGURE 605.2(A) ACCESSIBLE URINAL** (SIDE VIEW) | **PARTITION AT TOILET** | **PARTITION AT URINAL** | **ROBE HOOK** | **SHOWER ROD** | **SHOWER HEAD/ SHOWER CONTROLS** | **FIRE HOSE CABINET** | **LAVATORY** (FRONT VIEW) | **ACCESSIBLE LAVATORY** (SIDE VIEW)



SANITARY NAPKIN- TAMPON DISPENSER | **SANITARY NAPKIN DISPOSAL UNIT** | **TOILET SEAT COVER DISPENSER** | **TOWEL DISPENSER/ WASTE RECEPTACLE** | **TOILET PAPER HOLDER** | **SOAP DISPENSER** | **PAPER TOWEL DISPENSER** | **FRAMED MIRROR WITH SHELF** | **FIRE EXTINGUISHER CABINET** | **FIRE EXTINGUISHER MOUNTED**

D4 G007 MOUNTING HEIGHTS DETAILS

1/2" = 1'-0"

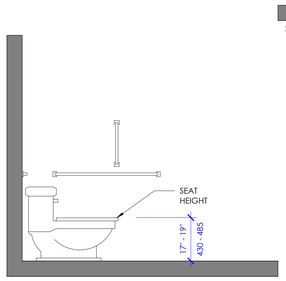


FIGURE 604.4 WATER CLOSET SEAT HEIGHT

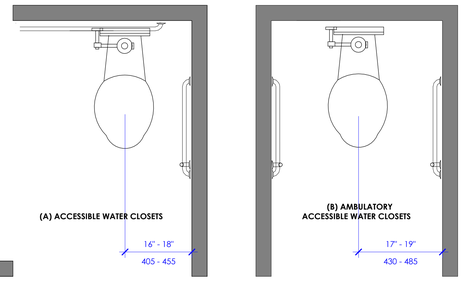


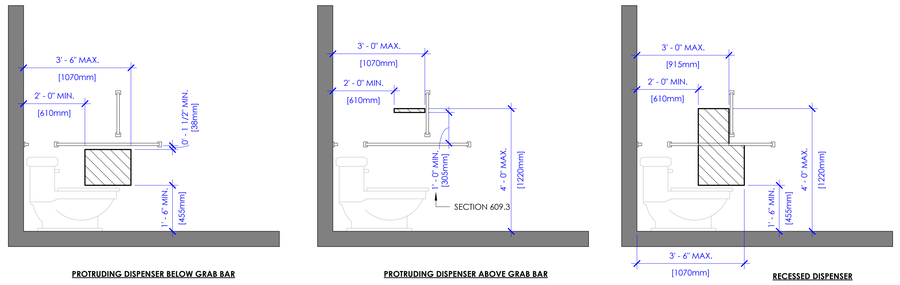
FIGURE 604.2 WATER CLOSET LOCATION

C4 G007 TOILET ROOM LOCATIONS AND HEIGHTS

1/2" = 1'-0"

NOTE:

TOILET PAPER DISPENSERS SHALL COMPLY WITH SECTION 309.4. WHERE THE DISPENSER IS LOCATED BELOW THE GRAB BAR, THE OUTLET OF THE DISPENSER SHALL BE LOCATED WITHIN AN AREA 24" (610mm) MINIMUM AND 42" (1065mm) MAXIMUM FROM THE REAR WALL. THE OUTLET OF THE DISPENSER SHALL BE LOCATED 18" (455mm) MINIMUM AND 48" (1220mm) MAXIMUM ABOVE THE FLOOR. DISPENSER SHALL COMPLY WITH SECTION 609.3. DISPENSERS SHALL NOT BE OF A TYPE THAT CONTROL DELIVERY, OR DO NOT ALLOW CONTINUOUS PAPER FLOW.



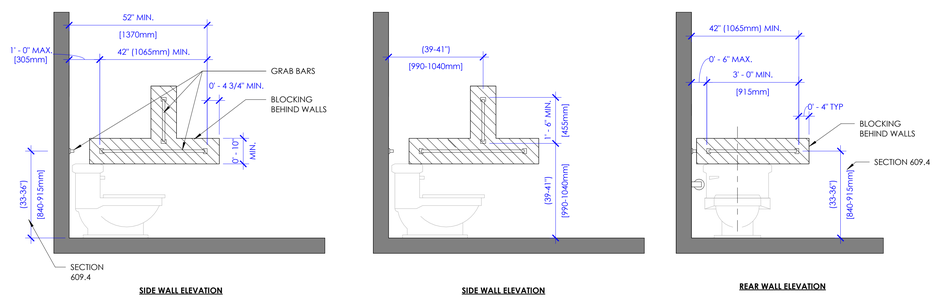
PROTRUDING DISPENSER BELOW GRAB BAR | **PROTRUDING DISPENSER ABOVE GRAB BAR** | **RECESSED DISPENSER**

B4 G007 TOILET ROOM DISPENSER MOUNTING LOCATIONS (ANSI A117.1-2017)

1/2" = 1'-0"

NOTE:

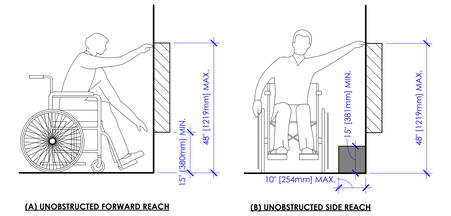
GRAB BARS TO CONFORM WITH ANSI A117.1. GRAB BARS FOR WATER CLOSETS SHALL COMPLY WITH SECTION 609 AND SHALL BE PROVIDED IN ACCORDANCE WITH SECTIONS 604.5.1 AND 604.5.2. GRAB BARS SHALL BE PROVIDED ON REAR WALL AND SIDE WALL CLOSET TO THE WATER CLOSET.



SIDE WALL ELEVATION | **SIDE WALL ELEVATION** | **REAR WALL ELEVATION**

A4 G007 TOILET ROOM GRAB BAR HEIGHTS

1/2" = 1'-0"



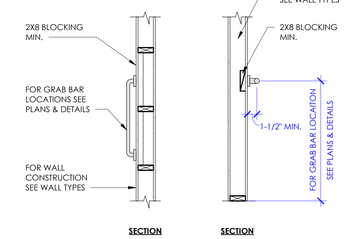
(A) UNOBSTRUCTED FORWARD REACH | **(B) UNOBSTRUCTED SIDE REACH**

(C) UNOBSTRUCTED HIGH FORWARD REACH | **(D) UNOBSTRUCTED HIGH FORWARD REACH**

(E) OBSTRUCTED SIDE REACH | **(F) OBSTRUCTED HIGH SIDE REACH**

B2 G007 REACH REQUIREMENTS FOR WHEEL CHAIR ACCESS (ANSI A117.1-2017)

1/2" = 1'-0"



SECTION | **SECTION**

A2 G007 GRAB BAR BLOCKING DETAILS

1/2" = 1'-0"

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ADA GENERAL NOTES AND DETAILS

DATE: PROJECT ISSUE DATE

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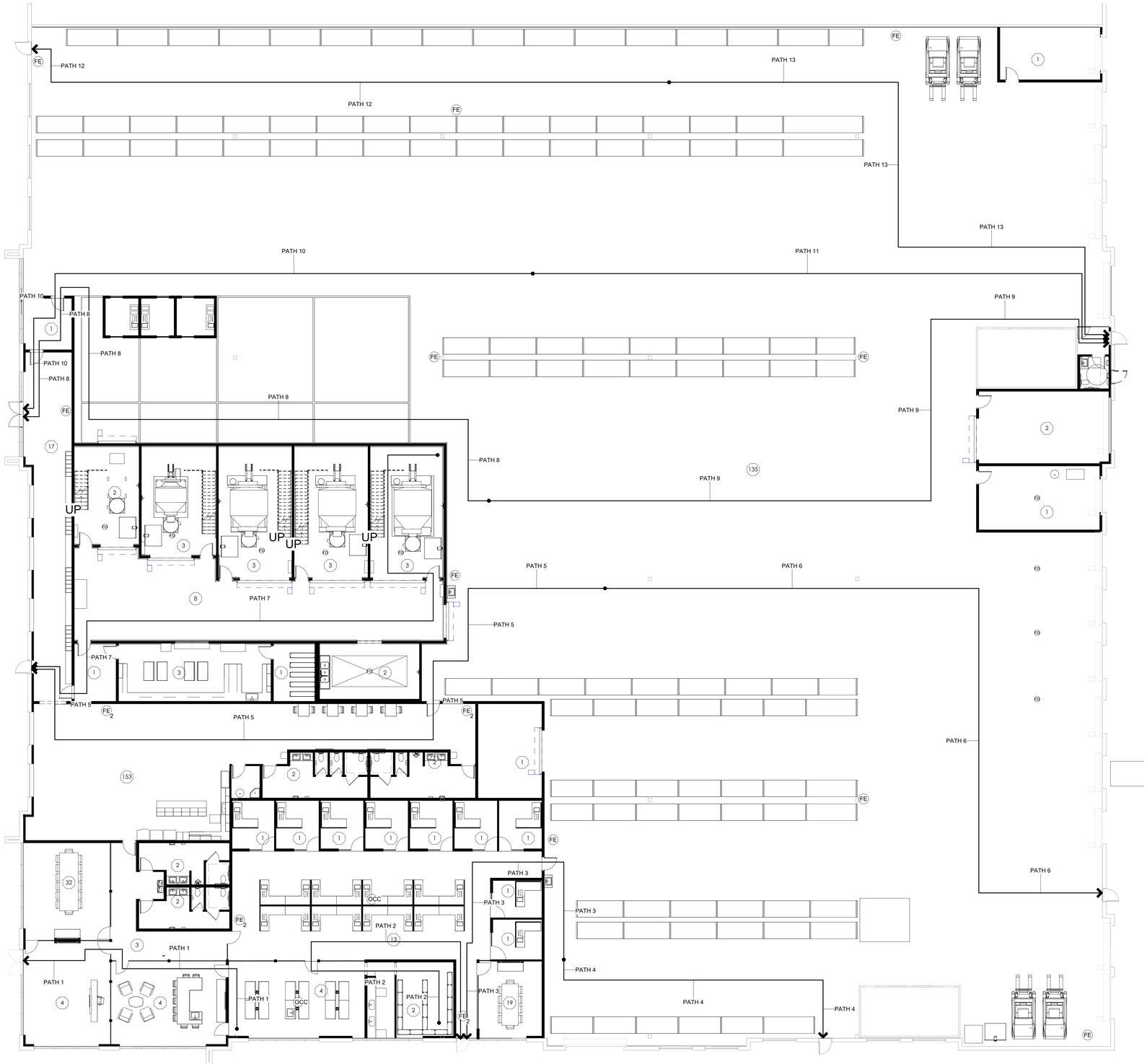

2 G008 **LEVEL 01**
3/32" = 1'-0"

LEGEND:

	=	COMMON PATH OF EGRESS
	=	EXIT ACCESS TRAVEL
EXIT	=	EXIT LOCATION SEE ELECTRICAL PLANS FOR LOCATION OF EXIT SIGNAGE
FE	=	4A:40B:C PORTABLE FIRE EXTINGUISHER, COLUMN BRACKET MOUNT
FE2	=	4A:40B:C PORTABLE FIRE EXTINGUISHER, SEMI-RECESSED CABINET MOUNT, STAINLESS STEEL
xx	=	OCCUPANCY TAG

EGRESS PATHS

Travel Path	Common Path Length	Total Travel Distance
PATH 1	0"	73'-5"
PATH 2	0"	109'-10"
PATH 3	0"	89'-7"
PATH 4	0"	81'-5"
PATH 5	0"	191'-9"
PATH 6	0"	193'-3"
PATH 7	0"	183'-9"
PATH 8	0"	194'-10"
PATH 9	0"	199'-0"
PATH 10	0"	155'-4"
PATH 11	0"	154'-8"
PATH 12	0"	161'-7"
PATH 13	0"	166'-11"

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EGRESS PLAN

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0 8' 16' 24'
GRAPHIC SCALE

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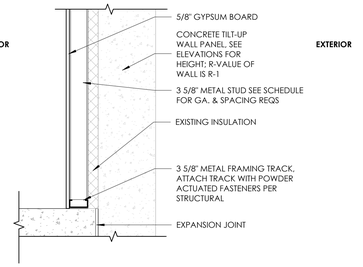
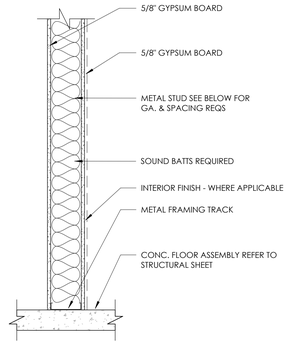


FIRE RATING		NON-RATED
* STUD WIDTH	**FS0-4**	3-5/8" METAL STUD

TOTAL R-VALUE OF WALL ASSEMBLY WITH WALL TYPE A = R-14

C3 / G009 FS0 WALL DETAIL- 3-5/8" METAL STUD EXTERIOR FURRING

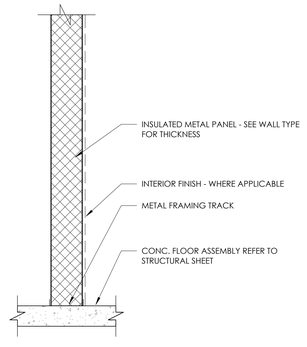
1" = 1'-0"



FIRE RATING		NON-RATED
* STUD WIDTH	**NS0-4**	3-5/8" METAL STUD
	NS0-6	6" METAL STUD

B3 / G009 NS0 WALL DETAIL - METAL STUD INTERIOR PARTITION

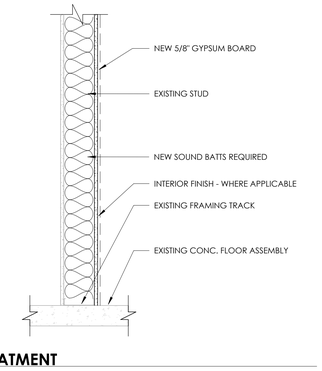
1" = 1'-0"



FIRE RATING		NON-RATED
* STUD WIDTH	**PS0-6**	6" INSULATED METAL PANEL
	PS0-4	4" INSULATED METAL PANEL

1 / G009 PS0 WALL DETAIL - IMP INTERIOR PARTITION

1" = 1'-0"



2 / G009 US0 WALL DETAIL - EXISTING WALL TREATMENT

1" = 1'-0"

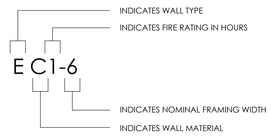
METAL STUD WALL FRAMING

STUD WIDTH		3-5/8"
* STUD GAUGE & SPACING REQ.	**1**	3-5/8" X 20 GA. STEEL STUDS AT 24" O.C. (MAX HT. 15'-6")
	2	3-5/8" X 16 GA. STEEL STUDS AT 24" O.C. (MAX HT. 20'-6")
	3	3-5/8" X 20 GA. STEEL STUDS AT 16" O.C. (MAX HT. 18-11")
	4	3-5/8" X 18 GA. STEEL STUDS AT 16" O.C. (MAX HT. 21'-11")
STC: N/A		
	WALL DESCRIPTION:	INTERIOR WALL, 5 PSF, L/120

STUD WIDTH		6"
* STUD GAUGE & SPACING REQ.	**1**	6" X 20 GA. STEEL STUDS AT 24" O.C. (MAX HT. 20'-6")
	2	6" X 16 GA. STEEL STUDS AT 24" O.C. (MAX HT. 30'-9")
	3	6" X 14 GA. STEEL STUDS AT 24" O.C. (MAX HT. 33'-0")
	4	6" X 20 GA. STEEL STUDS AT 16" O.C. (MAX HT. 25'-2")
	5	6" X 18 GA. STEEL STUDS AT 16" O.C. (MAX HT. 30'-9")
STC: N/A	**6**	6" X 18 GA. STEEL STUDS AT 12" O.C. (MAX HT. 35'-6")
	WALL DESCRIPTION:	INTERIOR WALL, 5 PSF, L/120

STUD WIDTH		8"
* STUD GAUGE & SPACING REQ.	**1**	8" X 18 GA. STEEL STUDS AT 24" O.C. (MAX HT. 28'-11")
	2	8" X 18 GA. STEEL STUDS AT 16" O.C. (MAX HT. 35'-5")
	3	8" X 16 GA. STEEL STUDS AT 24" O.C. (MAX HT. 38'-9")
	4	8" X 16 GA. STEEL STUDS AT 16" O.C. (MAX HT. 44'-4")
	4	8" X 14 GA. STEEL STUDS AT 24" O.C. (MAX HT. 41'-11")
STC: N/A	**4**	8" X 14 GA. STEEL STUDS AT 16" O.C. (MAX HT. 48'-0")
	WALL DESCRIPTION:	INTERIOR WALL, 5 PSF, L/120

WALL TYPES NOMENCLATURE



WALL TYPES

E	EXTERIOR
N	INTERIOR (NON-SPECIFIC)
C	CORRIDOR
V	VERTICAL CIRCULATION
U	UNIT SEPARATION
S	SHAFT
F	FURRING
X	EXISTING

WALL MATERIALS

W	WOOD
C	CONCRETE
N	INSULATED CONCRETE
S	METAL STUD
M	MASONRY
P	INSULATED METAL PANEL

NOMINAL FRAMING WIDTH EXAMPLES

0	1/2" RESILIENT CHANNEL
1	7/8" METAL CHANNEL, 1x1 WOOD STUD FURRING
2	2x2 WOOD STUD, 1 1/2" METAL STUD
3	2 1/2" METAL STUD, 2 1/2" C-H METAL STUD
4	2x4 WOOD STUD, 4" CONCRETE, 4" MASONRY, 3 5/8" METAL STUD
5	5 1/2" METAL STUD
6	2x6 WOOD STUD, 6" METAL STUD, 6" MASONRY, 6" CONCRETE
8	2x8 WOOD STUD, 8" METAL STUD, 8" CONCRETE, 8" CMU
9	9 1/4" TILT-UP
10	10" CONCRETE, 9 5/8" MASONRY, 10" PRE-CAST CONCRETE PANEL
12	12" CONCRETE, 12"[3/2/7]SANDWICH CONCRETE PANEL
14	14" CONCRETE, 14"[3/2/9]SANDWICH CONCRETE PANEL

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WALL TYPES

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REMOVE EXISTING ALUMINUM DOORS. REPLACE W/ PANES OF GLASS

EXISTING DOOR TO BE LOCKED SHUT

CONCRETE CUT LINES FOR PLUMBING

GENERAL FLOOR PLAN NOTES

1. ALL DIMENSIONS ARE TO FACE-OF-STUD UNLESS NOTED OTHERWISE. ALL EXTERIOR COLUMNS ARE DIMENSIONED TO OUTSIDE FACE OF WALL. REFER TO DETAILS FOR CLARIFICATION.
2. SEE SHEET G002 FOR PROJECT GENERAL NOTES REVIEW ALL NOTES PRIOR TO CONSTRUCTION.
3. PRIOR TO CONSTRUCTION, CONTRACTOR TO VERIFY ALL COLORS AND MATERIALS.
4. INSTALL ALL MATERIALS PER MANUFACTURERS RECOMMENDATION.
5. ALL GYP. BOARD SURFACES TO BE TAPED, SANDED, AND PRIMED.
6. SEE STRUCTURAL DRAWINGS AND CALCULATIONS FOR ALL STRUCTURAL REQUIREMENTS.
7. COORDINATE WITH STRUCTURAL FRAMING PLANS FOR LOCATIONS OF COLUMNS, BEAMS, ETC.
8. COORDINATE ALL WINDOWS HEAD HEIGHTS AND SIZES WITH ELEVATIONS AND SCHEDULES.
9. COORDINATE WITH ELECTRICAL FOR ALL LIGHTING, POWER, & DATA REQUIRMENTS.
10. FIRE RATED ASSEMBLIES SHALL BE CONTINUOUS BOTH ORIZONTIALLY AND VERTICALLY AND SHALL EXTEND FROM RATED ASSEMBLY TO RATED ASSEMBLY. FIRE CAULK ALL PENETRATIONS.
11. FIRE EXTINGUISHERS, SMOKE DETECTORS, OTHER EMERGENCY DEVICES LOCATIONS, AND RATINGS SHALL BE APPROVED BY FIRE MARSHAL PRIOR TO INSTALLATION.
12. FRAMING CONTRACTOR SHALL PROVIDE AIDDTIONAL BLOCKING THROUGHOUT THE PROJECT AS REQUIRED TO ACCOMMODATE WALL-MOUNTED FURNISHINGS, ARTWORK, ETC.
13. DOORS SHALL BE LOCATED 6" OFF ADJACENT WALL UNLESS NOTED OTHERWISE.
14. CONTRACTOR IS TO PROVIDE SUBMITTALS AND SHOP DRAWINGS ON ALL KEYNOTED ITEMS FOR APPROVAL FROM WNER/ARCHITECT.
15. PRIOR TO ORDERING ANY EXTERIOR FINISHES, THE CONTRACTOR IS TO VERIFY ALL COLORS AND TYPES OF MATERIALS WITH OWNER/ARCHITECT.
16. ALL ASPECTS OF THIS PROJCET SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT AND THE ASSOCIATED DETAILS SEE G004 - G007. IF CONFLICTS OCCUR WHICH MAKE COMPLIANCE WITH THE ADA IMPOSSIBLE, NOTIFY THE ARCHITECT IMMEDIATELY BEFORE CONTINUING THE WORK.
17. ALL WALLS SHALL EXTEND TO THE UNDERSIDE OF DECK U.N.O.
18. SEE INTERIOR DRAWINGS FOR ALL FLOOR FINISHES.
19. PROVIDE MARKING & IDENTIFICATION ABOVE CEILING ON ALL RATED PARTITIONS ACCORDING TO 2021. IBC 703.5.
20. REFER TO REFLECTED CEILING PLANS FOR BULKHEAD DIMENSIONS AND WALL TYPES.
21. REFER TO OPENING TYPE SHEETS FOR FRAME ELEVATIONS REFERENCED IN THIS & OTHER VIEWS.
22. APPLY THE DOOR FRAME PAINT ONLY TO THE DOOR FRAM COVERING BOTH SIDES.
23. WHERE FLOOR MATERIAL CHANGES OCCURS BETWEEN TWO ROOMS, TRANSITION AT CENTER OF DOOR SO MATERIAL CHANGE IS NOT VISIBLE WHEN DOOR IS IN THE CLOSED POSITION.
24. PROVIDE SOLID BLOCKING IN WALLS TO SUPPORT SHELVES, CABINETS, TV'S,OWNERS EQUIPMENT, ETC. CONTRACTOR TO COORDINATE WITH OWNER FOR ANY OWNER SUPPLIED ITEMS THAT REQUIRES BLOCKING IN THE WALLS OR CEILINGS, OR ANY OTHER SPECIAL REQUIREMENTS.
27. DO NOT SCALE THE DRAWINGS.
28. CEILING HEIGHT MEASURED FROM CONCRETE-SEE-SECTIONS.
29. COORDINATE WITH OWNER ON ALL OWNER PROVIDED ITEMS.
30. COORDINATE WITH MECHANICAL DRAWINGS FOR ALL PLUMBING FIXTURES.

CONCRETE CUT LEGEND

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LEVEL 01 DEMOLITION PLAN

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A5 / D100 **DEMOLITION PLAN LEVEL 01**

3/32" = 1'-0"

GRAPHIC SCALE 0 8' 16' 24'

NORTH

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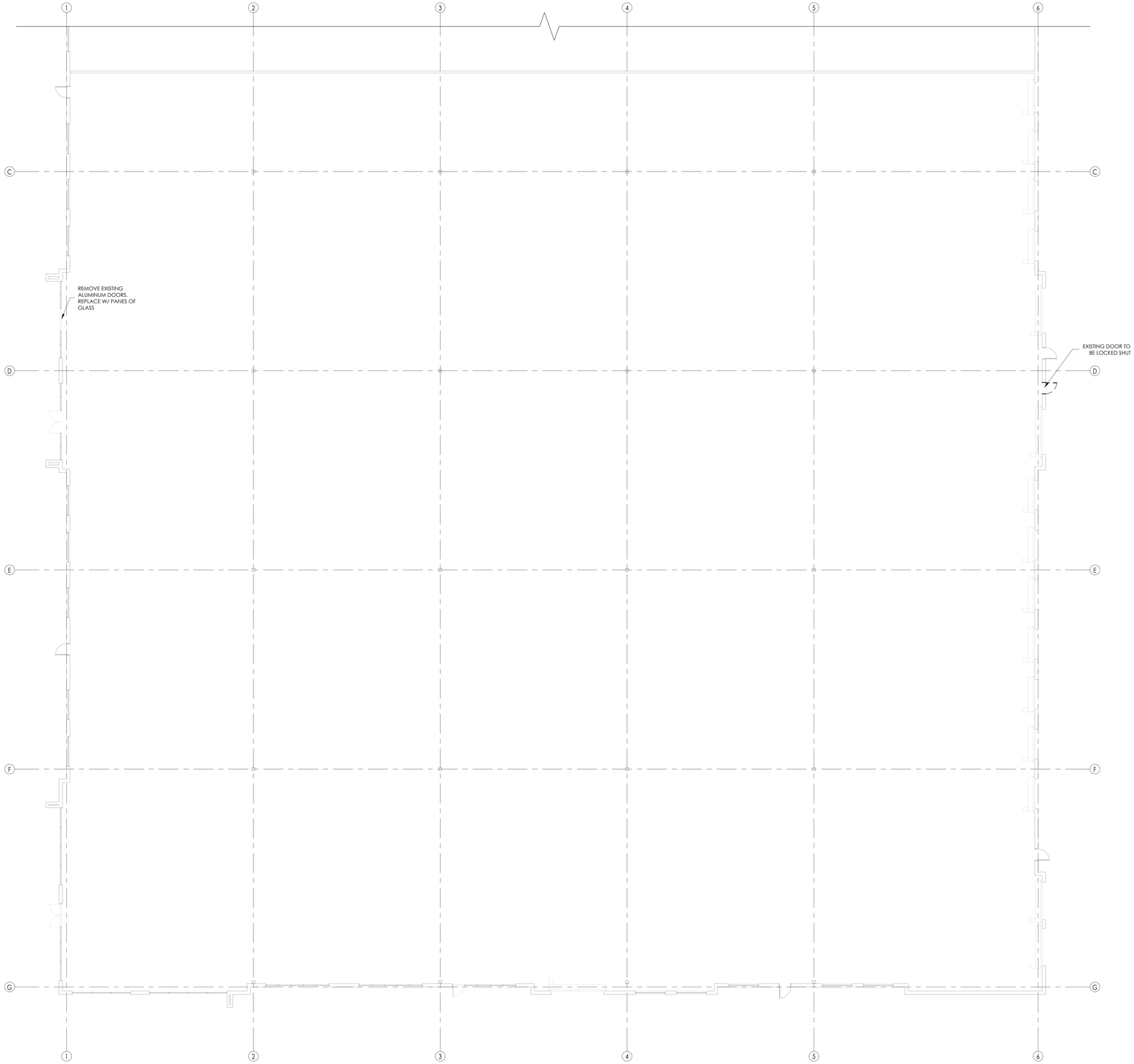

A5 / A100 **EXISTING LEVEL 01**
3/32" = 1'-0"

0 8' 16' 24'
GRAPHIC SCALE

NORTH

GENERAL FLOOR PLAN NOTES

1. ALL DIMENSIONS ARE TO FACE-OF-STUD UNLESS NOTED OTHERWISE. ALL EXTERIOR COLUMNS ARE DIMENSIONED TO OUTSIDE FACE OF WALL. REFER TO DETAILS FOR CLARIFICATION.
2. SEE SHEET G002 FOR PROJECT GENERAL NOTES REVIEW ALL NOTES PRIOR TO CONSTRUCTION.
3. PRIOR TO CONSTRUCTION, CONTRACTOR TO VERIFY ALL COLORS AND MATERIALS.
4. INSTALL ALL MATERIALS PER MANUFACTURERS RECOMMENDATION.
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16. ALL ASPECTS OF THIS PROJCET SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT AND THE ASSOCIATED DETAILS SEE G004 - G007. IF CONFLICTS OCCUR WHICH MAKE COMPLIANCE WITH THE ADA IMPOSSIBLE, NOTIFY THE ARCHITECT IMMEDIATELY BEFORE CONTINUING THE WORK.
17. ALL WALLS SHALL EXTEND TO THE UNDERSIDE OF DECK U.N.O.
18. SEE INTERIOR DRAWINGS FOR ALL FLOOR FINISHES.
19. PROVIDE MARKING & IDENTIFICATION ABOVE CEILING ON ALL RATED PARTITIONS ACCORDING TO 2021. IBC 703.5.
20. REFER TO REFLECTED CEILING PLANS FOR BULKHEAD DIMENSIONS AND WALL TYPES.
21. REFER TO OPENING TYPE SHEETS FOR FRAME ELEVATIONS REFERENCED IN THIS & OTHER VIEWS.
22. APPLY THE DOOR FRAME PAINT ONLY TO THE DOOR FRAM COVERING BOTH SIDES.
23. WHERE FLOOR MATERIAL CHANGES OCCURS BETWEEN TWO ROOMS, TRANSITION AT CENTER OF DOOR SO MATERIAL CHANGE IS NOT VISIBLE WHEN DOOR IS IN THE CLOSED POSITION.
24. PROVIDE SOLID BLOCKING IN WALLS TO SUPPORT SHELVES, CABINETS, TV'S,OWNERS EQUIPMENT, ETC. CONTRACTOR TO COORDINATE WITH OWNER FOR ANY OWNER SUPPLIED ITEMS THAT REQUIRES BLOCKING IN THE WALLS OR CEILINGS, OR ANY OTHER SPECIAL REQUIREMENTS.
27. DO NOT SCALE THE DRAWINGS.
28. CEILING HEIGHT MEASURED FROM CONCRETE-SEE-SECTIONS.
29. COORDINATE WITH OWNER ON ALL OWNER PROVIDED ITEMS.
30. COORDINATE WITH MECHANICAL DRAWINGS FOR ALL PLUMBING FIXTURES.

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LEVEL 01 FLOOR PLAN EXISTING

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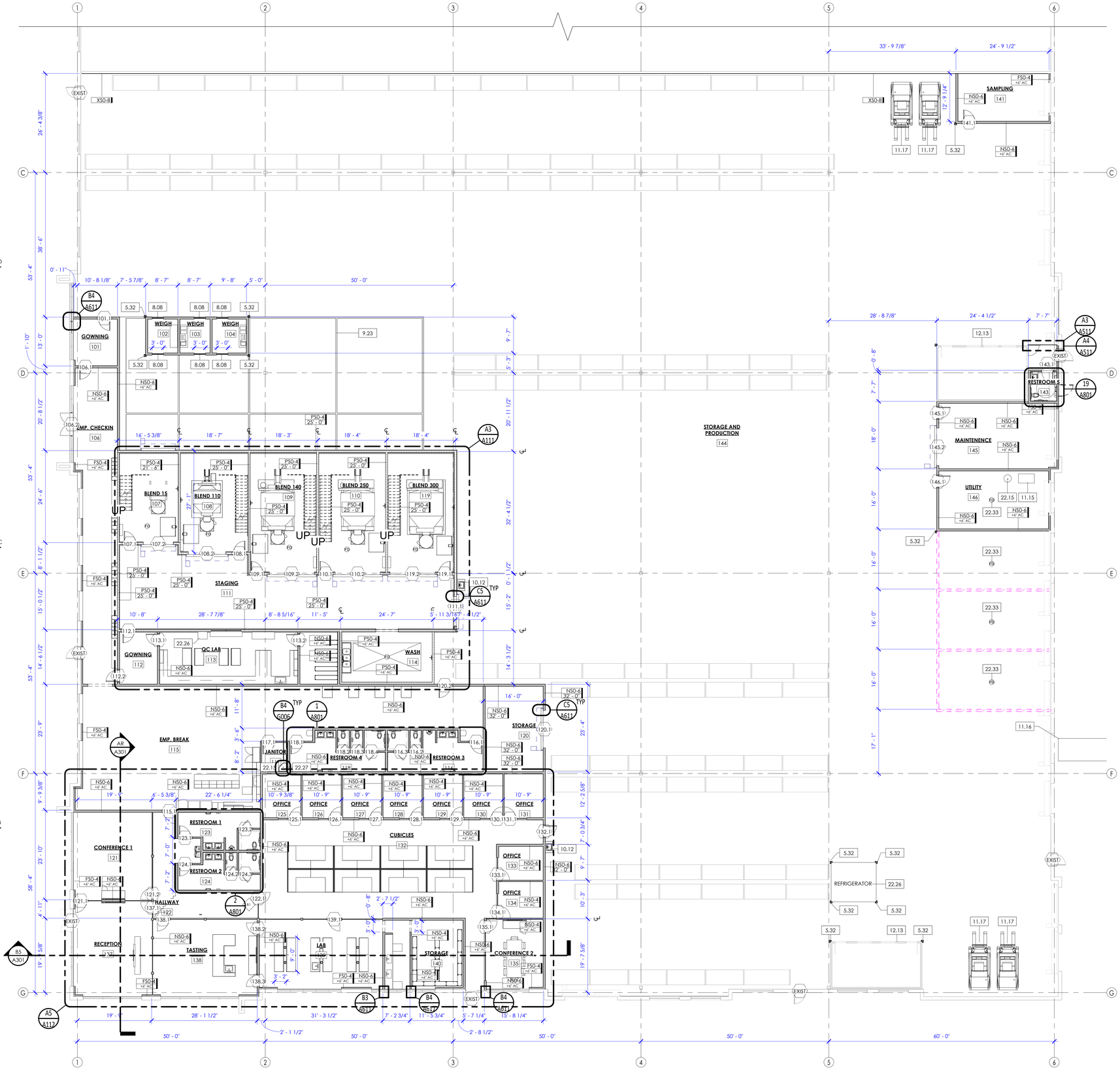

GENERAL FLOOR PLAN NOTES

1. ALL DIMENSIONS ARE TO FACE-OF-STUD UNLESS NOTED OTHERWISE. ALL EXTERIOR COLUMNS ARE DIMENSIONED TO OUTSIDE FACE OF WALL. REFER TO DETAILS FOR CLARIFICATION.
2. SEE SHEET G002 FOR PROJECT GENERAL NOTES REVIEW ALL NOTES PRIOR TO CONSTRUCTION.
3. PRIOR TO CONSTRUCTION, CONTRACTOR TO VERIFY ALL COLORS AND MATERIALS.
4. INSTALL ALL MATERIALS PER MANUFACTURERS RECOMMENDATION.
5. ALL GYP. BOARD SURFACES TO BE TAPED, SANDED, AND PRIMED.
6. SEE STRUCTURAL DRAWINGS AND CALCULATIONS FOR ALL STRUCTURAL REQUIREMENTS.
7. COORDINATE WITH STRUCTURAL FRAMING PLANS FOR LOCATIONS OF COLUMNS, BEAMS, ETC.
8. COORDINATE ALL WINDOWS HEAD HEIGHTS AND SIZES WITH ELEVATIONS AND SCHEDULES.
9. COORDINATE WITH ELECTRICAL FOR ALL LIGHTING, POWER, & DATA REQUIRMENTS.
10. FIRE RATED ASSEMBLIES SHALL BE CONTINUOUS BOTH ORIZONTIALLY AND VERTICALLY AND SHALL EXTEND FROM RATED ASSEMBLY TO RATED ASSEMBLY. FIRE CAULK ALL PENETRATIONS.
11. FIRE EXTINGUISHERS, SMOKE DETECTORS, OTHER EMERGENCY DEVICES LOCATIONS, AND RATINGS SHALL BE APPROVED BY FIRE MARSHAL PRIOR TO INSTALLATION.
12. FRAMING CONTRACTOR SHALL PROVIDE AIDDTIONAL BLOCKING THROUGHOUT THE PROJECT AS REQUIRED TO ACCOMMODATE WALL-MOUNTED FURNISHINGS, ARTWORK, ETC.
13. DOORS SHALL BE LOCATED 6" OFF ADJACENT WALL UNLESS NOTED OTHERWISE.
14. CONTRACTOR IS TO PROVIDE SUBMITTALS AND SHOP DRAWINGS ON ALL KEYNOTED ITEMS FOR APPROVAL FROM WNER/ARCHITECT.
15. PRIOR TO ORDERING ANY EXTERIOR FINISHES, THE CONTRACTOR IS TO VERIFY ALL COLORS AND TYPES OF MATERIALS WITH OWNER/ARCHITECT.
16. ALL ASPECTS OF THIS PROJCET SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT AND THE ASSOCIATED DETAILS SEE G004 - G007. IF CONFLICTS OCCUR WHICH MAKE COMPLIANCE WITH THE ADA IMPOSSIBLE, NOTIFY THE ARCHITECT IMMEDIATELY BEFORE CONTINUING THE WORK.
17. ALL WALLS SHALL EXTEND TO THE UNDERSIDE OF DECK U.N.O.
18. SEE INTERIOR DRAWINGS FOR ALL FLOOR FINISHES.
19. PROVIDE MARKING & IDENTIFICATION ABOVE CEILING ON ALL RATED PARTITIONS ACCORDING TO 2021. IBC 703.5.
20. REFER TO REFLECTED CEILING PLANS FOR BULKHEAD DIMENSIONS AND WALL TYPES.
21. REFER TO OPENING TYPE SHEETS FOR FRAME ELEVATIONS REFERENCED IN THIS & OTHER VIEWS.
22. APPLY THE DOOR FRAME PAINT ONLY TO THE DOOR FRAM COVERING BOTH SIDES.
23. WHERE FLOOR MATERIAL CHANGES OCCURS BETWEEN TWO ROOMS, TRANSITION AT CENTER OF DOOR SO MATERIAL CHANGE IS NOT VISIBLE WHEN DOOR IS IN THE CLOSED POSITION.
24. PROVIDE SOLID BLOCKING IN WALLS TO SUPPORT SHELVES, CABINETS, TV'S,OWNERS EQUIPMENT, ETC. CONTRACTOR TO COORDINATE WITH OWNER FOR ANY OWNER SUPPLIED ITEMS THAT REQUIRES BLOCKING IN THE WALLS OR CEILINGS, OR ANY OTHER SPECIAL REQUIREMENTS.
27. DO NOT SCALE THE DRAWINGS.
28. CEILING HEIGHT MEASURED FROM CONCRETE-SEE-SECTIONS.
29. COORDINATE WITH OWNER ON ALL OWNER PROVIDED ITEMS.
30. COORDINATE WITH MECHANICAL DRAWINGS FOR ALL PLUMBING FIXTURES.

KEYNOTE LEGEND

5.32	48" FLOOR MOUNTED STEEL CORNER BOLLAR/OVERHEAD DOOR TRACK PROTECTOR. SAFETY YELLOW POWDER COATED
8.08	3'-0" X 8'-0 OPENING WITH VINYL CURTAIN
9.23	ACRYLIC, ANTI-SLIP FLOOR PAINT, YELLOW
10.12	ADA COMPLIANT SOLID SURFACE COUNTER TOP W/ UNDERMOUNT SINKS PER PLUMBING. ADA COMPLIANT UNDER COUNTER SKIRT. REFER TO ICC/ANSI A117.1-09 FOR REQUIREMENTS & INSTALLATION
11.15	AIR COMPRESSOR
11.16	TRASH COMPACTOR
11.17	ELECTRIC FORKLIFT, SEE ELECTRICAL FOR CHARGING.
12.13	PORTABLE OFFICE, COORDINATED BY OWNER.
22.15	WATER HEATER PER PLUMBING DRAWINGS.
22.26	REFRIGERATOR, COORDINATED BY OWNER, CONTRACTOR INSTALLED
22.27	MOP SINK, SEE PLUMBING
22.33	FLOOR DRAIN, SEE PLUMBING.

WALL TYPES NOMENCLATURE

E C1-6

- INDICATES WALL TYPE
- INDICATES FIRE RATING IN HOURS
- INDICATES NOMINAL FRAMING WIDTH
- INDICATES WALL MATERIAL

WALL TYPES

E	EXTERIOR
N	INTERIOR (NON-SPECIFIC)
C	CORRIDOR
V	VERTICAL CIRCULATION
U	UNIT SEPARATION
S	SHAFT
F	FURRING
X	EXISTING

WALL MATERIALS

W	WOOD
C	CONCRETE
N	INSULATED CONCRETE
S	METAL STUD
M	MASONRY
P	INSULATED METAL PANEL

NOMINAL FRAMING WIDTH EXAMPLES

0	1/2" RESILIENT CHANNEL
1	7/8" METAL CHANNEL, 1x1 WOOD STUD FURRING
2	2x2 WOOD STUD, 1 1/2" METAL STUD
3	2 1/2" METAL STUD, 2 1/2" C-H METAL STUD
4	2x4 WOOD STUD, 4" CONCRETE, 4" MASONRY, 3 5/8" METAL STUD
5	5 1/2" METAL STUD
6	2x6 WOOD STUD, 6" METAL STUD, 6" MASONRY, 6" CONCRETE
8	2x8 WOOD STUD, 8" METAL STUD, 8" CONCRETE, 8" CMU
9	9 1/4" TILT-UP
10	10" CONCRETE, 9 5/8" MASONRY, 10" PRE-CAST CONCRETE PANEL
12	12" CONCRETE, 12"(3/2/7)SANDWICH CONCRETE PANEL
14	14" CONCRETE, 14"(3/2/9)SANDWICH CONCRETE PANEL

WALL PHASES

NEW PHASE WALL

FUTURE PHASE WALL

GRAPHIC SCALE 0 8' 16' 24'

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Revision Schedule		
MARK	DESCRIPTION	Revision Date

PROJECT STATUS

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LEVEL 01 FLOOR PLAN

SHEET #: A101

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A5/A101 LEVEL 01
3/32" = 1'-0"

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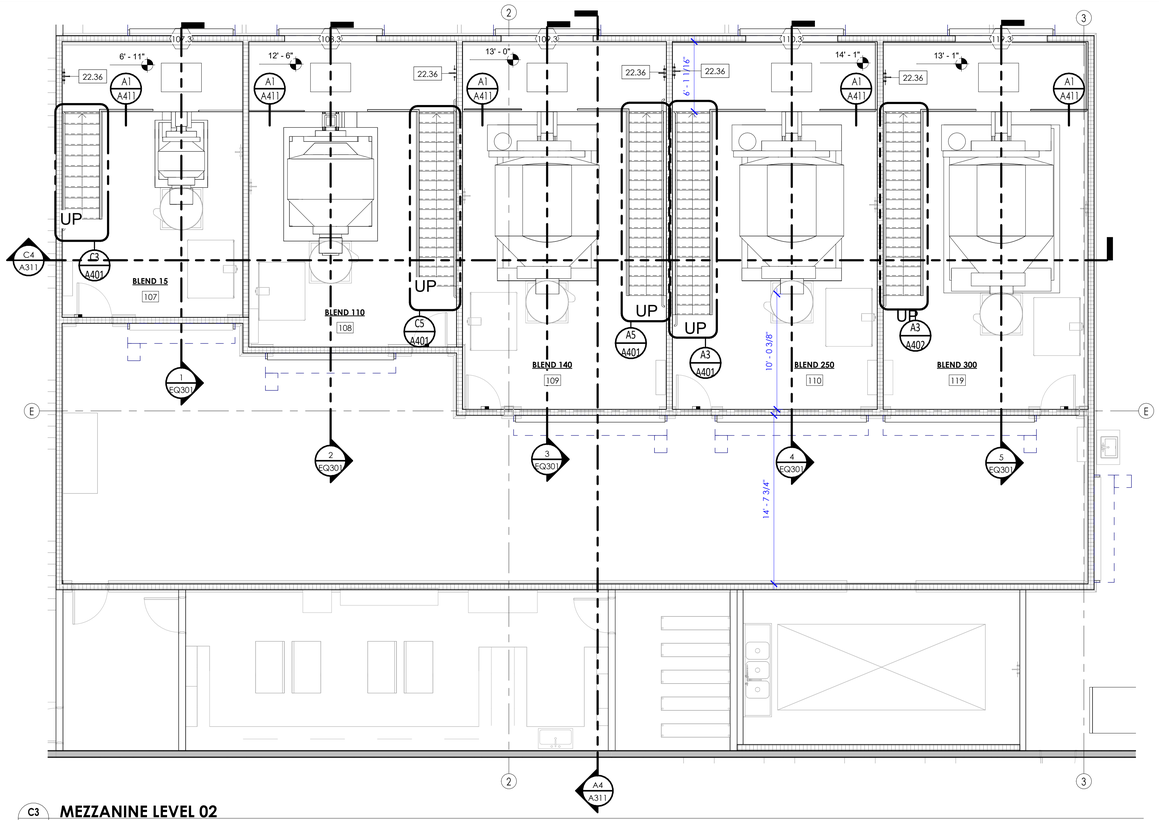
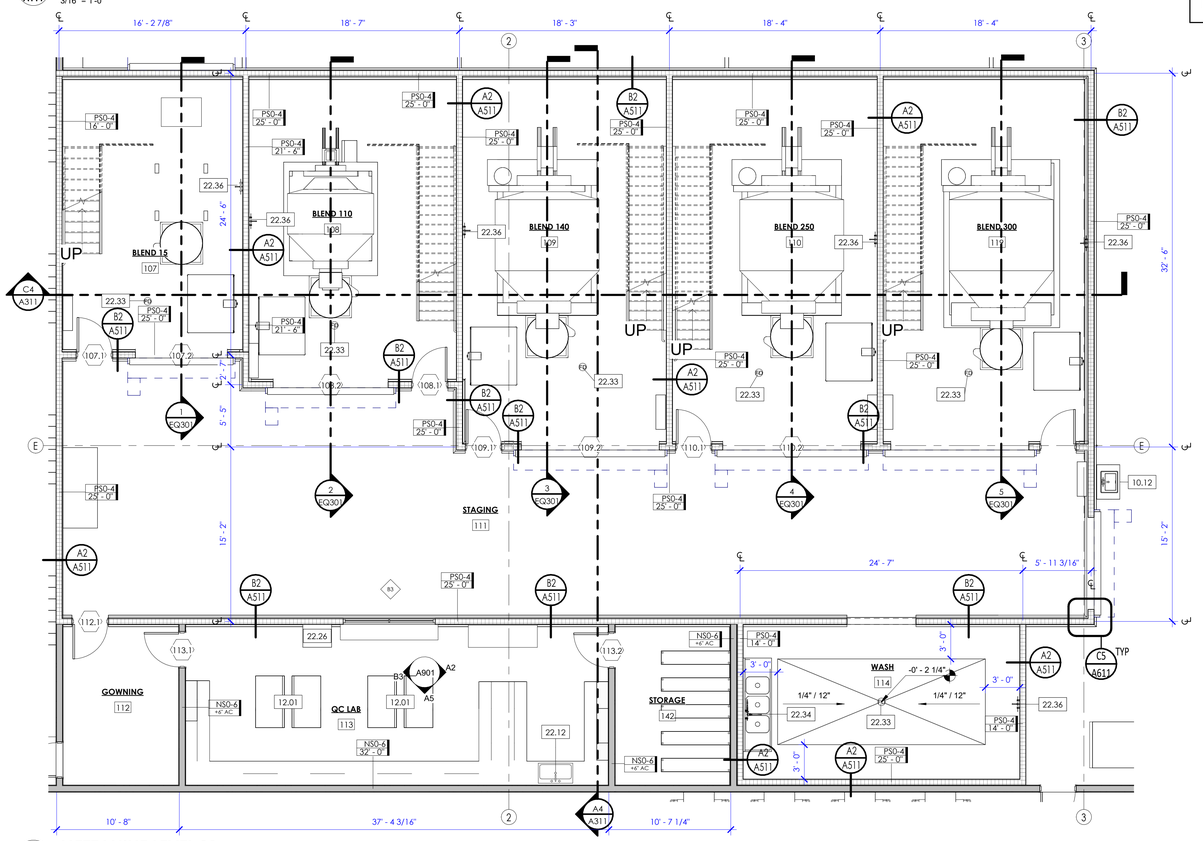


C3 / A111 **MEZZANINE LEVEL 02**

3/16" = 1'-0"



A3 / A111 **MEZZANINE LEVEL 01**

3/16" = 1'-0"

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KEYNOTE LEGEND

10.12	ADA COMPLIANT SOLID SURFACE COUNTER TOP W/ UNDERMOUNT SINKS PER PLUMBING. ADA COMPLIANT UNDER COUNTER SKIRT, REFER TO ICC/ANSI A117.1-09 FOR REQUIREMENTS & INSTALLATION.
12.01	FURNITURE PROVIDED AND INSTALLED BY OWNER.
22.12	ADA COMPLIANT SINK AND FAUCET
22.26	REFRIGERATOR, COORDINATED BY OWNER, CONTRACTOR INSTALLED
22.33	FLOOR DRAIN, SEE PLUMBING.
22.34	THREE BASIN SINK AND FAUCET WITH SPRAY HANDLE. SEE PLUMBING
22.36	HOT AND COLD FAUCET MOUNTED ABOVE GROUND, SEE PLUMBING

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Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

ENLARGED MEZZANINE PLAN

PROJECT STATUS

DATE: PROJECT ISSUE DATE

SHEET #:

A111

GRAPHIC SCALE 0 4' 8' 12'

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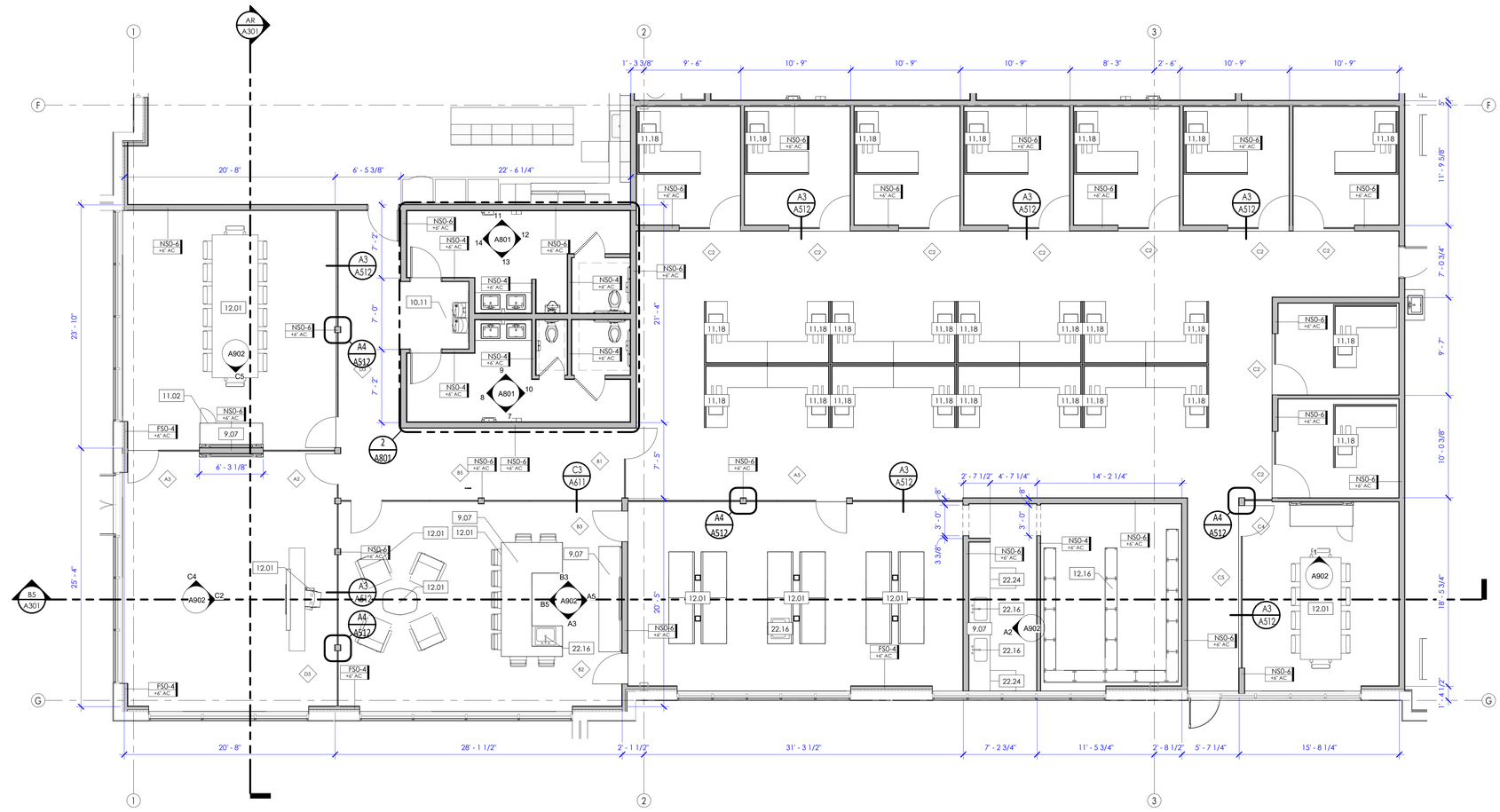

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KEYNOTE LEGEND

9.07	COUNTER TOP - SEE INTERIOR DESIGNER DRAWINGS
10.11	ADA COMPLIANT DRINKING FOUNTAIN W/ BOTTLE FILLER, WATER PROOF WALL COVERING EXTENDING 1'-6" FROM EDGE. WALL COVERING AND FOUNTAIN TO BE APPROVED BY OWNER AND ARCHITECT PRIOR TO ORDER - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION .
11.02	REFRIGERATOR PROVIDED BY TENANT
11.18	EQUIPMENT BY OWNER, SEE EQUIPMENT PLAN
12.01	FURNITURE PROVIDED AND INSTALLED BY OWNER.
12.16	STORAGE RACKS PROVIDED BY OWNER INSTALLED BY CONTRACTOR
22.16	STAINLESS STEEL SINK - SEE PLUMBING
22.24	DISHWASHER - SEE PLUMBING

A5 / A112 ENLARGED ENTRY

3/16" = 1'-0"

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ENLARGED OFFICE PLAN

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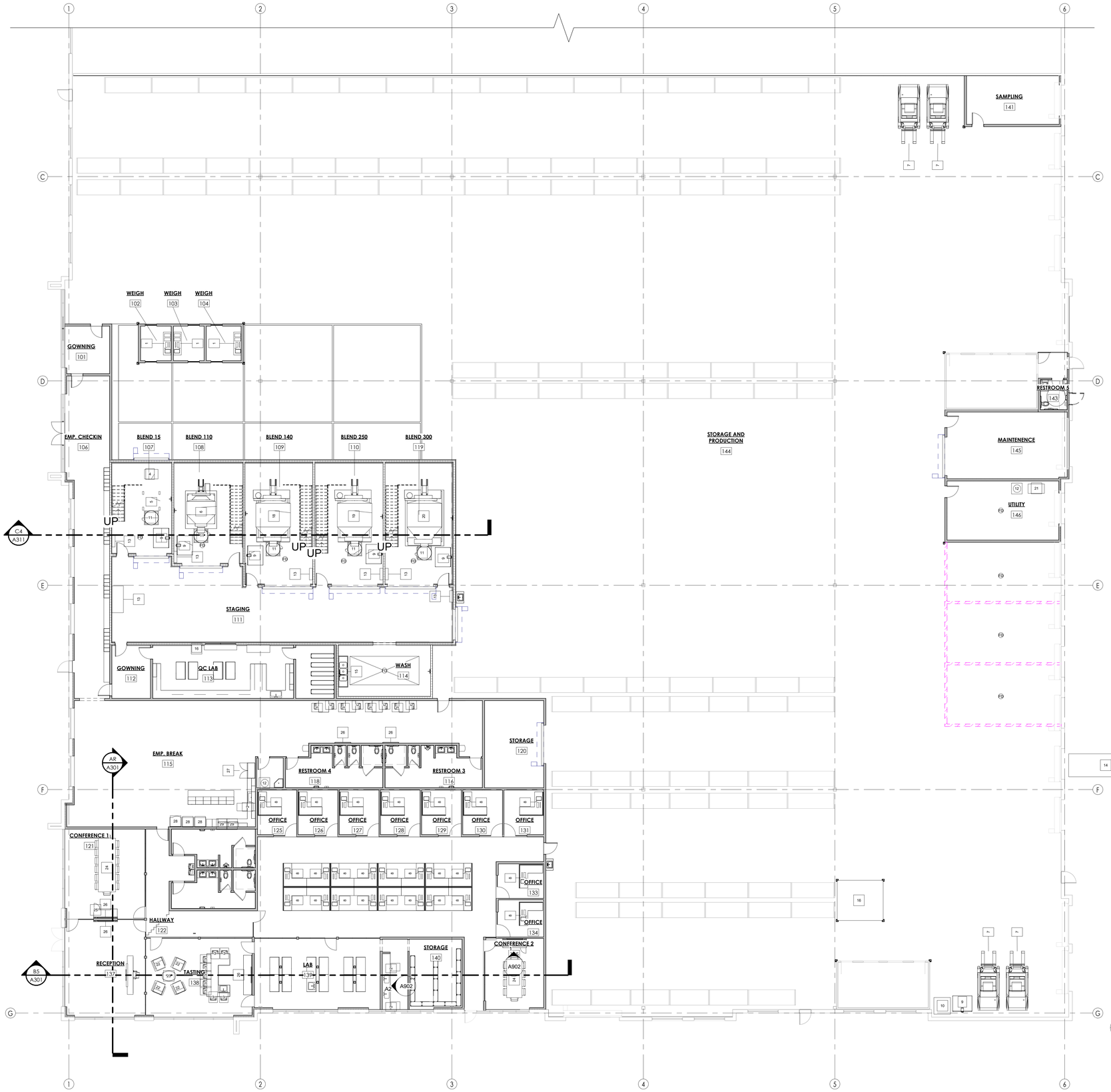
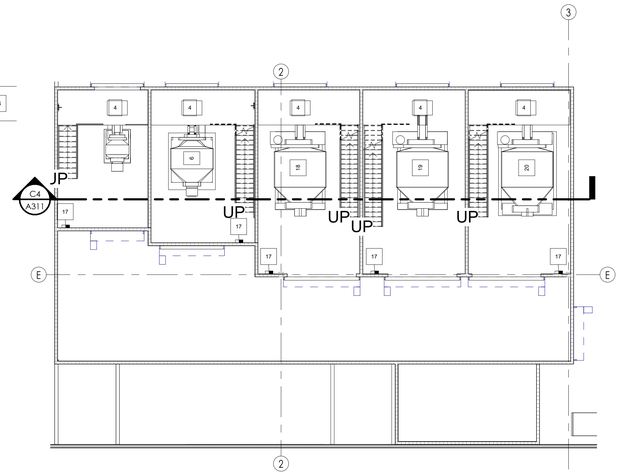


A5 A121 LEVEL 01 EQUIPMENT PLAN
3/32" = 1'-0"



A2 A121 MEZZANINE LEVEL 02
3/32" = 1'-0"

0 4' 8' 16'
GRAPHIC SCALE

NORTH

EQUIPMENT SCHEDULE				
MARK	COUNT	DESCRIPTION	PROVIDED	INSTALLED
	2			
	1	UNDERCOUNTER REFRIGERATOR	TENANT	CONTRACTOR
	1	WALL MOUNTED TELEVISION	TENANT	CONTRACTOR
1	3	COMPUTER, PRINTER, AND SCALES	TENANT	TENANT
2	3	DISH WASHER	TENANT	CONTRACTOR
3	17	BAR STOOL, BREAK ROOM	TENANT	TENANT
4	5	LIFT TABLE	TENANT	CONTRACTOR
5	1	MUNSON 15	TENANT	CONTRACTOR
6	1	MUNSON 110	TENANT	CONTRACTOR
7	4	ELECTRIC FORK LIFT	TENANT	TENANT
8	25	OFFICE COMPUTER	TENANT	TENANT
9	6	SCALE	TENANT	TENANT
10	1	STRETCH WRAP	TENANT	TENANT
11	5	SWECO SIFT	TENANT	TENANT
12	2	WATER HEATER	CONTRACTOR	TENANT
13	7	VACUUM	TENANT	CONTRACTOR
14	1	TRASH COMPACTOR	TENANT	TENANT
15	1	3 COMPARTMENT SINK	TENANT	TENANT
16	2	LAB REFRIGERATION	TENANT	CONTRACTOR
17	5	CLOCK	TENANT	TENANT
18	1	MUNSON 140	TENANT	CONTRACTOR
19	1	MUNSON 250	TENANT	CONTRACTOR
20	1	MUNSON 300	TENANT	CONTRACTOR
21	1	COMPRESSOR	CONTRACTOR	CONTRACTOR
22	4	LOUNGE CHAIR	TENANT	TENANT
23	1	COFFEE TABLE	TENANT	TENANT
24	2	CONFERENCE ROOM TABLE WITH CHAIRS	TENANT	TENANT
25	1	UNDERCOUNTER REFRIGERATOR	TENANT	CONTRACTOR
26	5	WALL MOUNTED TELEVISION	TENANT	CONTRACTOR
27	1	BREAK ROOM REFRIGERATOR	TENANT	CONTRACTOR
28	3	VENDING MACHINE	TENANT	CONTRACTOR
29	2	MICROWAVE	TENANT	TENANT

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Revision Schedule		
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LEVEL 01 EQUIPMENT PLAN

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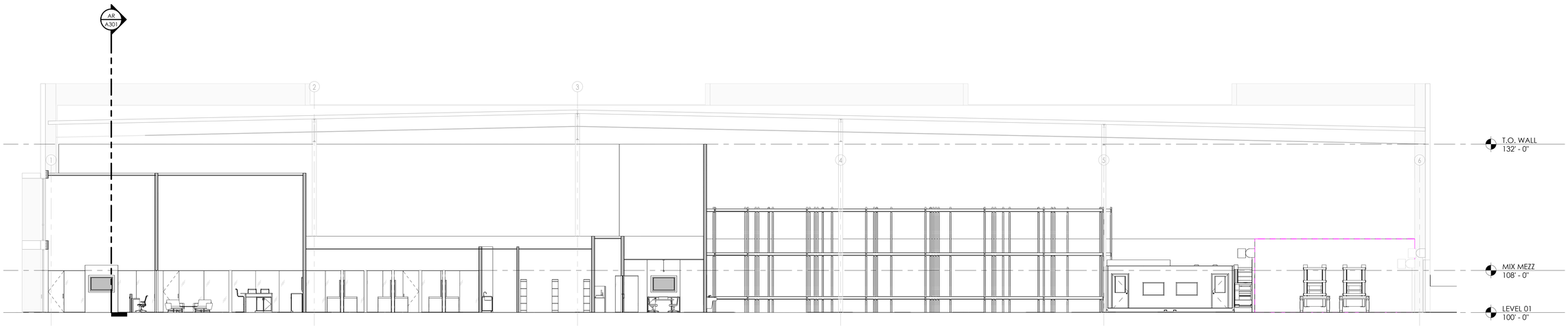
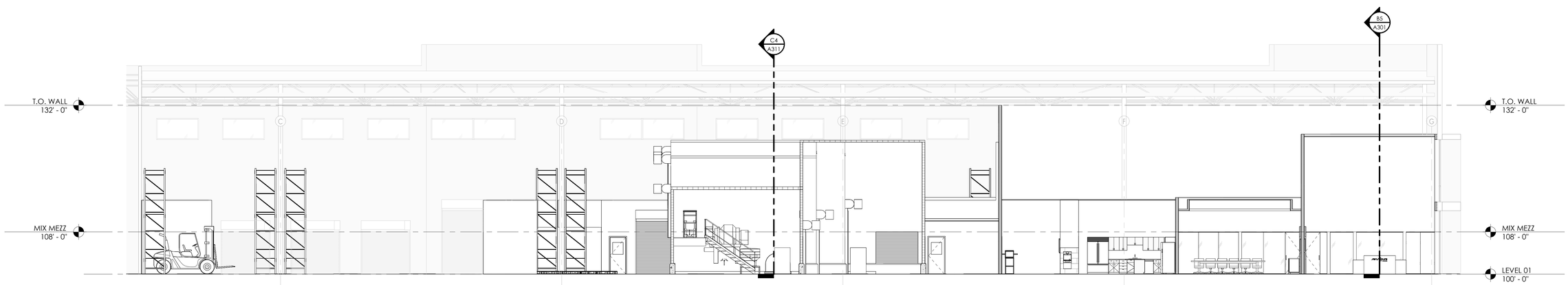


B5 A301 **Section 1**
1/8" = 1'-0"



AR A301 **Section 2**
1/8" = 1'-0"

KEYNOTE LEGEND

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MARK	DESCRIPTION	Revision Date

Revision Schedule

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BUILDING SECTIONS

PROJECT STATUS

DATE: PROJECT ISSUE DATE

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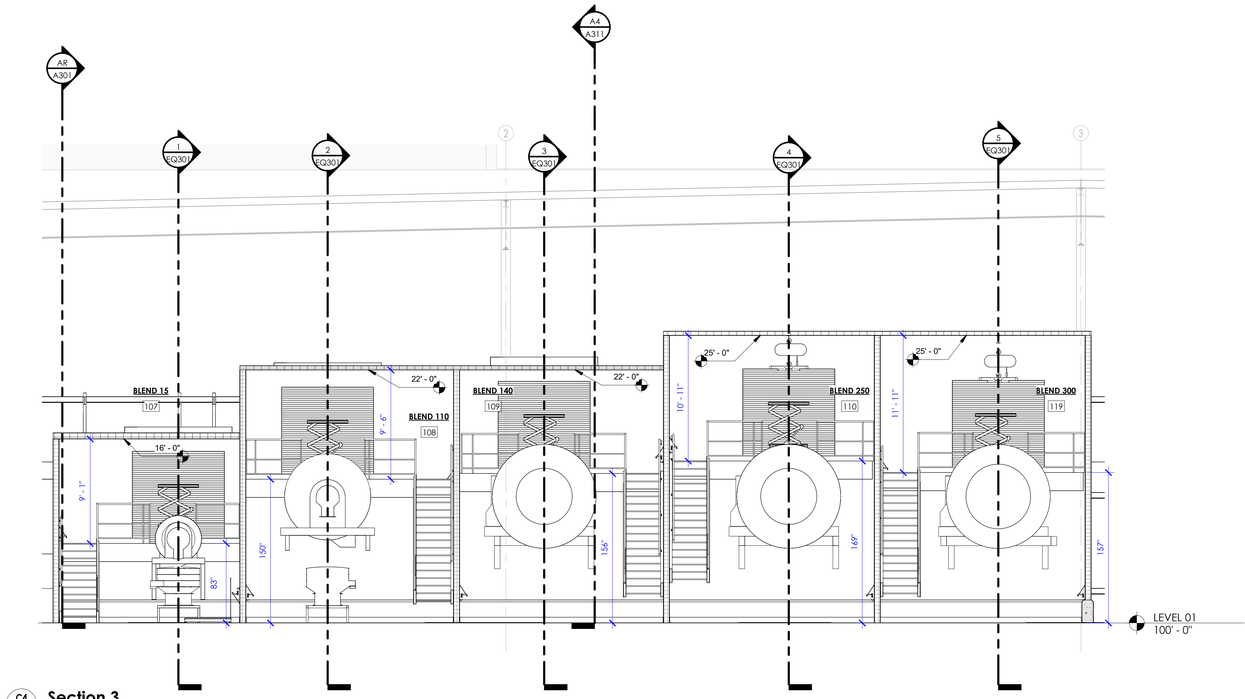
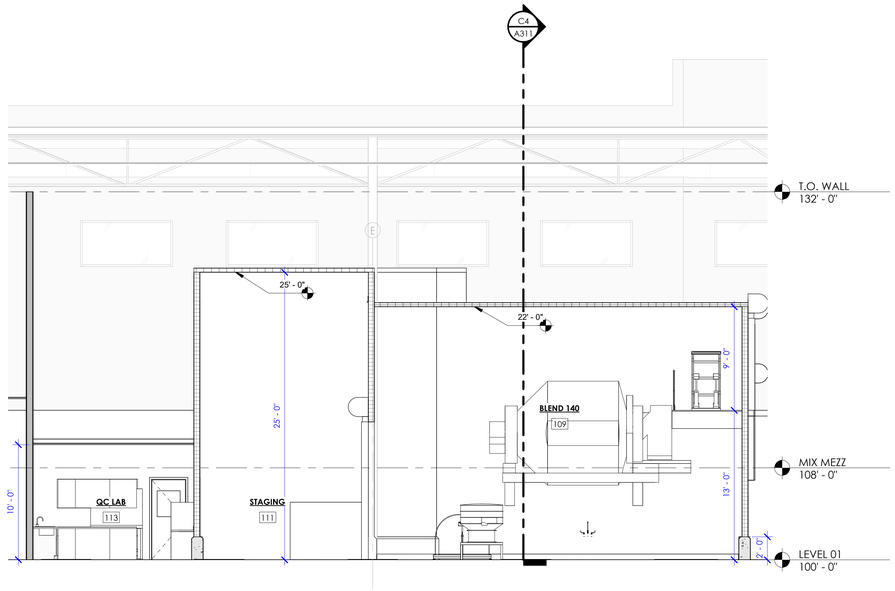


C4 A311 **Section 3**
3/16" = 1'-0"



A4 A311 **Section 5**
3/16" = 1'-0"

KEYNOTE LEGEND

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Revision Schedule

MARK	DESCRIPTION	Revision Date

AE2024.387

ENLARGED MEZZANINE SECTION

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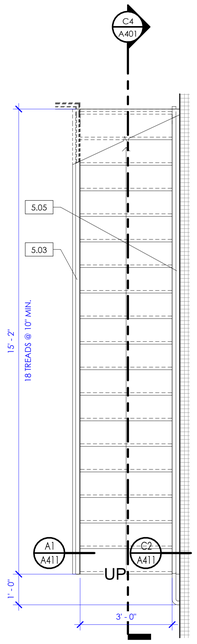
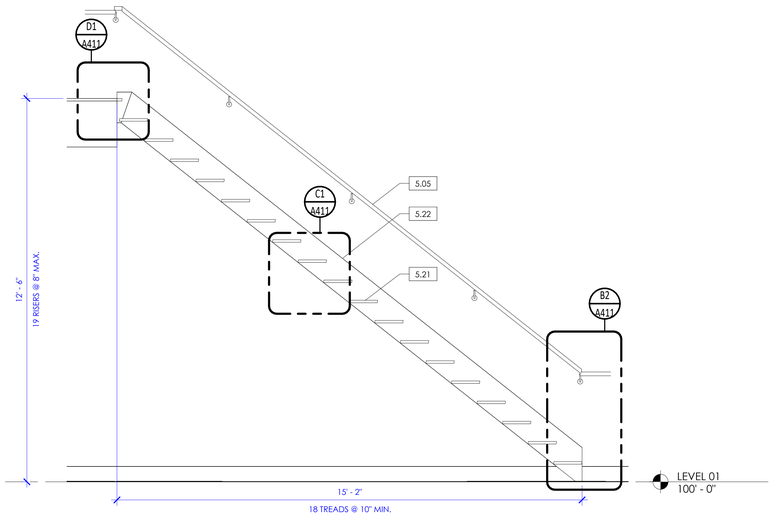
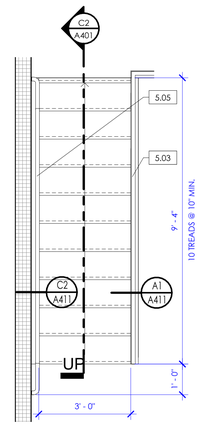
KEYNOTE LEGEND	
5.03	NEW GUARDRAIL w/ HANDRAIL TO BE INSTALLED
5.05	36" HIGH HANDRAIL PAINTED - PROVIDE SUBMITTAL FOR APPROVAL PRIOR TO FABRICATION
5.21	STEEL GRATE TREADS
5.22	STEEL CHANNEL STRINGER



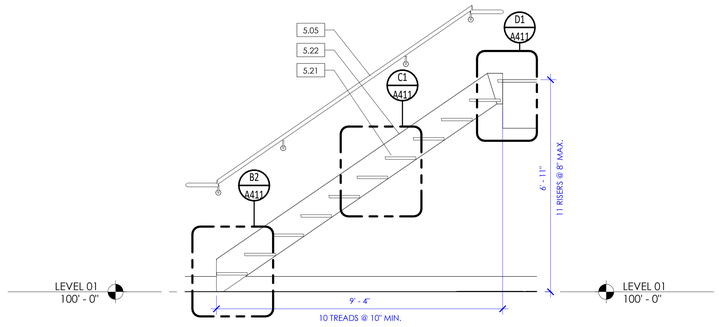
C5 A401 **BLEND 110 - STAIR PLAN**
1/2" = 1'-0"



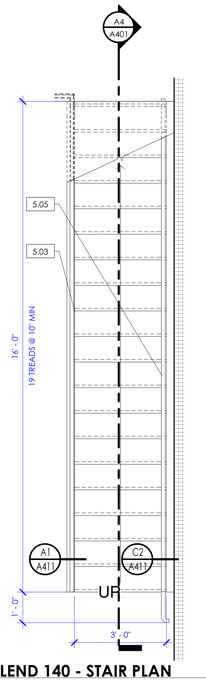
C4 A401 **BLEND 110 - STAIR SECTION**
1/2" = 1'-0"



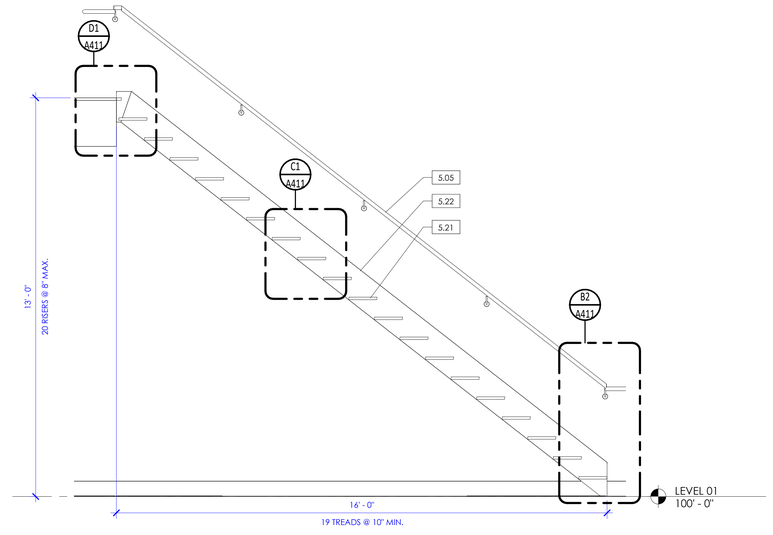
C3 A401 **BLEND 15 - STAIR PLAN**
1/2" = 1'-0"



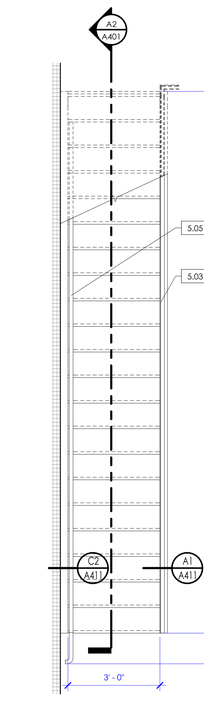
C2 A401 **BLEND 15 - STAIR SECTION**
1/2" = 1'-0"



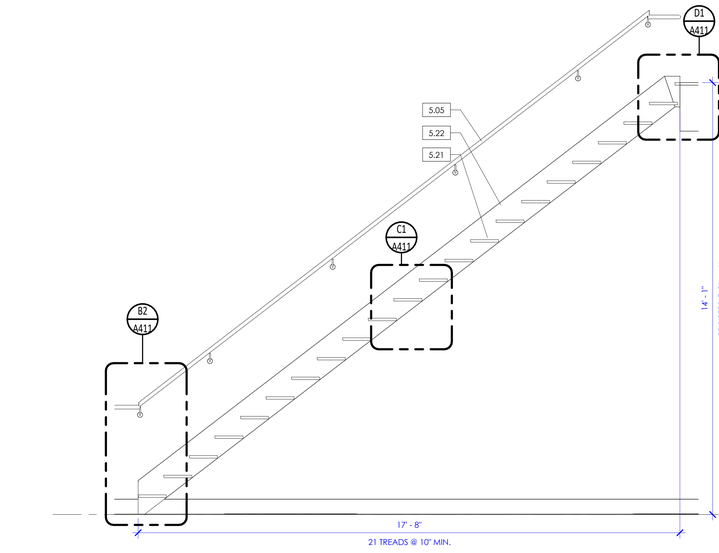
A5 A401 **BLEND 140 - STAIR PLAN**
1/2" = 1'-0"



A4 A401 **BLEND 140 - STAIR SECTION**
1/2" = 1'-0"



A3 A401 **BLEND 250 - STAIR PLAN**
1/2" = 1'-0"



A2 A401 **BLEND 250 - STAIR SECTION**
1/2" = 1'-0"

0 1' 2' 4'
GRAPHIC SCALE

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174600
JAMES MICHAEL
STATE OF UTAH
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SENSAPURE TI

4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

STAIR PLANS AND SECTIONS

PROJECT STATUS

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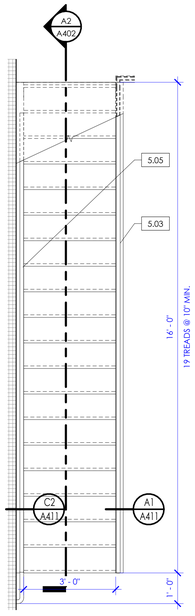
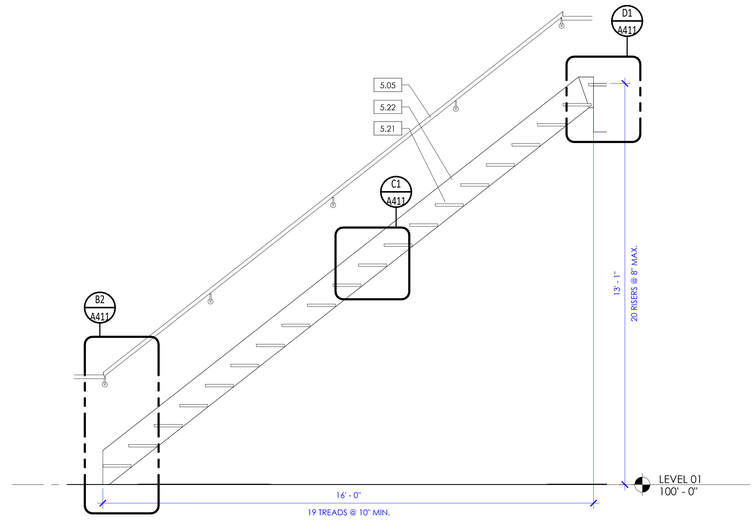
KEYNOTE LEGEND	
5.03	NEW GUARDRAIL w/ HANDRAIL TO BE INSTALLED
5.05	36" HIGH HANDRAIL PAINTED - PROVIDE SUBMITTAL FOR APPROVAL PRIOR TO FABRICATION
5.21	STEEL GRATE TREADS
5.22	STEEL CHANNEL STRINGER



A3 A402 **BLEND 300 - STAIR PLAN**
1/2" = 1'-0"



A2 A402 **BLEND 300 - STAIR SECTION**
1/2" = 1'-0"

0 1' 2' 4'
GRAPHIC SCALE

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174600
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STATE OF UTAH

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SENSAPURE TI

4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

STAIR PLANS AND SECTIONS

PROJECT STATUS

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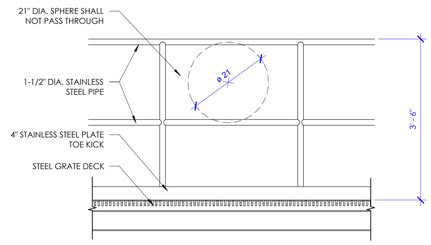
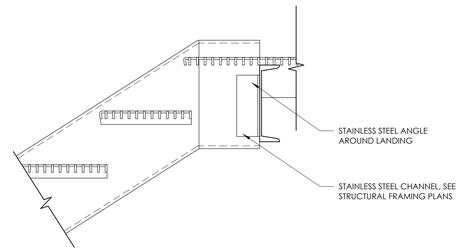
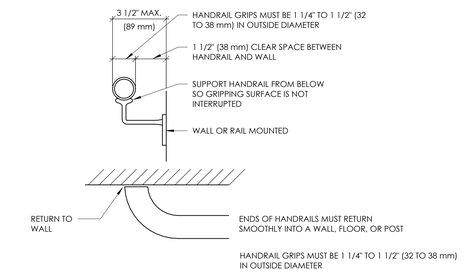


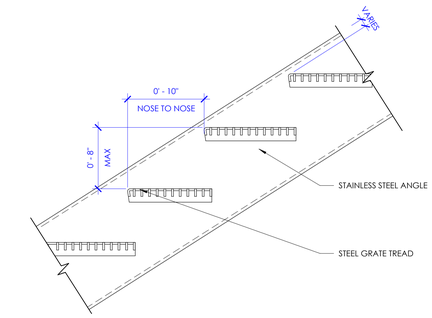
D2 A411 **GUARD RAIL DETAIL**
3/4" = 1'-0"



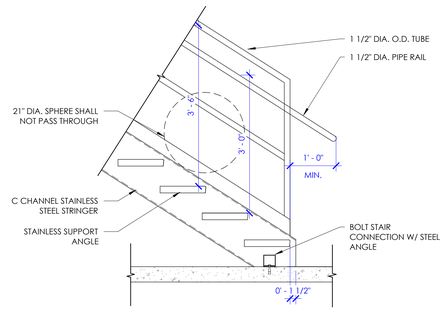
D1 A411 **METAL STAIRS @ MEZZANINE**
1 1/2" = 1'-0"



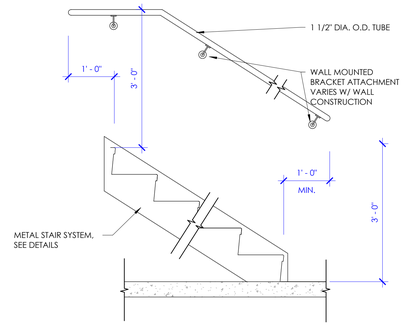
C2 A411 **HANDRAIL DETAIL**
1 1/2" = 1'-0"



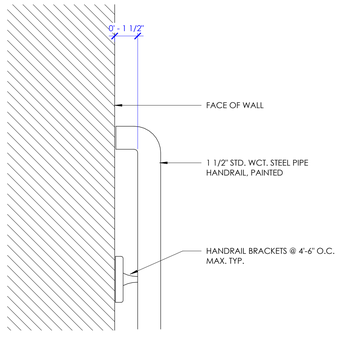
C1 A411 **STEEL GRATE STAIR TREAD**
1 1/2" = 1'-0"



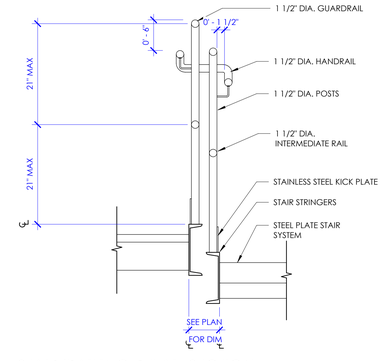
B2 A411 **STAIR TO FLOOR ATTACHMENT - TYP.**
3/4" = 1'-0"



B1 A411 **STAIR HANDRAIL DETAIL**
3/4" = 1'-0"



A2 A411 **HANDRAIL TO WALL DETAIL**
3" = 1'-0"



A1 A411 **STAIR/RAILING DETAIL SECTION**
1" = 1'-0"

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Revision Schedule

MARK	DESCRIPTION	Revision Date

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STAIR AND LADDER DETAILS

DATE: PROJECT ISSUE DATE

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A411

PROJECT STATUS

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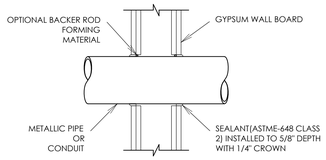
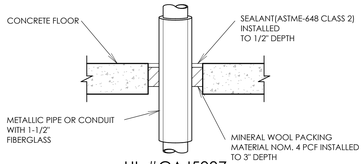


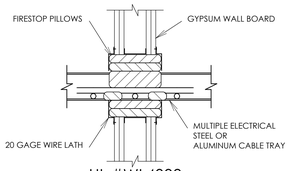
UL #WL1033, 1086

1 OR 2 HR FIRE RATING



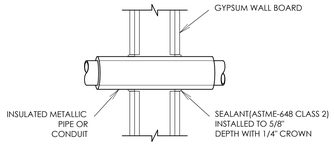
UL #CAJ5087

2 HR. FIRE RATING



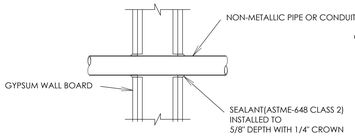
UL #WL4008

2 HR FIRE RATING



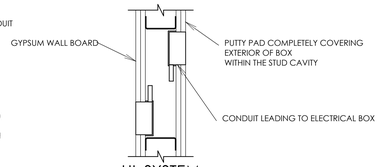
UL #WL5014

1 OR 2 HR FIRE RATING



UL #WL2093, 2100

1 OR 2 HR FIRE RATING



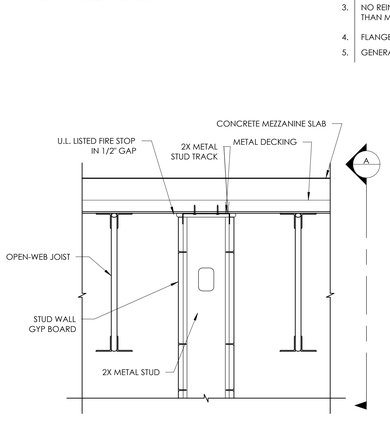
UL SYSTEM

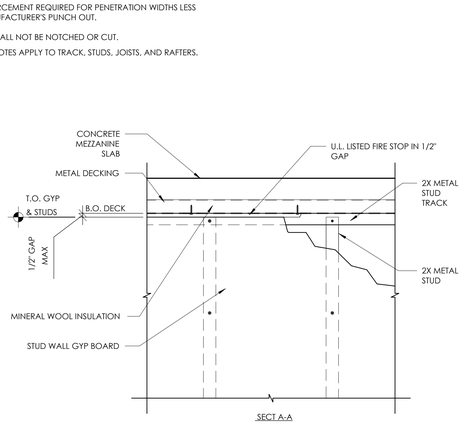
1 OR 2 HR FIRE RATING

FIRE RATED PENETRATION

NOTES:

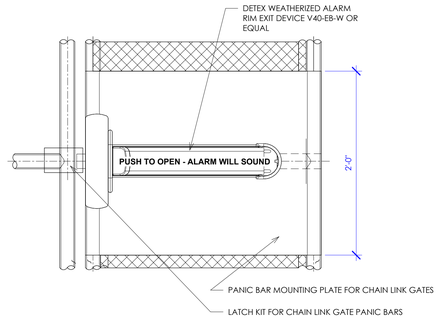
1. ALL PENETRATIONS TO BE CENTERED IN WEB.
2. REINFORCEMENT REQUIRED FOR PENETRATIONS WIDER THAN MANUFACTURER'S PUNCH OUT EXCEPT AS NOTED.
3. NO REINFORCEMENT REQUIRED FOR PENETRATION WIDTHS LESS THAN MANUFACTURER'S PUNCH OUT.
4. FLANGES SHALL NOT BE NOTCHED OR CUT.
5. GENERAL NOTES APPLY TO TRACK, STUDS, JOISTS, AND RAFTERS.





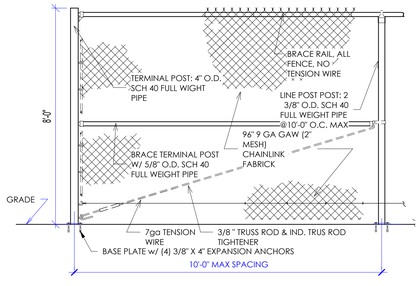
B5 / A511 1-HOUR RATED WALL INTERSECTING MEZZANINE OR ROOF

1 1/2" = 1'-0"



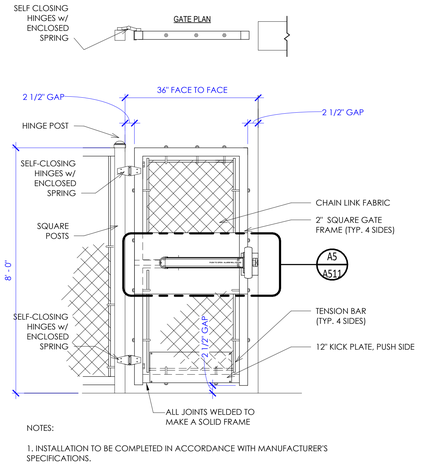
A5 / A511 FENCE EXIT DETAIL

1 1/2" = 1'-0"



A4 / A511 CHAIN LINK FENCE DETAIL

1/2" = 1'-0"

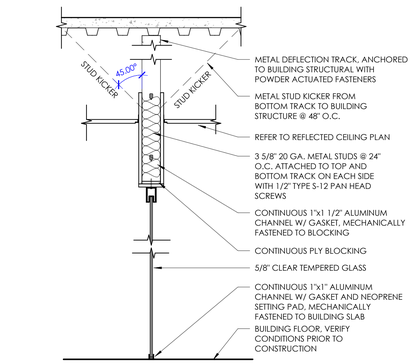


NOTES:

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

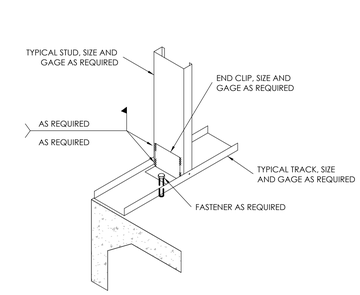
A3 / A511 GATE SINGLE - EXIT LATCH AGAINST CONCRETE

1/2" = 1'-0"



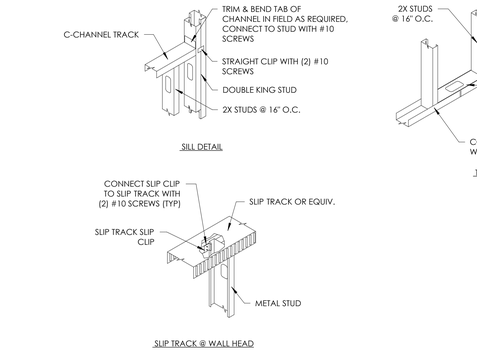
D3 / A511 GLASS WALL PARTITION

1" = 1'-0"



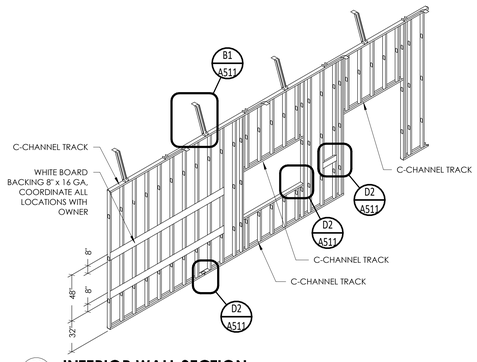
C3 / A511 TYPICAL BASE CONNECTION

3/4" = 1'-0"



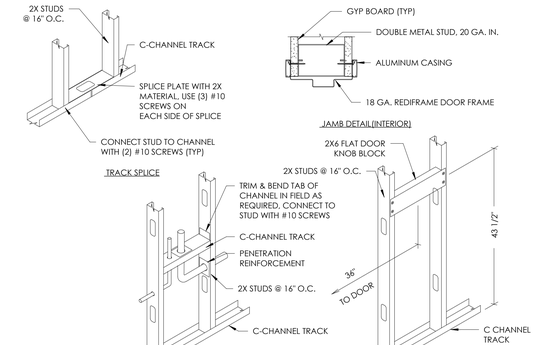
D2 / A511 TYPICAL METAL FRAMING DETAILS

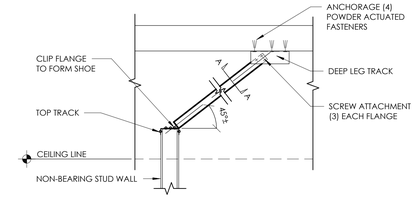
1" = 1'-0"



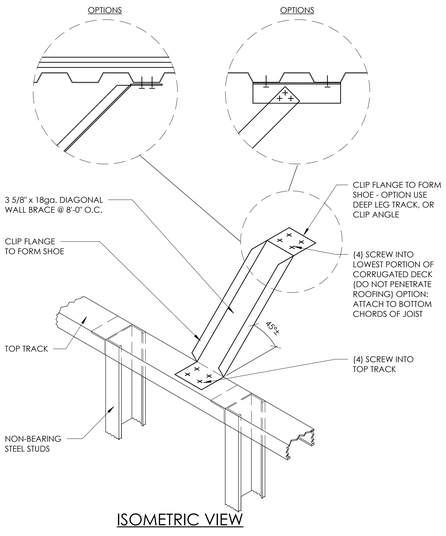
C2 / A511 INTERIOR WALL SECTION

1" = 1'-0"





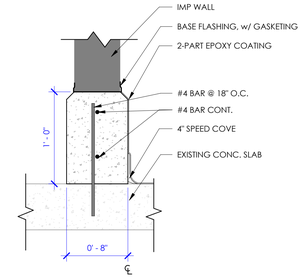
SIDE VIEW



ISOMETRIC VIEW

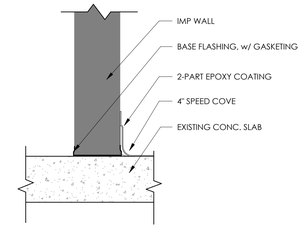
B1 / A511 NON-BEARING INTERIOR WALL W/ BRACE

1" = 1'-0"



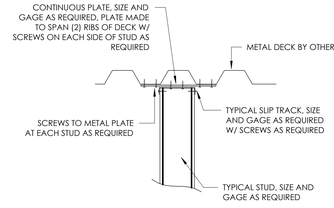
B2 / A511 1'-0" CURB DETAIL

1 1/2" = 1'-0"



A2 / A511 SPEED COVE BASE DETAIL

1 1/2" = 1'-0"



A1 / A511 CONNECTION TO METAL DECK

3/4" = 1'-0"

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Revision Schedule		
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INTERIOR DETAILS

PROJECT STATUS

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A511

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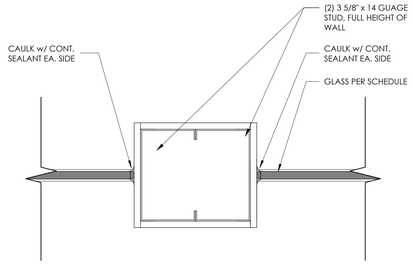
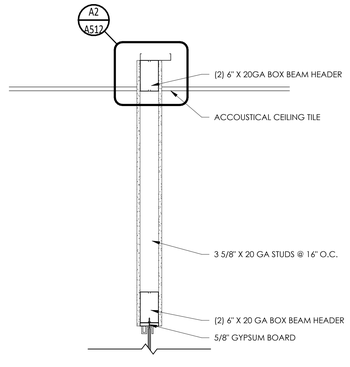
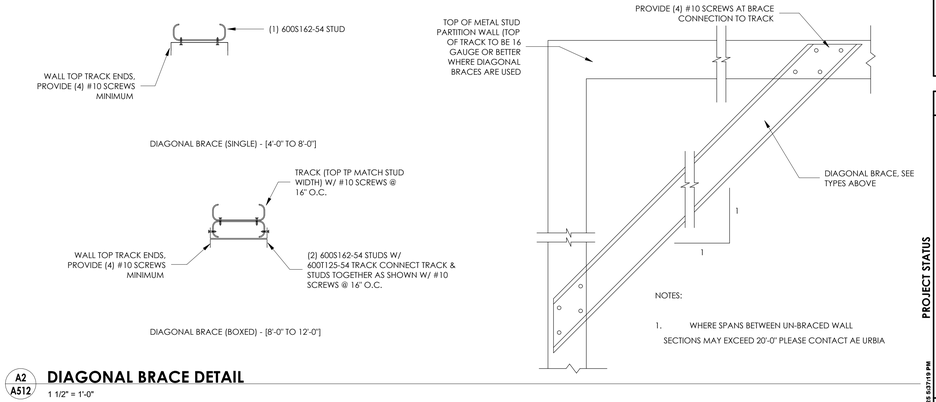


A4 / A512 **BUTT-GLAZED COLUMN DETAIL**
3" = 1'-0"



A3 / A512 **HEADER DETAIL**
1" = 1'-0"



NOTES:

1. WHERE SPANS BETWEEN UN-BRACED WALL SECTIONS MAY EXCEED 20'-0" PLEASE CONTACT AE URBIA

A2 / A512 **DIAGONAL BRACE DETAIL**
1 1/2" = 1'-0"

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LICENSED ARCHITECT 174600 JAMES MICHAEL STATE OF UTAH
6/2/2025 5:37:19 PM

SENSAPURE TI

4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

INTERIOR DETAILS

DATE: **PROJECT ISSUE DATE**

SHEET #:

A512

PROJECT STATUS

6/2/2025 5:37:19 PM

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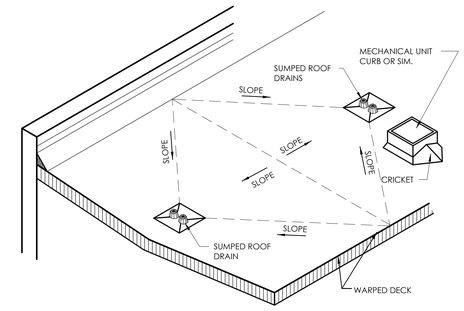
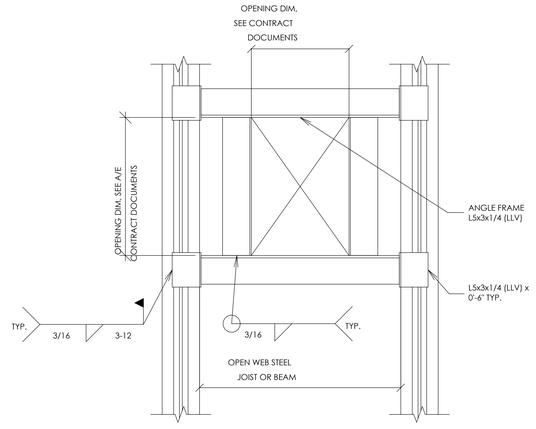
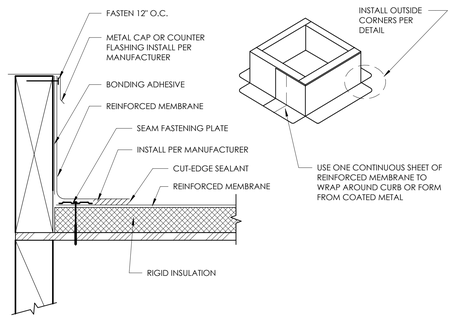


B3 A521 **CRICKET DETAIL**
N.T.S

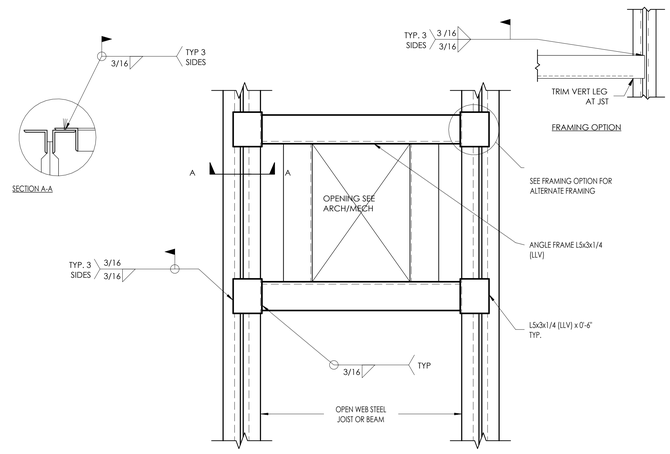


NOTE: ROOF DECK WELD TO ANGLE FRAME.

B2 A521 **TYPICAL ROOF OPENING DETAIL**
1 1/2" = 1'-0"



A3 A521 **CURB FLASHING**
1" = 1'-0"



NOTES:
1. SEE DETAIL 6/S701 FOR OPENINGS LESS THAN 12" IN DIAMETER
2. SEE TYPICAL ROOF TOP MECHANICAL UNIT SUPPORT DETAIL FOR FRAMES UNDER MECHANICAL UNITS
3. ROOF DECK SHALL BE WELDED TO ANGLE FRAMING.

A2 A521 **TYPICAL ROOF TOP MECHANICAL UNIT SUPPORT DETAIL**
1 1/2" = 1'-0"

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LICENSED ARCHITECT 174600 JAMES MICHAEL STATE OF UTAH
6/2/2025 5:37:19 PM

SENSAPURE TI
4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387
ROOF DETAILS

PROJECT STATUS
DATE: PROJECT ISSUE DATE
SHEET #:
A521

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6/2/2025 5:37:21 PM

Hardware Group No. 01
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR	
3 EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE	
1 EA	PANIC HARDWARE	25-R-NL	626	FAL	
1 EA	MORTISE CYLINDER	AS REQUIRED VERIFY KEWAY	626	SCH	
1 EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	630	VON	✓
1 EA	SURFACE CLOSER	SC71A SS	689	FAL	
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE	
1 EA	RAIN DRIP	142AA	AA	ZER	
1 EA	GASKETING	429AA-S	AA	ZER	
1 EA	DOOR SWEEP	39A	A	ZER	
1 EA	THRESHOLD	VERIFY SILL CONDITION	A	ZER	
1 EA	WIRE HARNESS	CON-XX AS REQUIRED			✓
1 EA	CARD READER	BY SECURITY CONTRACTOR			✓
1 EA	DOOR CONTACT	7764 / 679-05 AS REQUIRED			✓
1 EA	POWER SUPPLY	BY SECURITY CONTRACTOR			✓

DOOR IS NORMALLY LOCKED, RESTRICTING ENTRY.
AUTHORIZED CREDENTIAL AT CARD READER MOMENTARILY RELEASES ELECTRIC STRIKE TO ALLOW ENTRY OR BY KEY.
TOUCHBAR ALWAYS ALLOWS EGRESS.

Hardware Group No. 02
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1 EA	PASSAGE SET	1101 DAN	626	FAL
1 EA	SURFACE CLOSER	SC71A REG OR PA AS REQ	689	FAL
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1 EA	WALL STOP	WS406/407CCV	630	IVE
3 EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 03
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1 EA	PASSAGE SET	1101 DAN	626	FAL
1 EA	SURFACE CLOSER	SC71A SS	689	FAL
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1 EA	WALL STOP	WS406/407CCV	630	IVE
3 EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 04
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1 EA	PUSH/PULL	9190HD-10"	630	IVE
1 EA	WALL STOP	WS406/407CCV	630	IVE
3 EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 05
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR	
3 EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE	
1 EA	STOREROOM LOCK	7581P6 DAN	626	FAL	
1 EA	RIM CYLINDER	AS REQUIRED VERIFY KEWAY	626	SCH	
1 EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	630	VON	✓
1 EA	LOCK GUARD	LG12	630	IVE	
1 EA	SURFACE CLOSER	SC71A SS	689	FAL	
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE	
1 EA	RAIN DRIP	142AA	AA	ZER	
1 EA	GASKETING	429AA-S	AA	ZER	
1 EA	DOOR SWEEP	39A	A	ZER	
1 EA	THRESHOLD	VERIFY SILL CONDITION	A	ZER	
1 EA	WIRE HARNESS	CON-XX AS REQUIRED			✓
1 EA	CARD READER	BY SECURITY CONTRACTOR			✓
1 EA	DOOR CONTACT	7764 / 679-05 AS REQUIRED			✓
1 EA	POWER SUPPLY	BY SECURITY CONTRACTOR			✓

PROVIDE A SIGN INDICATING "FIRE RISER" 4" MIN HEIGHT W/1/4" MIN STROKE WIDTH, RED LETTERS ON WHITE REFLECTIVE BACKGROUND. PROVIDE A SIGN INDICATING "FIRE ALARM PANEL" 4" MIN HEIGHT W/1/4" MIN STROKE WIDTH, RED LETTERS ON WHITE REFLECTIVE BACKGROUND. PROVIDE A SIGN INDICATING "FIRE PUMP ROOM" 4" MIN HEIGHT W/1/4" MIN STROKE WIDTH, RED LETTERS ON WHITE REFLECTIVE BACKGROUND.

Hardware Group No. 06
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2 EA	HINGE	SR2S, AMR209, 1NT703	BSS	CRL
2 EA	PUSH/PULL	1101 DAN, LAT34LP368S	BSS	CRL
1 EA	CONCEALED CLOSER	CRL9760, DCH48SS	BSS	CRL

Hardware Group No. 07
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR	
2 EA	HINGE	SR2S, AMR209, 1NT703	BSS	CRL	
2 EA	PUSH/PULL	1101 DAN, LAT34LP368S	BSS	CRL	
1 EA	CONCEALED CLOSER	CRL9760, DCH48SS	BSS	CRL	
1 EA	MAG LOK	M420	626	SCH	✓
1 EA	POWER SUPPLY	AMOCAM K80			✓
1 EA	MOTION SENSOR				✓

Hardware Group No. 08
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR	
3 EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE	
1 EA	STOREROOM LOCK	7581P6 DAN	626	FAL	
1 EA	ELECTRIC STRIKE	6211 FSE 12/16/24/28 VAC/VDC	630	VON	✓
1 EA	SURFACE CLOSER	SC71A REG OR PA AS REQ	689	FAL	
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE	
1 EA	WALL STOP	WS406/407CCV	630	IVE	
3 EA	SILENCER	SR64	GRY	IVE	
1 EA	WIRE HARNESS	CON-XX AS REQUIRED			✓
1 EA	CARD READER	BY SECURITY CONTRACTOR			✓
1 EA	POWER SUPPLY	BY SECURITY CONTRACTOR			✓

DOOR IS NORMALLY LOCKED, RESTRICTING ENTRY.
AUTHORIZED CREDENTIAL AT CARD READER MOMENTARILY RELEASES ELECTRIC STRIKE TO ALLOW ENTRY OR BY KEY.
ALWAYS ALLOWS EGRESS.

Hardware Group No. 09
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1 EA	ENTRY / OFFICE LOCK	7511P6 DAN	626	FAL
1 EA	SURFACE CLOSER	SC71A HDPA	689	FAL
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1 EA	WALL STOP	WS406/407CCV	630	IVE
3 EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 10
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1 EA	PANIC HARDWARE	25-R-L-DANE	626	FAL
1 EA	MORTISE CYLINDER	AS REQUIRED VERIFY KEWAY	626	SCH
1 EA	SURFACE CLOSER	SC71A SS	689	FAL
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
3 EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 11
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1 EA	STOREROOM LOCK	7581P6 DAN	626	FAL
1 EA	SURFACE CLOSER	SC71A REG OR PA AS REQ	689	FAL
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1 EA	WALL STOP	WS406/407CCV	630	IVE
3 EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 12
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1 4.5 X 4.5 NRP	629	IVE
1 EA	PASSAGE	7000-713-PS-SSS	629	SCH
1 EA	SURFACE CLOSER	SC70A	689	FAL
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1 EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 14
Provide each PR door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6 EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
2 EA	MANUAL FLUSH BOLT	FB358 / FB458 AS REQUIRED BY DOOR MATERIAL	626	IVE
1 EA	DUST PROOF STRIKE	DP2	BLK	IVE
1 EA	PANIC HARDWARE	25-R-L-DANE	626	FAL
1 EA	OH STOP	90S	630	GLY
1 EA	SURFACE CLOSER	SC71A SS	689	FAL
2 EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1 EA	RAIN DRIP	142AA	AA	ZER
1 EA	GASKETING	429AA-S	AA	ZER
2 EA	DOOR SWEEP	39A	A	ZER
2 EA	MEETING STILE	8194AA	AA	ZER
1 EA	THRESHOLD	VERIFY SILL CONDITION	A	ZER

Hardware Group No. 15
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1 EA	PRIVACY LOCK	MA311 OCCUPIED/VACANT DGM	626	FAL
1 EA	SURFACE CLOSER	SC71A REG OR PA AS REQ	689	FAL
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1 EA	WALL STOP	WS406/407CCV	630	IVE
3 EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 16
Provide each PR door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6 EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
2 EA	MANUAL FLUSH BOLT	FB358 / FB458 AS REQUIRED BY DOOR MATERIAL	626	IVE
1 EA	DUST PROOF STRIKE	DP2	BLK	IVE
1 EA	STOREROOM LOCK	7581P6 DAN	626	FAL
2 EA	SURFACE CLOSER	SC71A HDPA	689	FAL
2 EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
2 EA	WALL STOP	WS406/407CCV	630	IVE

MANUAL FLUSH BOLTS TO BE INSTALLED IN THE TOP AND BOTTOM OF THE INACTIVE LEAF. INACTIVE LEAF TO HAVE INSTALLED THE STRIKE FOR THE STORE ROOM LOCK. STOREROOM LOCK TO BE INSTALLED IN THE ACTIVE LEAF.

Hardware Group No. 17
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR	
3 EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE	
1 EA	ASYLUM LOCK	7411P6 DAN	626	FAL	
1 EA	ELECTRIC STRIKE	6211 FSE 12/16/24/28 VAC/VDC	630	VON	✓
1 EA	SURFACE CLOSER	SC71A SS	689	FAL	
1 EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE	
1 EA	RAIN DRIP	142AA	AA	ZER	
1 EA	GASKETING	429AA-S	AA	ZER	
1 EA	DOOR SWEEP	39A	A	ZER	
1 EA	THRESHOLD	VERIFY SILL CONDITION	A	ZER	
1 EA	WIRE HARNESS	CON-XX AS REQUIRED			✓
2 EA	CARD READER	BY SECURITY CONTRACTOR			✓
1 EA	DOOR CONTACT	7764 / 679-05 AS REQUIRED			✓
1 EA	POWER SUPPLY	BY SECURITY CONTRACTOR			✓

DOOR IS NORMALLY LOCKED.
AUTHORIZED CREDENTIAL AT CARD READER MOMENTARILY RELEASES ELECTRIC STRIKE TO ALLOW ENTRY OR BY KEY.

Hardware Group No. 18
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2 EA	TOP AND BOTTOM RAIL	SR2 SBSRSL W/1NT703 INSERT	MFR	CRL
1 EA	FLOOR PIVOT	INT403		
1 EA	CONCEALED CLOSER	CRL877OGE	MFR	CRL
1 EA	EXPOSED HEADER	DCH48S	BSS	CRL
2 EA	PULL	48LPBS	BSS	CRL

Hardware Group No. AL01
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR	
1 EA	CONT. HINGE	112XY	US28	IVE	
1 EA	PANIC HARDWARE	24-R-C-718	626	FAL	
1 EA	MORTISE CYLINDER	AS REQUIRED VERIFY KEWAY	626	SCH	
1 EA	LONG DOOR PULL	9264F 36" 20" STD	630-316	IVE	
1 EA	OH STOP	100S ADJ	630	GLY	
1 EA	SURFACE CLOSER	SC71A HDPA	689	FAL	✓
1 EA	TOP RAIL DROP PLATE	SC70-18PA	689	FAL	
1 EA	CUSH SHOE SUPPORT	SC70A-30	689	FAL	
1 EA	BLADE STOP SPACER	SC70A-61	689	FAL	
1 EA	DOOR SWEEP	39A	A	ZER	
1 EA	THRESHOLD	VERIFY SILL CONDITION	A	ZER	
1	DOOR CONTACT	7764 / 679-05 AS REQUIRED			
1	BY DOOR / FRAME MANUFACTURER	SEALS			

DOOR IS NORMALLY LOCKED, RESTRICTING ENTRY.
TOUCHBAR ALWAYS ALLOWS EGRESS.

Hardware Group No. AL02
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR	
1 EA	CONT. HINGE	112XY	US28	IVE	
1 EA	PANIC HARDWARE	24-R-C-718	626	FAL	
1 EA	MORTISE CYLINDER	AS REQUIRED VERIFY KEWAY	626	SCH	
1 EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	630	VON	✓
1 EA	LONG DOOR PULL	9264F 36" 20" STD	630-316	IVE	
1 EA	OH STOP	100S ADJ	630	GLY	
1 EA	SURFACE CLOSER	SC71A HDPA	689	FAL	
1 EA	TOP RAIL DROP PLATE	SC70-18PA	689	FAL	
1 EA	CUSH SHOE SUPPORT	SC70A-30	689	FAL	
1 EA	BLADE STOP SPACER	SC70A-61	689	FAL	
1 EA	WIRE HARNESS	CON-XX AS REQUIRED			✓
1 EA	CARD READER	BY SECURITY CONTRACTOR			✓
1 EA	REMOTE RELEASE	BY SECURITY CONTRACTOR			✓
1 EA	DOOR CONTACT	7764 / 679-05 AS REQUIRED			✓
1 EA	POWER SUPPLY	BY SECURITY CONTRACTOR			✓
1	BY DOOR / FRAME MANUFACTURER	SEALS			

DOOR IS NORMALLY LOCKED, RESTRICTING ENTRY.
AUTHORIZED CREDENTIAL AT CARD READER MOMENTARILY RELEASES ELECTRIC STRIKE TO ALLOW ENTRY OR BY KEY.
TOUCHBAR ALWAYS ALLOWS EGRESS.
ENTRY RELEASE SYSTEM WIRED TO RECEPTION DESK TO ALLOW RECEPTIONIST TO UNLOCK DOOR.

Hardware Group No. AL03
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1 EA	HINGE	5BBI 4.5X4.5	652	IVE
1 EA	PUSH/PULL BAR	9190HD-10"	630	
1 EA	SURFACE CLOSER	SC71A HDPA	689	FAL
1 EA	WALL STOP	WS406/407CCV	630	IVE

Hardware Group No. AL04
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1 EA	CONT. HINGE	112XY	US28	IVE
1 EA	DEADBOLT	MS1850S	628	ADA
1 EA	MORTISE ADA CYL TURN	AS REQUIRED	626	SCH
1 EA	MORTISE CYLINDER	AS REQUIRED VERIFY KEWAY	626	SCH
1 EA	PUSH/PULL BAR	9190HD-10"	630	IVE
1 EA	WALL STOP	WS406/407CCV	630	IVE
1	BY DOOR / FRAME MANUFACTURER	SEALS		

Hardware Group No. AL05
Provide each SGL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1 EA	CONT. HINGE	112XY	US28	IVE
1 EA	PUSH/PULL BAR	9190HD-10"	630	IVE
1 EA	SURFACE CLOSER	SC71A SS	689	FAL
1 EA	MOUNTING PLATE	SC70A-18PA	689	FAL
1 EA	CUSH SHOE SUPPORT	SC70A-30	689	FAL
1 EA	BLADE STOP SPACER	SC70A-61	689	FAL
1 EA	WALL STOP	WS406/407CCV	630	IVE
1	BY DOOR / FRAME MANUFACTURER	SEALS		

Hardware Group No. OH01
Provide each RU door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1 EA	HIGH SPEED ROLL UP	G2 5400 2" TRACK	WHITE	GOFF
1 EA	OPERATOR	RSX 1/2HP, CHAIN HOIST,	MFR	GOFF
2 EA	PHOTOEYE			
1 EA	STRUCT. SUPPORT FRAME	40808	ALUM	GOFF
1 EA	WAVE TO ENTER SENSOR			

DOOR SCHEDULES

MARK	DOOR WIDTH	DOOR HEIGHT	DOOR THICKNESS	DOOR PANEL MATERIAL	DOOR TYPE	FRAME MATERIAL	HARDWARE TYPE	FOOTNOTES
101.1	3' - 0"	7' - 0"	0' - 1 3/4"	SS	C	SS	NO.10	
106.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	C	HM	NO.10	
106.2	6' - 0"	7' - 0"	0' - 2"	EXIST	EXIST	EXIST		MODIFY FOR MAG LOCKS
107.1	3' - 0"	7' - 0"	0' - 1 3/4"	SS	B	SS	NO.12	
107.2	8' - 0"	8' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	A
107.3	8' - 0"	8' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	
108.1	3' - 0"	7' - 0"	0' - 1 3/4"	SS	B	SS	NO.18	
108.2	10' - 0"	10' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	A
108.3	8' - 0"	8' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	
109.1	3' - 0"	7' - 0"	0' - 1 3/4"	SS	B	SS	NO.18	
109.2	12' - 0"	12' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	A
109.3	8' - 0"	8' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	
110.1	3' - 0"	7' - 0"	0' - 1 3/4"	SS	B	SS	NO.12	
110.2	12' - 0"	12' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	A
110.3	8' - 0"	8' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	
111.1	8' - 0"	8' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	
112.1	3' - 0"	7' - 0"	0' - 1 3/4"	SS	B	SS	NO.12	
112.2	3' - 0"	7' - 0"	0' - 1 3/4"	SS	B	SS	NO.10	
113.1	3' - 0"	7' - 0"	0' - 1 3/4"	SS	C	SS	NO.09	
113.2	3' - 0"	7' - 0"	0' - 1 3/4"	SS	C	SS	NO.11	
115.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	C	HM	NO.08	
116.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.O4	
116.2	2' - 6"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.15	
116.3	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.15	
117.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.11	
118.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.O4	
118.2	2' - 6"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.15	
118.3	2' - 6"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.15	
118.4	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.15	
119.1	3' - 0"	7' - 0"	0' - 1 3/4"	SS	B	SS	NO.12	
119.2	12' - 0"	12' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	A
119.3	8' - 0"	8' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	
120.1	10' - 0"	10' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	
120.2	3' - 0"	7' - 0"	0' - 1 3/4"	SS	B	SS	NO.12	
121.1	3' - 0"	7' - 11"	0' - 0 3/4"	SS	A	SS	NO.12	
121.2	3' - 0"	7' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.12	
122.1	3' - 0"	7' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.12	
123.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.O4	
123.2	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.15	
124.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.O4	
124.2	2' - 6"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.15	
124.3	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.15	
125.1	3' - 0"	6' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
126.1	3' - 0"	6' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
127.1	3' - 0"	6' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
128.1	3' - 0"	6' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
129.1	3' - 0"	6' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
130.1	3' - 0"	6' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
131.1	3' - 0"	6' - 10"	0' - 0 3/4"	GLASS	A	SS	NO.18	
132.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.10	
133.1	3' - 0"	6' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
134.1	3' - 3"	6' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
135.1	3' - 0"	6' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
137.1	3' - 0"	7' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
138.1	3' - 0"	7' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
138.2	3' - 0"	7' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
138.3	3' - 0"	7' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
139.1	3' - 0"	7' - 11"	0' - 0 3/4"	GLASS	A	SS	NO.18	
141.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.11	
143.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.15	
145.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.09	
145.2	10' - 0"	10' - 0"	0' - 2"	INSULATED PANEL	D	HM	OH1	
146.1	3' - 0"	7' - 0"	0' - 1 3/4"	HMI	B	HM	NO.11	

WINDOW FRAMES AND GLAZING:

= STAINLESS STEEL FINISH ON GLAZING FRAME

= GLAZING(OR APPROVED EQUAL) (AS PER COMCHECK, SEE MECH)

= FROSTED GLAZING(OR APPROVED EQUAL) (AS PER COMCHECK, SEE MECH)

NOTES
1. CONTRACTOR TO PROVIDE SUBMITTALS FOR APPROVAL.
2. ALL GLAZING WITHIN 24" INCH OF A DOOR/FLOOR SHALL BE TEMPERED.
3. SEE SHEET A611FOR WINDOW HEADER, JAMB AND SILL DETAILS.
4. ALL EXTERIOR GLASS TO BE DOUBLE PANE TINTED AND TO BE LOW 'E'. VERIFY GLASS SPECIFICATIONS WITH COM-CHECK PROVIDED BY MECHANICAL ENGINEER.
5. REFER TO MECHANICAL COMCHECK FOR MINUMUM DESIGN STANDARDS FOR GLAZING.
6. ALL ALUMINUM STOREFRONT / CURTAIN WALL WINDOW FRAMES TO BE DARK BRONZED ANODIZED.

GLAZING LEGEND

1. 1/2" TEMPERED GLASS
2. 1/2" FROSTED - TEMPERED GLASS
3. 1/4" SINGLE PANE CLEAR GLAZING

GLAZING NOTES
1. ALL ALUMINUM FRAMES TO BE BRUSHED STAINLESS STEEL

DOOR PANEL NOTES:

WOOD - WOOD DOORS: PLAIN SLICED WHITE MAPLE WITH MAPLE EDGES, PRE-FINISHED TO CLEARFINISH, CLEAR-500, LD 2 PARTICALE BOARD CORE (MINERAL CORE AS REQUIRED BY FIRE RATING), PREMIUM GRADE A, FIVE PLY WITH MATCHING EDGES MANUFACTURERS LIFE-TIME WARRANY.
HME - HOLLOW METAL EXTERIOR: 16 GAUGE GALVANIZED DOORS WITH SEALED TOP CAPS AND 16 GAUGE GALVANIZED WELDED FRAMES, ALL PRIME PAINTED.
HMI - HOLLOW METAL INTERIOR: 18 GAUGE DOORS AND 16 GAUGE WELDED FRAMES, ALL PRIME PAINTED.
HM - ALL HOLLOW METAL FRAMES: TO BE PAINTED "FIRE STEEL" DURON 8794M, SEMI GLOSS.

DOOR HARDWARE NOTES:

HINGES: BALL BEARING HINGES THROUGHOUT, STAINLESS STEEL AT EXTERIOR.
LOCKS: GRADE 1, SERIES 4000 SCHLAGE ND SERIES OR ALL LOCKS TO BE MASTERKEYED, GRANDMASTER KEYED PER OWNERS REQUIREMENTS, ALL LOCKS NEED TO BE "PUSH AND TWIST." NOT JUST "PUSH"
CLOSERS: GRADE 1 EQUAL TO LCN 4000 SERIES OR STANLEY EQUAL.
THRESHOLDS, DRIP CAPS, SWEEPS AND WEATHER STRIP: PEMKO OR NATIONAL GUARD
DOOR STOPS: EACH DOOR WITH A CLOSER NEEDS A HEAVY DUTY DOOR STOP OVERHEAD.
EGRESS DOORS: EACH EGRESS DOOR EXCEPT THE MAIN EXTERIOR FRONT ENTRANCE NEEDS TO HAVE A PANIC PUSH BAR.

KEYING TYPE

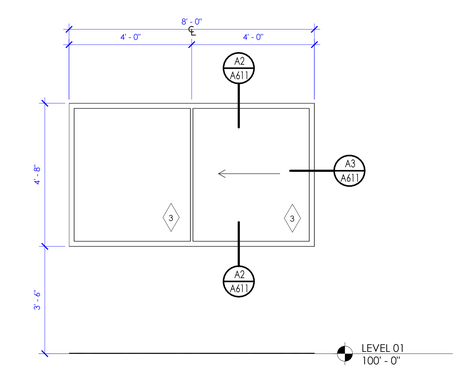
PVCY	=	PRIVACY LOCKS
KEY	=	KEYED LOCK
TB	=	THUMB BOLT
CR	=	CARD READER
MG	=	MAGNETIC LOCK
ES	=	ELECTRIC STRICK
KOTB	=	KEY OUTSIDE, THUMB TURN INSIDE
TBMK	=	DEADBOLTS, MARKED LOCKED/UNLOCKED
LO	=	LOCK SET KEYED OUTSIDE
DBK	=	DEADBOLT KEYED BOTH SIDES
KOPB	=	KEY OUTSIDE, PANIC PUSH BAR INSIDE

GENERAL NOTES:

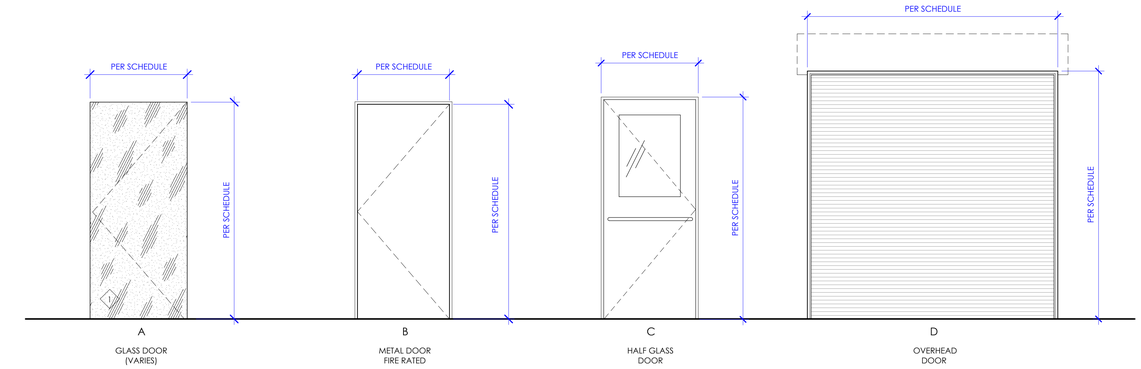
1. ALL DOOR HARDWARE TO BE LEVEL TYP MECHANISMS.
2. EXIT DOORS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
3. MASTER KEY ALL LOCKSETS WITH IC-CORES.
4. MANUAL FLUSH BOLTS FOR THE DOUBLE DOORS ARE ONLY ALLOWED IN THE INACTIVE DOOR ACCESSING MECHANICAL AND STORAGE ROOMS.
5. PROVIDE DOOR STOPS OR BUMPERS AT ALL DOOR LOCATIONS WHERE DOOR COMES IN CONTACT WITH ADJACENT WALL. COORDINATE TYPE AND PLACEMENT WITH OWNER.
6. ALL ALUMINUM FRAMES TO BE KAWNEER METAL FRAMES OR EQUAL.
7. ALL KNOCK-DOWN & WELD FRAMES TO BE PAINT GRADE.
8. ALL FIRE RATED DOORS AND ASSEMBLIES SHALL BE LABELED BY AN APPROVED TESTING LABRATORY INDICATING THE RATING OF THE DOOR.

FOOTNOTES:

A. CONTROLS ON BOTH SIDES OF DOOR



83 / A601 **QC LAB WINDOW**
1/2" = 1'-0"



DOOR TYPE ELEVATIONS
1/2" = 1'-0"

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4170 W 2100 N, LEHI

MARK	DESCRIPTION	Revision Date
	Revision Schedule	

AE2024.387

DOOR SCHEDULES

DATE: PROJECT ISSUE DATE

SHEET #:

A601

PROJECT STATUS

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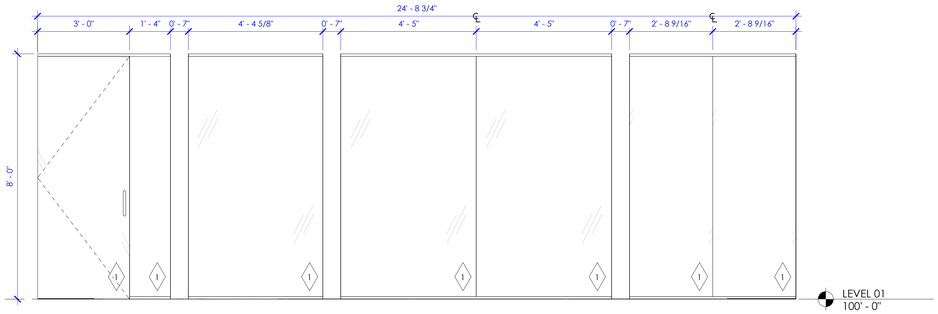
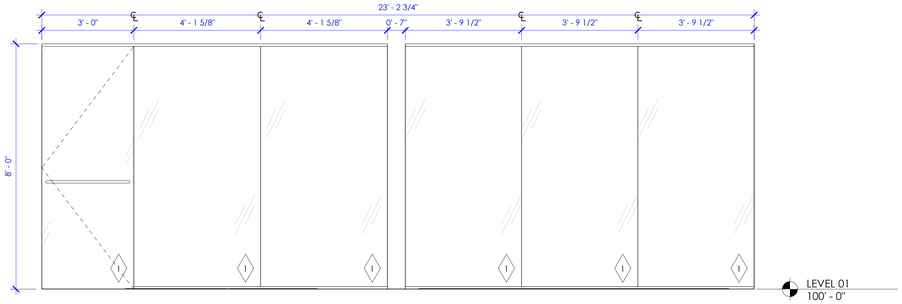
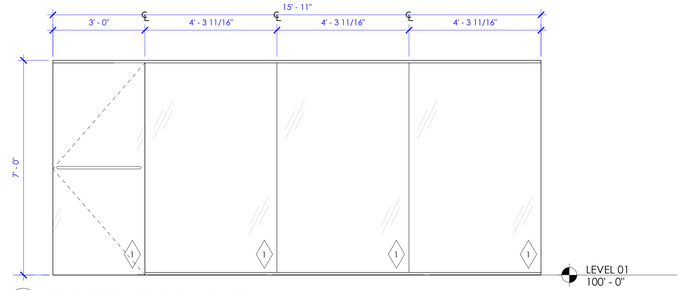


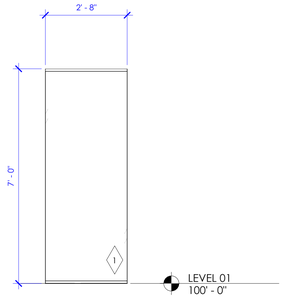
D5 A602 RECEPTION GLAZING
1/2" = 1'-0"



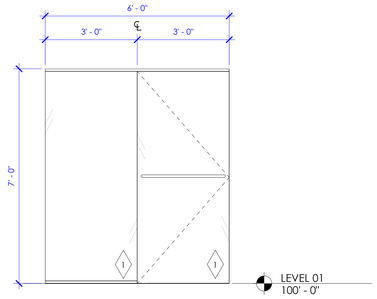
D3 A602 CONFERENCE 1A GLAZING
1/2" = 1'-0"



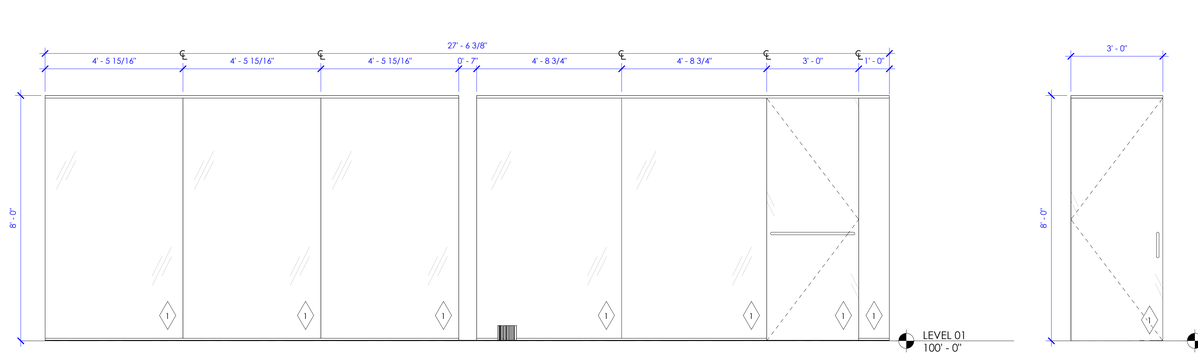
C5 A602 CONFERENCE 2 GLAZING 1
1/2" = 1'-0"



C4 A602 CONFERENCE 2 GLAZING 2
1/2" = 1'-0"

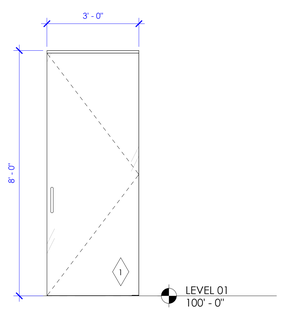


C2 A602 OFFICE GLAZING
1/2" = 1'-0"

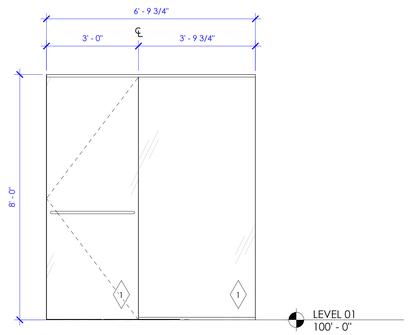


B5 A602 TASTING ROOM GLAZING
1/2" = 1'-0"

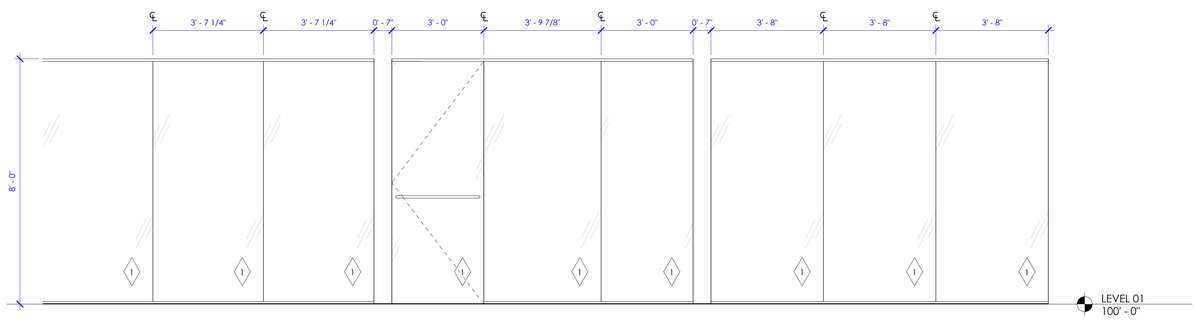
B3 A602 TASTING DOOR 1 GLAZING
1/2" = 1'-0"



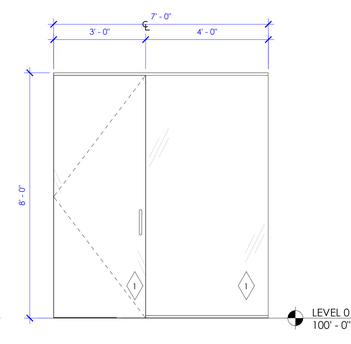
B2 A602 TASTING DOOR 2 GLAZING
1/2" = 1'-0"



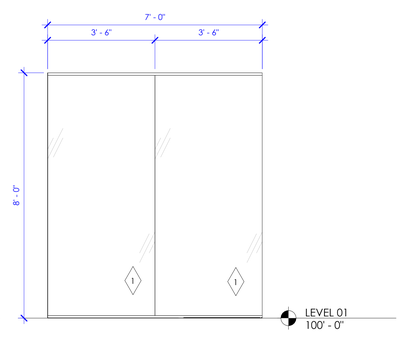
B1 A602 CUBICLE GLAZING
1/2" = 1'-0"



A5 A602 LAB GLAZING
1/2" = 1'-0"



A3 A602 CONFERENCE 1B GLAZING
1/2" = 1'-0"



A2 A602 CONFERENCE 1C GLAZING
1/2" = 1'-0"

TEMPERED GLAZING NOTES:

HUMAN IMPACT LOADS. INDIVIDUAL GLAZED AREAS, INCLUDING GLASS MIRRORS, IN HAZARDOUS LOCATIONS AS DEFINED BELOW SHALL COMPLY WITH SECTIONS 2406.1.1 THROUGH 2406.1.5 OF THE IBC(INTERNATIONAL BUILDING CODE).

IDENTIFICATION OF SAFETY GLAZING. EACH PANE OF SAFETY GLAZING INSTALLED IN HAZARDOUS LOCATIONS SHALL BE IDENTIFIED BY A LABEL SPECIFYING THE LABELER, WHETHER THE MANUFACTURER OR INSTALLER, AND THE SAFETY GLAZING STANDARD WITH WHICH IT COMPLIES, AS WELL AS THE INFORMATION SPECIFIED IN SECTION 2403.1 OF THE IBC(INTERNATIONAL BUILDING CODE). THE LABEL SHALL BE ACID ETCHED, SAND BLASTED, CERAMIC FIRED OR AN EMBOSSED MARK, OR SHALL BE OF A TYPE THAT ONCE APPLIED CANNOT BE REMOVED WITHOUT BEING DESTROYED.
EXCEPTIONS:
1. FOR OTHER THAN TEMPERED GLASS, LABELS ARE NOT REQUIRED, PROVIDED THE BUILDING OFFICIAL APPROVES THE USE OF A CERTIFICATE, AFFIDAVIT OR OTHER EVIDENCE CONFIRMING COMPLIANCE WITH THIS CODE.
2. TEMPERED SPANDREL GLASS IS PERMITTED TO BE IDENTIFIED BY THE MANUFACTURER WITH A REMOVABLE PAPER LABEL.

HAZARDOUS LOCATIONS. THE FOLLOWING SHALL BE CONSIDERED SPECIFIC HAZARDOUS LOCATIONS REQUIRING SAFETY GLAZING MATERIALS:
1. GLAZING IN SWINGING DOORS.
2. GLAZING IN FIXED AND SLIDING PANELS OF SLIDING DOOR ASSEMBLIES AND PANELS IN SLIDING AND BIFOLD CLOSET DOOR ASSEMBLIES.
3. GLAZING IN STORM DOORS.
4. GLAZING IN UNFRAMED SWINGING DOORS.
5. GLAZING IN DOORS AND ENCLOSURES FOR HOT TUBS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS AND SHOWERS. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING THESE COMPARTMENTS WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES (1524 MM) ABOVE A STANDING SURFACE.
6. GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR WHERE THE NEAREST EXPOSED EDGE OF THE GLAZING IS WITHIN A 24-INCH (610 MM) ARC OF EITHER VERTICAL EDGE OF THE DOOR IN A CLOSED POSITION AND WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES (1524 MM) ABOVE THE WALKING SURFACE.
EXCEPTIONS:
1. PANELS WHERE THERE IS AN INTERVENING WALL OR OTHER PERMANENT BARRIER BETWEEN THE DOOR AND GLAZING.
2. WHERE ACCESS THROUGH THE DOOR IS TO A CLOSET OR STORAGE AREA 3 FEET (914 MM) OR LESS IN DEPTH. GLAZING IN THIS APPLICATION SHALL COMPLY WITH SECTION 2406.3, ITEM 7.
3. GLAZING IN WALLS PERPENDICULAR TO THE PLANE OF THE DOOR IN A CLOSED POSITION. OTHER THAN THE WALL TOWARDS WHICH THE DOOR SWINGS WHEN OPENED, IN ONE- AND TWO- FAMILY DWELLINGS OR WITHIN DWELLING UNITS IN GROUP R-2.
7. GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL, OTHER THAN IN THOSE LOCATIONS DESCRIBED IN PRECEDING ITEMS 5 AND 6, WHICH MEETS ALL OF THE FOLLOWING CONDITIONS:
7.1. EXPOSED AREA OF AN INDIVIDUAL PANE GREATER THAN 9 SQUARE FEET (0.84 M2);
7.2. EXPOSED BOTTOM EDGE LESS THAN 18 INCHES (457 MM) ABOVE THE FLOOR;
7.3. EXPOSED TOP EDGE GREATER THAN 36 INCHES (914 MM) ABOVE THE FLOOR; AND
7.4. ONE OR MORE WALKING SURFACE(S) WITHIN 36 INCHES (914 MM) HORIZONTALLY OF THE PLANE OF THE GLAZING.
EXCEPTION: SAFETY GLAZING FOR ITEM 7 IS NOT REQUIRED FOR THE FOLLOWING INSTALLATIONS:
1. A PROTECTIVE BAR 1-1/2 INCHES (38 MM) OR MORE IN HEIGHT, CAPABLE OF WITHSTANDING A HORIZONTAL LOAD OF 50 POUNDS PLF (730 N/M) WITHOUT CONTACTING THE GLASS, IS INSTALLED ON THE ACCESSIBLE SIDES OF THE GLAZING 34 INCHES TO 38 INCHES (864 MM TO 965 MM) ABOVE THE FLOOR.
2. THE OUTBOARD PANE IN INSULATING GLASS UNITS OR MULTIPLE GLAZING WHERE THE BOTTOM EXPOSED EDGE OF THE GLASS IS 25 FEET (7620 MM) OR MORE ABOVE ANY GRADE, ROOF, WALKING SURFACE OR OTHER HORIZONTAL OR SLOPED (WITHIN 45 DEGREES OF HORIZONTAL) (0.78 RAD) SURFACE ADJACENT TO THE GLASS EXTERIOR.
8. GLAZING IN GUARDS AND RAILINGS, INCLUDING STRUCTURAL BALUSTER PANELS AND NONSTRUCTURAL IN-FILL PANELS, REGARDLESS OF AREA OR HEIGHT ABOVE A WALKING SURFACE - MUST ALSO BE LAMINATED PER IBC 2407.
9. GLAZING IN WALLS AND FENCES ENCLOSING INDOOR AND OUTDOOR SWIMMING POOLS, HOT TUBS AND SPAS WHERE ALL OF THE FOLLOWING CONDITIONS ARE PRESENT:
9.1. THE BOTTOM EDGE OF THE GLAZING ON THE POOL OR SPA SIDE IS LESS THAN 60 INCHES (1524 MM) ABOVE A WALKING SURFACE ON THE POOL OR SPA SIDE OF THE GLAZING; AND
9.2. THE GLAZING IS WITHIN 60 INCHES (1524 MM) HORIZONTALLY OF THE WATER'S EDGE OF A SWIMMING POOL OR SPA.
10. GLAZING ADJACENT TO STAIRWAYS, LANDINGS AND RAMPS WITHIN 36 INCHES (914 MM) HORIZONTALLY OF A WALKING SURFACE; WHEN THE EXPOSED SURFACE OF THE GLASS IS LESS THAN 60 INCHES (1524 MM) ABOVE THE PLANE OF THE ADJACENT WALKING SURFACE - MUST ALSO BE LAMINATED PER IBC 2407.
11. GLAZING ADJACENT TO STAIRWAYS WITHIN 60 INCHES (1524 MM) HORIZONTALLY OF THE BOTTOM TREAD OF A STAIRWAY IN ANY DIRECTION WHEN THE EXPOSED SURFACE OF THE GLASS IS LESS THAN 60 INCHES (1524 MM) ABOVE THE NOSE OF THE TREAD - MUST ALSO BE LAMINATED PER IBC 2407.
EXCEPTION: SAFETY GLAZING FOR ITEM 10 OR 11 IS NOT REQUIRED FOR THE FOLLOWING INSTALLATIONS WHERE:
1. THE SIDE OF A STAIRWAY, LANDING OR RAMP WHICH HAS A GUARDRAIL OR HANDRAIL, INCLUDING BALUSTERS OR IN-FILL PANELS, COMPLYING WITH THE PROVISIONS OF SECTIONS 1012 AND 1607.7; AND
2. THE PLANE OF THE GLASS IS GREATER THAN 18 INCHES (457 MM) FROM THE RAILING.

WINDOW FRAMES AND GLAZING:

= STAINLESS STEEL FINISH ON GLAZING FRAME

= GLAZING(OR APPROVED EQUAL) (AS PER COMCHECK, SEE MECH)

= FROSTED GLAZING(OR APPROVED EQUAL) (AS PER COMCHECK, SEE MECH)

NOTES
1. CONTRACTOR TO PROVIDE SUBMITTALS FOR APPROVAL.
2. ALL GLAZING WITHIN 24" INCH OF A DOOR/FLOOR SHALL BE TEMPERED.
3. SEE SHEET A611FOR WINDOW HEADER, JAMB AND SILL DETAILS.
4. ALL EXTERIOR GLASS TO BE DOUBLE PANE TINTED AND TO BE LOW 'E'. VERIFY GLASS SPECIFICATIONS WITH COM-CHECK PROVIDED BY MECHANICAL ENGINEER.
5. REFER TO MECHANICAL COMCHECK FOR MINUMUM DESIGN STANDARDS FOR GLAZING.
6. ALL ALUMINIUM STOREFRONT / CURTAIN WALL WINDOW FRAMES TO BE DARK BRONZED ANODIZED.

GLAZING LEGEND

1 — 1/2" TEMPERED GLASS

2 — 1/2" FROSTED - TEMPERED GLASS

3 — 1/4" SINGLE PANE CLEAR GLAZING

GLAZING NOTES
1. ALL ALUMINUM FRAMES TO BE BRUSHED STAINLESS STEEL

PROJECT STATUS

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4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

GLAZING ELEVATIONS

DATE: PROJECT ISSUE DATE

SHEET #:

A602

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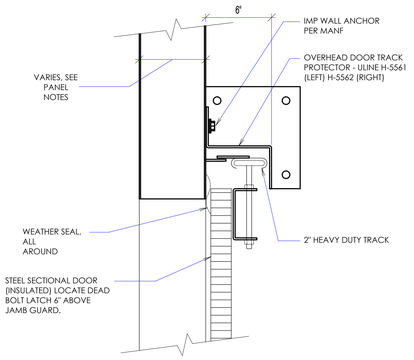
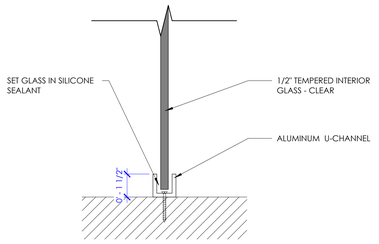
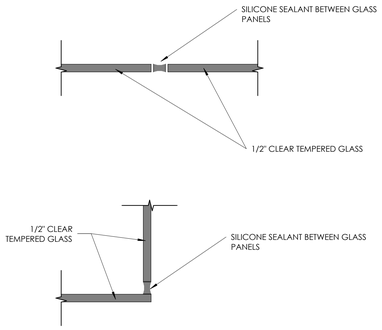


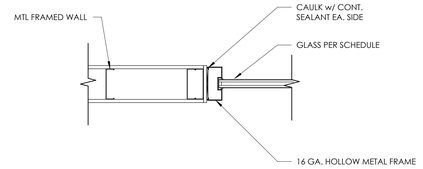
C5 / A611 JAMB AT SECTIONAL DOOR
1" = 1'-0"



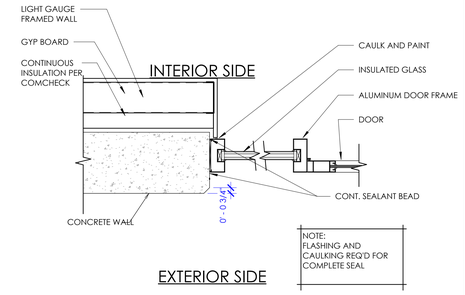
C4 / A611 BUTT-GLAZED SILL
3" = 1'-0"



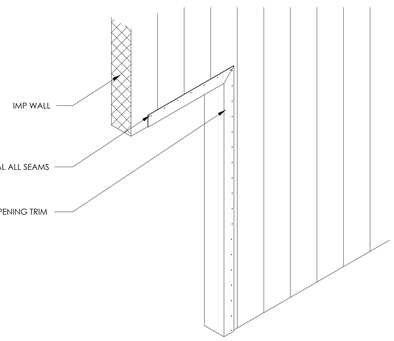
C3 / A611 BUTT-GLAZED JOINT DETAIL
3" = 1'-0"



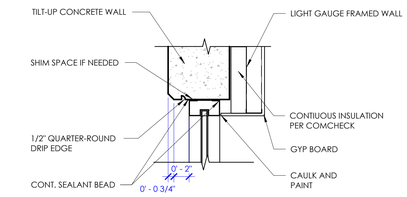
C2 / A611 HOLLOW MTL. JAMB DETAIL (FRAMED WALL)
1 1/2" = 1'-0"



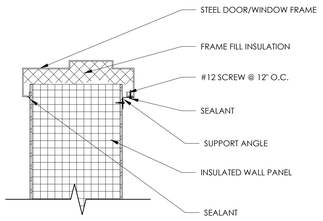
C1 / A611 WINDOW/DOOR JAMB TILT PANEL (STOREFRONT)
1 1/2" = 1'-0"



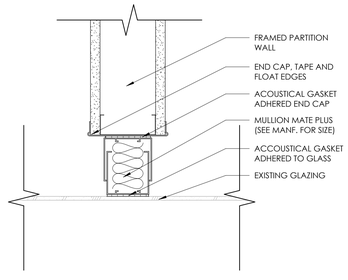
D2 / A611 IMP OPENING DETAIL
3" = 1'-0"



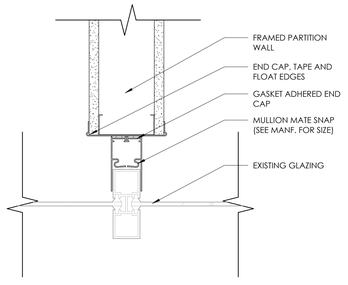
D1 / A611 WINDOW HEAD TILT PANEL (STOREFRONT)
1 1/2" = 1'-0"



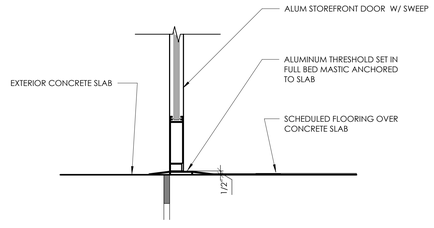
B5 / A611 IMP WINDOW SILL
3" = 1'-0"



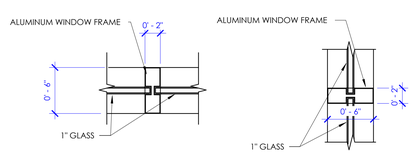
B4 / A611 PARTITION GAP @ GLASS
3" = 1'-0"



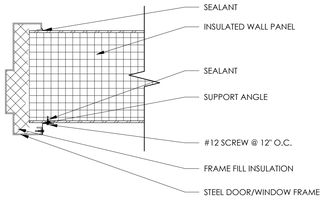
B3 / A611 PARTITION GAP @ MULLION
3" = 1'-0"



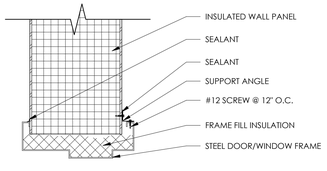
B2 / A611 ENTRY THRESHOLD DETAIL (STOREFRONT)
1 1/2" = 1'-0"



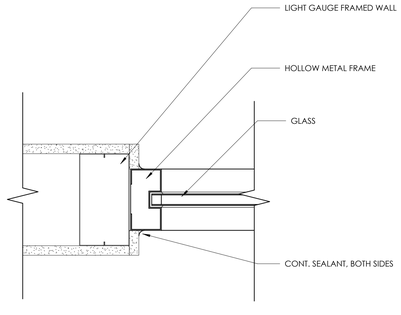
B1 / A611 WINDOW MULLION DETAIL (STOREFRONT)
1 1/2" = 1'-0"



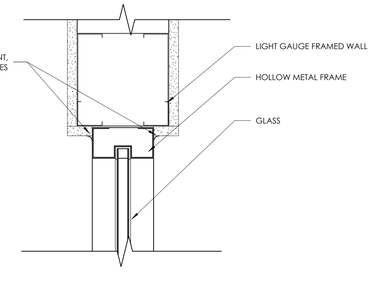
A5 / A611 IMP DOOR/WINDOW JAMB
3" = 1'-0"



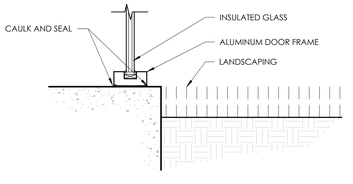
A4 / A611 IMP DOOR/WINDOW HEADER
3" = 1'-0"



A3 / A611 WINDOW JAMB
3" = 1'-0"



A2 / A611 WINDOW HEADER/SILL
3" = 1'-0"



A1 / A611 WINDOW SILL (STOREFRONT)
1 1/2" = 1'-0"

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4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

WINDOW AND DOOR DETAILS

DATE: PROJECT ISSUE DATE

SHEET #:

A611

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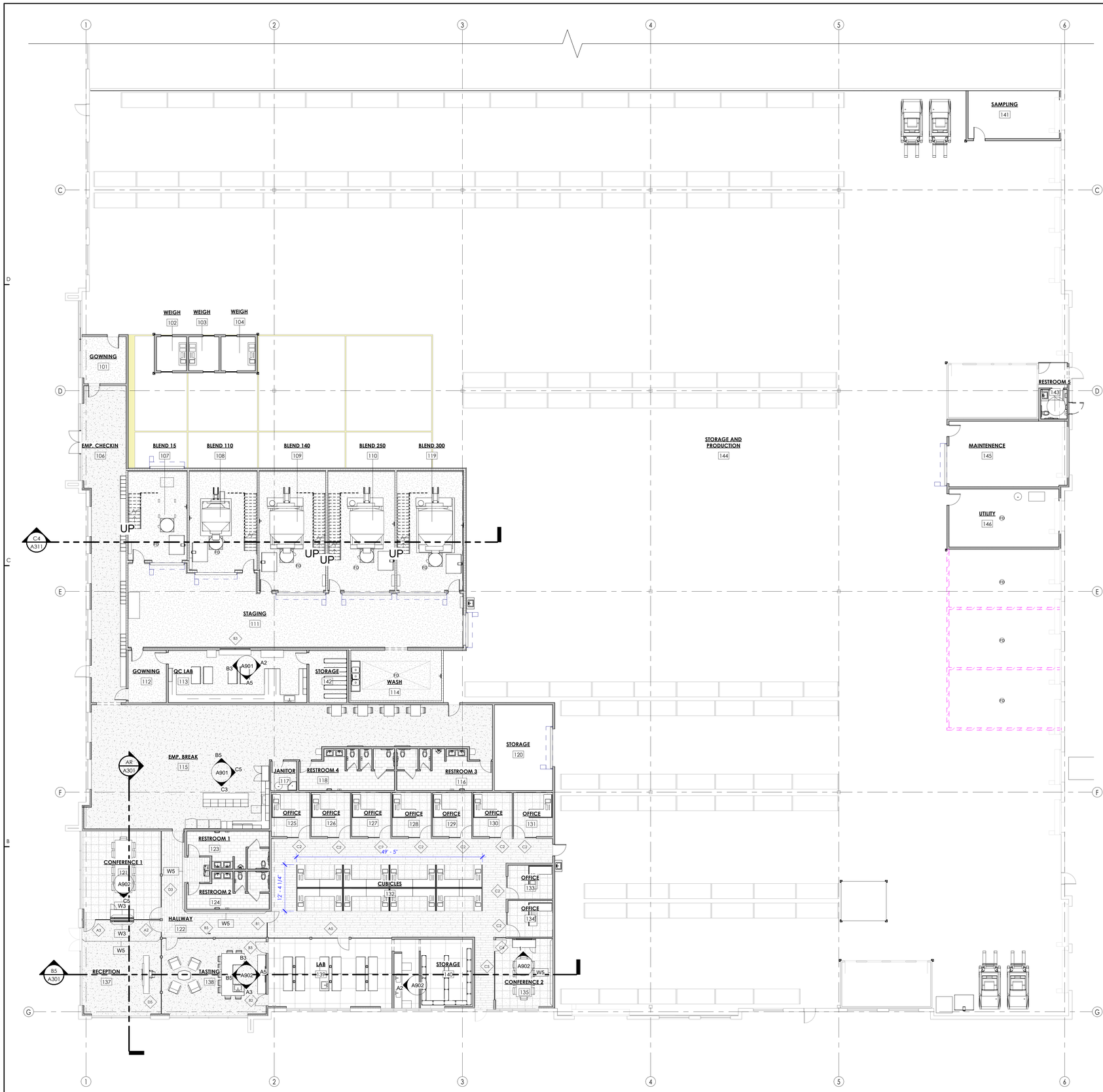

*EX. EPOXY SWIRL PATTERN

FINISH NOTES

FLOORS

- F1 - EXPOSED CONCRETE, SEALED
- F2 - EPOXY COATED CONCRETE, STONECLAD - STONEHARD, STONEHARD STONEKOTE H14 ON CURBS W/ UT NOM. 1/4" ON FLOOR, COLOR: TBD FLOOR TO BE PREPED AND APPROPRIATE BACKER ROD AND FLEXBLE CAULK
- F3 - PORCELAIN TILE - EMSER TILE: CITADEL - GREY 12"x24"
- F4 - EPOXY COATED CONCRETE - SEE UNRIVALED DRAWINGS MULTI-LAYER EPOXY SWIRL PATTERN TO MATCH IMAGE*. PROVIDE MOCK-UP FOR APPROVAL
- F5 - SHAW COLOR FRAME TILE 5T081, DISAPPEAR 81557
- F6 - SHAW COLOR FORM TILE 5T112, MAGIC 81505
- F7 - SHAW VITALITY SHEET 0873V, EXCITE 73515
- F8 - LVT - CITY WIDE - LASALLE STREET - CW12004

CEILING

- C1 - GYPSUM BOARD - PAINTED, EGGSHELL FINISH, SHERWIN WILLIAMS: ORIGINAL WHITE SW7077
- C2 - INSULATED METAL PANEL CEILING
- C3 - 24" x 24" LAY-IN CEILING - SEE CEILING DETAILS - ROCKFON ARCTIC TEGULAR WITH 9/16" GRID
- C4 - 48" x 24" LAY-IN CEILING - SEE CEILING DETAILS - ARMSTRONG FINE FISSURE BLACK, SQUARE EDGE, 15/16" GRID
- C5 - 48" x 24" LAY-IN CEILING - SEE CEILING DETAILS - ARMSTRONG DUNE SECOND LOOK ANGLED TEGULAR, 15/16" GRID
- C6 - OPEN TO STRUCTURE ABOVE

WALLS

- W1 - GYPSUM BOARD - PAINTED NEBULOUS WHITE SW7063, LEVEL 3 SATIN FINISH
- W2 - EXPOSED IMP, CAULKED JOINTS
- W3 - ACCENT WALL - KOROSEAL: TIMBERLINE II PARCHMENT T123-01
- W4 - WALL TILE - EMSER TILE: STADIUM - CEMENT 12"x24"
- W5 - MOSAIC ACCENT WALL - SEE UNRIVALED DRAWINGS

CABINET

- CB1 - WILSON ART PINNACLE WALNUT 7992-38
- CB2 - WILSON ART FROSTY WHITE 1573-60
- CB3 - 18 GAUGE COLD ROLLED STEEL CABINETS - WHITE FINISH

COUNTERTOP

- CT1 - COUNTERTOPS - DALTILE: ONE QUARTZ - CHIPPED ICE NQ91

BASE

- B1 - 6" RUBBER COVED - ROPPE 100 BLACK
- B2 - NONE (WALL TILE, SEE WALL)
- B3 - EPOXIED SPEEDCOVE

NOTES:

1. ALL DIFFERENT TYPES OF FINISHES MUST TERMINATE ON INTERIOR CORNERS NEVER ON EXTERIOR CORNERS UNLESS NOTED DIFFERENTLY.
2. ALL CABINETS MUST BE APPROVED PRIOR TO FABRICATION BY SHOP DRAWINGS.
3. PAINTED GYPSUM BOARD CEILING SHALL BE SMOOTH FINISH.
4. VERIFY WITH SUPERINTENDENT THE FINAL CHANGES TO THE FINISH SCHEDULE.
5. FLOOR CARPET SHALL BE TESTED IN ACCORDANCE WITH NFPA 253 AND BE A CLASS I (0.45 WATTS PER SQ. CM) IN CORRIDORS, EXIT ENCLOSURES AND EXIT PASSAGEWAYS AND CLASS II (0.22 WATTS PER SQ. CM) IN ALL OTHER ROOMS.
6. WALL CARPET SHALL BE TESTED IN ACCORDANCE WITH NFPA 253 AND BE A CLASS I (0.45 WATTS PER SQ. CM) IN CORRIDORS, EXIT ENCLOSURES AND EXIT PASSAGEWAYS AND CLASS II (0.22 WATTS PER SQ. CM) IN ALL OTHER ROOMS.

FOOTNOTES:

1. SPECIAL WALL TREATMENT, SEE PLAN
2. SEE CONTRACTOR DRAWINGS FOR CARPET TILE MIX AND SIZE IN CUBICLE AREA
3. HERRING BONE PATTERNED FLOOR AT CORNER OF RESTROOM
4. RUBBER BASE ONLY APPLIES TO GYPSUM WALLS

Room Schedule

Room Number	Room Name	Floor Finish	Base Finish	Wall Finish North	Wall Finish East	Wall Finish South	Wall Finish West	Cabinet	Counter Top	Comments
101	GOWNING	F1	B1	W1	W1	W1	W1			
102	WEIGH	F2	B1	W1	W1	W1	W1			
103	WEIGH	F2	B1	W1	W1	W1	W1			
104	WEIGH	F2	B1	W1	W1	W1	W1			
106	EMP. CHECKIN	F1	B1	W1	W1	W1	W1			
107	BLEND 15	F2	B3	W2	W2	W2	W2			
108	BLEND 110	F2	B3	W2	W2	W2	W2			
109	BLEND 140	F2	B3	W2	W2	W2	W2			
110	BLEND 250	F2	B3	W2	W2	W2	W2			
111	STAGING	F2	B3	W2	W2	W2	W2			
112	GOWNING	F2	B1	W1	W1	W1	W1			
113	QC LAB	F7	B1	W2	W1	W1	W1	CB3	CT1	
114	WASH	F2	B3	W2	W2	W2	W2			
115	EMP. BREAK	F8	B1	W1	W1	W1	W1	CB1	CT1	
116	RESTROOM 3	F3	B2	W4	W4	W4	W4			6.
117	JANITOR	F1	B1	W1	W1	W1	W1			
118	RESTROOM 4	F3	B2	W4	W4	W4	W4			6.
119	BLEND 300	F2	B3	W2	W2	W2	W2			
120	STORAGE	F1	B1	W1	W1	W1	W1			
121	CONFERENCE 1	F5	B1	W5	W1	W1	W1/W3	CB1	CT1	
122	HALLWAY	F6	B1	W1/W5	W1/W5	W1	W1			1, 3.
123	RESTROOM 1	F3	B2	W4	W4	W4	W4			6.
124	RESTROOM 2	F3	B2	W4	W4	W4	W4			6.
125	OFFICE	F5	B1	W1	W1	W1	W1			
126	OFFICE	F5	B1	W1	W1	W1	W1			
127	OFFICE	F5	B1	W1	W1	W1	W1			
128	OFFICE	F5	B1	W1	W1	W1	W1			
129	OFFICE	F5	B1	W1	W1	W1	W1			
130	OFFICE	F5	B1	W1	W1	W1	W1			
131	OFFICE	F5	B1	W1	W1	W1	W1			
132	CUBICLES	F5/F6	B1	W1	W1	W1	W1			2.
133	OFFICE	F5	B1	W1	W1	W1	W1			
134	OFFICE	F5	B1	W1	W1	W1	W1			
135	CONFERENCE 2	F5	B1	W1	W5	W1	W1			
136	OFFICE	F5	B1	W1	W1	W1	W1			
137	RECEPTION	F4	B1	W5/W3	W1	W1	W1			1.
138	TASTING	F4	B1	W1	W1/W3	W1	W1	CB1	CT1	1.
139	LAB	F7	B1	W1	W1	W1	W1			
140	STORAGE	F7	B1	W1	W1	W1	W1			
141	SAMPLING	F1	B1	W1	W1	W1	W1			
142	STORAGE	F1	B3	W2	W1	W1	W1			6.
143	RESTROOM 5	F3	B2	W4	W4	W4	W4			4, 5.
144	STORAGE AND PRODUCTION	F1	B1	W1	W1	W1	W1			
145	MAINTENENCE	F1	B1	W1	W1	W1	W1			
146	UTILITY	F1	B1	EXPOSED	EXPOSED	EXPOSED	EXPOSED			

A5 / A711 LEVEL 01 FINISH PLAN
3/32" = 1'-0"

GRAPHIC SCALE 0 4' 8' 16'

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Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

LEVEL 01 FINISH PLAN

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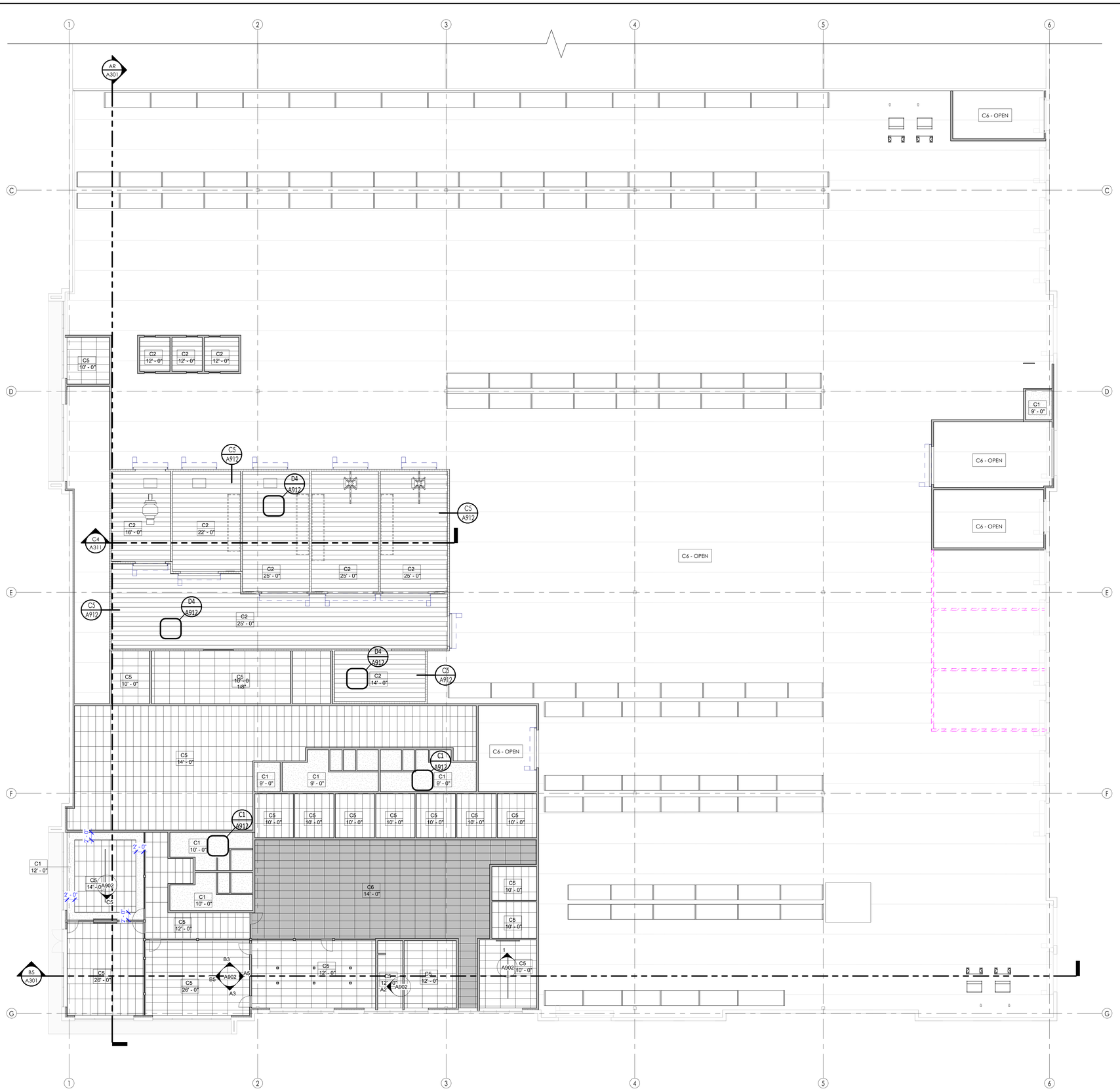

A5 A712 **LEVEL 01 RCP**

3/32" = 1'-0"

REFLECTED CEILING LEGENDS

- C1 - GYPSUM BOARD CEILING OVER METAL STUDS - SEE CEILING DETAILS EGGSHELL FINISH ORIGINAL WHITE SW7077
- C2 - ISULATED METAL PANEL CELING
- C3 - 24" x 24" LAY-IN CEILING - SEE CEILING DETAILS - ROCKFON ARCTIC TEGULAR WITH 9/16" GRID
- C4 - 48" x 24" LAY-IN CEILING - SEE CEILING DETAILS - ARMSTRONG FINE FISSURE BLACK, SQUARE EDGE, 15/16" GRID
- C5 - 48" x 24" LAY-IN CEILING - SEE CEILING DETAILS - ARMSTRONG DUNE SECOND LOOK ANGLED TEGULAR 15/16"
- C6 - OPEN TO STRUCTURE ABOVE
- STRIP LIGHT - SEE ELECTRICAL
- DOWNLIGHT - SEE ELECTRICAL
- SUPPLY DIFFUSER - SEE MECHANICAL
- RETURN DIFFUSER - SEE MECHANICAL
- EXHAUST DIFFUSER - SEE MECHANICAL

0 8' 16' 24'
GRAPHIC SCALE

NORTH

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174600
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MARK	DESCRIPTION	Revision Date

Revision Schedule

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LEVEL 01 REFLECTED CEILING PLAN

DATE: PROJECT ISSUE DATE

SHEET #:

A712

PROJECT STATUS

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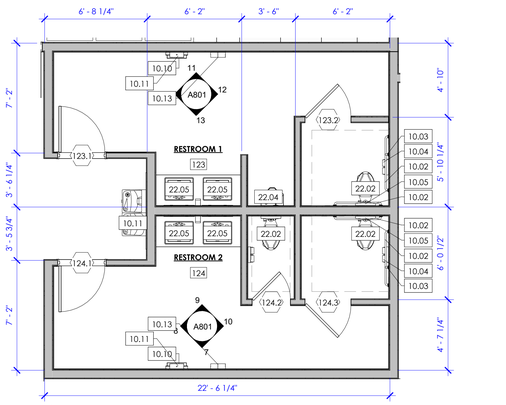
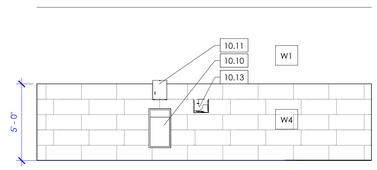
KEYNOTE LEGEND	
10.02	FIRE EXTINGUISHER, STANDARD. FIRE MARSHAL TO APPROVE ALL FINAL LOCATIONS.
10.03	ADA COMPLIANT GRAB BAR VERTICAL - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
10.04	PROVIDE ADA COMPLIANT TOILET PAPER DISPENSER - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
10.05	PROVIDE ADA COMPLIANT TOILET SEAT COVER DISPENSER - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
10.07	ENMOTION® GEN2 AUTOMATED TOUCHLESS SOAP & SANITIZER DISPENSER BY GP PRO (GEORGIA-PACIFIC), WHITE, 1 DISPENSER DO NOT MOUNT ON MIRROR - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
10.08	PROVIDE GEORGIA PACIFIC RECESSED TRASH RECEPTACLE (59491) WITH GEORGIA PACIFIC PAPER TOWEL DISPENSER (59466) - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
10.09	ADA COMPLIANT MIRROR - STANDARD CHROME - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
10.10	PROVIDE BRADLEY HAND DRYER (2902-2874) - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION.
10.11	ADA COMPLIANT DRINKING FOUNTAIN W/ BOTTLE FILLER, WATER PROOF WALL COVERING EXTENDING 1'-6" FROM EDGE. WALL COVERING AND FOUNTAIN TO BE APPROVED BY OWNER AND ARCHITECT PRIOR TO ORDER - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
10.12	ADA COMPLIANT SOLID SURFACE COUNTER TOP W/ UNDERMOUNT SINKS PER PLUMBING. ADA COMPLIANT UNDER COUNTER SKIRT. REFER TO ICC/ANSI A117.1-09 FOR REQUIREMENTS & INSTALLATION
10.13	PROVIDE BRADLEY SANITARY NAPKIN DISPOSAL (4781-11) - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
22.02	ADA COMPLIANT TOILET - FLUSH VALVE - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
22.04	URINAL - REFER TO SHEETS G004 & G005 FOR ICC/ANSI A117.1-09 REQUIREMENTS & INSTALLATION
22.05	INSTALL ADA COMPLIANT SINK w MIN. 36" WIDE ROLL-UNDER SPACE AT SINK
22.06	ADA COMPLIANT MANUAL FAUCET



2 A801 **ENLARGED RESTROOM 1 & 2**
1/4" = 1'-0"



11 A801 **RESTROOM 1 - A**
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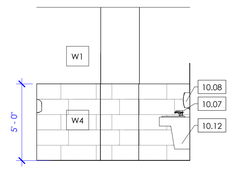

12 A801 **RESTROOM 1 - B**
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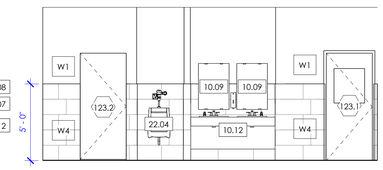

13 A801 **RESTROOM 1 - C**
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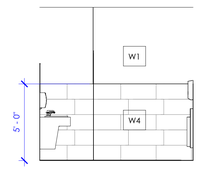

14 A801 **RESTROOM 1 - D**
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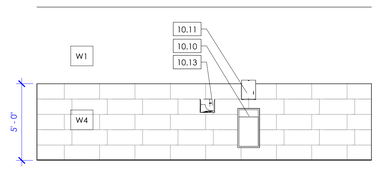
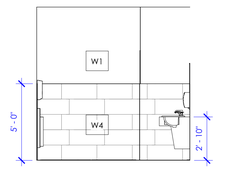
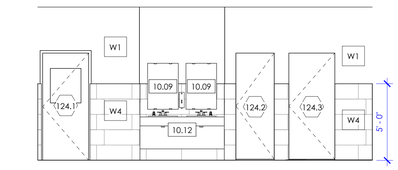


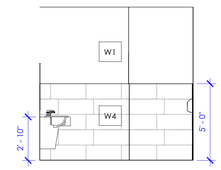
7 A801 **RESTROOM 2 - A**
1/4" = 1'-0"



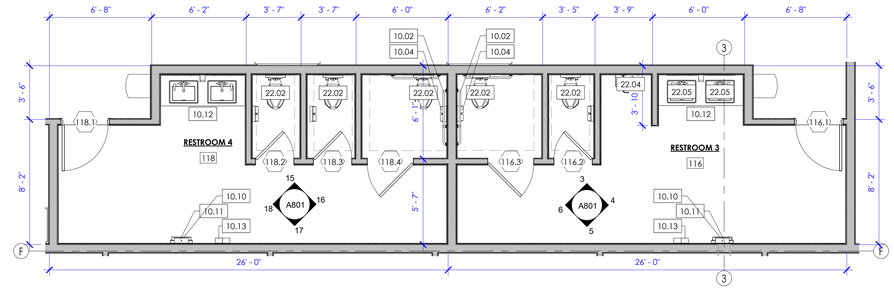
8 A801 **RESTROOM 2 - B**
1/4" = 1'-0"



9 A801 **RESTROOM 2 - C**
1/4" = 1'-0"



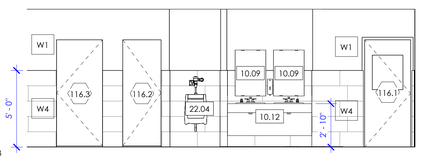
10 A801 **RESTROOM 2 - C**
1/4" = 1'-0"



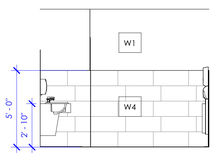
1 A801 **ENLARGED RESTROOM 3 & 4**
1/4" = 1'-0"



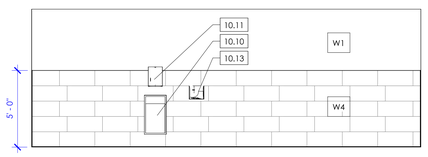
19 A801 **ENLARGED RESTROOM 5**
1/4" = 1'-0"



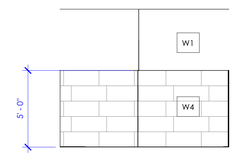
3 A801 **RESTROOM 3 - A**
1/4" = 1'-0"



4 A801 **RESTROOM 3 - B**
1/4" = 1'-0"



5 A801 **RESTROOM 3 - C**
1/4" = 1'-0"



6 A801 **RESTROOM 3 - D**
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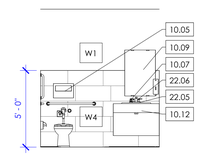
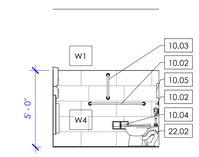


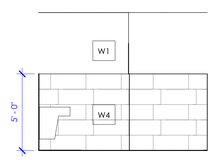
20 A801 **RESTROOM 5 - A**
1/4" = 1'-0"



21 A801 **RESTROOM 5 - B**
1/4" = 1'-0"



15 A801 **RESTROOM 4 - A**
1/4" = 1'-0"



16 A801 **RESTROOM 4 - B**
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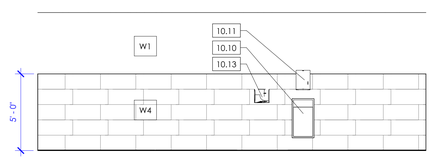
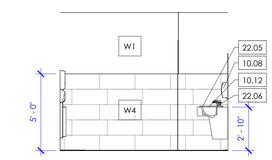
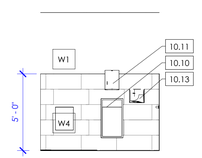


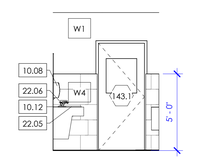
17 A801 **RESTROOM 4 - C**
1/4" = 1'-0"



18 A801 **RESTROOM 4 - D**
1/4" = 1'-0"



22 A801 **RESTROOM 5 - C**
1/4" = 1'-0"



23 A801 **RESTROOM 5 - D**
1/4" = 1'-0"

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Revision Schedule		
MARK	DESCRIPTION	Revision Date

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RESTROOM PLANS AND ELEVATIONS

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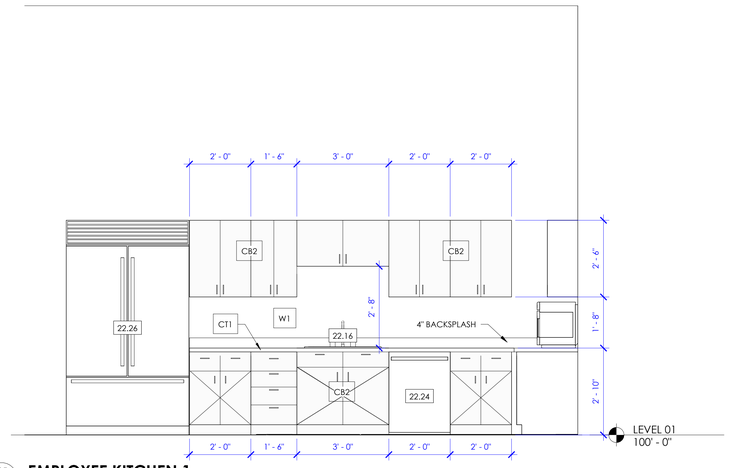
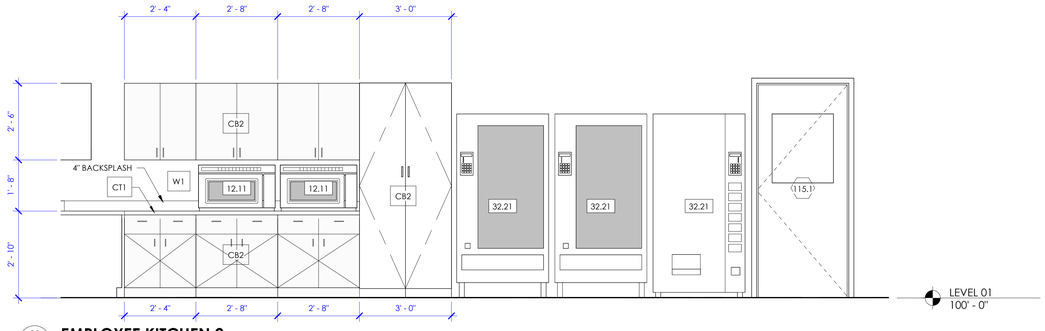
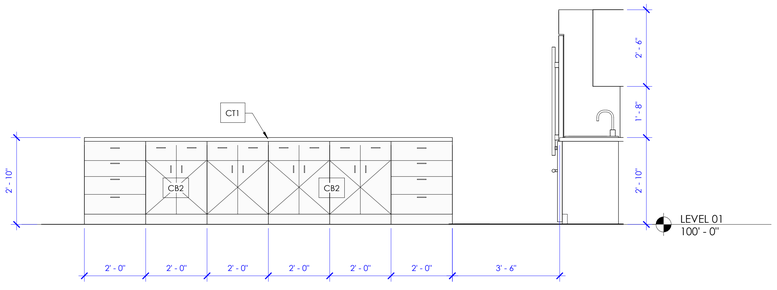
KEYNOTE LEGEND	
12.11	MICROWAVE
22.16	STAINLESS STEEL SINK - SEE PLUMBING
22.24	DISHWASHER - SEE PLUMBING
22.26	REFRIGERATOR, COORDINATED BY OWNER, CONTRACTOR INSTALLED
32.21	VENDING MACHINES



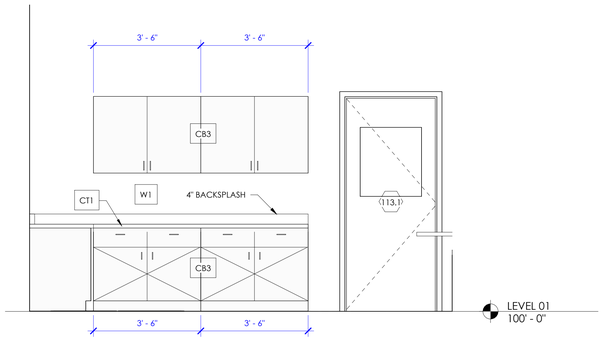
C5 A901 **EMPLOYEE KITCHEN 1**
1/2" = 1'-0"



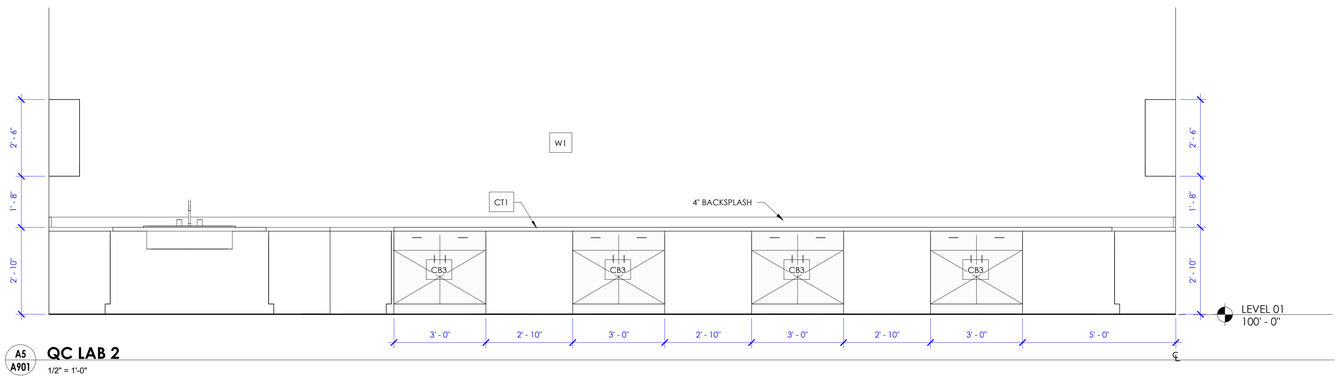
C3 A901 **EMPLOYEE KITCHEN 2**
1/2" = 1'-0"



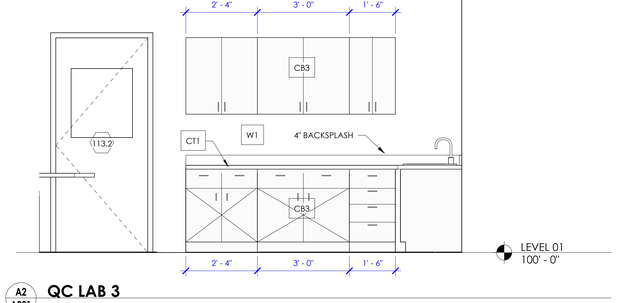
B5 A901 **EMPLOYEE KITCHEN 3**
1/2" = 1'-0"



B3 A901 **QC LAB 1**
1/2" = 1'-0"



A5 A901 **QC LAB 2**
1/2" = 1'-0"



A2 A901 **QC LAB 3**
1/2" = 1'-0"

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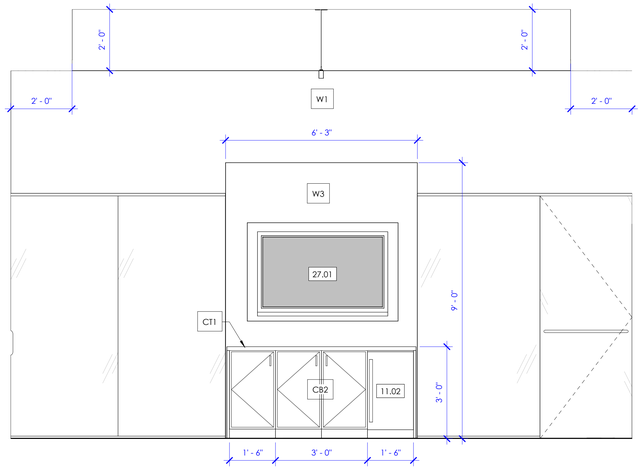
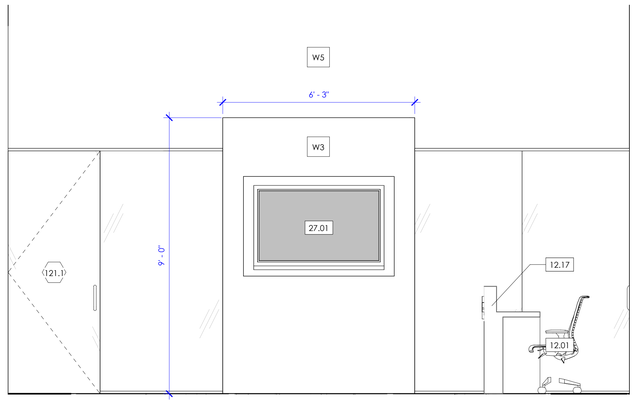
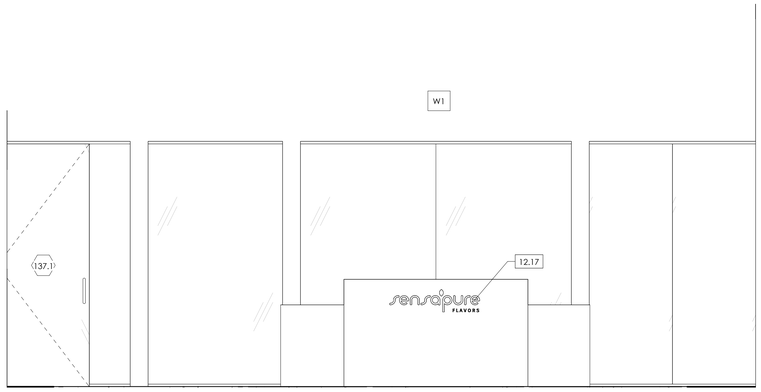
KEYNOTE LEGEND	
11.02	REFRIGERATOR PROVIDED BY TENANT
12.01	FURNITURE PROVIDED AND INSTALLED BY OWNER.
12.17	RECEPTION DESK BY OTHERS, SEE INTERIOR DESIGN.
22.16	STAINLESS STEEL SINK - SEE PLUMBING
22.24	DISHWASHER - SEE PLUMBING
27.01	TELEVISION - PROVIDE BLOCKING IN WALL FOR WALL MOUNTED APPLICATION. SEE DETAIL A2/G006.



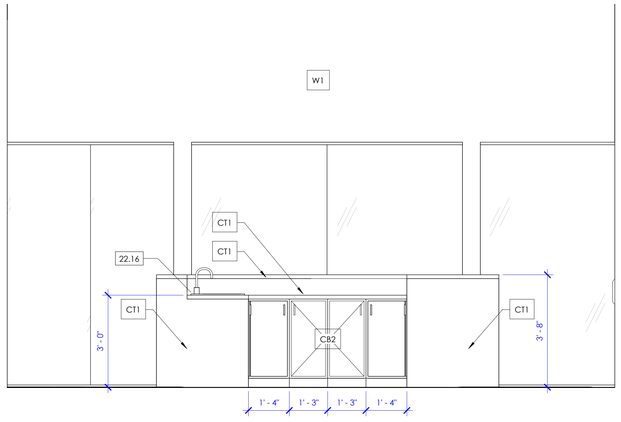
C5 A902 **CONFERENCE ROOM TV ELEVATION**
1/2" = 1'-0"



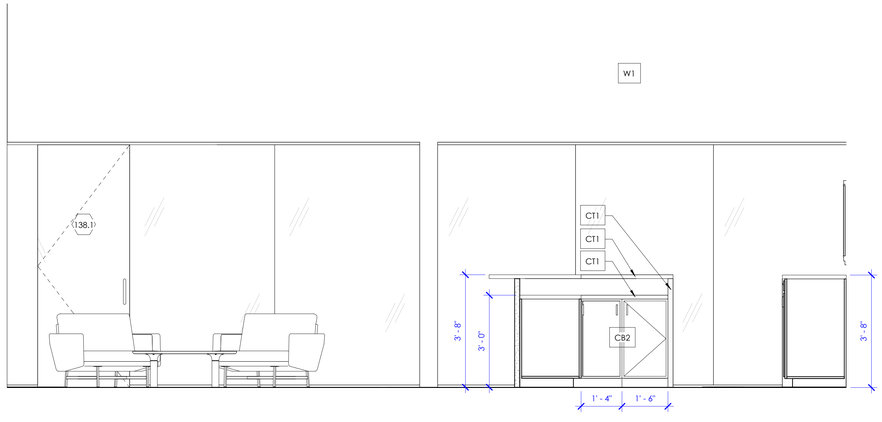
C4 A902 **NORTH RECEPTION ELEVATION**
1/2" = 1'-0"



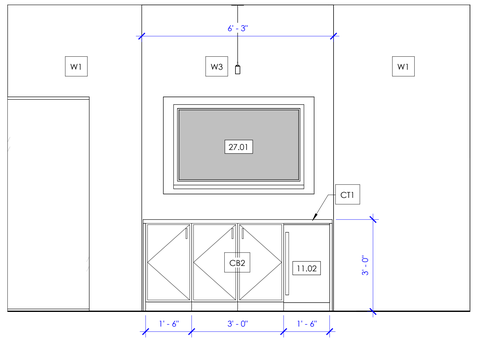
C2 A902 **EAST RECEPTION ELEVATION**
1/2" = 1'-0"



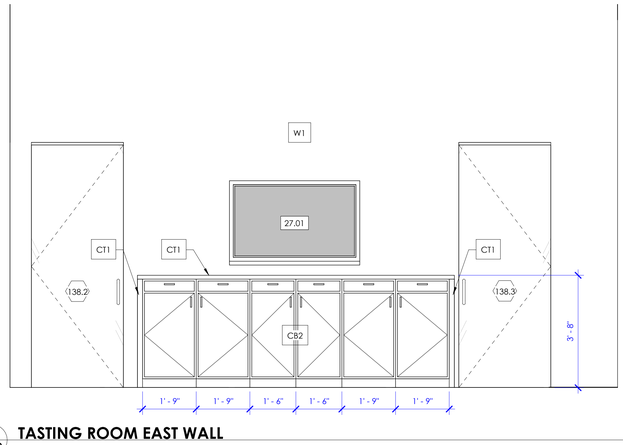
B5 A902 **TASTING ROOM WEST WALL**
1/2" = 1'-0"



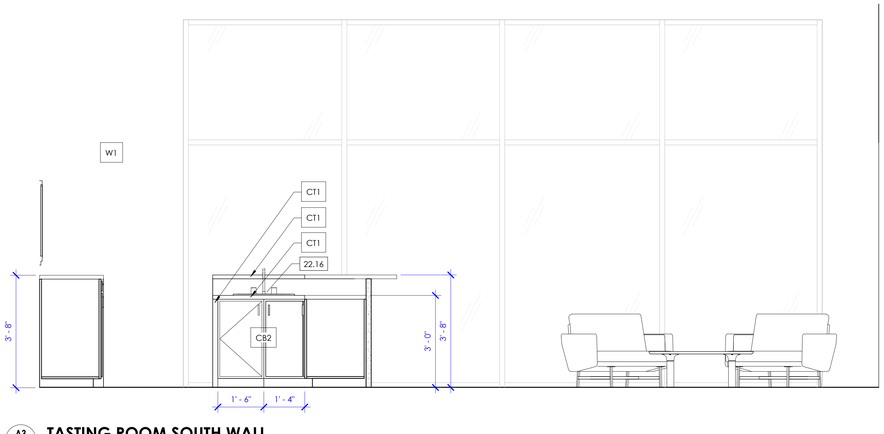
B3 A902 **TASTING ROOM NORTH WALL**
1/2" = 1'-0"



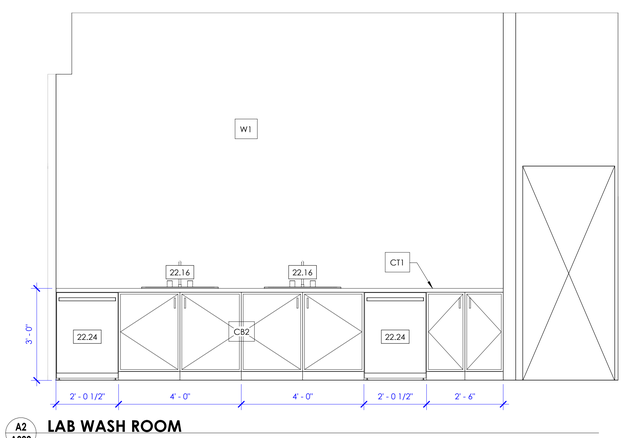
1 A902 **CONFERENCE 2 TV ELEVATION**
1/2" = 1'-0"



A5 A902 **TASTING ROOM EAST WALL**
1/2" = 1'-0"



A3 A902 **TASTING ROOM SOUTH WALL**
1/2" = 1'-0"



A2 A902 **LAB WASH ROOM**
1/2" = 1'-0"

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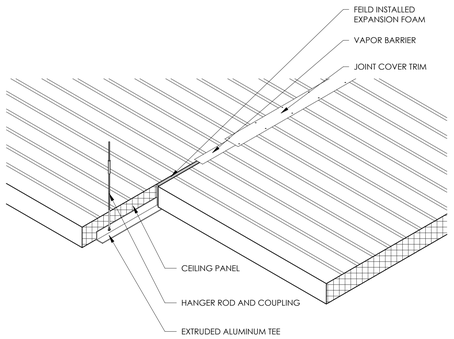
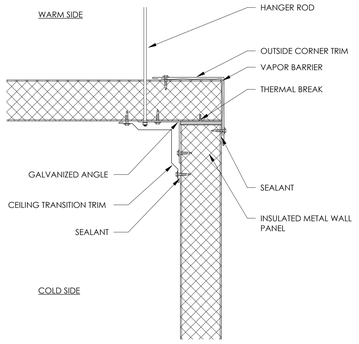


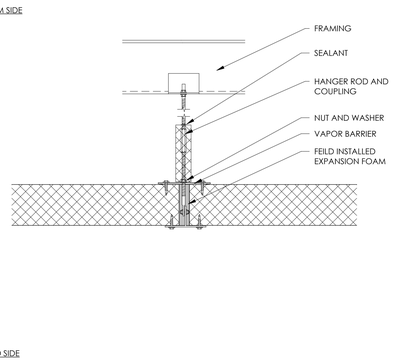
D5 A912 IMP CEILING TEE ISOMETRIC

1/2" = 1'-0"



C5 A912 CEILING TO WALL CONNECTION

1" = 1'-0"

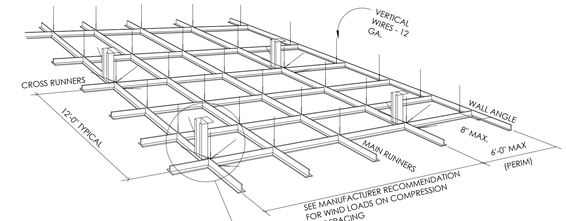


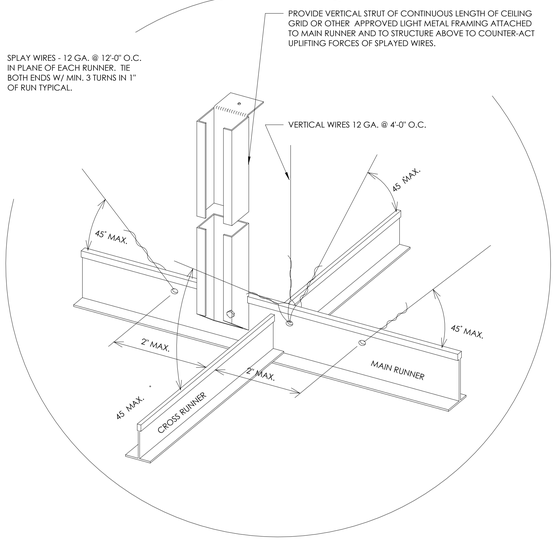
D4 A912 CEILING SUPPORT TEE

1" = 1'-0"

CEILING GRID NOTES

1. A HEAVY DUTY T-BAR GRID SYSTEM SHALL BE USED.
2.THE WIDTH OF THE PERIMETER SUPPORTING CLOSURE ANGLE SHALL BE NOT LESS THAN 2.0 IN. (50 mm). IN EACH ORTHOGONAL HORIZONTAL DIRECTION, ONE END OF THE CEILING GRID SHALL BE ATTACHED TO THE CLOSURE ANGLE 8" MAX. FROM WALL. THE OTHER END IN EACH HORIZONTAL DIRECTION SHALL HAVE A SPACER BAR WITH A 3/4 IN. (19mm)CLEARANCE FROM THE WALL AND SHALL REST UPON AND BE FREE TO SLIDE ON A CLOSURE ANGLE.
3. FOR CEILING AREAS EXCEEDING 1000 SQ/FT. (92.9 SQ/mm), HORIZONTAL RESTRAINT OF THE CEILING TO THE STRUCTURAL SYSTEM SHALL BE PROVIDED. PER DETAIL SHOWN BELOW.
4. FOR CEILING AREAS EXCEEDING 2500 SQ/FT. (232 SQ/mm). A SEISMIC SEPARATION JOINT OR FULL HEIGHT PARTITION THAT BREAKS THE CEILING UP INTO AREAS NOT EXCEEDING 2500 SQ/FT. SHALL BE PROVIDED UNLESS STRUCTURAL ANALYSIS ARE PERFORMED OF THE CEILING BRACING SYSTEM FOR THE PRESCRIBED SEISMIC FORCES WHICH DEMONSTRATE CEILING SYSTEM PENETRATIONS AND CLOSURE ANGLES PROVIDE SUFFICIENT CLEARANCE TO ACCOMMODATE THE ADDITIONAL MOVEMENT. EACH AREA SHALL BE PROVIDED WITH CLOSURE ANGLES IN ACCORDANCE WITH ITEM B AND HORIZONTAL RESTRAINTS OR BRACING IN ACCORDANCE WITH ITEM C.
5. ALL SUSPENDED CEILING TRACK LOCATED IN PARKING GARAGE SHALL BE 15/16" ARMSTRONG PRELUDE XL OR OTHER APPROVED EXTERIOR CEILING GRID SYSTEM.

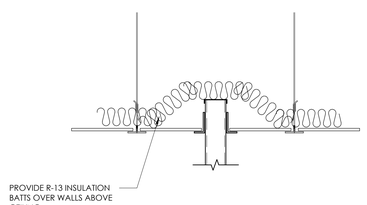




5. EXCEPT WHERE RIGID BRACES ARE USED TO LIMIT LATERAL DEFLECTIONS, SPRINKLER HEADS AND OTHER PENETRATIONS SHALL HAVE A 2 in. (50mm) OVERSIZE RING, SLEEVE, OR ADAPTER THROUGH THE CEILING TILE TO ALLOW FOR FREE MOVEMENT OF AT LEAST 1 IN. (25 mm) OF CEILING MOVEMENT IN ALL HORIZONTAL DIRECTIONS ARE PERMITTED TO BE PROVIDED AT THE TOP OF THE SPRINKLER HEAD EXTENSION.
6. CHANGES IN CEILING PLAN ELEVATION SHALL BE PROVIDED WITH POSITIVE BRACING.
7. CABLE TRAYS AND ELECTRICAL CONDUITS SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING.
8. CEILING AREAS OF 144 SQ. ft. OR LESS SURROUNDED BY WALLS WHICH CONNECT DIRECTLY TO THE STRUCTURE ABOVE SHALL NOT REQUIRE THE DIAGONAL BRACING WIRES.
9. EACH VERTICAL WIRE SHALL BE ATTACHED EACH END WITH MIN. 3 TURNS.
10. CEILING GRID SHALL BE INSTALLED LEVEL TO WITHIN 1/8" IN 12 FEET.
11. LOCAL KINKS OR BENDS SHALL NOT BE MADE IN HANGER WIRES AS A MEANS OF LEVELING MAIN RUNNERS.
12. ALL WIRE LOOPS SHALL BE TIGHTLY WRAPPED AND SHARPLY BENT.1.5. INTEGRAL
13. CEILING/SPRINKLER CONSTRUCTION: AS AN ALTERNATIVE TO PROVIDING LARGE CLEARANCES AROUND SPRINKLER SYSTEM PENETRATIONS THROUGH CEILING SYSTEMS, THE SPRINKLER SYSTEM AND CEILING GRID ARE PERMITTED TO BE DESIGNED AND TIED TOGETHER AS AN INTEGRAL UNIT, SUCH A DESIGN SHALL CONSIDER THE MASS AND FLEXIBILITY OF ALL ELEMENTS INVOLVED, INCLUDING: CEILING SYSTEM, SPRINKLER APPURTENANCES. THE DESIGN SHALL BE PERFORMED BY A REGISTERED DESIGN PROFESSIONAL.
14. CEILING MOUNTED LIGHT FIXTURES: ALL CEILING MOUNTED LIGHT FIXTURES SHALL BE ATTACHED TO SUSPENDED CEILING GRID, IN ADDITION 12 GA. HANGER WIRES SHALL BE ATTACHED AT OPPOSITE CORNERS TO THE GRID WITHIN 3" OF EACH CORNER OF THE FIXTURE. TWO ADDITIONAL WIRES SHALL BE CONNECTED TO THE LIGHT HOUSING AND TO THE STRUCTURE ABOVE (THESE WIRES MAY BE SLACK). WIRES SHALL NOT ATTACH TO OR BEND AROUND INTERFERING MATERIAL OR EQUIPMENT, NOR SHALL THEY BE CLOSER THAN 6" FROM ANY UN-BRACED HORIZONTAL PIPING OR DUCTWORK. A TRAPEZE OR SIMILAR DEVICE SHALL BE USED WHERE OBSTRUCTIONS OCCUR. IBC 1621.2.5.2.2 SEISMIC DESIGN CATEGORIES D, E, OR F.
15. SPREADER BARS: SPREADER (SPACER, STABILIZER) BARS SHALL BE USED TO PREVENT THE ENDS OF THE MAIN BEAMS AND CROSS TEES AT PERIMETER WALLS FROM SPREADING OPEN DURING A SEISMIC EVENT. PERIMETER WIRES SHALL NOT BE USED IN LIEU OF SPREADER BARS. IF APPROVED BY THE LOCAL JURISDICTION, PERIMETER CLIPS MAY BE USED TO SATISFY THE REQUIREMENTS FOR SPREADER BARS.

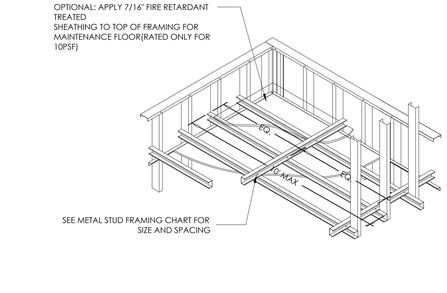
B2 A912 GENERAL CEILING GRID NOTES

3/16" = 1'-0"



A2 A912 WALL INSULATION

1" = 1'-0"



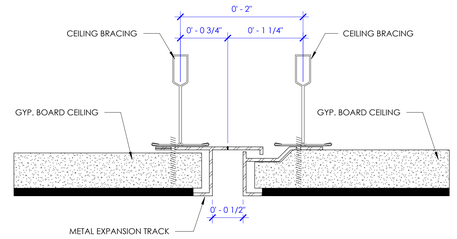
METAL STUD CEILING FRAMING - L/360 & 1.25" FLANGES

STUD WIDTH			3-5/8"
* STUD GAUGE & SPACING REQ.	UNSUPPORTED	1	3-5/8" X 20 GA. STEEL STUDS AT 24" O.C. (MAX SPAN 8'-5")
		2	3-5/8" X 18 GA. STEEL STUDS AT 24" O.C. (MAX SPAN 9'-3")
		3	3-5/8" X 20 GA. STEEL STUDS AT 16" O.C. (MAX SPAN 9'-5")
		4	3-5/8" X 18 GA. STEEL STUDS AT 16" O.C. (MAX SPAN 10'-5")
	MID-SUPPORT	1	3-5/8" X 20 GA. STEEL STUDS AT 24" O.C. (MAX SPAN 11'-6")
		2	3-5/8" X 18 GA. STEEL STUDS AT 24" O.C. (MAX SPAN 12'-6")
		3	3-5/8" X 20 GA. STEEL STUDS AT 16" O.C. (MAX SPAN 13'-2")
		4	3-5/8" X 18 GA. STEEL STUDS AT 16" O.C. (MAX SPAN 14'-4")

STUD WIDTH			6"
* STUD GAUGE & SPACING REQ.	UNSUPPORTED	1	6" X 20 GA. STEEL STUDS AT 24" O.C. (MAX SPAN 9'-10")
		2	6" X 18 GA. STEEL STUDS AT 24" O.C. (MAX SPAN 10'-8")
		3	6" X 20 GA. STEEL STUDS AT 16" O.C. (MAX SPAN 11'-0")
		4	6" X 18 GA. STEEL STUDS AT 16" O.C. (MAX SPAN 11'-11")
	MID-SUPPORT	1	6" X 20 GA. STEEL STUDS AT 24" O.C. (MAX SPAN 14'-2")
		2	6" X 18 GA. STEEL STUDS AT 24" O.C. (MAX SPAN 15'-3")
		3	6" X 20 GA. STEEL STUDS AT 16" O.C. (MAX SPAN 15'-10")
		4	6" X 18 GA. STEEL STUDS AT 16" O.C. (MAX SPAN 17'-0")

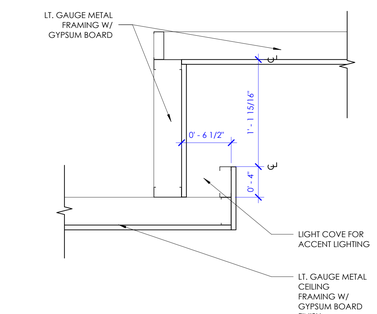
C1 A912 FRAMED GYPSUM CEILING

1" = 1'-0"



B1 A912 GYP. BOARD CEILING CONTROL JOINT

12" = 1'-0"



A1 A912 LIGHT COVE CEILING DETAIL

1 1/2" = 1'-0"

urbia ARCHITECTS & ENGINEERS
909 W SOUTH JORDAN PKWY SOUTH JORDAN-UT 84095
www.aeurbia.com 801.746.0456

LICENSED ARCHITECT 174600 JAMES MICHAEL WALKER STATE OF UTAH

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SENSAPURE TI

4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

CEILING DETAILS

DATE: PROJECT ISSUE DATE

SHEET #:

A912

PROJECT STATUS

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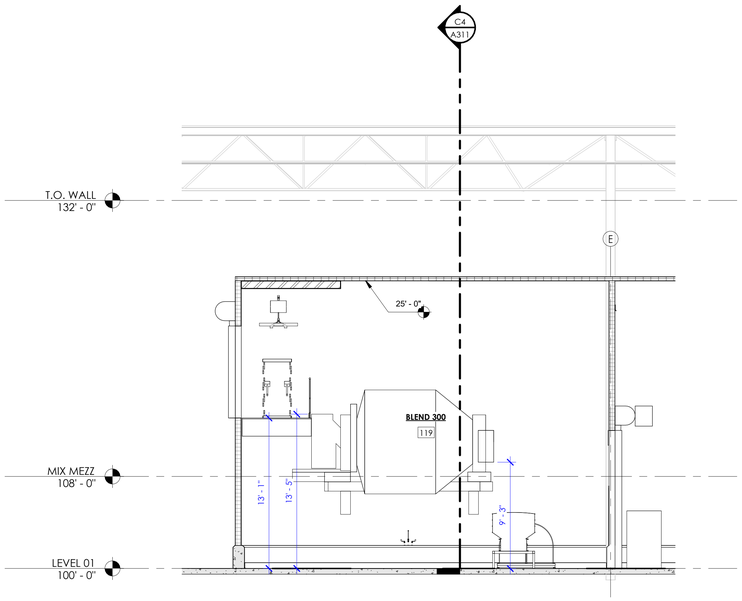
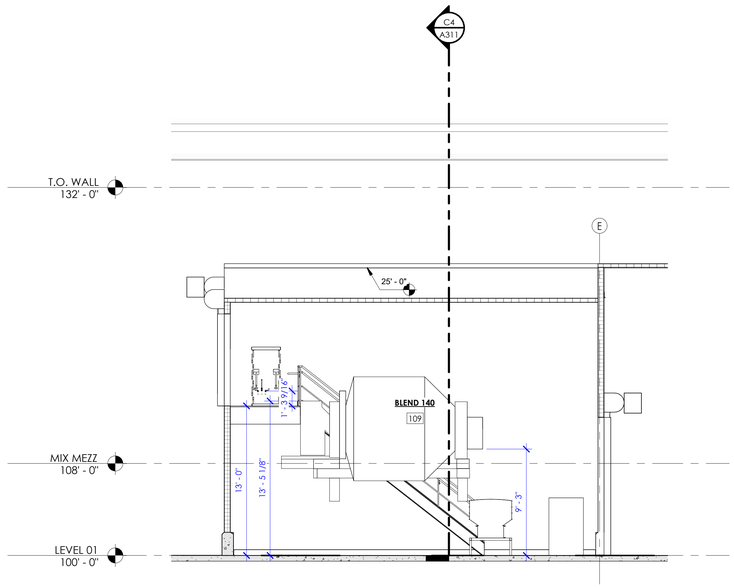
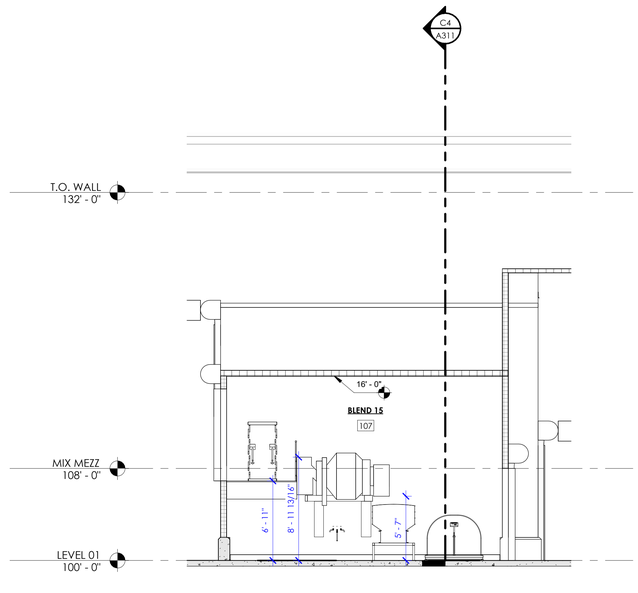


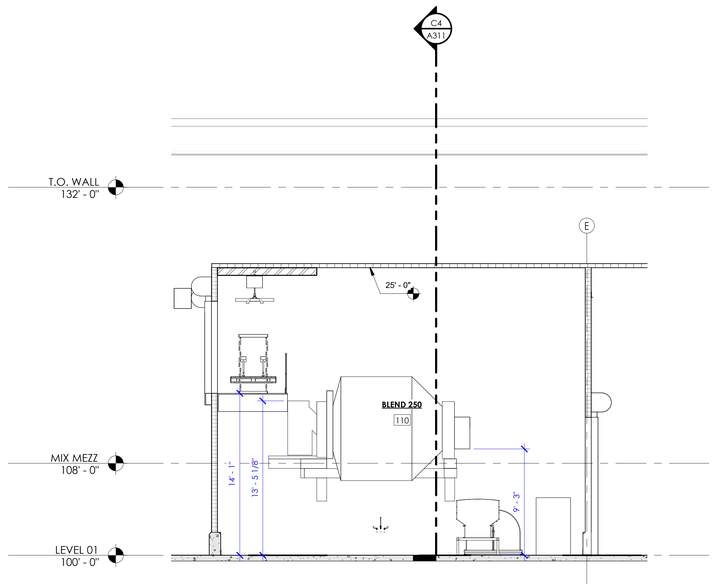
5 EQ301 **BLEND 300 SECTION**
3/16" = 1'-0"



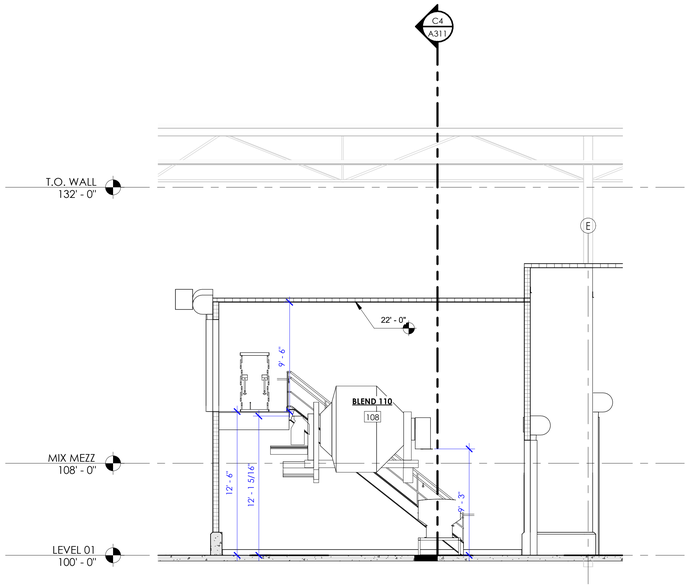
3 EQ301 **BLEND 140 SECTION**
3/16" = 1'-0"



1 EQ301 **BLEND 15 SECTION**
3/16" = 1'-0"



4 EQ301 **BLEND 250 SECTION**
3/16" = 1'-0"



2 EQ301 **BLEND 110 SECTION**
3/16" = 1'-0"

ae urbia
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LICENSED ARCHITECT
174600
JAMES MICHAEL
STATE OF UTAH
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SENSAPURE TI

4170 W 2100 N, LEHI

MARK	DESCRIPTION	Revision Date

Revision Schedule

AE2024.387

EQUIPMENT SECTIONS

DATE: **PROJECT ISSUE DATE**

SHEET #:

EQ301

PROJECT STATUS

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DESIGN CODE

2021 INTERNATIONAL BUILDING CODE (IBC)

DESIGN CRITERIA

SEISMIC DESIGN CRITERIA

RISK CATEGORY	= II
SEISMIC IMPORTANCE FACTOR, IE	= 1.0
SOIL SITE CLASS	= D
SEISMIC DESIGN CATEGORY	= D
CALCULATED BUILDING PERIOD, T	= 0.117 SECONDS
MAPPED SPECTRAL RESPONSE ACCELERATIONS	
SHORT PERIOD ACCELERATION, SS	= 1.31G
1-SECOND ACCELERATION, S1	= 0.421G
SEISMIC RESPONSE COEFFICIENTS	
SHORT PERIOD SITE COEFFICIENT, FA	= 1.0
LONG PERIOD SITE COEFFICIENT, FV	= 1.88
DESIGN SPECTRAL RESPONSE ACCELERATIONS	
SHORT PERIOD ACCELERATION, SDS	= 0.873G
1-SECOND ACCELERATION, SD1	= 0.527G

LATERAL FORCE RESISITING SYSTEM

SPECIAL REINFORCED CONCRETE SHEARWALLS:	
RESPONSE MODIFICATION FACTOR, R	= 2.5
SYSTEM OVERSTRENGTH FACTOR, ΩO	= 2.5
DEFLECTION AMPLIFICATION FACTOR, CD	= 4.0
SEISMIC RESPONSE COEFFICIENT, CS	= 1.8092
SEISMIC ANALYSIS PROCEDURE	= E.L.F.
CALCULATED SEISMIC BASE SHEAR, VS	= 8.482 KIPS

DESIGN LOADS

FLOOR LOADS

FLOOR DEAD LOAD	= 15 PSF
LIVE LOAD	= 25 PSF

EARTHWORK

DESIGN CRITERIA

SOILS REPORT BY:	GSH GEOTECHNICAL
PROJECT NO.:	0297-018-21
DATE:	DECEMBER 13, 2021

DESIGN VALUES:

SOIL BEARING PRESSURE:	2500 PSF
FROST PROTECTION:	30 INCHES
ENGINEERED STRUCTURAL FILL	AS REQ'D ON PLAN & SOILS REPORT
COEFFICENT OF FRICTION	0.35

REQUIREMENTS

1. ALL EARTHWORK, MATERIALS AND PLACEMENT MUST MEET THE APPROVAL OF THE GEOTECHNICAL / SOILS ENGINEER.
2. THE CONTRACTOR AND OWNER SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL SITE SOIL CONDITIONS.
3. ANY UNFORESEEN CONDITIONS ENCOUNTERED DURING SITE PREPARATION SHALL BE BROUGHT TO THE ATTENTION OF THE SOILS ENGINEER AND ARCHITECT.
4. CONTRACTOR SHALL STRIP THE BUILDING AREA FROM ALL VEGETATION, DEBRIS AND TOPSOIL. CONTRACTOR SHALL EXCAVATE ANY REMAINING LOOSE NATURAL OR FILL SOILS TO EXPOSE COMPETENT NATURAL SOILS. CONTRACTOR SHALL REMOVE EXISTING FOOTINGS, FOUNDATIONS, SLABS, SITE PAVING, DEBRIS, AND STRUCTURES AS REQUIRED.
5. CONTRACTOR SHALL CHECK FOR SOFT SPOTS OR OTHER UNSUITABLE SOILS BY PROOF ROLLING THE ENTIRE BUILDING PAD AREA WITH NORMAL COMPACTION EQUIPMENT. REMOVE UNSUITABLE MATERIALS AND REPLACE WITH COMPACTED ENGINEERED STRUCTURAL FILL OR 2,000 PSI LEAN CONCRETE, (FLOWABLE FILL).
6. ENGINEERED OR STRUCTURAL FILL MATERIAL BENEATH FOOTINGS SHALL MEET THE REQUIREMENTS OF SOILS REPORT AND SPECIFICATIONS.
7. SEE PLANS FOR THICKNESS OF ALL FLOOR SLABS. UNDERLAY ALL SLABS WITH AT LEAST A 4" THICK LAYER OF FREE-DRAINING GRANULAR MATERIAL. GRANULAR MATERIAL SHALL BE "PEA" GRAVEL OR 1" MINUS CLEAN GAP-GRADED GRAVEL.
8. BACKFILL AROUND FOUNDATION WALLS SHALL BE PERFORMED USING GRANULAR MATERIAL. CARE SHALL BE TAKEN IN PLACING BACKFILL MATERIALS SO AS NOT TO DAMAGE THE FOUNDATION. CONTRACTOR SHALL MONITOR BACKFILL OPERATIONS AS NEEDED.
9. REFER TO THE PROJECT SPECIFICATIONS AND SOILS REPORT FOR FURTHER EARTHWORK REQUIREMENTS.

GENERAL STRUCTURAL NOTES

1. GENERAL STRUCTURAL NOTES ARE INTENDED TO COMPLEMENT PROJECT STRUCTURAL PLANS AND PROJECT SPECIFICATIONS. SPECIFIC NOTES ON PLANS, DETAILS, AND SCHEDULES SHALL GOVERN OVER THE GENERAL NOTES.
2. TYPICAL DETAILS AND SECTIONS SHALL APPLY WHERE SPECIFIC DETAILS ARE NOT SHOWN.
3. DIMENSIONS SHOWN ON PLANS SHALL ARE FOR INFORMATION ONLY. CONSTRUCTION DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS FOR CONSTRUCTION OR SHOP DRAWINGS.
4. CHANGES TO THE CONTRACT DOCUMENTS MAY BE MADE ONLY BY WRITTEN AUTHORIZATION FROM AN AUTHORIZED REPRESENTATIVE OF J.M. WILLIAMS AND ASSOCIATES JMWA/AE URBIA. JMWA/AE URBIA SHALL BE HELD HARMLESS FOR ANY CLAIMS ARISING DIRECTLY OR INDIRECTLY FROM CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM AN AUTHORIZED REPRESENTATIVE OF JWMA/AE URBIA.
5. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS PRIOR TO CONSTRUCTION/FABRICATION AND SHALL IMMEDIATELY NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
6. THE STRUCTURAL DRAWINGS SHALL NOT BE CONSIDERED ALL INCLUSIVE AND DO NOT CONTAIN ALL DIMENSIONS, ELEVATIONS, AND OPENINGS, NEEDED FOR CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH ARCHITECTURAL DRAWINGS, SITE CONDITIONS, AND OTHER TRADES INCLUDING BUT NOT LIMITED TO: ARCHITECTURAL, MECHANICAL, CIVIL, ELECTRICAL, AND PLUMBING.
7. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND/OR ENGINEER OF ANY DISCREPANCIES, OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND EXISTING CONDITIONS BEFORE PROCEEDING WITH THE CONSTRUCTION/FABRICATION OF ANY AFFECTED ELEMENTS. IN CASE OF CONFLICT, THE MOST STRINGENT REQUIREMENTS AS DIRECTED BY THE ARCHITECT/ENGINEER SHALL GOVERN AND BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
8. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH ANY CHANGES, SUBSTITUTIONS, OR MODIFICATIONS. ANY CONSTRUCTION, FABRICATION, OR INSTALLATION PERFORMED BEFORE RECEIVING THE ARCHITECT/ENGINEERS WRITTEN APPROVAL WILL BE AT THE CONTRACTOR'S RISK/EXPENSE.
9. THE CONTRACTOR SHALL COORDINATE THE WORK PERFORMED BY ALL TRADES AND IS ULTIMATELY RESPONSIBLE FOR COMPLIANCE WITH CONTRACT DOCUMENTS AND CODE REQUIREMENTS. THE CONTRACTOR SHALL MEET ALL NOTED REQUIREMENTS AND SHALL INCLUDE THE ASSOCIATED COSTS IN THEIR RESPECTIVE BID.
10. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ALL TRADES AND SHALL NOTIFY ENGINEER OF SIZE AND LOCATION OF ANY EQUIPMENT OR OTHER ADDITIONAL LOADS NOT SHOWN ON STRUCTURAL PLANS OR TYPICAL DETAILS BEFORE CONSTRUCTION/FABRICATION.
11. FAILURE TO FOLLOW PLANS AND CONSTRUCTION DOCUMENTS CONSTITUTES CHANGE IN PROJECT SCOPE. THE ENGINEER RESERVES THE RIGHT TO REQUEST REPLACEMENT OF ANY PORTION OF THE STRUCTURE DEVIATING FROM THE PLANS WHERE WRITTEN APPROVAL HAS NOT BEEN OBTAINED. DEVIATION FROM CONSTRUCTION DOCUMENTS WITHOUT WRITTEN APPROVAL RELIEVES ENGINEER OF ALL LIABILITY, AND CONTRACTOR ASSUMES FULL LIABILITY. STRUCTURE DEVIATING FROM THE PLANS WHERE WRITTEN APPROVAL HAS NOT BEEN OBTAINED.
12. STRUCTURAL ELEMENTS SHALL NOT BE CUT FOR PIPES, DUCTS, SLEEVES, ETC. UNLESS NOTED OTHERWISE IN THE PLANS AND TYPICAL DETAILS. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE ARCHITECT/ENGINEER FOR INSTALLATION OF ANY ADDITIONAL PIPES, DUCTS, OPENINGS, ETC NOT EXPLICITLY SHOWN ON CONTRACT DOCUMENTS.
13. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION.
14. THE CONTRACTOR SHALL BE RESPONSIBLE ALL TEMPORARY SHORING AND BRACING AS NECESSARY. SHORING AND BEAMS SHALL SUPPORT ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED (I.E. WIND, CONSTRUCTION LOADING, ETC.,). SHORING SHALL REMAIN IN PLACE AS LONG AS SAFETY REQUIRES AND/OR UNTIL ALL THE STRUCTURAL ELEMENTS ARE IN PLACE AND CONNECTED AS REQUIRED IN THE CONTRACT DOCUMENTS.
15. DURING AND AFTER CONSTRUCTION, THE LOADS IMPOSED ON THE STRUCTURE BY THE CONTRACTOR AND OWNER SHALL BE WITHIN THE LIMITS OF THE OCCUPANCY DESIGN LOADS. SEE STRUCTURAL PLANS AND CALCULATIONS FOR THE OCCUPANCY DESIGN LOADINGS AND CRITERIA.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOB SITE.
17. VISITS TO THE JOB SITE BY REPRESENTATIVES OF JMWA/AE URBIA DO NOT CONSTITUTE APPROVAL OR SPECIAL INSPECTION OF THE WORK PERFORMED BY THE CONTRACTOR OR HIS SUBCONTRACTORS.
18. JMWA/AE URBIA SHALL RECEIVE COPIES OF ALL SPECIAL INSPECTION REPORTS COMPLETED BY THE REVIEWING AUTHORITY OR THIRD PARTY REGARDING STRUCTURAL ITEMS LISTED FOR SPECIAL INSPECTION.
19. ALL DEFERRED SUBMITTAL ITEMS, COMPONENTS, AND SYSTEMS NOT SPECIFICALLY ENGINEERED BY THE ENGINEER OF RECORD SHALL BE "DESIGN-BUILD" BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SHOP DRAWINGS OR AS-BUILT DRAWINGS STAMPED BY A PROFESSIONAL ENGINEER IF REQUIRED BY THE REVIEWING AUTHORITY OR JURISDICTION. IF PRE-ENGINEERED SYSTEM IMPACTS THE ORIGINAL DESIGN FOR INTENT OF THE PROJECT IN ANY WAY, CONTRACTOR SHALL COORDINATE WITH ENGINEER OF RECORD PRIOR TO INSTALLATION.
20. JMWA/AEURBIA IS NOT RESPONSIBLE FOR THE COST OF CONSTRUCTION NOR PROJECT BUDGETS. ANY STRUCTURAL CHANGES REQUIRED BY THE CONTRACTOR, OWNER, OR ARCHITECT SHALL BE INVOICED BY JMWA/AEURBIA AND TREATED AS ADDITIONAL SERVICES.
21. JMWA/AEURBIA SHALL BE COMPENSATED FOR ADDITIONAL ENGINEERING REQUIRED AS A RESULT OF ANY THIRD PARTY OR CITY REVIEW, PROVIDED ORIGINAL DESIGN IS IN ACCORDANCE WITH THE CURRENT BUILDING CODE.
22. OMISSIONS IDENTIFIED DURING PLAN REVIEW OR CONSTRUCTION SHALL BE ENGINEERED BY THE ENGINEER OF RECORD AT NO ADDITIONAL COST TO THE OWNER. THE OWNER SHALL BE RESPONSIBLE FOR PAYMENT OF OMISSIONS THROUGH AN APPROVED CHANGE ORDER.
23. REVIEW OF SHOP DRAWING SUBMITTAL ITEMS BY JMWA/AE URBIA SHALL BE FOR GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS AND IS NOT INTENDED FOR APPROVAL. SHOP DRAWING REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF COMPLETING THE PROJECT ACCORDING TO CONTRACT DOCUMENTS.
24. STRUCTURAL SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER AND ARCHITECT OF RECORD PRIOR TO FABRICATION AND ERECTION.
25. THE FOLLOWING LIST INCLUDES, BUT IS NOT LIMITED TO, SPECIFIC ITEMS FOR WHICH SHOP DRAWING SUBMITTALS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ARCHITECT/ENGINEER FOR REVIEW PRIOR TO FABRICATION/INSTALLATION:
    A. CONCRETE MIX DESIGN
    B. CONCRETE REINFORCING
    C. STRUCTURAL STEEL
    D. STEEL DECKING

CONCRETE NOTES

1. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH THE IBC, LOCAL ORDINANCES, AND THE MOST CURRENTLY ADOPTED VERSION OF THE AMERICAN CONCRETE INSTITUTE (ACI) ACI 318.
2. CONTRACTOR SHALL COORDINATE OPENINGS, BLOCK OUTS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS, AND ANY OTHER EMBEDDED ITEMS WITH MECHANICAL, ELECTRICAL, AND ARCHITECTURAL PRIOR TO PLACING CONCRETE.
3. NO OPENINGS, PIPES, DUCTS, SLEEVES, ETC, SHALL BE PLACED IN STRUCTURAL CONCRETE INCLUDING BUT NOT LIMITED TO WALLS, BEAMS, COLUMNS, FOOTINGS, GRADE BEAMS AND SUSPENDED SLABS (INCLUDED CONCRETE OVER METAL DECK) UNLESS SPECIFICALLY DETAILED OR WRITTEN APPROVAL IS GIVEN BY ENGINEER. FOOTINGS SHALL BE STEPPED TO AVOID PIPING UNLESS OTHERWISE DETAILED.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PLACEMENT OF ALL ANCHOR BOLTS, SEISMIC ANCHORS OR STRAPS, ETC... INSTALL PER MANUFACTURER'S SPECIFICATIONS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, DETAILING, CARE, PLACEMENT AND REMOVAL OF ALL FORMWORK AND SHORES. DO NOT REMOVE FORMS AND SHORING UNTIL STRUCTURAL MEMBERS ACQUIRE SUFFICIENT STRENGTH TO SUPPORT THEIR OWN WEIGHT PLUS CONSTRUCTION LOADS.
6. ONLY ONE GRADE OR TYPE OF CONCRETE SHALL BE POURED ON SITE AT ANY GIVEN TIME.
7. CONTRACTOR SHALL SEE CIVIL DRAWINGS AND PROJECT SPECIFICATIONS FOR ADDITIONAL SITE CONCRETE REQUIREMENTS NOT GIVEN IN THIS SECTION.
8. CONSTRUCTION ACTIVITY OR STORAGE OF MATERIALS SHALL NOT TAKE PLACE ON NEWLY PLACED CONCRETE UNTIL CONCRETE HAS ACHIEVED 75% OF SPECIFIED CONCRETE STRENGTH OR 7-DAYS, WHICHEVER IS SOONEST. DAMAGED SLABS OR OTHER STRUCTURAL CONCRETE BECAUSE OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.
9. CONTRACTOR SHALL FOLLOW RECOMMENDATIONS IN ACI 305R FOR HOT WEATHER CONCRETE PLACEMENT AND ACI 306R FOR COLD WEATHER CONCRETE PLACEMENT.

CONCRETE MATERIALS

1. ALL CONCRETE ON SITE SHALL BE TYPE I/II CEMENT PER ASTM C150 FOR ALL CONCRETE
    A. OTHER CEMENT TYPES (III,IV,V) MAY BE USED AT THE DISCRETION OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER.
2. CONTRACTOR SHALL PROVIDE VERIFICATION THAT NORMAL WEIGHT CONCRETE OVER METAL DECK SHALL NOT EXCEED 145 POUNDS PER CUBIC FOOT.
3. CONTRACTOR SHALL PROVIDE VERIFICATION THAT LIGHTWEIGHT CONCRETE OVER METAL DECK SHALL NOT EXCEED 115 POUNDS PER CUBIC FOOT.
4. NO ALUMINUM CONDUIT, PRODUCT CONTAINING ALUMINUM, OR ANY OTHER MATERIAL THAT MAY BE INJURIOUS TO CONCRETE SHALL BE EMBEDDED IN CONCRETE.
5. MAXIMUM SLUMP OF CONCRETE IS EQUAL TO 4 INCHES PLUS OR MINUS 1 INCH.
6. CEMENTITIOUS MATERIALS AND AGGREGATES, UNO:
    A. MIXING WATER — ASTM C1602
    B. FLY ASH AND POZZOLAN — ASTM C618
    C. (25% MAX CEMENTITOUS CONTENT, TYP)
    D. NORMAL WEIGHT AGGREGATES — ASTM C 33
    E. LIGHT WEIGHT AGGREGATES — ASTM C330
    F. MAX AGGREGATE SIZE USED:
        i. 1/5 NARROWEST DIMENSION BTWN FORMS
        ii. 1/3 DEPTH OF THE SLAB
        iii. 3/4 THE MIN CLEAR SPACING BTWN BARS
7. ADMIXTURES WHEN USED, UNO:
    A. WATER REDUCING AND RETARDING ADMIXTURE — ASTM C494
    B. AIR ENTRAINING ADMIXTURES — ASTM C260
    C. CHLORIDE ION CORROSION PREVENTION — ASTM C1582
    D. CALCIUM CHLORIDE SHALL NOT BE ADDED TO CONCRETE MIX
    E. ADMIXTURES NOT MENTIONED AS PART OF THIS SECTION SHALL BE SUBMITTED TO ENGINEER FOR REVIEW BEFORE USE.

CONCRETE STRENGTH

CONCRETE SHALL BE SUPPLIED TO MEET THE FOLLOWING STRENGTH REQUIREMENTS AND REQUIREMENTS SPECIFIC TO THE EXPOSURE CLASSES INCLUDING LIMITS ON WATER/CEMENT RATIO AND AIR CONTENT FOR GIVEN IN ACCORDANCE WITH ACI 318:

CONCRETE ELEMENT:	STRENGTH:
FOOTINGS & FOUNDATION WALLS:	4000 PSI

REINFORCEMENT & ANCHORAGE

1. REINFORCING STEEL
    G. TYPICAL REINFORCING BAR — ASTM 615 GRADE 60
        i. FIELD BENT DOWELS — ASTM 615 GRADE 40 (OPTIONAL)
    B. WELDED WIRE FABRIC — ASTM 185
2. DEFORMED BAR ANCHORS (DBA): — ASTM A496
3. HEADED STUD ANCHORS (HSA): — ASTM A108
4. ANCHOR BOLTS:
    A. TYPICAL:
        i. ANCHOR BOLTS: — ASTM F1554 GRADE 36
        ii. NUTS: — ASTM A563 NUTS AND
        iii. HARDENED WASHERS: — ASTM F436 (5/16" THICK UNO)
5. FOR ALL BOLTS AND ANCHORS EMBEDDED IN CONCRETE SEE "TYPICAL BOLT EMBEDMENT SCHEDULE".
6. ALL SPLICES IN REINFORCING BARS SHALL MEET THE REQUIREMENTS OF "REINFORCING LAP SPLICE SCHEDULE".
7. DO NOT SPLICE STIRRUPS AND TIES. DO NOT SPLICE VERTICAL BARS IN RETAINING WALLS UNLESS SPECIFICALLY SHOWN IN DETAILS.
8. MECHANICAL SPLICES SHALL BE POSITIVE CONNECTING COUPLERS AND SHALL MEET ALL APPLICABLE CODE REQUIREMENTS. ADJACENT MECHANICAL SPLICES SHALL BE STAGGERED A MINIMUM OF 24 INCHES ALONG THE REINFORCING BARS. TENSILE CAPACITY OF MECHANICAL SPLICES SHALL BE 125% OF THE SPLICED BAR.
9. ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH THE ACI DETAILING MANUAL AND ACI STANDARDS.
10. CONCRETE TO BE MECHANICALLY CONSOLIDATED DURING PLACEMENT PER ACI STANDARDS.
11. USE CHAIRS OR OTHER SUPPORT DEVICES RECOMMENDED BY THE CRSI TO SUPPORT AND TIE REINFORCEMENT BARS AND WWF PRIOR TO PLACING CONCRETE. WWF SHALL BE ADEQUATELY SUPPORTED ABOVE GRADE OR DECK. IT IS RECOMMENDED THAT CONTINUOUS SUPPORTS ARE PLACED AT 36" O.C. MAXIMUM.
12. LIFTING OF REINFORCING OFF GRADE OR DECK DURING PLACEMENT OF CONCRETE IS NOT PERMITTED.
13. REINFORCING STEEL AND EMBEDS SHALL BE PROPERLY TIED INTO PLACE PRIOR TO PLACING CONCRETE.
14. HORIZONTAL REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION AND CONTROL JOINTS OR PROVIDE REINFORCING DOWELS TO MATCH MEMBER REINFORCING, UNO.
15. PROVIDE CORNER BARS AT INTERSECTING WALL CORNERS USING THE SAME BAR SIZE AND SPACING AS THE HORIZONTAL WALL REINFORCING, SEE DETAILS.
16. DO NOT WELD REINFORCING BARS. DO NOT SUBSTITUTE REINFORCING BARS FOR DEFORMED BAR ANCHORS OR HEADED STUD ANCHORS.
17. SEE ACI 315 FOR ADDITIONAL DETAILING REQUIREMENTS FOR REINFORCING.
18. CAST-IN-PLACE REINFORCEMENT SHALL HAVE THE FOLLOWING CLEAR COVER:
    A. CAST AGAINST/PERMANENTLY EXPOSED TO EARTH — 3"
    B. FORMED CONCRETE EXPOSED TO EARTH/WEATHER:
        i. #6 THRU #18 BARS — 2"
        ii. #5 AND SMALLER BARS — 1-1/2"
    C. CONCRETE NOT EXPOSED EARTH/WEATHER:
        i. SLABS, WALLS, JOISTS (#11 AND SMALLER) — 3/4"
        ii. BEAMS, COLUMNS, TIES, STIRRUPS — 1-1/2"

CONSTRUCTION AND CONTROL JOINTS:

1. CONSTRUCTION OR CONTROL JOINTS IN ALL EXPOSED CONCRETE NOT SHOWN ON PLANS SHALL BE COORDINATED WITH THE ARCHITECT/ENGINEER BEFORE CONCRETE IS PLACED.
2. SPACING BETWEEN CONSTRUCTION OR CONTROL JOINTS SHALL MEET THE FOLLOWING REQUIREMENTS:
    A. CONCRETE SLAB ON GRADE OR CONCRETE OVER METAL DECK:
        i. 4" THICK -10' O.C. MAX
        5" THICK - 10' O.C. MAX
        6" THICK - 12' O.C. MAX
        8" THICK - 12' O.C. MAX
3. SAWCUT CONTROL JOINTS SHALL BE MADE 1-HR IN HOT WEATHER OR 4-HRS IN COLD WEATHER AFTER COMPLETING THE FINISHING OF THE SLAB IN THAT JOINT LOCATION. CUTTING SHALL BE COMPLETED BEFORE SLAB CONCRETE COOLING OCCURS, SUBSEQUENT TO THE PEAK HEAT OF HYDRATION, USE EARLY ENTRY SAW.
4. CONSTRUCTION JOINTS SHALL NOT EXCEED A DISTANCE OF 125'-0" O.C. IN ANY DIRECTION, HOWEVER DISTANCE MAY BE INCREASE TO 150'-200' UNDER IDEAL CONDITIONS AT CONTRACTORS RISK.
5. THE LENGTH TO WIDTH RATIO OF CONTROL JOINTS SHALL NOT EXCEED 1.25:1.
6. PROVIDE 2 - #4 BARS X 48 INCHES AT ALL DISCONTINUOUS CONTROL OR CONSTRUCTION JOINTS IN SLAB-ON-GRADE.
7. PROVIDE (1) DIAGONAL #3 OR #4 BAR X 48" AT ALL INSIDE CORNERS.
8. CONTRACTOR MAY SUBMIT IN WRITING CHANGES OR MODIFICATIONS TO REQUIREMENTS FOR CONTROL AND CONSTRUCTION JOINTS FOR ARCHITECT, OWNER, AND ENGINEER REVIEW.

FOOTINGS

1. SEE FOOTING SCHEDULE AND DETAILS FOR SIZE AND REINFORCING REQUIREMENTS, TYP. INTERIOR FOOTINGS MAY BE MONOLITHIC WITH SLAB.
2. CONTRACTOR TO ENSURE THAT ALL EXTERIOR FOOTINGS SHALL BEAR BELOW FROST DEPTH AS NOTED IN "EARTHWORK" SECTION. CONTRACTOR SHALL STEP FOOTINGS & FOUNDATION AS REQUIRED.
3. NO FOOTING SHALL BE PLACED IN WATER OR ON FROZEN GROUND.

MACROSYTHETIC FIBER REINFORCED CONCRETE

1. MACROSYTHETIC FIBER REINFORCING IS APPROVED FOR USE IN CONSTRUCTION ONLY WHEN PRIOR WRITTEN CONSENT HAS BEEN OBTAINED BY AEURBIA/JMWA AND OWNER.
2. FIBERS SHALL MEET ALL REQUIREMENTS SET FORTH PER ASTM C1116 AND ASTM D7508.
3. FIBER DESCRIPTION:
    A. FIBER LENGTHS SHALL BE 2.0 INCHES OR GREATER.
    B. BEFORE MIXING, FIBERS ARE COLLATED BY TWISTING WITH AN INITIAL BUNDLE ASPECT RATIO LESS THAN 25.
    C. AFTER MIXING MACRO SYNTHETIC FIBERS ARE TO HAVE AN ASPECT RATIO OF 80 OR GREATER.
    D. FIBER DOSAGE, SIZE, AND MATERIAL SHALL BE DETERMINED BY MANUFACTURER (EUCLID, FORTA, OR OTHERS MAY BE APPROVED WITH WRITTEN CONSENT FROM JMWA/AEURBIA).
        i. DOSAGE SHALL BE 4 LBS PER CUBIC YARD MINIMUM.

POST INSTALLED ANCHOR NOTES

1. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS FOR POST INSTALLED ANCHORS, ACI STANDARDS, AND MISC SPECIFICATIONS.
2. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFICALLY CALLED FOR IN THE CONTRACT DOCUMENTS. IF POST-INSTALLED ANCHORS ARE DESIRABLE TO BE USED IN LIEU OF CAST-IN-PLACE ANCHORS CONTRACTOR MUST SUBMIT FORMAL WRITTEN REQUEST TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
3. ANY USE OF POST-INSTALLED ANCHORS FOR RETROFIT OR PLACEMENT/REPLACEMENT OF MISSING ANCHORS MUST FIRST BE APPROVED IN WRITING FROM THE ARCHITECT/ENGINEER.
4. CONTRACTOR SHALL FOLLOW ICC EVALUATION REPORTS AND ALL MANUFACTURERS RECOMMENDATIONS AND REQUIREMENTS FOR INSTALLATION OF ALL POST-INSTALLED ANCHORS.
5. ALTERNATIVE ANCHORS NOT LISTED AS PART OF THIS SECTION MAY BE SUBMITTED FOR REVIEW TO THE ENGINEER BY THE CONTRACTOR. THE CONTRACTOR MUST SUBMIT CALCULATIONS AND ASSOCIATED ICC REPORTS FOR THE REQUESTED ALTERNATIVE TO THE ENGINEER FOR REVIEW PRIOR TO USE.

EPOXY ANCHORS AND DOWELS IN CONCRETE

1. USE HILTI HIT-RE 500-V3 (ESR-3814) OR SIMPSON SET-XP (ESR-2508) FOR ALL EPOXIED IN ANCHORS AND DOWELS. NO SUBSTITUTIONS PERMITTED WITHOUT APPROVAL FROM THE ENGINEER OF RECORD.
2. INSTALL EPOXY/ADHESIVE AND ANCHORS OR DOWELS PER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
3. EPOXY ANCHORS MAY ONLY BE PLACED WITHIN THE MANUFACTURER'S RECOMMENDED TEMPERATURE RANGES, SEE ICC REPORT AND MANUFACTURER'S RECOMMENDATIONS.
4. CONTRACTOR TO ENSURE THAT EPOXY IS USED PRIOR TO THE MANUFACTURER GIVEN EXPIRATION DATE. DO NOT USE EPOXY THAT HAS BEEN STORED CONTRARY TO INSTRUCTIONS GIVEN BY THE MANUFACTURER.
5. ALL DRILLED HOLES SHALL BE 1/8" LARGER THAN THE BAR OR ANCHOR BOLT BEING INSTALLED.
6. CLEAN THE WALL AND HOLE WITH A NYLON BRUSH AND/OR COMPRESSED AIR. THE HOLE MUST BE COMPLETELY DRY AND FREE OF DUST, DEBRIS AND STANDING WATER.
7. UNLESS NOTED OTHERWISE, MINIMUM EMBEDMENT OF EPOXIED ANCHORS SHALL COMPLY WITH "POST-INSTALLED ANCHOR EMBEDMENT" SCHEDULE.

EXPANSION ANCHORS

1. USE HILTI HDA UNDERCUT ANCHOR (ESR-1546) OR HILTI HSL-3 EXPANSION ANCHOR (ESR-1545) OR HILTI KB-TZ EXPANSION ANCHOR (ESR-1917) OR SIMPSON STRONG BOLT (ESR-1771) OR REDHEAD TRUBOLT+ EXPANSION ANCHOR (ESR-2427) FOR ALL EXPANSION ANCHORS. NO SUBSTITUTIONS PERMITTED WITHOUT APPROVAL FROM THE ENGINEER OF RECORD.
2. ALL DRILLED HOLES SHALL BE THE SAME DIAMETER AS THE NOMINAL DIAMETER OF THE EXPANSION BOLT BEING INSTALLED. CLEAN THE HOLE WITH COMPRESSED AIR.
3. UNLESS NOTED OTHERWISE, MINIMUM EMBEDMENT OF EXPANSION ANCHORS SHALL COMPLY WITH "TYPICAL BOLT EMBEDMENT SCHEDULE".

SCREW ANCHORS

1. USE TITEN HD (ICC-ES ESR-2712) BY SIMPSON STRONG-TIE, OR KWIK HUS-EZ (ICC-ES ESR-3027) BY HILTI INC FOR ALL SCREW ANCHORS, UNO.

STRUCTURAL STEEL NOTES

1. ALL WORK TO BE IN STRICT ACCORDANCE WITH THE IBC, LOCAL ORDINANCES, AND THE MOST CURRENTLY ADOPTED VERSION OF THE FOLLOWING DESIGN SPECIFICATIONS:
    A. AISC 360 "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" WITH "COMMENTARY"
    B. AISC 341 "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS"
    C. AISC 303 "CODE OF STANDARD PRACTICE" EXCLUDING: SECTIONS 3.2, 4.4, 4.4.1.
    D. AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", AND "SEISMIC PROVISION FOR STRUCTURAL BUILDINGS",
    E. AWS "STRUCTURAL WELDING CODE", EXCEPT AS MODIFIED BY THE REQUIREMENTS GIVEN BY AISC.
2. ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND ERECTION.
3. SEE ARCHITECTURAL SHEETS FOR DIMENSIONS, ELEVATIONS, ACCESS HATCHES, DRAFT STOPS, ETC.
4. SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL FOR ADDITIONAL STEEL MEMBERS (BRACKETS, ANGLES, ETC...) WHERE REQUIRED.
5. ALL STEEL SHALL BE PROPERLY PRIMED EXCEPT AREAS THAT REQUIRE FIELD WELDING.
6. ALL FAYING SURFACES MUST BE PROPERLY PREPARED FOR CONNECTION AND BE FREE OF RUST/CORROSION.
7. ALL EXPOSED EXTERIOR STEEL ELEMENTS SHALL BE HOT-DIPPED GALVANIZED. CONTRACTOR TO COORDINATE WITH ARCHITECT BEFORE FABRICATION.
8. STANDARD PENETRATIONS THROUGH STRUCTURAL MEMBERS FOR MECHANICAL, PLUMBING, ELECTRICAL SYSTEMS, ETC. SHALL BE PROVIDED ON THE CENTER LINE OF THE MEMBER'S DEPTH AND WITHIN THE MIDDLE ONE-THIRD OF THE SPAN. ALL PENETRATIONS MUST BE SHOWN IN SHOP-DRAWINGS. NO FIELD-CUT PENETRATIONS ARE PERMITTED WITHOUT WRITTEN APPROVAL FROM JMWA/AEURBIA.
9. REFER TO ARCHITECTURAL DRAWINGS FOR STEEL FIREPROOFING REQUIREMENTS.

MATERIALS

1. WIDE FLANGE SECTIONS:	ASTM A992 (50 KSI)
2. SHAPES AND PLATES:	
A. TYPICAL	ASTM A36
3. HSS (CIRCULAR):	ASTM A500 GRADE C (46 KSI)
4. HSS (SQUARE, RECTANGULAR):	ASTM A500 GRADE C (50 KSI)
5. PIPE (STD, XS, XXS):	ASTM A53 GRADE B (35 KSI)
6. DEFORMED BAR ANCHORS (DBA):	ASTM A496
7. HEADED STUD ANCHORS (HSA):	ASTM A108
8. NON-SHRINK GROUT	ASTM C1107 GRADE B (7500 PSI MIN)
9. BOLTED CONNECTIONS (TYPICAL):	
A. TYPICAL BOLTS (3/4" DIA UNO):	ASTM F3125 A325
B. NUTS:	ASTM A563 NUTS
C. HARDENED WASHERS:	ASTM F436
10. WELDS (TYPICAL):	
A. E70 XX AT ALL JOISTS	
B. E60 XX AT ALL DECKS	
C. E70 XX AT ALL OTHER LOCATIONS	

WELDING

1. ALL WELDS AND BOLTING TO MEET APPROVAL O

SPECIAL INSPECTION SCHEDULE

ESTABLISHED PER 2021 IBC

STATEMENT OF SPECIAL INSPECTION (1704.3)

ACCORDING TO CHAPTER 17 OF THE IBC, SPECIAL INSPECTION AND QUALITY ASSURANCE SHALL BE PROVIDED BY AN APPROVED AGENCY OR AGENCIES AS EMPLOYED BY THE OWNER. PRIOR TO THE START OF THE CONSTRUCTION, THE APPROVED AGENCIES SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION. THE CONSTRUCTION OR WORK REQUIRING SPECIAL INSPECTION SHALL REMAIN ACCESSIBLE AND EXPOSED FOR SPECIAL INSPECTION OR TESTING PURPOSES UNTIL THE REQUIRED SPECIAL INSPECTION OR TESTS ARE COMPLETE. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. APPROVED AGENCIES SHALL KEEP RECORDS OF SPECIAL INSPECTIONS AND TESTS. THE APPROVED AGENCY SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL, CONTRACTOR, AND TO THE REGISTERED ARCHITECT AND ENGINEER IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO AND TO THE REGISTERED ARCHITECT AND ENGINEER IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS, SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL. SPECIAL INSPECTION IS REQUIRED FOR ALL ITEMS LISTED IN THE SPECIAL INSPECTION SCHEDULE.

SPECIAL INSPECTION NOTES

1. CONTINUOUS SPECIAL INSPECTION MEANS THE FULL-TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED. PERIODIC SPECIAL INSPECTION MEANS THE PART-TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK.
2. ANY CONSTRCTION OR MATERIAL THAT HAS FAILED INSPECTION SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT.
3. EPOXY AND EXPANSION ANCHORS INTO MASONRY OR CONCRETE MAY BE USED ONLY WHEN APPROVED BY ARCHITECT AND / OR ENGINEER USING AN APPROVED PRODUCT WITH CURRENT PUBLISHED ICBO RESEARCH REPORT NUMBERS
4. SPECIAL INSPECTION OF SOILS SHALL REFERENCE THE APPROVED SOILS REPORT TO DETERMINE COMPLIANCE.
5. SPECIAL INSPECTIONS ARE NOT REQUIRED DURING PLACEMENT OF FILL LESS THAN 12 INCHES DEEP.
6. ALL WELDS SHALL BE VISUALLY INSPECTED (IBC 1704.3) AND SHALL BE IN COMPLIANCE WITH AWS D1.1.
7. ALL COMPLETE PENETRATION WELDS SHALL BE TESTED ULTRASONICALLY OR BY USING ANOTHER APPROVED METHOD (AISC 360 N5)
8. SLIP-CRITICAL CONNECTIONS MAY HAVE PERIODIC SPECIAL INSPECTION PROVIDED THAT THE TURN-OF-THE-NUT METHOD WITH MATCH MARKING TECHNIQUES IS USED.

ITEM FOR VERIFICATION	INSPECTION FREQUENCY		COMMENTS
	CONTINUOUS	PERIODIC	
PREFABRICATED CONSTRUCTION (IBC 1704.2.5)			
PREFABRICATED OR PRECAST CONSTRUCTION			WHERE FABRICATION OF ELEMENTS FOR STRUCTURAL LOAD-BEARING OR LATERAL LOAD RESISTING MEMBERS IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTIONS OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION, EXCEPT WHERE THE FABRICATOR HAS BEEN APPROVED TO PERFORM WORK WITHOUT SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC 1704.2.5.1. CERTIFICATE OF COMPLIANCE MUST BE SUBMITTED TO THE BUILDING OFFICIAL FOR ALL COMPLETED WORK.

SOILS (IBC 1705.6)			
SPECIAL INSPECTIONS OF THE SOIL SHALL BE PERFORMED FOR COMPLIANCE WITH THE STATED REQUIREMENTS IN THE CONSTRUCTION DOCUMENTS AND APPROVED GEOTECHNICAL REPORT.			
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		●	
VERIFY EXCAVATIONS ARE EXTENDED TO THE PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		●	
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.		●	APPLIES IN ALL AREAS WHERE COMPACTED FILL, STRUCTURAL FILL, AND BACKFILL IS REQUIRED
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	●		APPLIES IN ALL AREAS WHERE COMPACTED FILL, STRUCTURAL FILL, AND BACKFILL IS REQUIRED
PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		●	APPLIES IN ALL AREAS WHERE COMPACTED FILL, STRUCTURAL FILL, AND BACKFILL IS REQUIRED

POST-INSTALLED ANCHORS (IBC 1705.1.1)			
ALL POST-INSTALLED ANCHORS IN CONCRETE OR MASONRY SHALL BE PERFORMED PER MANUFACTURERS INSTALLATION AND QUALITY ASSURANCE REQUIREMENTS. ICC-ES REPORTS SHOULD BE COLLECTED FOR EACH ANCHORAGE TYPE USED.			
ADHESIVE ANCHORS (DRILL & EPOXY)	●		ADHESIVE ANCHORS INSTALLED IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATION TO RESIST SUSTAINED TENSION OR SEISMIC LOADS SHOULD BE CONTINUOUSLY INSPECTED. ALL OTHER INSTALLATION TYPES MAY BE INSPECTED PERIODICALLY.
SCREW OR MECHANICAL ANCHORS		●	

ITEM FOR VERIFICATION	INSPECTION FREQUENCY		COMMENTS
	CONTINUOUS	PERIODIC	
CONCRETE CONSTRUCTION (IBC 1705.3)			
CONCRETE ITEMS REQUIRING SPECIAL INSPECTION: CONCRETE FOOTINGS, INTERIOR CONCRETE SLAB-ON-GRADE, AND CONCRETE TILT-UP PANELS.			
CONCRETE PLACEMENT	●		
VERIFYING REQUIRED DESIGN MIX		●	VERIFY MIX DESIGN MEETS STRENGTH AND EXPOSURE REQUIREMENTS LISTED ON GENERAL STRUCTURAL NOTES
EMBEDDED BOLTS, PLATES, AND ANCHORS		●	VERIFY TYPE, SIZE, DETAILS, AND LOCATION OF EMBEDS
FORMWORK		●	VERIFY DIMENSIONS AND LOCATION; VERIFY CONSTRUCTION LOADS HAVE BEEN CONSIDERED BY CONTRACTOR; VERIFY RATE AND METHOD OF CONCRETE PLACEMENT
CURING TEMPERATURE / TECHNIQUES		●	CURING OF THE CONCRETE SHOULD BE IN COMPLIANCE WITH HOT AND COLD CONDITIONS PER ACI LIMITATIONS.
STRENGTH TESTS (COMPRESSION AND/OR FLEXURE), SLUMP, AIR ENTRAINMENT, AND CONCRETE TEMPERATURE	●		TESTING SHALL BE PERFORMED BY A QUALIFIED TESTING AGENCY AND SHALL BE AT A MINIMUM OF (1) ONCE PER DAY (2) ONCE PER 150 CUBIC YARDS OF CONCRETE (3) ONCE PER 1500 SQ FT OF SURFACE AREA FOR SLABS OR WALLS; A MINIMUM OF (5) TOTAL STRENGTH TESTS SHOULD BE PERFORMED RANDOMLY ACROSS BATCHES
REINFORCING STEEL PLACEMENT			
ASTM DESIGNATION AND GRADE OF REINFORCING		●	
TYPE, SIZE, LOCATION, DETAILING, AND EMBEDMENT LENGTH		●	
CONCRETE COVER TO REINFORCING		●	
LOCATION AND LENGTH OF LAP SPLICES		●	
TYPE AND LOCATION OF MECHANICAL SPLICES		●	
ASTM DESIGNATION FOR PROTECTIVE COATINGS		●	
PROPER STORAGE OF REINFORCING		●	VERIFY REINFORCEMENT IS FREE OF DIRT, OIL, AND EXCESSIVE CORROSION
MILL TEST REPORTS FOR ALL REINFORCING		●	
WELDING OF REINFORCMENT	●		WELDING OF REINFORCING BARS SHALL BE PER AWS D1.4

ITEM FOR VERIFICATION	INSPECTION FREQUENCY		COMMENTS
	CONTINUOUS	PERIODIC	
STEEL WELDING (AISC 360-16)			
INSPECTION TASKS PRIOR TO WELDING			
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	●		
WELDING PROCEDURE SPECIFICATIONS AVAILABLE	●		
MANUFACTUERER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	●		
MATERIAL IDENTIFICATION (TYPE/GRADE)		●	
WELDER IDENTIFICATION SYSTEM		●	
FIT-UP GROOVE WELDS		●	INCLUDING JOINT GEOMETRY, PREPARATIONS, DIMENSIONS, CLEANLINESS, TACKING, AND BACKING TYPE FIT [WHERE APPLICABLE]
CONFIGURATION AND FINISH OF ACCESS HOLES		●	
FIT-UP OF FILLET WELDS		●	INCLUDING DIMENSIONS, CLEANLINESS, AND TACKING
CHECKING WELDING EQUIPMENT		●	
INSPECTION TASKS DURING WELDING			
CONTROL AND HANDLING OF WELDING CONSUMABLES		●	INCLUDING PACKAGING AND EXPOSURE CONTROL
USE OF QUALIFIED WELDERS		●	
CRACKED TACK WELDS		●	VERIFY NO WELDING OVER CRACKED TACK WELDS
ENVIRONMENTAL CONDITIONS		●	VERIFY WIND SPEED WITHIN LIMITS, PRECIPITATION, AND TEMPERATURE
WELDING PROCEDURE SPECIFICATIONS FOLLOWED		●	VERIFY SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, SELECTED WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE (MIN/MAX), PROPER POSITION (F, V, H, OH)
WELDING TECHNIQUES		●	VERIFY INTERPASS AND FINAL CLEANING, EACH PASS WITHIN PROFILE LIMITATIONS, EACH PASS MEETS QUALITY REQUIREMENTS
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS		●	
SINGLE-PASS FILLET WELDS		●	
MULTIPASS FILLET WELDS	●		
COMPLETE AND PARTIAL PENETRATION GROOVE WELDS	●		
INSPECTION TASKS AFTER WELDING			
WELDS CLEANED	●		
SIZE, LENGTH AND LOCATION OF WELDS	●		
WELDS MEET VISUAL ACCEPTANCE CRITERIA: CRACK PROHIBITION, WELD/BASE-METAL FUSION, CRATER CROSS SECTION, WELD PROFILES, WELD SIZE, UNDERCUT, AND POROSITY	●		
ARC STRIKES, K-AREA, BACKING AND WELD TABS REMOVED (WHERE REQUIRED), AND ALL REPAIR ACTIVITIES	●		
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER		●	
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF EOR		●	

STATEMENT OF SPECIAL INSPECTION

SPECIAL INSPECTION SHALL BE PROVIDED BY OWNER ACCORDING TO CHAPTER 17 OF THE IBC. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. THE SPECIAL INSPECTOR SHALL SEND REPORTS TO THE OWNER, BUILDING OFFICIAL, ARCHITECT, ENGINEER AND CONTRACTOR. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING THAT THE SPECIAL INSPECTION WORK WAS, TO THE BEST OF HIS/HER KNOWLEDGE, IN CONFORMANCE WITH THE PLANS, SPECIFICATIONS AND APPLICABLE WORKMANSHIP PROVISIONS OF THE IBC. SPECIAL INSPECTION IS REQUIRED FOR ALL WORK GIVEN IN THE SPECIAL INSPECTION SCHEDULE.

ABBREVIATIONS

A.B.	ANCHOR BOLTS	INT	INTERIOR
ABV	ABOVE		
ACI	AMERICAN CONCRETE INSTITUTE	JST	JOIST
ADJ	ADJACENT	JT	JOINT
AFF	ABOVE FINISHED FLOOR		
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	K	KIPS
ALT	ALTERNATE	KLF	KIPS PER LINEAR FOOT
APPROX	APPROXIMATE	KSF	KIPS PER SQUARE FOOT
ARCH	ARCHITECT	LBS (OR #)	POUNDS
ARCH'L	ARCHITECTURAL (DRAWINGS)	LF	LINEAR FOOT
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	LL	LIVE LOAD
		LLH	LONG LEG HORIZONTAL
AWS	AMERICAL WELDING SOCIETY	LLV	LONG LEG VERTICAL
		LSV	LONG SIDE VERTICAL
BFF	BELOW FINISHED FLOOR	LSH	LONG SIDE HORIZONTAL
BLW	BELOW		
BOT	BOTTOM	MFR	MANUFACTURER
BRB	BUCKLING RESTRAINED BRACE	MAX	MAXIMUM
BRG	BEARING	MECH	MECHANICAL (DRAWINGS)
BTWN	BETWEEN	MIN	MINIMUM
		MISC	MISCELLANEOUS
CJ	CONTROL JOINT	MSJC	MASONRY STANDARDS JOINT COMMITEE
CL	CENTER LINE		
CLR	CLEAR	MSW	METAL STUD WALL
CMU	CONCRETE MASONRY UNITS	MTL	METAL
COL	COLUMN		
COMP	COMPOSITE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CONC	CONCRETE		
CONN	CONNECTION	NIC	NOT IN CONTRACT
CONST	CONSTRUCTION	NTS	NOT TO SCALE
CONT	CONTINUOUS		
CONTR	CONTRACTOR	O.A.	ON CENTER
CP	CONCRETE PIER	OD	OUTSIDE DIAMETER
CRSI	CONCRETE REINFORCING STEEL INSTITUTE	OPP	OPPOSITE
CW	CONCRETE WALL	PCF	POUNDS PER CUBIC FOOT
		PDF	POWDER DRIVEN FASTENER
DB	DECK BEARING	PL	PLATE
DBA	DEFORMED BAR ANCHOR	PLF	POUNDS PER LINEAL FOOT
DB	DECK BEARING	PLUMB	PLUMBING (DRAWINGS)
DBL	DOUBLE	PSF	POUNDS PER SQUARE FOOT
Ø	OR DIA. DIAMETER	PSI	POUNDS PER SQUARE INCH
DIM(S)	DIMINSION(S)		
DL	DEAD LOAD	REINF	REINFORCING
DET	DETAIL	REQ'D	REQUIRED
DWG(S)	DRAWING(S)	RTU	ROOF TOP UNIT
		SFRS	SEISMIC FORCE RESISTING SYSTEM
EA	EACH	SBP	STEEL BASE PLATE
EF	EACH FACE	SC	STEEL COLUMN
EJ	EXPANSION JOINT	SCP	STEEL CAP PLATE
ELECT	ELECTRICAL (DRAWINGS)	SCHED	SCHEDULE
ELEV	ELEVATION	SF	SQUARE FOOT
E.L.F.	EQUIVALENT LATERAL FORCE	SIM	SIMILAR
EMBED	EMBEDMENT	SJI	STEEL JOIST INSTITUTE
EOR	ENGINEER OF RECORD	SL	SNOW LOAD
EOS	EDGE OF SLAB	SPECS	SPECIFICATIONS
EQ	EQUAL, EQUALLY	STRUCT	STRUCTAL (DRAWINGS)
EXP	EXPANSION	STS	SELF TAPPING SCREWS
EXT	EXTERIOR	SW	WOOD SHEAR WALL
EQUIP	EQUIPMENT		
EXIST	EXISTING	T&B	TOP AND BOTTOM
		TO	TOP OF ,,,
FDN	FOUNDATION	TOF	TOP OF FOOTING
FLR	FLOOR	TOS	TOP OF SLAB
FRMG	FRAMING	TOW	TOP OF WALL
FT	FEET	TYP	TYPICAL
FTG	FOOTING		
FV	FIELD VERIFY	U.N.O.	UNLESS NOTED OTHERWISE
GALV	GALVANIZED	VERT	VERTICAL
GC	GENERAL CONTRACTOR		
GSN	GENERAL STRUCTURAL NOTES	W/	WITH
		W/O	WITHOUT
HORIZ	HORIZONTAL	WP	WORK POINT
HSA	HEADED STUD ANCHOR	WSW	WOOD STUD WALL
HT	HEIGHT	WWF	WELDED WIRE FABRIC
		WWM	WELDED WIRE MESH
IBC	INTERNATIONAL BUILDING CODE		
ID	INSIDE DIAMETER		
IN	INCH(ES)		

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Revision Schedule

MARK	DESCRIPTION	Revision Date

AE2024.387

GENERAL STRUCTURAL NOTES

DATE: **05.15.2025**

SHEET #:

S003

FOR-PERMIT

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GRAPHIC SCALE 0 8' 16' 24'

NORTH

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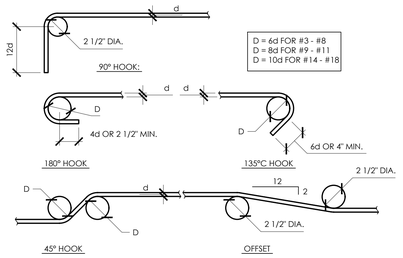
REINFORCING LAP SPLICE SCHEDULE

BAR SIZE	f'c = 3000 PSI				f'c = 4000 PSI				f'c = 5000 PSI				f'c = 6000 PSI			
	REGULAR		TOP		REGULAR		TOP		REGULAR		TOP		REGULAR		TOP	
	CLASS		CLASS		CLASS		CLASS		CLASS		CLASS		CLASS		CLASS	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
#3	13"	17"	17"	21"	12"	16"	16"	21"	12"	16"	16"	21"	12"	16"	16"	21"
#4	17"	22"	22"	28"	15"	19"	19"	25"	13"	17"	17"	22"	12"	16"	16"	21"
#5	21"	27"	27"	35"	18"	24"	24"	31"	16"	21"	21"	27"	15"	19"	19"	25"
#6	27"	36"	36"	46"	24"	31"	31"	40"	21"	28"	28"	36"	20"	25"	25"	33"
#7	37"	48"	48"	63"	32"	42"	42"	54"	29"	38"	38"	49"	27"	34"	34"	44"
#8	49"	64"	64"	82"	42"	55"	55"	71"	38"	49"	49"	64"	35"	45"	45"	58"
#9	62"	80"	80"	104"	54"	70"	70"	90"	48"	62"	62"	81"	44"	57"	57"	74"
#10	78"	102"	102"	132"	68"	88"	88"	115"	61"	79"	79"	102"	56"	72"	72"	94"
#11	96"	125"	125"	162"	83"	108"	108"	141"	76"	97"	97"	126"	68"	88"	88"	115"

NOTE:

1. THESE NOTES SHALL BE USED FOR ALL SPLICES, UNLESS NOTED OTHERWISE.
2. CLASS 'A' SPLICES MAY BE USED ONLY IN CASES WHERE 50% OR LESS OF THE BARS ARE SPLICED WITHIN THE LAP SPLICE LENGTH.
3. CLASS 'B' SPLICES SHALL BE USED FOR ALL SPLICES UNLESS THE REQUIREMENTS OF NOTE #2 ABOVE ARE MET.
4. TIES AND STIRRUPS SHALL NOT BE SPLICED.
5. a. FOR BUNDLED BARS OF THREE OR LESS, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.2.
   b. FOR BUNDLED BARS OF FOUR OR MORE, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.33.
   c. INDIVIDUAL BAR SPLICES WITHIN A BUNDLE SHALL NOT OVERLAP.
   d. ENTIRE BUNDLES SHALL NOT BE LAP SPLICED.
6. FOR ALL LIGHTWEIGHT CONCRETE, LAP LENGTHS SHALL BE MULTIPLIED BY 1.3.
7. FOR ALL EPOXY COATED BARS, LAP LENGTHS SHALL BE MULTIPLIED BY 1.3 FOR TOP BARS AND 1.5 FOR REGULAR BARS.
8. TOP BARS ARE CLASSIFIED AS HORIZONTAL BARS WHERE 12", OR MORE, OF FRESH CONCRETE IS CAST BELOW THE REINFORCING BAR.



2 S004 REINFORCING LAP SPLICE SCHEDULE & BAR BENDING DIAGRAMS

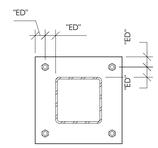
SCALE: N.T.S.

STEEL COLUMN SCHEDULE

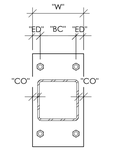
SIZE	STEEL BASE PLATE	STEEL CAP PLATE	ANCHOR BOLTS	COMMENTS
HSS 9x9x3/8	1" (SBP-1)	1/2" CL PLATE	3/4" A.B.	
HSS 6x6x5/8	1" (SBP-1)	1/2" CL PLATE	3/4" A.B.	
HSS 5x5x1/4	1" (SBP-1)	1/2" CL PLATE	3/4" A.B.	

STEEL COLUMN NOTES:

1. TYPICAL ANCHOR RODS SHALL MEET THE FOLLOWING REQUIREMENTS, UNO:
   a. ANCHOR BOLTS SHALL PROJECT 3" MINIMUM ABOVE TOP OF THE BASE PLATE.
   b. ANCHOR EMBEDMENT INTO FOOTING SHALL BE 12 x ANCHOR BOLT DIAMETER.
   c. EMBEDED ENDS SHALL HAVE 3" MINIMUM HOOKS.
2. TYPICAL ANCHOR BOLTS SHALL BE INSTALLED WITH HARDENED WASHERS BENEATH NUT. ANY HOLES LARGER THAN THE BOLT DIAMETER PLUS 5/16" SHALL HAVE 5/16" PLATE WASHERS INSTALLED BENEATH HARDENED WASHERS.
3. IF DESIRED SPLICE LOCATIONS DIFFER FROM THOSE LEVELS SHOWN ON PLAN, NOTIFY STRUCTURAL ENGINEER PRIOR TO FABRICATION. WRITTEN APPROVAL REQUIRED.
4. NON-SHRINK GROUT UNDER BASE PLATES SHALL BE 1 1/2" THICK UNO.
5. FLOOR ELEVATIONS SHOWN ARE FOR INFORMATION ONLY. CONTRACTOR TO CONFIRM WITH ARCHITECTURAL.
6. ALL CAP PLATES/BASE PLATES SHALL WELD TO COLUMN WITH 5/16 FILLET WELD, UNO.
7. REFER TO DETAILS FOR ANCHOR BOLT LAYOUT.
8. ANCHOR BOLTS SHALL NOT BE WELDED (INCLUDING TACK WELDS).
9. SEE GENERAL STRUCTURAL NOTES FOR MATERIALS AND OTHER REQUIREMENTS.
10. COLUMNS MARKED WITH W-COL ARE FOR TENANT PROVIDED STRUCTURES. BASES PLATE SIZES AND DIMENSIONS WILL BE PROVIDED BY TENANT.



BASE PL SBP-1



BASE PL SBP-2

PLATE LEGEND

CO	= 1/2" MINIMUM
ED	= 1 1/2 NUBUNYN
SP	= 3" MINIMUM
BC	=BEAM OR GIRDER GAGE
W	= BEAM OR GIRDER GAGE +3" OR BEAM OR GIRDER WIDTH + 1" OR COLUMN WIDTH + 1" WHICHEVER IS GREATER

1 S004 STEEL COLUMN SCHEDULE

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TYPICAL SCHEDULES

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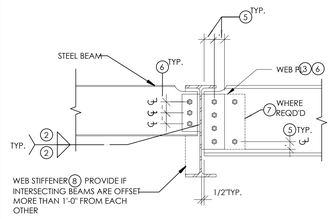
A-325 BOLT SCHEDULE

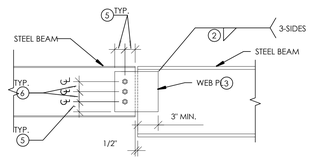
MAXIMUM BEAM SIZE IN EACH BEAM DEPTH GROUP	A-325N BOLTS	
	No. PER BEAM	SIZE
W8	2	3/4" DIA.
W10	2	3/4" DIA.
W12	3	3/4" DIA.
W14	3	3/4" DIA.
W16	4	3/4" DIA.
W18	5	7/8" DIA.
W21	6	7/8" DIA.
W24	6	7/8" DIA.
W27	7	7/8" DIA.
W30	9	7/8" DIA.

1. hss column shall have a minimum 1/4" thickness for 3/8" shear tabs and minimum 3/8" thickness for 1/2" shear tabs.
2. fillet welds shall be as follows:
   one side: plate thickness minus 1/16" (1/4" min.)
   two sides: 1/2" plate thickness plus 1/16" (1/4" min.) each side
3. BEAM WEB CONNECTION PLATE THICKNESS EQUALS BEAM WEB THICKNESS PLUS 1/8" (3/8" MIN).
4. STIFFENER PL THICKNESS EQUALS BEAM FLANGE THICKNESS OF THE BEAM FRAMING INTO COLUMN (3/8" MIN).
5. BOLT EDGE DISTANCE SHALL BE EQUAL TO 2X THE DIAMETER OF THE BOLT (1-1/2" MIN.) AT ALL EDGES.
6. VERTICAL BOLT SPACING SHALL BE 3" O.C. TYP FULL HT OF WEB. SPACING MAY BE REDUCED TO 3X THE DIAMETER OF THE BOLT IF REQ'D TO MAINTAIN A SINGLE ROW OF BOLTS (SINGLE ROW OF BOLTS IS PREFERRED).
7. WHEN MORE THAN ONE COLUMN OF BOLTS IS REQUIRED, THE FIRST COLUMN OF BOLTS SHALL BE COMPLETE WITH THE REMAINDER OF THE BOLTS PLACED IN THE SECOND COLUMN.
8.

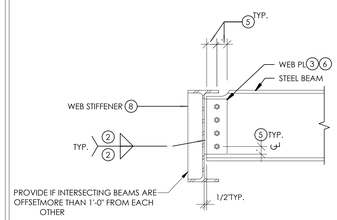
STEEL BEAM STIFFENER PLATES		
FLANGE WIDTH	STIFFENER THICKNESS	WELD SIZE
LESS THAN 8 1/4"	1/4"	3/16"
8 1/4" TO 12 1/4"	3/8"	1/4"
12 1/4" TO 16 1/2"	1/2"	5/16"
16 1/2" TO 20 3/4"	5/8"	3/8"



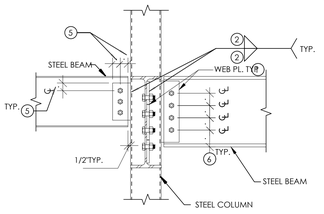
BEAM TO BEAM - WEB PLATE CONNECTION



BEAM TO PARALLEL BEAM - WEB PLATE CONNECTION



BEAM TO BEAM - WEB PLATE CONNECTION



BEAM TO TUBE STEEL COLUMN - WEB CONNECTION

METAL DECK SCHEDULE

AREA	DECK			ATTACHMENT						MIN SHEAR CAPACITY (ALLOWABLE)
				SUPPORTS	SIDE SEAMS			SUPPORTS PARALLEL TO FLUTES		
	DEPTH	TYPE	GAUGE	Ø WELD	PATTERN	PUNCHLOK II	TOP SEAM WELD	Ø WELD	SPA.	
FLOOR	3"	'W'	20	3/4" DIA	24/4	@ 24" O.C.	@ 24" O.C.	3/4" DIA.	12"	875 PLF

NOTES:

1. SHEAR CAPACITY IS THE CAPACITY (ASD) REQUIRED FOR ALTERNATE SYSTEMS. SEE GSN.
2. PROVIDE 2" MIN BEARING AT ALL SUPPORTS.
3. USE INTERLOCKING SIDE SEAMS FOR ALL DECK TYPES.
4. PROVIDE 3.25" (6.25" OVERALL) LIGHT WEIGHT CONCRETE SLAB OVER STEEL FLOOR DECK. REINFORCE FLOOR DECK USING THE FOLLOWING OPTIONS UNO ON PLAN:
   A. MACROSYNTHETIC FIBERS (4 LBS PER CUBIC YARD MINIMUM, SEE GSN)
   B. #4 BARS AT 24" O.C. EA WAY
   C. 6 X 6 - W2.9xW2.9 WELDED WIRE FABRIC (WWF)
6. REINFORCEMENT SHALL BE PLACED 1/4TH THE SLAB THICKNESS + 1/2" BELOW THE TOP OF SLAB (1" COVER BELOW TOP OF SLAB MINIMUM).
7. SEE GSN FOR ADDITIONAL REQUIREMENTS.

FASTENING PATTERNS



PATTERN : 24/4



PATTERN : 36/7

4 DECK SCHEDULE

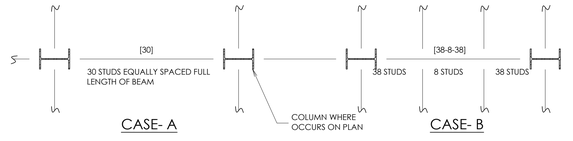
5005 SCALE: N.T.S. SSH01_05

11 BOLT SCHEDULE FOR TYP. STEEL CONNECTIONS

5005 SCALE: N.T.S.

COMPOSITE BEAM & HEADED STUD NOTES:

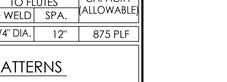
1. SEE GENERAL STRUCTURAL NOTES FOR MATERIAL AND OTHER REQUIREMENTS FOR COMPOSITE BEAM CONSTRUCTION.
2. WHERE STUDS FILL EVERY THROUGH THEN REMAINING STUDS SHALL BE INSTALLED ON TWO OR MORE ROWS STARTING AT EACH END OF BEAM OR GIRDER.
3. CASE "A" STUDS ARE EQUALLY SPACED. IF EQUAL SPACING NOT POSSIBLE DUE TO DECK CONFIGURATION, STRUCTURAL ENGINEER MUST BE NOTIFIED.
4. AT FRAMED AREAS WHERE NUMBER OF STUDS IS NOT INDICATED PROVIDE STUDS AT 24" O.C. MAX. (12" O.C. MAX AT MOMENT FRAMES)
5. STUDS WELDED THRU DECKING (SEE AWS D1.1 REQUIREMENTS), MAY BE SUBSTITUTED FOR TYPICAL PLUG WELD.
6. MAINTAIN 1" CLEARANCE AROUND ALL STUDS FOR PROPER EMBEDMENT.
7. STUDS TO EXTEND AS FAR AS STANDARD STUD LENGTHS ALLOW INTO TOPPING SLAB U.N.O.



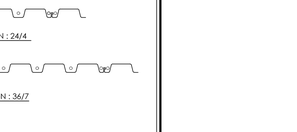
CASE- A CASE- B



SINGLE LINE- PLAN



MULTI LINE- PLAN



TYPICAL STUD

6 WELDED STUD LAYOUT

5005 SCALE: N.T.S.

GRAPHIC SCALE 0 8' 16' 24'

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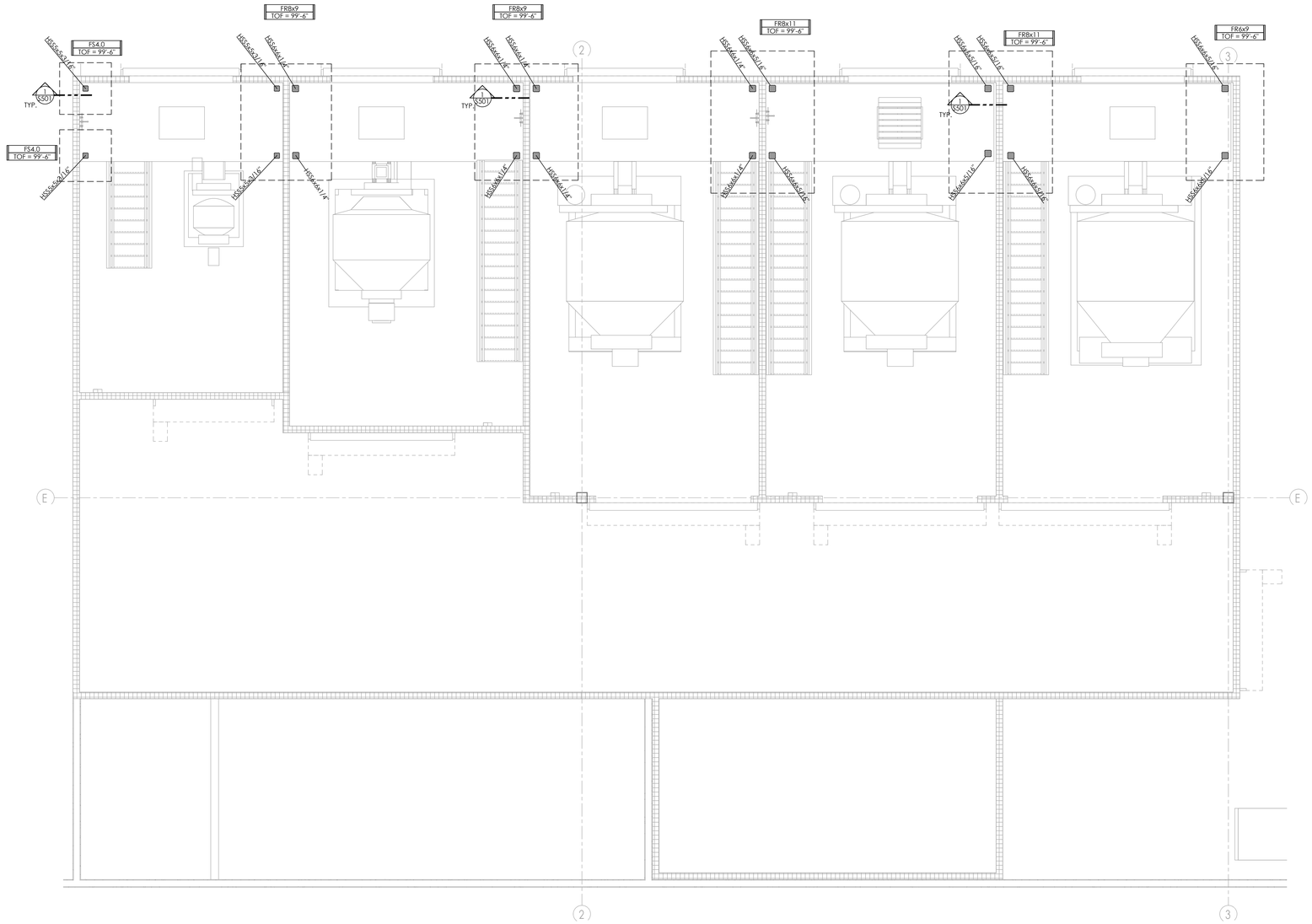
FOOTING SCHEDULE

MARK	WIDTH	LENGTH	DEPTH	REINFORCING CROSSWISE				REINFORCING LENGTHWISE				COMMENTS
				NO.	SIZE	LENGTH	SPACING	NO.	SIZE	LENGTH	SPACING	
FS4.0	4'-0"	4'-0"	1'-2"	4	#5	3'-6"	EQ	4	#5	3'-6"	EQ	
FS10.5	10'-6"	10'-6"	2'-0"	10	#7	10'-0"	EQ	10	#7	10'-0"	EQ	REINFORCE TOP AND BOTTOM
FR6x9	6'-0"	9'-0"	2'-0"	6	#7	6'-6"	EQ	6	#7	8'-6"	EQ	REINFORCE TOP AND BOTTOM
FR8x9	8'-0"	9'-0"	2'-0"	7	#7	7'-6"	EQ	7	#7	8'-6"	EQ	REINFORCE TOP AND BOTTOM
FR8x11	8'-0"	11'-0"	2'-0"	7	#7	7'-6"	EQ	7	#7	10'-6"	EQ	REINFORCE TOP AND BOTTOM

1. SEE GENERAL STRUCTURAL NOTES FOR CONCRETE STRENGTH, REINFORCING, AND OTHER REQUIREMENTS
2. ALL REINFORCING STEEL SHALL BE GRADE 60 AND BE PROPERLY TIED INTO PLACE PRIOR TO POUR
3. ALL CONCRETE WORK MUST MEET THE REQUIREMENTS OF THE 2021 IBC, ACI 318 AND LOCAL ORDINANCES
4. ALL BARS MUST BE 3" CLEAR FROM GRADE



1 S101 FOOTING AND FOUNDATION PLAN
SCALE: 1/4"=1'-0"

GRAPHIC SCALE 0 8' 16' 24'

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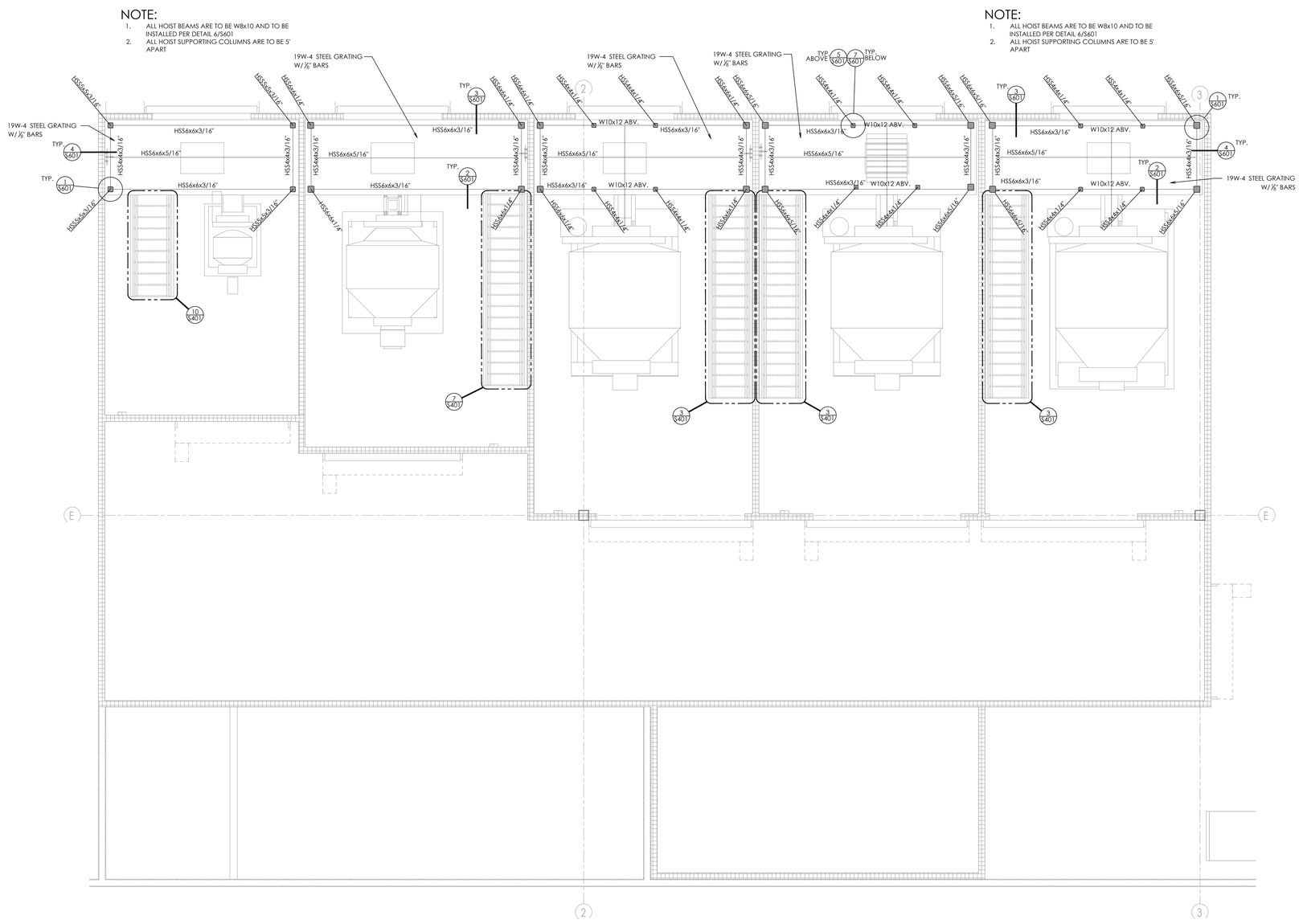
FRAMING NOTES

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS. ROOF AND FLOOR ELEVATIONS, WHERE SHOWN, ARE TO BE PROVIDED AND VERIFIED BY THE ARCHITECT.
2. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS TO STEEL COLUMNS AND TYPICAL DIMENSIONS.
3. SCHEDULED MARK DESIGNATIONS ARE TYPICAL TO THE PROJECT AND MAY NOT NECESSARILY BE FOUND ON THIS PLAN.
4. FOR CLARITY, DETAILS MAY SHOW ONLY ONE SIDE OF FRAMING CONDITION.
5. FOR CLARITY, ALL FLOOR AND ROOF OPENINGS MAY NOT BE SHOWN ON PLANS. FOR EXACT SIZE, NUMBER AND LOCATION OF OPENINGS, SEE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS.
6. VERIFY EXACT SIZE, WEIGHT AND LOCATIONS OF ALL EQUIPMENT ON AND HANGING FROM ROOF WITH MECHANICAL DRAWINGS. NOTIFY EOR WHERE ANY RTU PLACED ABOVE OR BELOW ROOF DECK THAT IS NOT SHOWN ON THIS SHEET WEIGHS MORE THAN 100 LBS.
7. JOIST BRIDGING SHOWN IS FOR REPRESENTATION ONLY. JOIST MANUFACTURER IS RESPONSIBLE TO DESIGN THE LOCATION, QUANTITY, SIZE, AND TYPE OF JOIST BRIDGING TO BE USED AND SHALL CONFORM TO 'SJI' REQUIREMENTS.
8. WHERE MECHANICAL UNITS, DUCTS, OR SKYLIGHTS INTERRUPT JOIST BRIDGING CONTRACTOR SHALL PROVIDE STANDARD DIAGONAL BRIDGING EA SIDE OF CONFLICT.



1 S102 MEZZANINE FRAMING PLAN
SCALE: 1/4"=1'-0"

GRAPHIC SCALE 0 8' 16' 24'

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MEZZANINE FRAMING PLAN

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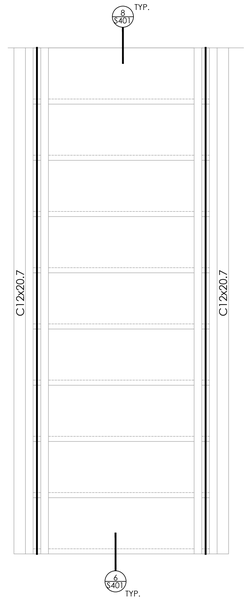
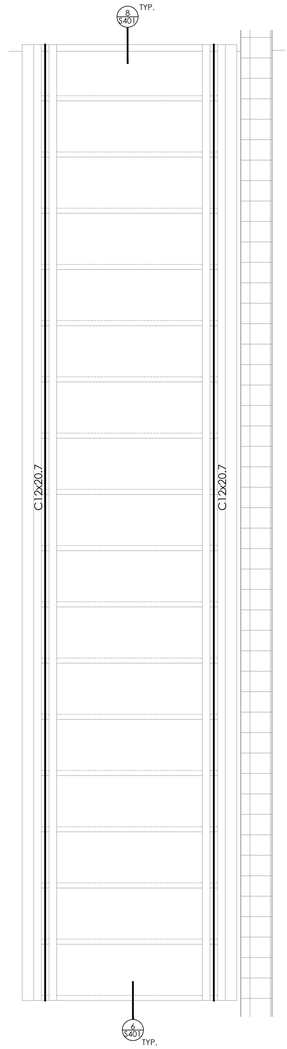


10 S401 ENLARGED STAIRS
SCALE: N.T.S.



7 S401 ENLARGED STAIRS
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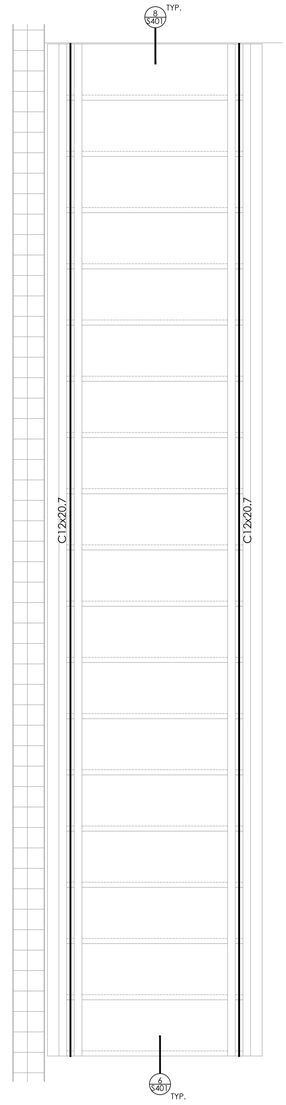

3 S401 ENLARGED STAIRS
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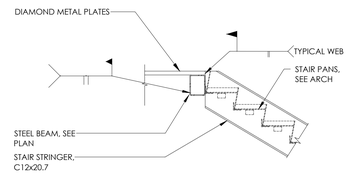
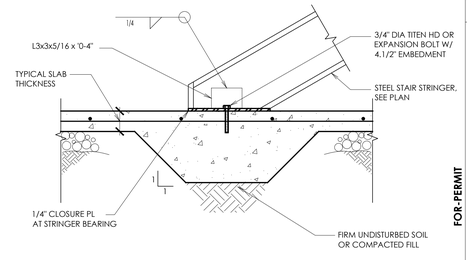


8 S401 STEEL PAN STAIRS
SCALE: N.T.S.



6 S401 STAIR STRINGER AT CONCRETE SLAB
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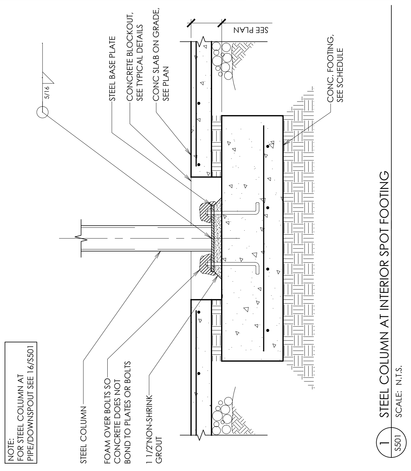

1 S501 STEEL COLUMN AT INTERIOR SPOT FOOTING
SCALE: N.T.S.

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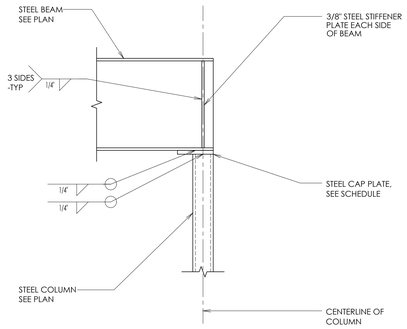

5 S601 STEEL TUBE COLUMN TO WIDE FLANGE BEAM
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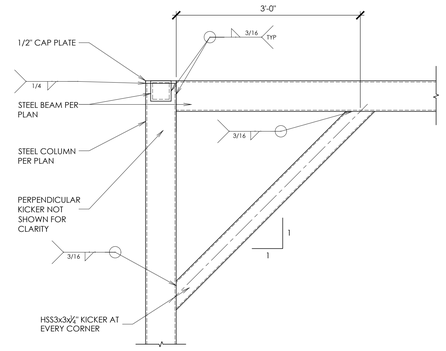

1 S601 STEEL TUBE BEAM TO STEEL TUBE COLUMN
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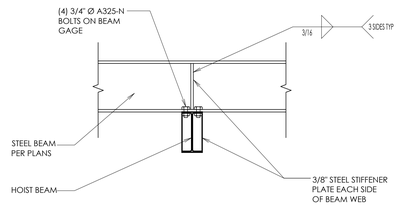
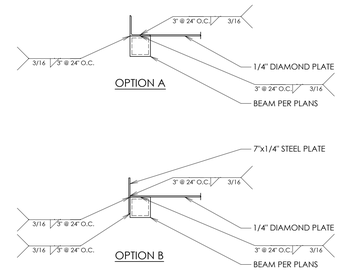
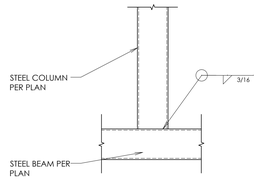


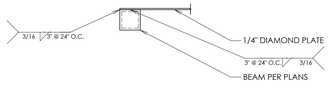
6 S601 HOIST BEAM ATTACHMENT
SCALE: N.T.S.



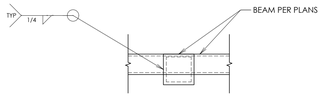
2 S601 FLOOR TO BEAM
SCALE: N.T.S.



7 S601 TUBE COLUM ABV TUBE BEAM
SCALE: N.T.S.



3 S601 FLOOR TO BEAM
SCALE: N.T.S.



4 S601 STEEL TUBE BEAM CONNECTION
SCALE: N.T.S.

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FRAMING DETAILS

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S601

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LEGEND OF HVAC/PLUMBING SYMBOLS AND ABBREVIATIONS

- SUPPLY AIR DUCT - RISE
- SUPPLY AIR DUCT - DROP
- RETURN AIR DUCT - RISE
- RETURN AIR DUCT - DROP
- ROUND DUCT - RISE
- ROUND DUCT - DROP
- UNDER FLOOR DUCT
- TURNING VANES
- FRESH AIR LOUVER
- RELIEF AIR OR EXHAUST AIR LOUVER
- 12 12 / 200 — CEILING SUPPLY DIFFUSER
- CEILING RETURN REGISTER
- 22 22 / 200 — CEILING EXHAUST REGISTER, (BALANCE TO MATCH SUPPLY IF RETURN CFM IS NOT SHOWN)
- 12 12 / 200
- 14 6 / 200 — SIDEWALL SUPPLY REGISTER
- 14 6 / 200 — SIDEWALL EXHAUST OR RETURN REGISTER

  TOP FIGURES INDICATE NECK SIZE. BOTTOM FIGURE INDICATES CFM.
- 12 Ø / 400 — CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT
- 22 22 / 400 — CEILING RETURN AIR GRILE W/ SOUND BOOT
- 3 - 1" SLOTS / 48" 400 — LINEAR DIFFUSER WITH PLENUM AND FLEXIBLE DUCT CONNECTION. NO. OF SLOTS ON TOP, ACTIVE LENGTH AND CFM ON BOTTOM
- FLEXIBLE DUCT CONNECTION
- FLEXIBLE DUCT
- 12 12 — RECTANGULAR DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
- 12 Ø — ROUND DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
- UP — INCLINED RISE
- DN — INCLINED DROP

  WITH RESPECT TO AIR FLOW 15° NOMINAL INCLINE WITH RADIUS TURNS=DEPTH OF DUCT.
- W / R — R/W=1. ROUND DUCT SIMILAR TO RECTANGULAR
- 12 12 / 8 8 — RECTANGULAR TO RECTANGULAR OR ROUND TO ROUND DUCT TRANSFORMATION MAXIMUM 15° INCLUDED ANGLE EXCEPT WHERE SHOWN OTHERWISE.
- 12 12 / 8 Ø — RECTANGULAR TO ROUND DUCT TRANSFORMATION
- 12 12 / 8 Ø — TAP FITTING FOR RECTANGULAR & ROUND DUCT - VOLUME DAMPER TO BE INCLUDED ON BRANCHES
- MANUAL VOLUME DAMPER
- F — FIRE DAMPER IN DUCT, W/ ACCESS PANEL REQD.
- FS — COMBINATION FIRE/SMOKE DAMPER W/ ACCESS PANEL
- S — SMOKE DAMPER W/ ACCESS PANEL
- M — ATC DAMPER/MOTORIZED DAMPER
- BD — BALANCE DAMPER
- ACCESS PANEL
- CONNECTION TO EXISTING
- DEMOLITION

- 4-WAY BLOW PATTERN
- 3-WAY BLOW PATTERN
- 2-WAY BLOW PATTERN
- 2-WAY BLOW PATTERN
- 1-WAY BLOW PATTERN
- T — THERMOSTAT
- S E — EMCS SENSOR
- S — SENSOR
- 1 — REVISION
- 2 / M3.1 — SECTION CUT
- 1 / M1.1 — DETAIL TAG - TOP FIGURE IS DETAIL NO.
- EQUIPMENT IDENTIFICATION
- 1 — KEYED NOTE IDENTIFICATION
- ANCHOR
- NRS GATE VALVE WITH SUPERVISION
- FLOW SWITCH
- HOSE VALVE
- RD — ROOF DRAIN
- RDO — ROOF DRAIN OVERFLOW
- WCO — WALL CLEAN-OUT
- FCO — FLOOR CLEAN-OUT OR CLEAN-OUT TO GRADE
- VTR — VENT THRU ROOF
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC RECIRCULATING HOT WATER
- SEWER (BELOW GRADE)
- SEWER (ABOVE GRADE)
- VENT (SEWER)
- WC-1 — PLUMBING FIXTURE CALLOUT
- LPC — LOW PRESSURE CONDENSATE
- MPC — MEDIUM PRESSURE CONDENSATE
- HPC — HIGH PRESSURE CONDENSATE
- LPS — LOW PRESSURE STEAM
- MPS — MEDIUM PRESSURE STEAM
- HPS — HIGH PRESSURE STEAM
- V — VACUUM
- PUMPED CONDENSATE
- MU — MAKE UP WATER
- G — NATURAL GAS
- (E)name — EXISTING PIPING

- CHWS — CHILLED WATER SUPPLY
- CHWR — CHILLED WATER RETURN
- CS — CONDENSER WATER SUPPLY
- CR — CONDENSER WATER RETURN
- HWS — HEATING HOT WATER SUPPLY
- HWR — HEATING HOT WATER RETURN
- GHR — GLYCOL HEAT RECOVERY PIPING
- G(NAME) — GLYCOL PIPING SOLUTION
- LPG — LIQUIFIED PETROLEUM GAS
- (NAME) — EXISTING PIPING TO BE REMOVED
- RL — REFRIGERANT LIQUID
- RS — REFRIGERANT SUCTION
- HG — HOT GAS
- S — SOLENOID VALVE
- EXPANSION JOINT
- ALIGNMENT GUIDE
- DEMOLITION
- PRESSURE GAUGE WITH SHUT-OFF COCK
- PRESSURE GAUGE WITH PIGTAIL
- FLANGE
- UNION
- GPM LB/HR. — FLOW METER ORIFICE
- AIR VENT-MANUAL
- A — AIR VENT-AUTO
- FLOW SWITCH
- PS — PRESSURE SWITCH
- RPBP — REDUCED PRESSURE BACKFLOW PREVENTOR W/ DRAIN PAN
- PRESSURE REDUCING, SELF CONTAINED VALVE
- PRESSURE REDUCING, EXTERNAL PRESSURE VALVE
- BALL VALVE (PIPE SIZES 2" AND SMALLER)
  BUTTERFLY VALVE (PIPE SIZES 2-1/2" AND LARGER)
- CHECK VALVE
- MOTOR OPERATED BUTTERFLY VALVE
- M — GAS COCK
- RELIEF VALVE
- GATE VALVE
- ATC VALVE - 2 WAY
- C — ATC VALVE - 3 WAY
- GLOBE VALVE
- GPM — FLOW CONTROL VALVE
- CALIBRATED BALANCING VALVE

- SHUT-OFF COCK FOR USE WITH PRESSURE GAUGE
- PUMP
- FLEXIBLE CONNECTION
- FLOW METER
- 90° ELBOW
- 45° ELBOW
- REDUCER
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- LATERAL STRAINER WITH BLOW-OFF VALVE, PROVIDE HOSE WHERE DISCHARGE IS NOT PIPED TO DRAIN
- THERMOMETER 0-100°F
- STEAM TRAP, F&T=FLOAT & THERMOSTATIC B=BUCKET, T=THERMOSTATIC
- SD — DUCT SMOKE DETECTOR
- ARROW INDICATES DIRECTION OF FLOW IN PIPE
- DN — LEADER INDICATES DOWNWARD SLOPE
- PIPE INTO PLANE
- PIPE OUT OF PLANE
- PIPE BRANCH - IN TO PLANE
- PIPE BRANCH - OUT OF PLANE
- PIPE BRANCH - IN PLANE
- E — EMERGENCY SHUT-DOWN

MECHANICAL GENERAL NOTES

1. DUCT DIMENSIONS SHOWN REPRESENT INSIDE DUCT DIMENSIONS.
2. ALL EXTERIOR DUCTWORK TO BE CONCENTRIC WITH A MINIMUM OF R-8 INSULATION BETWEEN THE INNER AND OUTER DUCT.
3. ALL INTERIOR RECTANGULAR DUCTWORK TO BE LINED WITH 1/2" LINER WHERE CODE REQUIRED. DUCT DIMENSIONS ARE TO ACCOUNT FOR INSULATION.
4. GAS PIPING IS BY THE PLUMBING CONTRACTOR.
5. THE SHEET METAL DUCT WORK SHALL BE GALVANIZED STEEL, PER SMACNA STANDARDS, AND BE FABRICATED & INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA DUCT STANDARD EDITION.
6. COORDINATE THE HVAC SYSTEM, DUCT WORK, AND DIFFUSERS/GRILLES WITH THE OTHER TRADES AND THE REFLECTED CEILING PLAN.
7. THE MECHANICAL CONTRACTOR SHALL PERFORM THE NECESSARY TESTING, ADJUSTING, AND BALANCING OF THE HVAC EQUIPMENT AND SYSTEM.
8. PRIOR TO FINAL INSPECTION OR ACCEPTANCE, FULLY INSTRUCT THE OWNERS DESIGNATED OPERATION & MAINTENANCE PERSONNEL IN OPERATION, ADJUSTING, AND MAINTAINING THE PRODUCTS, EQUIPMENT, OR SYSTEMS.
9. THE INSTALLATION OF THE HVAC SYSTEM SHALL COMPLY WITHTHE LATEST SMACNA, ACCA, UBC, IMC, AND IPS CODES BEING ENFORCED BY THE LOCAL STATE OR CITY WHERE IN THE STRUCTURE IS BEING BUILT.
10. INSTALL ALL EQUIPMENT WITH PROPER CLEARANCE.
11. SMOKE DAMPERS SHALL BE LISTED UL555S AND BE CONTROLLED BY AUTOMATIC SMOKE DETECTION.
12. PENETRATION OF A SMOKE BARRIER SHALL BE PROVIDED WITH AN APPROVED FIRE/SMOKE STOP SYSTEM OF A MINIMUM OF 1 HOUR FIRE RATED MATERIALS WHICH HAVE BEEN TESTED BY THE AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) E 814.
13. ENVIRONMENTAL AIR DUCTS THAT PENETRATE A FIRE RATED ASSEMBLY SHALL BE PROVIDED WITH FIRE DAMPERS WHICH ARE LABELED UL 555 AND LABELED A FIRE RATING WHICH IS 3/4 OF THE HOUR OF THE FIRE RATED ASSEMBLY PENETRATED.
14. THE CONTRACTOR SHALL SUBMIT PLANS AND CALCULATIONS FOR SEISMIC BRACING WHERE REQUIRED BY CODE.
15. ALL DUCTWORK SIZED BY THE EQUAL FRICTION METHOD.

PLUMBING GENERAL NOTES

1. PIPING FOR THIS PROJECT IS TO BE PLENUM RATED UNLESS EXPLICITLY STATED OTHERWISE.
2. INSTALL EXPANSION CONTRACTION CONTROL DEVICE EVERY 65 FEET IN STRAIGHT PIPING LENGTH. COORDINATE WITH MANUFACTURER.
3. SLEEVE PIPING THRU WALLS AND FOUNDATIONS.
4. COORDINATE EXACT ROUTING WITH ALL OTHER TRADES. (PLUMBING DRAWINGS ARE SCHEMATIC IN NATURE.)
5. ARRANGE PIPING IN PLUMBING CHASES TO ALLOW MAINTENANCE ACCESS.
6. NO PIPING TO BE RUN OVER ELECTRICAL PANELS, VFD'S, OR MCC'S AND A 42" DEEP ZONE IN FRONT OF PANELS, VFD'S, AND MCC'S IS TO BE PROTECTED.
7. FIXTURE MOUNTING HEIGHTS, DIMENSIONS, AND OTHER REQUIREMENTS ARE TO BE COORDINATED WITH ARCHITECTURAL AND ADA REQUIREMENTS.
8. LOCATE VENTS A MINIMUM 10' AWAY FROM AIR INTAKES.
9. DOMESTIC WATER LINES ARE TO BE INSTALLED BELOW DUCTWORK.
10. A 24" X 24" ACCESS DOOR IS TO BE INSTALLED BELOW ALL ISOLATION VALVES & CIRCUIT SETTERS WHERE MOUNTED ABOVE HARD CEILINGS.
11. EXISTING CONDITIONS ARE TO BE VERIFIED PRIOR TO COMMENCING WORK.
12. PLUMBING INSTALLATION AS PER IMC 2021, IFGC 2021, IPC 2021, AND IECC 2021 AS WELL AS ALL LOCAL CODES.
13. ALL FIXTURES ARE TO BE PROPERLY VENTED TO THE ATMOSPHERE.
14. COORDINATE INDIVIDUAL LINE SIZES TO FIXTURES
15. PENETRATION OF A SMOKE BARRIER SHALL BE PROVIDED WITH AN APPROVED FIRE/SMOKE STOP SYSTEM OF A MINIMUM OF 1 HOUR FIRE RATED MATERIALS WHICH HAVE BEEN TESTED BY THE AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) E 814.

SHEET INDEX

SHEET NUMBER	SHEET NAME
M0.0	MECHANICAL LEGENDS, GENERAL NOTES, & INDEX
M1.1	LEVEL 1 MECHANICAL PLAN
M1.2	OFFICE MECHANICAL PLAN
M1.3	CLEAN ROOM MECHANICAL PLAN
M1.4	ROOF MECHANICAL PLAN
M1.5	CLEAN ROOM MECHANICAL VIEWS
M2.1	MECHANICAL SCHEDULES
M2.2	MECHANICAL DETAILS
M3.1	MECHANICAL LOAD CALCS
M3.2	MECHANICAL LOAD CALCS
M3.3	MECHANICAL LOAD CALCS
M3.4	MECHANICAL LOAD CALCS
M3.5	MECHANICAL COMCHECK
M3.6	MECHANICAL COMCHECK
P1.1	LEVEL 1 DOMESTIC PLUMBING PLAN
P1.2	LEVEL 1 DOMESTIC ENLARGED PLUMBING PLAN
P1.3	ROOF DOMESTIC PLUMBING PLAN
P2.1	LEVEL 1 DWV PLUMBING PLAN
P2.2	LEVEL 1 DWV ENLARGED PLUMBING PLAN
P2.3	ROOF DWV PLUMBING PLAN
P3.1	PLUMBING SCHEDULES
P3.2	PLUMBING DETAILS
P4.1	PLUMBING ISOMETRIC DOMESTIC
P4.2	PLUMBING ISOMETRIC DOMESTIC
P4.3	PLUMBING ISOMETRIC SANITARY
P4.4	PLUMBING ISOMETRIC SANITARY
P4.5	PLUMBING ISOMETRIC GAS
SM1.1	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.2	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.3	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.4	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.5	MECHANICAL & PLUMBING SPECIFICATIONS
SM1.6	MECHANICAL & PLUMBING SPECIFICATIONS

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MECHANICAL LEGENDS, GENERAL NOTES, & INDEX

DATE:

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M0.0

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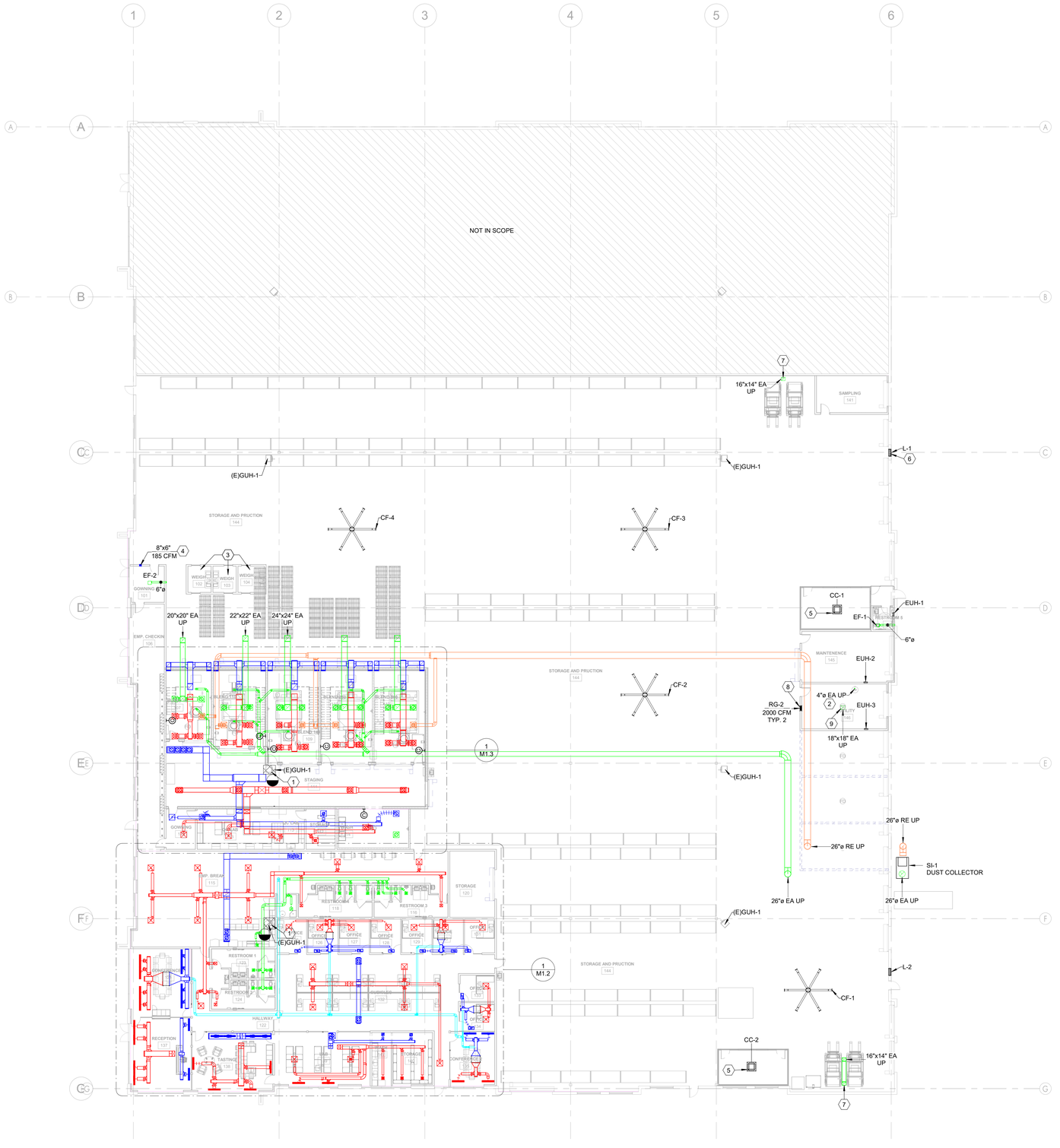
KEYED NOTES

1. THE GAS UNIT HEATER TO BE REMOVED. REMOVE ASSOCIATED PIPING, DUCTING & CONTROLS. CAP NG PIPING & PATCH ROOF.
2. ROUTE WATER HEATER VENT THRU ROOF. TERMINATE WITH CONCENTRIC VENT 18" ABOVE ROOF LINE.
3. TENANT TO PROVIDE FILTER FAN.
4. TRANSFER GRILLE.
5. CASSETTE TO DRAW OA FROM WAREHOUSE. BALANCE CFM TO SCHEDULE.
6. BOTTOM OF LOUVER TO BE 20' ABOVE FINISH FLOOR. TYPICAL 2.
7. ROUTE FORKLIFT CHARGING AREA EXHAUST DUCT ALONG WALL & TERMINATE AT 5' AFF.
8. TRANSFER DUCT FOR ROOM EXHAUST FAN. BOTTOM OF GRILLE TO BE 10' AFF.
9. DROP EXHAUST DUCT INTO TOP OF SPACE AND TERMINATE WITH AN OPEN DUCT.



1 LEVEL 1 MECHANICAL PLAN
1/16" = 1'-0"

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LEVEL 1 MECHANICAL PLAN

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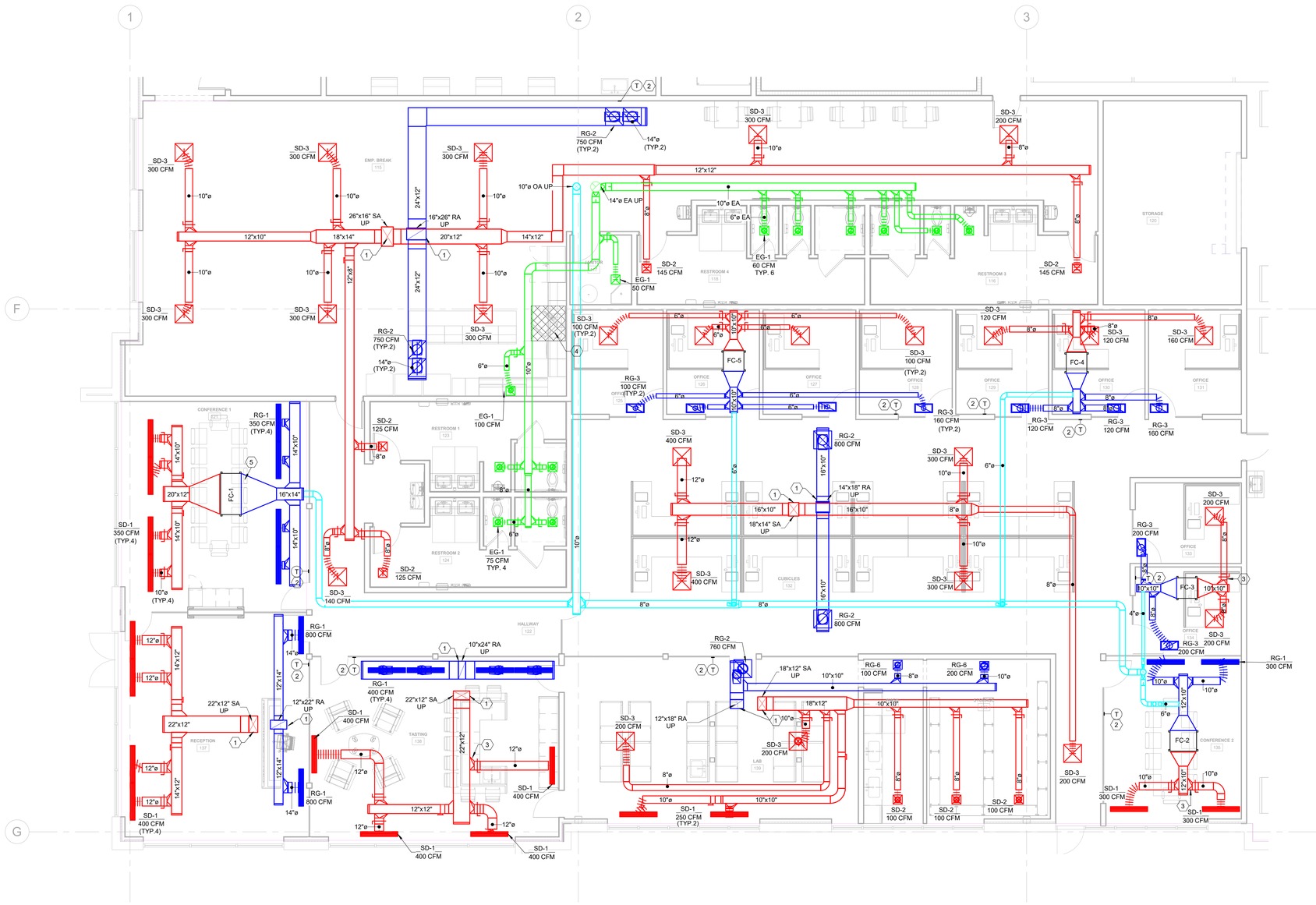
KEYED NOTES

1. ROUTE SUPPLY AND RETURN DUCT UP TO FLOOR ABOVE IN THIS APPROXIMATE LOCATION.
2. PROVIDE PROGRAMMABLE THERMOSTAT IN THIS APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH ARCH AND TENANT.
3. MANUAL VOLUME BALANCE DAMPER AT EACH BRANCH AND WHERE SHOWN. PLACE IN ACCESSIBLE LOCATION OR PROVIDE ACCESS DOOR. TYPICAL.
4. THE GAS UNIT HEATER TO BE REMOVED. REMOVE ASSOCIATED PIPING, DUCTING & CONTROLS. CAP NG PIPING & PATCH ROOF.
5. CONTRACTOR TO PROVIDE 4" PLEATED FILTER. SEE SCHEDULE FOR FILTER RATING. TYPICAL FOR ALL FAN COILS.



1 MECHANICAL ENLARGED PLAN LEVEL 1
3/16" = 1'-0"

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OFFICE MECHANICAL PLAN

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KEYED NOTES

1. ROUTE SUPPLY AND RETURN DUCT UP TO FLOOR ABOVE IN THIS APPROXIMATE LOCATION.
2. THE GAS UNIT HEATER TO BE REMOVED. REMOVE ASSOCIATED PIPING, DUCTING & CONTROLS. CAP NG PIPING & PATCH ROOF.
3. PROVIDE PROGRAMMABLE THERMOSTAT IN THIS APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH ARCH AND TENANT.
4. PROTECT RETURN AIR DUCTWORK RUNNING DOWN THE OUTSIDE OF THE BLENDER ROOMS WITH BOLLARDS TO MITIGATE THE RISK OF FORKLIFT IMPACT.
5. MANUAL VOLUME BALANCE DAMPER AT EACH BRANCH AND WHERE SHOWN. PLACE IN ACCESSIBLE LOCATION OR PROVIDE ACCESS DOOR. TYPICAL.
6. ROUTE DUST COLLECTION EXHAUST DOWN TO MIXER LOADING HOPPER. SIZED AT 1,200 CFM. COORDINATE EXACT DROP ON SITE WITH TENANT REP.
7. ROUTE DUST COLLECTION EXHAUST DOWN TO MIXER UNLOADING EXTRACTION ARM. SIZED AT 850 CFM. COORDINATE EXACT DROP ON SITE WITH TENANT REP.

DUST COLLECTION DESIGN PARAMETERS FOR BLEND ROOMS: TYP 5:

- 1200 CFM DUST COLLECTION EXHAUST @ 4500 FT/MIN FOR MIXER LOADING HOPPER
- 850 CFM DUST COLLECTION EXHAUST @ 4500 FT/MIN FOR UNLOADING AREA. OWNER TO PROVIDE 6"X10' EXTRACTION ARM W/ BRACKET. OWNER TO PROVIDE DETAILS OF LOCATION.
- DUCTING OUTSIDE OF CLEAN ROOMS TO BE GALVANIZED STEEL.
- DUCTING INSIDE OF CLEAN ROOMS TO BE FOOD GRADE STAINLESS STEEL.

RTU - BLEND 15

Supply CFM - 4,000 (20 ACH)
Duct Static pressure - 0.6
OA CFM - 105
Heating Load - 6,500
Cooling Load - 41,000

RTU - BLEND 110

Supply CFM - 4,000 (20 ACH)
Duct Static pressure - 0.6
OA CFM - 105
Heating Load - 6,500
Cooling Load - 41,000

RTU - BLEND 140

Supply CFM - 4,650 (20 ACH)
Duct Static pressure - 0.6
OA CFM - 120
Heating Load - 7,800
Cooling Load - 53,000

RTU - BLEND 250

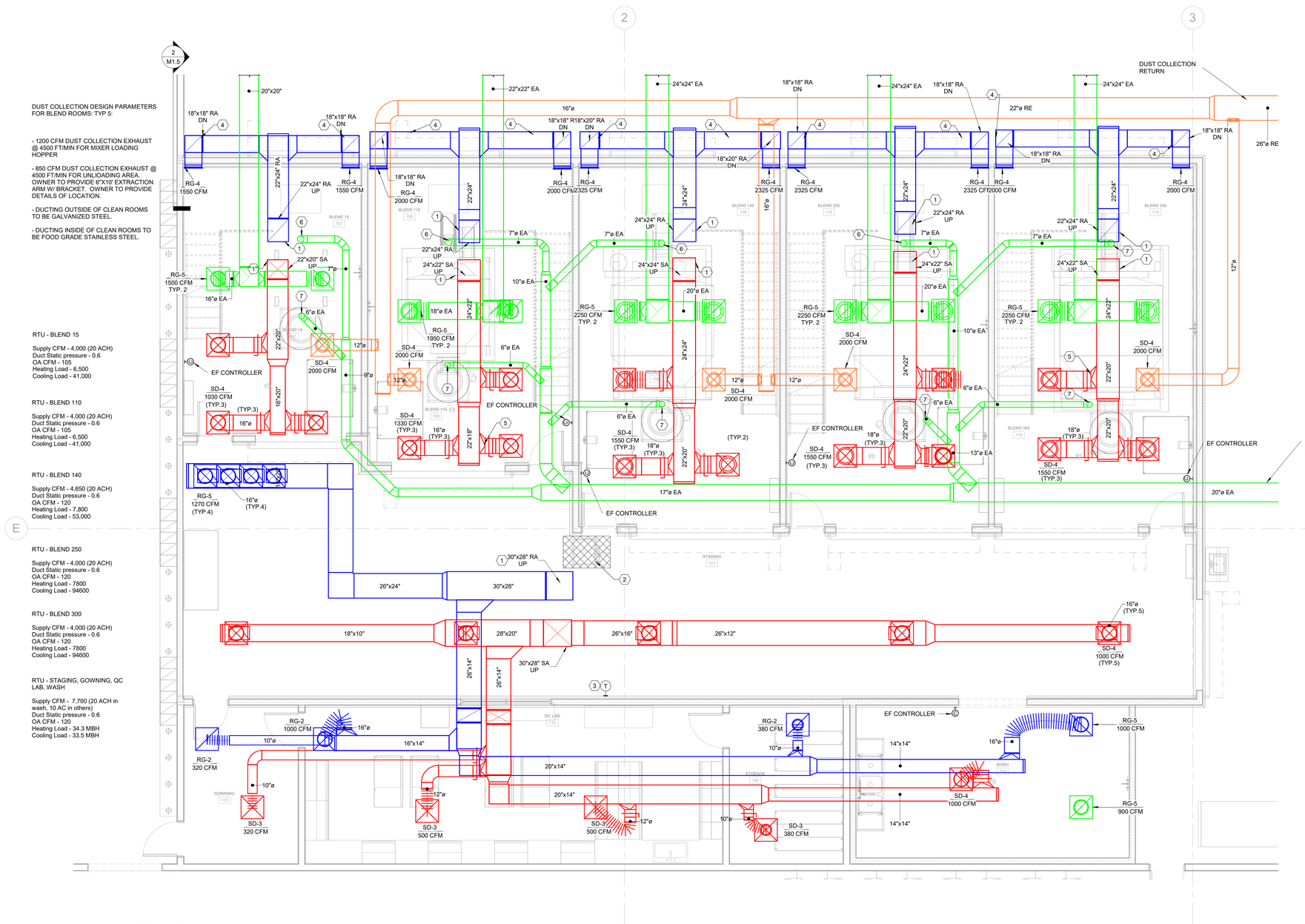
Supply CFM - 4,000 (20 ACH)
Duct Static pressure - 0.6
OA CFM - 120
Heating Load - 7800
Cooling Load - 94600

RTU - BLEND 300

Supply CFM - 4,000 (20 ACH)
Duct Static pressure - 0.6
OA CFM - 120
Heating Load - 7800
Cooling Load - 94600

RTU - STAGING, GOWNING, QC LAB, WASH

Supply CFM - 7,700 (20 ACH in wash, 10 AC in others)
Duct Static pressure - 0.6
OA CFM - 120
Heating Load - 34.3 MBH
Cooling Load - 33.5 MBH



1 LEVEL 1 CLEAN ROOM MECHANICAL PLAN - Callout 1
1/4" = 1'-0"

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CLEAN ROOM MECHANICAL PLAN

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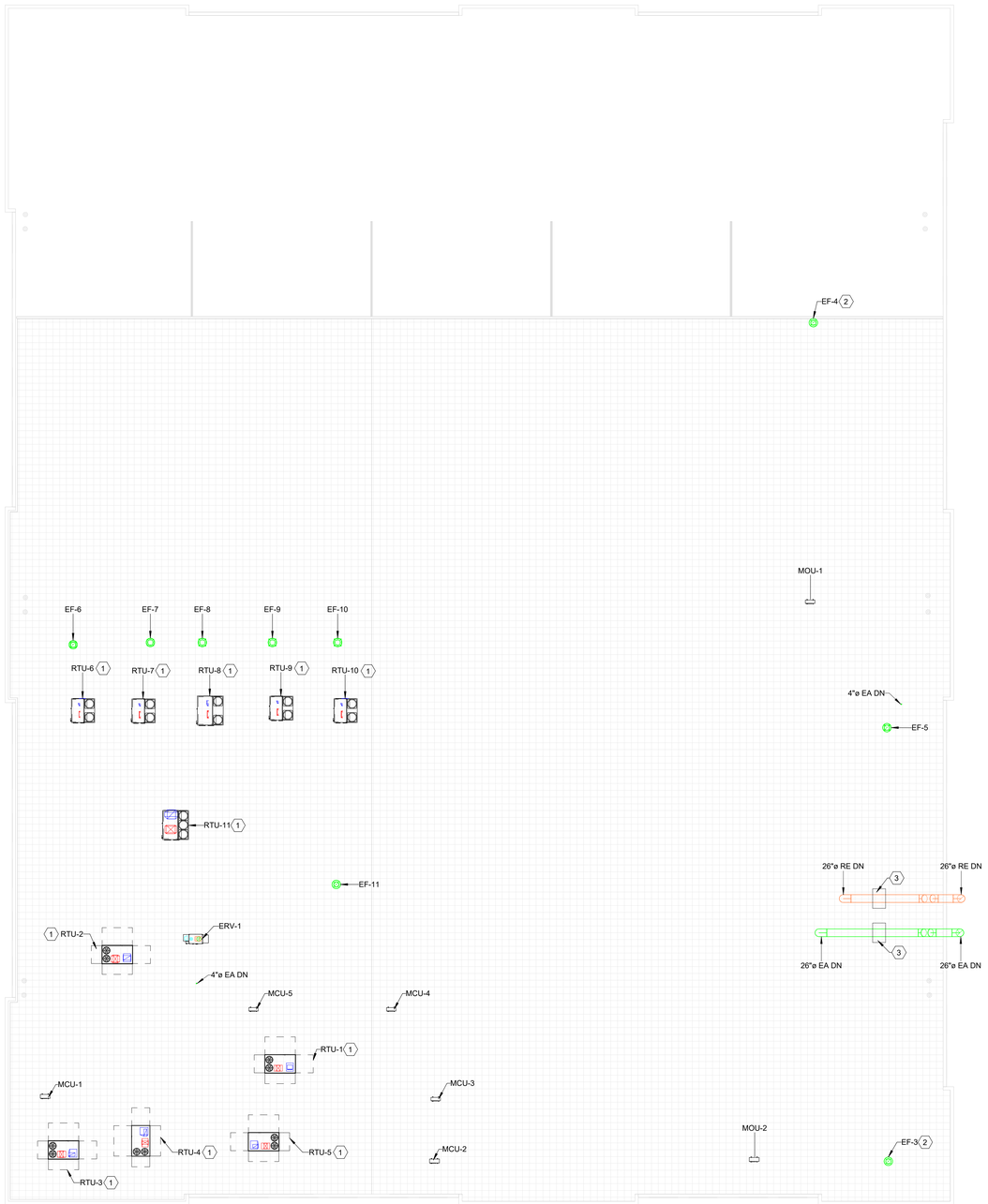
KEYED NOTES

1. PROVIDE ROOFTOP UNIT IN THIS APPROXIMATE LOCATION. FIELD VERIFY EXACT LOCATION.
2. PROVIDE ROOF MOUNTED EXHAUST FAN IN THIS APPROXIMATE LOCATION. FIELD VERIFY EXACT LOCATION.
3. INSTALL EXPLOSION GATES ACCORDING TO DUST COLLECTOR MANUFACTURER'S REQUIREMENTS.



1 ROOF MECHANICAL PLAN
1/16" = 1'-0"

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ROOF MECHANICAL PLAN

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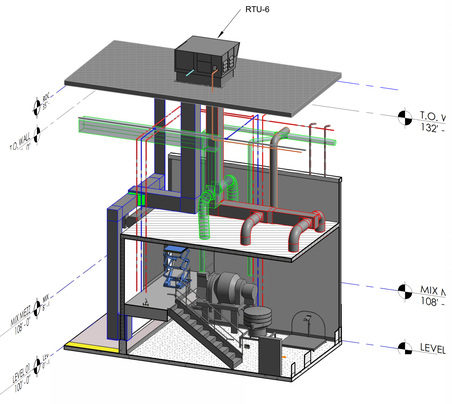
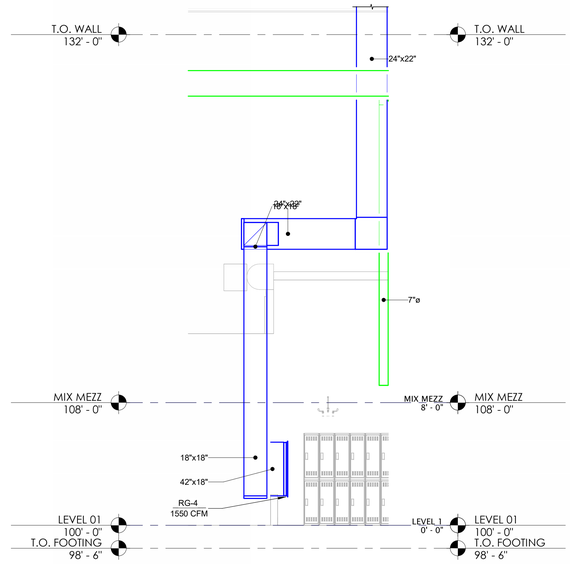


1 CLEAN ROOM ISO VIEW



2 CLEAN ROOM SECTIONAL VIEW
1/4" = 1'-0"

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4170 W 2100 N, LEHI

MARK	DESCRIPTION	Revision Date

Revision Schedule

PERMIT SET

AE2024.387

CLEAN ROOM MECHANICAL VIEWS

DATE:

SHEET #:

M1.5

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ENERGY RECOVERY UNIT (ERV) SCHEDULE

TAG	MANUFACTURER	MODEL	SUPPLY AIRFLOW	SUPPLY MOTOR HP	SUPPLY STATIC PRESSURE (IN-WC)	EXHAUST AIFLOW	EXHAUST MOTOR HP	EXHAUST STATIC PRESSURE (IN-WC)	FILTER TYPE	FILTER QUANTITY	GAS INPUT (BTUH)	GAS OUTPUT BTUH)	VOLT / PHASE	MCA	MOCP	HEIGHT (IN)	WIDTH (IN)	LENGTH (IN)	WEIGHT (LBS)	NOTES
ERV-1	GREENHECK	ERV-10-20L-VG	400	0.11	0.559	770	0.44	0.622	MERV-8	2	--	--	208 / 3	11.1	15	40.2	33.7	46.1	270	

MITSUBISHI INDOOR UNIT (SPLIT) SCHEDULE

TAG	MODEL	ASSOCIATED EQUIPMENT	AIRFLOW	OUTSIDE AIRFLOW (CFM) (TAC)	NOMINAL COOLING CAPACITY (BTUH)	SENSIBLE COOLING CAPACITY (BTUH)	NOMINAL HEATING CAPACITY (BTUH)	MOTOR HP	REFRIGERANT TYPE	REFRIGERANT PIPE DIM LIQUID / GAS PRESSURE (INCH)	MCA	MOCP	VOLT / PHASE	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)	NOTES
CC-1	SLZ-KF12NA	MOU-1	420-460-490-530	53	12000	7700	14500	1/16	R-454B	1/4 / 1/2	1	15	208 / 1	11.75	36	36	46	1, 2
CC-2	SLZ-KF18NA	MOU-2	460-460-570-600	60	18000	11200	18800	1/8	R-454B	1/4 / 1/2	1	15	208 / 1	11.75	36	36	46	1, 2
FC-1	PEAD-AA42NL	MCU-1	1042- 1148-1254-1483	126	42000	28800	54000	0.4	R-454B	3/8 / 5/8	4.25	56	208 / 1	10	55	29	86	1, 2
FC-2	PEAD-AA18NL	MCU-2	403–424–512–600	115	18000	10800	22000	1/4	R-454B	1/4 / 1/2	2.25	20	208 / 1	13	45-1/16	35-7/16	71	1, 2
FC-3	PEAD-AA12NL	MCU-3	353-388-424-494	20	12000	8300	18000	8/50	R-454B	1/4 / 1/2	2.5	20	208 / 1	13	46-1/8	35-7/16	68	1, 2
FC-4	PEAD-AA12NL	MCU-4	353-388-424-494	20	12000	8300	18000	8/50	R-454B	1/4 / 1/2	2.5	20	208 / 1	13	46-1/8	35-7/16	68	1, 2
FC-5	PEAD-AA12NL	MCU-5	353-388-424-494	20	12000	8300	18000	8/50	R-454B	1/4 / 1/2	2.5	20	208 / 1	13	46-1/8	35-7/16	68	1, 2

1. MERV 8 FILTER
2. INDOOR UNIT POWERED BY OUTDOOR UNIT

MITSUBISHI OUTDOOR UNIT (SPLIT) SCHEDULE

TAG	ASSOCIATED EQUIPMENT	MODEL	NOMINAL COOLING CAPACITY (BTUH)	NOMINAL HEATING CAPACITY (BTUH)	OPERATING TEMPERATURE RANGE (DEG F)	REFRIGERANT TYPE	REFRIGERANT PIPE DIM LIQUID / GAS PRESSURE (INCH)	SEER	HSPF	MCA	MOCP	VOLT / PHASE	WEIGHT (LBS)	NOTES
MOU-1	CC-1	SUZ-KA12NAHZ	12000	18000	5 - 115	R-454B	1/4 / 1/2	20	9.5	16	27	208 / 1	112.44	
MOU-2	CC-2	SUZ-KA18NAHZ	18000	22000	5 - 115	R-454B	1/4 / 1/2	20.1	8.8	16	27	208 / 1	112.44	
MCU-1	FC-1	PUZ-AK42NLHZ	42000	54000	14 - 115	R-454B	3/8 / 5/8	18.3	8.5	35	60	208 / 1	271	
MCU-2	FC-2	PUZ-AK18NL	18000	22000	23 - 115	R-454B	1/4 / 1/2	20.1	8.8	16	27	208 / 1	112.44	
MCU-3	FC-3	PUZ-AK12NL	12000	18000	23 - 115	R-454B	1/4 / 1/2	20	9.5	16	27	208 / 1	112.44	
MCU-4	FC-4	PUZ-AK12NL	12000	18000	23 - 115	R-454B	1/4 / 1/2	20	9.5	16	27	208 / 1	112.44	
MCU-5	FC-5	PUZ-AK12NL	12000	18000	23 - 115	R-454B	1/4 / 1/2	20	9.5	16	27	208 / 1	112.44	

LOUVER SCHEDULE

TAG	MANUFACTURER	TYPE	AIRFLOW (CFM)	STATIC PRESSURE (IN-WC)	WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)	NOTES
L-1	UNITED ENERTECH	BUILDING INTAKE	1400	0.07	28	24	6	1,2
L-2	UNITED ENERTECH	BUILDING INTAKE	1400	0.07	28	24	6	1,2

1. BACK DRAFT DAMPER
2. BIRD SCREEN

EXISTING GAS FIRED UNIT HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	AIRFLOW (CFM)	GAS INPUT (BTUH)	GAS OUTPUT (BTUH)	MOTOR HP	VOLT / PHASE	MCA	MOCP	WEIGHT (LBS)	NOTES
(E)GUH-1	REZNOR	UDXC-100	1345	105000	87150	0.25	120 / 1	4.3	15	101	1

1. EXISTING UNIT, FOR REFERENCE ONLY

GRILLES, REGISTERS, AND DIFFUSERS

TAG	MANUFACTURER	MODEL	SIZE	MAX NC	DESCRIPTION
EG-1	TUTTLE & BAILEY	T75D	12" X 12"	30	FIXED BAR GRILLE WITH HORIZONTAL BARS ON 1/2" CENTERS, 35 DEG FIXED DEFLECTION, STEEL CONSTRUCTION, COORDINATE FINISH WITH ARCHITECTURAL.
RG-1	TUTTLE & BAILEY	6000 SERIES	48" X 4"	30	3 SLOT, 1" RETURN SLOT. ALUMINIUM CONSTRUCTION
RG-2	TUTTLE & BAILEY	T75D	24" X 24"	30	FIXED BAR GRILLE WITH HORIZONTAL BARS ON 1/2" CENTERS, 35 DEG FIXED DEFLECTION, STEEL CONSTRUCTION, COORDINATE FINISH WITH ARCHITECTURAL.
RG-3	TUTTLE & BAILEY	T75D	12" X 24"	30	FIXED BAR GRILLE WITH HORIZONTAL BARS ON 1/2" CENTERS, 35 DEG FIXED DEFLECTION, ALUMINUM CONSTRUCTION, COORDINATE FINISH WITH ARCHITECTURAL.
RG-4	PRICE	700	16" X 42"	30	3/4" SPACED FIXED BAR, 35 DEGREE DEFLECTION STAINLESS STEEL RETURN GRILLE WITH 2" FILTER BANK. FURNISH WITH 2" MERV 8 FILTER
RG-5	GREENHECK	XG-CC5SS	24" X 24"	30	NON FERROUS STAINLESS STEEL RETURN GRILLE, CUBE CORE.
RG-6	TUTTLE & BAILEY	T75D	12" X 12"	30	FIXED BAR GRILLE WITH HORIZONTAL BARS ON 1/2" CENTERS, 35 DEG FIXED DEFLECTION, STEEL CONSTRUCTION, COORDINATE FINISH WITH ARCHITECTURAL.
SD-1	TUTTLE & BAILEY	6000 SERIES	48" X 4"	30	3 SLOT, 1" SUPPLY SLOT DIFFUSER. ALUMINIUM CONTRUCTION
SD-2	TUTTLE & BAILEY	T1100	12" X 12"	30	ARCHITECTURAL PLAQUE CEILING DIFFUSER, STEEL CONSTRUCTION, REMOVABLE PLAQUE FACE, 4 WAY CEILING PATTERN, OPPOSED BLADE DAMPER. COORDINATE FINISH WITH ARCHITECT.
SD-3	TUTTLE & BAILEY	T1100	24" X 24"	30	ARCHITECTURAL PLAQUE CEILING DIFFUSER, STEEL CONSTRUCTION, REMOVABLE PLAQUE FACE, 4 WAY CEILING PATTERN, OPPOSED BLADE DAMPER. COORDINATE FINISH WITH ARCHITECT.
SD-4	GREENHECK	XG-5500SS	24" X 24"	30	NON FERROUS STAINLESS STEEL FACE LOUVER W/ 4 WAY DISTRUBTION.

EXHAUST DUST COLLECTION SCHEDULE

TAG	MANUFACTURER	BLOWER MODEL	BLOWER HP	VOLT / PHASE	CABINET MODEL	DRUM CAPACITY (GAL)	FILTER AREA	NOTES
SI-1	PARKER - UAS	BIMS-365-50	50	460 / 3	SFC- 32-4	110	8,100 FT^2	1, 2, 3, 4, 5, 6, 7, 8

1. PROVIDED BY FILTER TECHNOLOGIES
2. DESIGNED FOR COMBUSTIBLE DUST - NFPA 68, 69 ,660 (SEE NOTE 3)
3. PROVIDE EXPLOSION VENT, ISOLATION VALVES, AND SEALED DRUMS
4. FLANGE DUCTING BETWEEN COLLECTOR &ISOLATION VALVE SHALL BE SAME GAUGE AS COLLECTOR
5. PROVIDE (5) 6" X 10' LONG IAP EXTRACTION ARMS WITH WALL BRACKET FOR BLENDER DISCHARGE EXTRACTION
6. CORDINATE LOCATION OF COLLECTOR WITH OWNER (MUST HAVE LEVEL CONCRETE PAD)
7. COORDINATE ALL FINAL DROPS & CONNECTIONS WITH OWNER
8. ALL CONTROL PANELS MUST BE LOCATED INDOORS FROM THE WEATHER

ROOFTOP UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	AIRFLOW (CFM)	OUTSIDE AIRFLOW (CFM)	STATIC PRESSURE (IN-WC)	GAS INPUT (BTUH)	GAS OUTPUT (BTUH)	NOMINAL COOLING CAPACITY (BTUH)	REFRIGERANT TYPE	SEER / IEER	MOTOR HP	VOLT / PHASE	MCA	MOCP	WEIGHT	NOTES
RTU-1	LENNOX	LGX048	1600	206	0.60	150000	121000	49700	R-454B	-	1	460 / 3	13	15	760	21,23,24,25,26,27,28,29
RTU-2	LENNOX	LGX092	3000	1237	0.75	240000	194000	89900	R-454B	-	5	460 / 3	24	30	1069	21, 23,24,25,26,27,28,29
RTU-3	LENNOX	LGX048	1600	156	0.60	150000	121000	49700	R-454B	-	1	460 / 3	13	15	760	21,23,24,25,26,27,28,29
RTU-4	LENNOX	LGX048	1600	201	0.60	150000	121000	49700	R-454B	-	1	460 / 3	13	15	760	21,23,24,25,26,27,28,29
RTU-5	LENNOX	LGX036	1200	322	0.60	65000	52000	37300	R-454B	-	1	460 / 3	10	15	741	21,23,24,25,26,27,28,29
RTU-6	CAPTIVE AIRE	CAS-HVAC2-1.200-18-10T	3100	75	0.6	133300	108000	139200	R-454B	- / 18.6	3.0	460 / 3	29.9	30	2,138	1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
RTU-7	CAPTIVE AIRE	CAS-HVAC3-I.200-24-12.5T	4000	105	0.6	133300	108000	148800	R-454B	- / 21.3	5.0	460 / 3	33	35	2,546	1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
RTU-8	CAPTIVE AIRE	CAS-HVAC3-I.250-24-15T	4650	120	0.6	172200	139500	204300	R-454B	- / 18.8	5.0	460/3	35	35	2,805	1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
RTU-9	CAPTIVE AIRE	CAS-HVAC3-I.250-24-15T	4650	120	0.6	133300	108000	204300	R-454B	- / 18.8	5.0	460 / 3	35	35	2,768	1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
RTU-10	CAPTIVE AIRE	CAS-HVAC3-I.250-24-15T	4650	120	0.6	133300	108000	204300	R-454B	- / 18.8	5.0	460 / 3	35	35	2,796	1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
RTU-11	CAPTIVE AIRE	CAS-HVAC4-I.400-30-25T	7700	460	0.6	332000	270000	325000	R-454B	- / 17.9	10	460 / 3	70	80	5,403	1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
5. EC MOTOR CONDENSING FANS
6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
7. SUCTION LINE ACCUMULATOR
8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER
9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
10. 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM 20GA EXTERIOR W/ 14GA BASE
11. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 16:1 TURNDOWN WITH NG AND 13:1 TURNDOWN WITH LP
12. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 15:1 TURNDOWN WITH NG AND 12:1 TURNDOWN WITH LP
13. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
14. FULLY MODULATING HOT GAS REHEAT
15. 4" MERV-15 IN-UNIT FILTRATION
16. 15 DEGREE LOW AMBIENT OPERATION
17. RTU ECONOMIZER WITH FIXED ENTHALPY CONTROL
18. BAROMETRIC RELIEF DAMPER
19. DOWN DISCHARGE/DOWN RETURN
20. WEIGHT INCLUDES 20" INSULATED CURB
21. UNIT WITH FULL ECONOMIZER AND INTAKE/OUTSIDE AIR DAMPERS
22. UNIT WITH POWER EXHAUST
23. UNIT WITH SMOKE DETECTOR,
24. SUBMITTAL TO INCLUDE STATIC PRESSURE LOSS WITH DIRTY FLTERS.
25. CONTRACTOR TO VERIFY EXISTING ROOF CURB.
26. PROVIDE WITH R-454B DX COOLING.
27. HEIGHT DOES NOT INCLUDE ROOF CURB.
28. PROVIDE WITH 2 STAGE GAS HEATING.
29. PROVIDE ROOF CURB ADAPTER IF NECESSARY.

EXHAUST FAN SCHEDULE

TAG	TYPE	MANUFACTURER	MODEL	AIRFLOW (CFM)	MOTOR HP	RPM	STATIC PRESSURE (IN-WC)	MCA	MOCP	VOLT / PHASE	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)	NOTES
EF-1	CEILING	GREENHECK	SP-LP0511-1	80	-	685	0.4	0.4	15	115 / 1	14"	10"	10"	20	4
EF-2	CEILING MOUNTED	BROAN	L200	185	3/16	740	0.375	1.8	15	120 / 1	12	12.25	13	30	4
EF-3	ROOF EXHAUST FAN	PENNBARRY	FX10B	1200	1/4	1300	0.5	4	15	208 / 1	29	35	-	100	1,2
EF-4	ROOF EXHAUST FAN	PENNBARRY	FX10B	1200	1/4	1300	0.5	4	15	208 / 1	29	35	-	100	1,2
EF-5	ROOF EXHAUST FAN	GREENHECK	GB-130	2000	1/2	1500	0.3	7	15	208 / 1	36	30	30	100	1,2
EF-6	ROOF EXHAUST FAN	CAPTIVEAIRE	DR180HFA	3000	1.5	1105	0.5	1.5	15	460 / 3	32	38	38	200	3
EF-7	ROOF EXHAUST FAN	CAPTIVEAIRE	DR200HFA	3900	2.0	1182	0.5	3.8	15	460 / 3	33	38	38	250	3
EF-8	ROOF EXHAUST FAN	CAPTIVEAIRE	DR200HFA	4500	2.0	794	0.6	4	15	460 / 3	33	38	38	250	3
EF-9	ROOF EXHAUST FAN	CAPTIVEAIRE	DR200HFA	4500	2.0	794	0.6	4	15	460 / 3	33	38	38	250	3
EF-10	ROOF EXHAUST FAN	CAPTIVEAIRE	DR200HFA	4500	2.0	794	0.6	4	15	460 / 3	33	38	38	250	3
EF-11	ROOF EXHAUST FAN	PENNBARRY	FX08B	900	1/2	5326	0.5	7	15	208/1	28 3/4	35	35	120	3

1. INSTALL WITH BACK DRAFT DAMPER.
2. FAN TO RUN CONTINUOUSLY DURING BUILDING OPERATING HOURS.
3. EXHAUST FAN TO BE TIED TO ON/OFF SWITCH FOR WASH DOWN OPERATIONS
4. TIED TO LIGHTING

ELECTRIC UNIT HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	NOMINAL HEATING CAPACITY (BTUH)	WATTS	AIRFLOW (CFM)	VOLT / PHASE	MCA	MOCP	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	NOTES
EUH-1	QMARK	LFK151F	WALL MOUNTED	1705	1500	100	120 / 1	12.5	15	19.25	15.75	5.125	1, 2
EUH-2	QMARK	LFK151F	WALL MOUNTED	1705	1500	100	120 / 1	12.5	15	19.25	15.75	5.125	1, 2
EUH-3	QMARK	LFK151F	WALL MOUNTED	1705	1500	100	120 / 1	12.5	15	19.25	15.75	5.125	1, 2

1. HARD WIRED KIT
2. BUILT IN THERMOSTAT

CEILING FAN SCHEDULE

TAG	MANUFACTURER	MODEL	DIAMETER (FT)	MOTOR HP	RPM	MCA	MOCP	VOLT / PHASE	WEIGHT (LBS)	NOTES
CF-1	SKYBLADE TURBOPROP	TBP-1649-846-3	16	1.35	45	5.2	15	460 / 3	140	1, 2
CF-2	SKYBLADE TURBOPROP	TBP-1649-846-3	16	1.35	45	5.2	15	460 / 3	140	1, 2
CF-3	SKYBLADE TURBOPROP	TBP-1649-846-3	16	1.35	45	5.2	15	460 / 3	140	1, 2
CF-4	SKYBLADE TURBOPROP	TBP-1649-846-3	16	1.35	45	5.2	15	460 / 3	140	1, 2

1. CONTROLLED BY SINLGE YOKE FACTORY CONTROLLER
2. OR EQUAL

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LICENSED PROFESSIONAL ENGINEER
No. 260219
E. TAYLOR GROBERG
5.29.2025
STATE OF UTAH

Revision Schedule

MARK	DESCRIPTION	Revision Date

SENSAPURE TI

4170 W 2100 N, LEHI

PERMIT SET

AE2024.387

MECHANICAL SCHEDULES

DATE:

SHEET #:

M2.1

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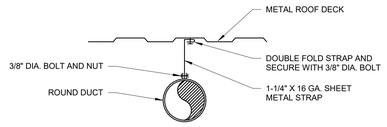
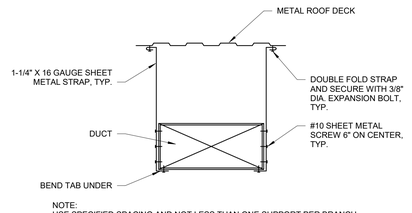


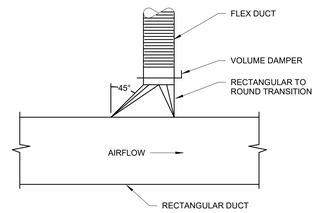
NOTE:
USE SPECIFIED SPACING AND NOT LESS THAN ONE SUPPORT PER BRANCH.

1 ROUND DUCT SUPPORT DETAIL
NTS

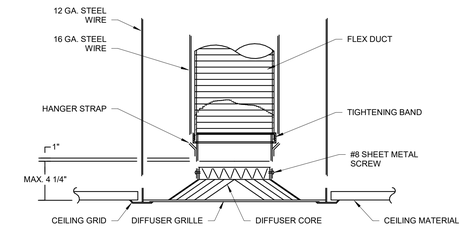


NOTE:
USE SPECIFIED SPACING AND NOT LESS THAN ONE SUPPORT PER BRANCH.

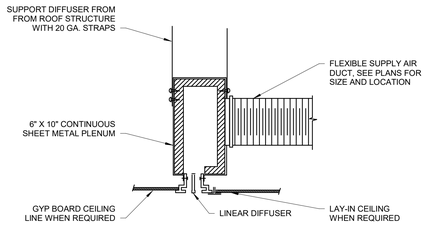
2 RECTANGULAR DUCT SUPPORT DETAIL
NTS



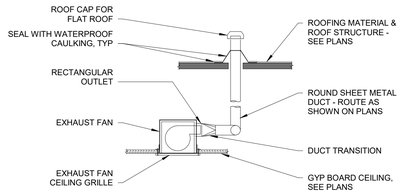
3 HIGH EFFICIENCY TAKE-OFF DETAIL
NTS



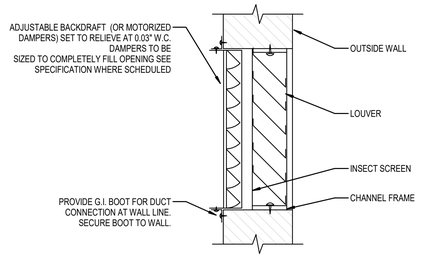
4 DIFFUSER WITH FLEX DUCT CONNECTION DETAIL
NTS



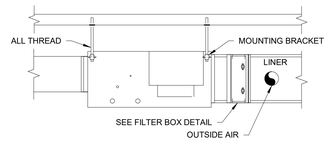
5 LINEAR DIFFUSER WITH PLENUM DETAIL
NTS



7 CEILING EXHAUST FAN DETAIL
NTS



6 RELIEF AIR LOUVER
NTS



8 CITY MULTI CEILING CONCEALED FAN COIL DETAIL
NTS

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5.29.2025
STATE OF UTAH

SENSAPURE TI

4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

MECHANICAL DETAILS

DATE:

SHEET #:

M2.2

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ASHRAE/ACCA COMPLIANCE FORM FOR STANDARD 183

Building or Zone Name:
SENSAPURE LEHI

Location or Address:
4150 W Waterbury Dr, Lehi, UT 84043

Design Conditions:

	Cooling	Heating
Weather Data Used	Provo, UT, US	
Indoor Dry Bulb Design Temperature	80 °F	65 °F
Indoor Design Relative Humidity	50 %	34 %

Load Calculation Method:
(Indicate which of the following methods is used.)

- ■ **CLTD/CLF** — Cooling Load Tempratture Difference / Cooling Load Factor methods
- ☐ **HB** — Heat Balance methods
- ☐ **TETD/TA** — Total Equivalent Temperature Difference / Time Averaging methods
- ☐ **TFM** — Transfer Function methods
- ☐ **RTS** — Radiant Time Series methods
- ☐ **OTHER** (please specify) ____________

The undersigned attests that the above information is correct and that the procedures used to perform the load calculations comply with ANSI/ASHRAE/ACCA Standard 183

Signed: Derek Steadman
Digitally signed by Derek Steadman
DN: C=US, E=derek@bluefieldengineering.com, O=Bluefield Engineering/Gunthers Inc, OU=Engineering Department, CN=Derek Steadman
Reason: I am the author of this document
Date: 2025.05.20 14:11:18-06'00'

Date:

Submitted by:

Date: Apr 22, 2025

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wrightsoft **Right-Suite® Universal 2024 Short Form**
SENSAPURE LEHI
Bluefield Engineering
81 South 700 East, American Fork, UT 84003

Job: 25.025
Date: Apr 22, 2025
By:

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	65	80
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	66
Daily range	(°F)	-	30	Design TD	(°F)	60	20
Moisture diff.	(gr/lb)	-	-40				

Heating Equipment			Cooling Equipment		
Make			Make		
Model			Cond		
			Coil		
AHRI ref.			AHRI ref.		
Type	Gas furnace		Type	Split AC	
Efficiency	80 AFUE		Efficiency	0 SEER	
Heating Input	0	MBtuh	Sensible Cooling	0	MBtuh
Heating Output	0	MBtuh	Latent Cooling	0	MBtuh
Humidifier	896.5	gpd	Total Cooling	0	MBtuh
Leaving Air Temp	64.8	°F	Leaving Air Temp	55.0	°F
Actual Heating Fan	34757	cfm	Actual Cooling Fan	34757	cfm

System Type	PEAKCV	
Fan Motor Heat Type	PACKAGE	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
CONF 1 ZONE	528	21451	24104	1643	439	1025	Jul 1700 LDT
(Rest of House)	22727	366559	281047	-16038	8204	11133	Jul 1700 LDT
TASTING ZONE	560	35431	35900	419	1045	2586	Jul 1700 LDT
BREAK ZONE	3888	62687	59315	1641	864	2144	Jul 1700 LDT
CUBE ZONE	1910	30425	29301	986	392	1053	Jul 1700 LDT
LAB ZONE	981	30723	26537	277	777	1559	Jul 1700 LDT
CONF 2 ZONE	304	10736	10452	228	270	618	Jul 1700 LDT
EAST OFFICE ZONE	244	4450	4143	406	41	141	Jul 1700 LDT
NW OFFICES ZONE	538	9467	6991	778	90	222	Jul 1700 LDT
NE OFFICE ZONE	400	7065	5753	586	67	189	Jul 1700 LDT
WHSE ZONE	44856	903000	0	0	20177	0	Jul 1700 LDT
RECEPTION ZONE	572	34358	33040	182	1027	1629	Jul 1700 LDT
BLEND 15	400	7065	15874	101	111	648	Jul 1700 LDT
BLEND 110 RM108	500	8613	41608	49	139	1758	Jul 1700 LDT
BLEND 140 RM109	611	10340	53544	-10	170	2268	Jul 1700 LDT
BLEND 250 RM110	611	10340	95169	-10	170	4075	Jul 1700 LDT
BLEND 300 RM119	611	10340	99089	-10	170	4245	Jul 1700 LDT
STAGING ZONE	2313	34304	33515	341	487	1227	Jul 1700 LDT
SAMPLING ZONE	331	6915	6882	88	120	262	Jul 1700 LDT
SENSAPURE LEHI	82881	1604267	862263	-8342	34757	34757	Jul 1700 LDT

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wrightsoft **Right-Suite® Universal 2024 Short Form**
(Rest of House)
Bluefield Engineering
81 South 700 East, American Fork, UT 84003

Job: 25.025
Date: Apr 22, 2025
By:

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	61	75
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	62
Daily range	(°F)	-	30	Design TD	(°F)	56	25
Moisture diff.	(gr/lb)	-	-27				

Heating Equipment			Cooling Equipment		
Make	n/a		Make	n/a	
Model	n/a		Cond	n/a	
			Coil	n/a	
AHRI ref.	n/a		AHRI ref.	n/a	
Type	n/a		Type	n/a	
Efficiency	n/a		Efficiency	n/a	
Heating Input	0	MBtuh	Sensible Cooling	0	MBtuh
Heating Output	0	MBtuh	Latent Cooling	0	MBtuh
Humidifier	0	gpd	Total Cooling	0	MBtuh
Leaving Air Temp	0	°F	Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm	Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
GOWNING 101	163	6590	8381	43	175	368	Jul 1700 LDT
EMP CHK-IN 106	943	30122	0	0	770	0	Jul 1700 LDT
STORAGE 120	376	4269	4449	-257	63	168	Jul 1700 LDT
UTILITY 146	488	7610	0	0	157	0	Jul 1700 LDT
MAINTENANCE 145	585	9385	0	0	198	0	Jul 1700 LDT
RESTROOM 5 143	68	2123	1852	18	50	73	Jul 1700 LDT
Room59	52	1633	1489	14	39	59	Jul 1700 LDT
Room60	368	4173	0	0	61	0	Jul 1700 LDT
WEIGH 105	90	886	0	0	13	0	Jul 1700 LDT
WEIGH 104	95	932	0	0	13	0	Jul 1700 LDT
WEIGH 103	81	792	0	0	11	0	Jul 1700 LDT
WEIGH 102	81	792	0	0	11	0	Jul 1700 LDT
Room101	16450	250495	258972	-15545	5573	10251	Jul 1700 LDT
Room125	325	7296	0	0	196	0	Jul 1700 LDT
Room130	1561	22058	0	0	466	0	Jul 1700 LDT
Room131	331	5122	5903	-313	115	236	Jul 1700 LDT
Room136	185	2129	0	0	38	0	Jul 1700 LDT
Room138	162	1856	0	0	33	0	Jul 1700 LDT
VESTIBULE	325	8297	0	0	222	0	Jul 1700 LDT
(Rest of House)	22727	366559	281047	-16038	8204	11133	Jul 1700 LDT

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wrightsoft **Right-Suite® Universal 2024 Short Form**
BLEND 110 RM108
Bluefield Engineering
81 South 700 East, American Fork, UT 84003

Job: 25.025
Date: Apr 22, 2025
By:

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	70
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	58
Daily range	(°F)	-	30	Design TD	(°F)	65	30
Moisture diff.	(gr/lb)	-	-15				

Heating Equipment			Cooling Equipment		
Make	n/a		Make	n/a	
Model	n/a		Cond	n/a	
			Coil	n/a	
AHRI ref.	n/a		AHRI ref.	n/a	
Type	n/a		Type	n/a	
Efficiency	n/a		Efficiency	n/a	
Heating Input	0	MBtuh	Sensible Cooling	0	MBtuh
Heating Output	0	MBtuh	Latent Cooling	0	MBtuh
Humidifier	0	gpd	Total Cooling	0	MBtuh
Leaving Air Temp	0	°F	Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm	Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
BLEND 110 108	500	8613	41608	49	139	1758	Jul 1700 LDT
BLEND 110 RM108	500	8613	41608	49	139	1758	Jul 1700 LDT

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wrightsoft **Right-Suite® Universal 2024 Short Form**
BLEND 140 RM109
Bluefield Engineering
81 South 700 East, American Fork, UT 84003

Job: 25.025
Date: Apr 22, 2025
By:

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	70
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	58
Daily range	(°F)	-	30	Design TD	(°F)	65	30
Moisture diff.	(gr/lb)	-	-15				

Heating Equipment			Cooling Equipment		
Make	n/a		Make	n/a	
Model	n/a		Cond	n/a	
			Coil	n/a	
AHRI ref.	n/a		AHRI ref.	n/a	
Type	n/a		Type	n/a	
Efficiency	n/a		Efficiency	n/a	
Heating Input	0	MBtuh	Sensible Cooling	0	MBtuh
Heating Output	0	MBtuh	Latent Cooling	0	MBtuh
Humidifier	0	gpd	Total Cooling	0	MBtuh
Leaving Air Temp	0	°F	Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm	Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
BLEND 140 109	611	10340	53544	-10	170	2268	Jul 1700 LDT
BLEND 140 RM109	611	10340	53544	-10	170	2268	Jul 1700 LDT

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wrightsoft **Right-Suite® Universal 2024 Short Form**
BLEND 15
Bluefield Engineering
81 South 700 East, American Fork, UT 84003

Job: 25.025
Date: Apr 22, 2025
By:

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	70
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	58
Daily range	(°F)	-	30	Design TD	(°F)	65	30
Moisture diff.	(gr/lb)	-	-15				

Heating Equipment			Cooling Equipment		
Make	n/a		Make	n/a	
Model	n/a		Cond	n/a	
			Coil	n/a	
AHRI ref.	n/a		AHRI ref.	n/a	
Type	n/a		Type	n/a	
Efficiency	n/a		Efficiency	n/a	
Heating Input	0	MBtuh	Sensible Cooling	0	MBtuh
Heating Output	0	MBtuh	Latent Cooling	0	MBtuh
Humidifier	0	gpd	Total Cooling	0	MBtuh
Leaving Air Temp	0	°F	Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm	Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
BLEND 15 RM107	400	7065	15874	101	111	648	Jul 1700 LDT
BLEND 15	400	7065	15874	101	111	648	Jul 1700 LDT

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webpage: aeurbia.com

LICENSED PROFESSIONAL ENGINEER
No. 260219
E. TAYLOR GROBERG
5.29.2025
STATE OF UTAH

SENSAPURE TI
4170 W 2100 N, LEHI

Revision Schedule

MARK	DESCRIPTION	Revision Date

PERMIT SET

AE2024.387

MECHANICAL LOAD CALCS

DATE:

SHEET #:

M3.1

bluefield engineering

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Right-Suite® Universal 2024 Short Form
BLEND 250 RM110
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	70
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	58
Daily range	(°F)	-	30	Design TD	(°F)	65	30
Moisture diff.	(gr/lb)	-	-15				

Heating Equipment

Make		n/a		
Model		n/a		
AHRI ref.		n/a		
Type		n/a		
Efficiency		n/a		
Heating Input		0	MBtuh	
Heating Output		0	MBtuh	
Humidifier		0	gpd	
Leaving Air Temp		0	°F	
Actual Heating Fan		0	cfm	

Cooling Equipment

Make		n/a	
Cond		n/a	
Coil		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Sensible Cooling	0	MBtuh	
Latent Cooling	0	MBtuh	
Total Cooling	0	MBtuh	
Leaving Air Temp	0	°F	
Actual Cooling Fan	0	cfm	

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
BLEND 250 110	611	10340	95169	-10	170	4075	Jul 1700 LDT
BLEND 250 RM110	611	10340	95169	-10	170	4075	Jul 1700 LDT

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Right-Suite® Universal 2024 Short Form
BLEND 300 RM119
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	70
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	58
Daily range	(°F)	-	30	Design TD	(°F)	65	30
Moisture diff.	(gr/lb)	-	-15				

Heating Equipment

Make		n/a		
Model		n/a		
AHRI ref.		n/a		
Type		n/a		
Efficiency		n/a		
Heating Input		0	MBtuh	
Heating Output		0	MBtuh	
Humidifier		0	gpd	
Leaving Air Temp		0	°F	
Actual Heating Fan		0	cfm	

Cooling Equipment

Make		n/a	
Cond		n/a	
Coil		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Sensible Cooling	0	MBtuh	
Latent Cooling	0	MBtuh	
Total Cooling	0	MBtuh	
Leaving Air Temp	0	°F	
Actual Cooling Fan	0	cfm	

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
BLEND 300 119	611	10340	99089	-10	170	4245	Jul 1700 LDT
BLEND 300 RM119	611	10340	99089	-10	170	4245	Jul 1700 LDT

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Right-Suite® Universal 2024 Short Form
BREAK ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	72
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	59
Daily range	(°F)	-	30	Design TD	(°F)	65	28
Moisture diff.	(gr/lb)	-	-20				

Heating Equipment

Make		n/a		
Model		n/a		
AHRI ref.		n/a		
Type		n/a		
Efficiency		n/a		
Heating Input		0	MBtuh	
Heating Output		0	MBtuh	
Humidifier		0	gpd	
Leaving Air Temp		0	°F	
Actual Heating Fan		0	cfm	

Cooling Equipment

Make		n/a	
Cond		n/a	
Coil		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Sensible Cooling	0	MBtuh	
Latent Cooling	0	MBtuh	
Total Cooling	0	MBtuh	
Leaving Air Temp	0	°F	
Actual Cooling Fan	0	cfm	

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
HALLWAY 122	427	4842	3138	-291	71	107	Jul 1700 LDT
RESTROOM 1 123	214	3265	2330	141	36	75	Jul 1700 LDT
RESTROOM 124	222	3356	2389	135	37	77	Jul 1700 LDT
EMP BREAK 115	2404	42473	45360	1508	617	1683	Jul 1700 LDT
RESTROOM 4 118	286	4088	2863	91	48	94	Jul 1700 LDT
RESTROOM 3 116	281	4026	2823	95	47	92	Jul 1700 LDT
JANITOR 117	56	636	412	-38	9	14	Jul 1700 LDT
BREAK ZONE	3888	62687	59315	1641	864	2144	Jul 1700 LDT

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Right-Suite® Universal 2024 Short Form
CONF 1 ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	72
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	59
Daily range	(°F)	-	30	Design TD	(°F)	65	28
Moisture diff.	(gr/lb)	-	-20				

Heating Equipment

Make		n/a		
Model		n/a		
AHRI ref.		n/a		
Type		n/a		
Efficiency		n/a		
Heating Input		0	MBtuh	
Heating Output		0	MBtuh	
Humidifier		0	gpd	
Leaving Air Temp		0	°F	
Actual Heating Fan		0	cfm	

Cooling Equipment

Make		n/a	
Cond		n/a	
Coil		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Sensible Cooling	0	MBtuh	
Latent Cooling	0	MBtuh	
Total Cooling	0	MBtuh	
Leaving Air Temp	0	°F	
Actual Cooling Fan	0	cfm	

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
CONFERENCE 1-121	528	21451	24104	1643	439	1025	Jul 1700 LDT
CONF 1 ZONE	528	21451	24104	1643	439	1025	Jul 1700 LDT

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Right-Suite® Universal 2024 Short Form
CONF 2 ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	72
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	59
Daily range	(°F)	-	30	Design TD	(°F)	65	28
Moisture diff.	(gr/lb)	-	-20				

Heating Equipment

Make		n/a		
Model		n/a		
AHRI ref.		n/a		
Type		n/a		
Efficiency		n/a		
Heating Input		0	MBtuh	
Heating Output		0	MBtuh	
Humidifier		0	gpd	
Leaving Air Temp		0	°F	
Actual Heating Fan		0	cfm	

Cooling Equipment

Make		n/a	
Cond		n/a	
Coil		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Sensible Cooling	0	MBtuh	
Latent Cooling	0	MBtuh	
Total Cooling	0	MBtuh	
Leaving Air Temp	0	°F	
Actual Cooling Fan	0	cfm	

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
CONF 2 135	304	10736	10452	228	270	618	Jul 1700 LDT
CONF 2 ZONE	304	10736	10452	228	270	618	Jul 1700 LDT

wrightsoft

Right-Suite® Universal 2024 Short Form
CUBE ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	72
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	59
Daily range	(°F)	-	30	Design TD	(°F)	65	28
Moisture diff.	(gr/lb)	-	-20				

Heating Equipment

Make		n/a		
Model		n/a		
AHRI ref.		n/a		
Type		n/a		
Efficiency		n/a		
Heating Input		0	MBtuh	
Heating Output		0	MBtuh	
Humidifier		0	gpd	
Leaving Air Temp		0	°F	
Actual Heating Fan		0	cfm	

Cooling Equipment

Make		n/a	
Cond		n/a	
Coil		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Sensible Cooling	0	MBtuh	
Latent Cooling	0	MBtuh	
Total Cooling	0	MBtuh	
Leaving Air Temp	0	°F	
Actual Cooling Fan	0	cfm	

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
CUBICLES 132	1910	30425	29301	986	392	1053	Jul 1700 LDT
CUBE ZONE	1910	30425	29301	986	392	1053	Jul 1700 LDT

wrightsoft

Right-Suite® Universal 2024 Short Form
EAST OFFICE ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	72
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	59
Daily range	(°F)	-	30	Design TD	(°F)	65	28
Moisture diff.	(gr/lb)	-	-20				

Heating Equipment

Make		n/a		
Model		n/a		
AHRI ref.		n/a		
Type		n/a		
Efficiency		n/a		
Heating Input		0	MBtuh	
Heating Output		0	MBtuh	
Humidifier		0	gpd	
Leaving Air Temp		0	°F	
Actual Heating Fan		0	cfm	

Cooling Equipment

Make		n/a	
Cond		n/a	
Coil		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Sensible Cooling	0	MBtuh	
Latent Cooling	0	MBtuh	
Total Cooling	0	MBtuh	
Leaving Air Temp	0	°F	
Actual Cooling Fan	0	cfm	

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
OFFICE 133	119	2189	2038	205	20	69	Jul 1700 LDT
OFFICE 134	125	2260	2105	201	21	72	Jul 1700 LDT
EAST OFFICE ZONE	244	4450	4143	406	41	141	Jul 1700 LDT

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Right-Suite® Universal 2024 Short Form
LAB ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	70	72
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	59
Daily range	(°F)	-	30	Design TD	(°F)	65	28
Moisture diff.	(gr/lb)	-	-20				

Heating Equipment

Make		n/a		
Model		n/a		
AHRI ref.		n/a		
Type		n/a		
Efficiency		n/a		
Heating Input		0	MBtuh	
Heating Output		0	MBtuh	
Humidifier		0	gpd	
Leaving Air Temp		0	°F	
Actual Heating Fan		0	cfm	

Cooling Equipment

Make		n/a	
Cond		n/a	
Coil		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Sensible Cooling	0	MBtuh	
Latent Cooling	0	MBtuh	
Total Cooling	0	MBtuh	
Leaving Air Temp	0	°F	
Actual Cooling Fan	0	cfm	

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
LAB 139	594	19398	18318	167	499	1109	Jul 1700 LDT
WASH	126	4021	3213	-86	116	204	Jul 1700 LDT
STORAGE 140	261	7304	5006	195	162	237	Jul 1700 LDT
LAB ZONE	981	30723	26537	277	777	1559	Jul 1700 LDT

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LICENSED PROFESSIONAL ENGINEER
No. 260219
E. TAYLOR GROBERG
5.29.2025
STATE OF UTAH

SENSAPURE TI

4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

MECHANICAL LOAD CALCS

DATE:

SHEET #:

M3.2

PERMIT SET

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Right-Suite® Universal 2024 Short Form
NE OFFICE ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg
Outside db	(°F)	5	100
Outside RH	(%)	-	15
Outside wb	(°F)	-	64
Daily range	(°F)	-	30
Moisture diff.	(gr/lb)	-	-20

		Htg	Clg
Inside db	(°F)	70	72
Inside RH	(%)	-	50
Inside wb	(°F)	-	59
Design TD	(°F)	65	28

Heating Equipment

Make	n/a	
Model	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Heating Input	0	MBtuh
Heating Output	0	MBtuh
Humidifier	0	gpd
Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm

Cooling Equipment

Make	n/a	
Cond	n/a	
Coil	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Sensible Cooling	0	MBtuh
Latent Cooling	0	MBtuh
Total Cooling	0	MBtuh
Leaving Air Temp	0	°F
Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
OFFICE 129	131	2331	1725	197	22	55	Jul 1700 LDT
OFFICE 130	131	2331	1725	197	22	55	Jul 1700 LDT
OFFICE 131	138	2402	2304	192	23	79	Jul 1700 LDT
NE OFFICE ZONE	400	7065	5753	586	67	189	Jul 1700 LDT

Right-Suite® Universal 2024 Short Form
NW OFFICES ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg
Outside db	(°F)	5	100
Outside RH	(%)	-	15
Outside wb	(°F)	-	64
Daily range	(°F)	-	30
Moisture diff.	(gr/lb)	-	-20

		Htg	Clg
Inside db	(°F)	70	72
Inside RH	(%)	-	50
Inside wb	(°F)	-	59
Design TD	(°F)	65	28

Heating Equipment

Make	n/a	
Model	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Heating Input	0	MBtuh
Heating Output	0	MBtuh
Humidifier	0	gpd
Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm

Cooling Equipment

Make	n/a	
Cond	n/a	
Coil	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Sensible Cooling	0	MBtuh
Latent Cooling	0	MBtuh
Total Cooling	0	MBtuh
Leaving Air Temp	0	°F
Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
OFFICE 125	131	2331	1725	197	22	55	Jul 1700 LDT
OFFICE 126	131	2331	1725	197	22	55	Jul 1700 LDT
OFFICE 127	138	2402	1771	192	23	56	Jul 1700 LDT
OFFICE 128	138	2402	1771	192	23	56	Jul 1700 LDT
NW OFFICES ZONE	538	9467	6991	778	90	222	Jul 1700 LDT

Right-Suite® Universal 2024 Short Form
RECEPTION ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg
Outside db	(°F)	5	100
Outside RH	(%)	-	15
Outside wb	(°F)	-	64
Daily range	(°F)	-	30
Moisture diff.	(gr/lb)	-	-20

		Htg	Clg
Inside db	(°F)	70	72
Inside RH	(%)	-	50
Inside wb	(°F)	-	59
Design TD	(°F)	65	28

Heating Equipment

Make	n/a	
Model	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Heating Input	0	MBtuh
Heating Output	0	MBtuh
Humidifier	0	gpd
Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm

Cooling Equipment

Make	n/a	
Cond	n/a	
Coil	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Sensible Cooling	0	MBtuh
Latent Cooling	0	MBtuh
Total Cooling	0	MBtuh
Leaving Air Temp	0	°F
Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
RECEPTION 137	572	34358	33040	182	1027	1629	Jul 1700 LDT
RECEPTION ZONE	572	34358	33040	182	1027	1629	Jul 1700 LDT

Right-Suite® Universal 2024 Short Form
SAMPLING ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg
Outside db	(°F)	5	100
Outside RH	(%)	-	15
Outside wb	(°F)	-	64
Daily range	(°F)	-	30
Moisture diff.	(gr/lb)	-	-27

		Htg	Clg
Inside db	(°F)	70	75
Inside RH	(%)	-	50
Inside wb	(°F)	-	62
Design TD	(°F)	65	25

Heating Equipment

Make	n/a	
Model	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Heating Input	0	MBtuh
Heating Output	0	MBtuh
Humidifier	0	gpd
Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm

Cooling Equipment

Make	n/a	
Cond	n/a	
Coil	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Sensible Cooling	0	MBtuh
Latent Cooling	0	MBtuh
Total Cooling	0	MBtuh
Leaving Air Temp	0	°F
Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
SAMPLING 141	331	6915	6882	88	120	262	Jul 1700 LDT
SAMPLING ZONE	331	6915	6882	88	120	262	Jul 1700 LDT

Right-Suite® Universal 2024 Short Form
STAGING ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg
Outside db	(°F)	5	100
Outside RH	(%)	-	15
Outside wb	(°F)	-	64
Daily range	(°F)	-	30
Moisture diff.	(gr/lb)	-	-15

		Htg	Clg
Inside db	(°F)	70	70
Inside RH	(%)	-	50
Inside wb	(°F)	-	58
Design TD	(°F)	65	30

Heating Equipment

Make	n/a	
Model	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Heating Input	0	MBtuh
Heating Output	0	MBtuh
Humidifier	0	gpd
Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm

Cooling Equipment

Make	n/a	
Cond	n/a	
Coil	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Sensible Cooling	0	MBtuh
Latent Cooling	0	MBtuh
Total Cooling	0	MBtuh
Leaving Air Temp	0	°F
Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
STAGING 111	1276	21531	15611	-49	354	561	Jul 1700 LDT
GOWNING 112	152	1409	2308	-80	17	89	Jul 1700 LDT
QC LAB 113	493	6243	9402	364	55	348	Jul 1700 LDT
WASH 114	392	5121	6194	106	61	229	Jul 1700 LDT
STAGING ZONE	2313	34304	33515	341	487	1227	Jul 1700 LDT

Right-Suite® Universal 2024 Short Form
TASTING ZONE
Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg
Outside db	(°F)	5	100
Outside RH	(%)	-	15
Outside wb	(°F)	-	64
Daily range	(°F)	-	30
Moisture diff.	(gr/lb)	-	-20

		Htg	Clg
Inside db	(°F)	70	72
Inside RH	(%)	-	50
Inside wb	(°F)	-	59
Design TD	(°F)	65	28

Heating Equipment

Make	n/a	
Model	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Heating Input	0	MBtuh
Heating Output	0	MBtuh
Humidifier	0	gpd
Leaving Air Temp	0	°F
Actual Heating Fan	0	cfm

Cooling Equipment

Make	n/a	
Cond	n/a	
Coil	n/a	
AHRI ref.	n/a	
Type	n/a	
Efficiency	n/a	
Sensible Cooling	0	MBtuh
Latent Cooling	0	MBtuh
Total Cooling	0	MBtuh
Leaving Air Temp	0	°F
Actual Cooling Fan	0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
TASTING 138	560	35431	35900	419	1045	2586	Jul 1700 LDT
TASTING ZONE	560	35431	35900	419	1045	2586	Jul 1700 LDT

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LICENSED PROFESSIONAL ENGINEER
No. 260219
E. TAYLOR GROBERG
5.29.2025
STATE OF UTAH

SENSAPURE TI

4170 W 2100 N, LEHI

MARK	DESCRIPTION	Revision Date

Revision Schedule

AE2024.387

MECHANICAL LOAD CALCS

DATE:

PERMIT SET

SHEET #:

M3.3

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Right-Suite® Universal 2024 Short Form

WHSE ZONE

Bluefield Engineering

Job: 25.025
Date: Apr 22, 2025
By:

81 South 700 East, American Fork, UT 84003

Project Information

For: Sensapure Office TI - Lehi
4150 W Waterbury Dr, Lehi, UT 84043

		Htg	Clg			Htg	Clg
Outside db	(°F)	5	100	Inside db	(°F)	65	85
Outside RH	(%)	-	15	Inside RH	(%)	-	50
Outside wb	(°F)	-	64	Inside wb	(°F)	-	70
Daily range	(°F)	-	30	Design TD	(°F)	60	15
Moisture diff.	(gr/lb)	-	-58				

Heating Equipment

Make		n/a	
Model		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Heating Input		0	MBtuh
Heating Output		0	MBtuh
Humidifier		0	gpd
Leaving Air Temp		0	°F
Actual Heating Fan		0	cfm

Cooling Equipment

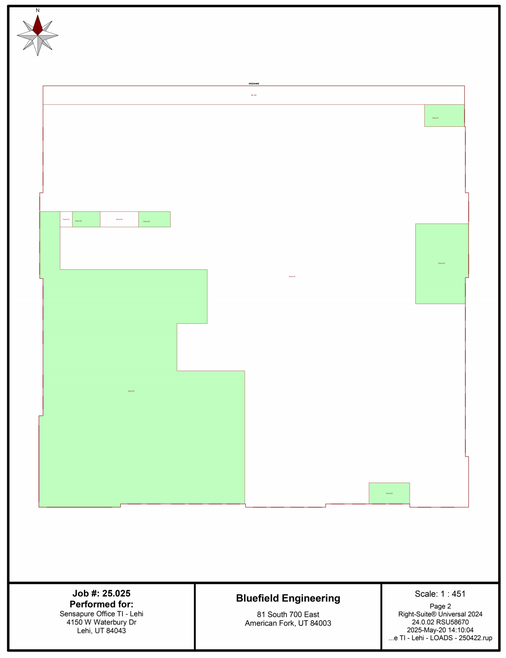
Make		n/a	
Cond		n/a	
Coil		n/a	
AHRI ref.		n/a	
Type		n/a	
Efficiency		n/a	
Sensible Cooling		0	MBtuh
Latent Cooling		0	MBtuh
Total Cooling		0	MBtuh
Leaving Air Temp		0	°F
Actual Cooling Fan		0	cfm

System Type	n/a	
Fan Motor Heat Type	n/a	
Fan & Motor Combined Efficiency	0	%
Static Pressure Across Fan	0	in H2O

NAME	Area ft²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
STOR & PROD 144	44562	898010	0	0	20076	0	Jul 1700 LDT
LCD2	71	1207	0	0	24	0	Jul 1700 LDT
LOAD CALC DRAW1	223	3783	0	0	77	0	Jul 1700 LDT
WHSE ZONE	44856	903000	0	0	20177	0	Jul 1700 LDT



Job #: 25.025 Performed for: Sensapure Office TI - Lehi 4150 W Waterbury Dr Lehi, UT 84043	Bluefield Engineering 81 South 700 East American Fork, UT 84003	Scale: 1 : 451 Page 1 Right-Suite® Universal 2024 24.0.02 RSU58670 2025-May-20 14:10:04 ...e TI - Lehi - LOADS - 250422.rup



Job #: 25.025 Performed for: Sensapure Office TI - Lehi 4150 W Waterbury Dr Lehi, UT 84043	Bluefield Engineering 81 South 700 East American Fork, UT 84003	Scale: 1 : 451 Page 2 Right-Suite® Universal 2024 24.0.02 RSU58670 2025-May-20 14:10:04 ...e TI - Lehi - LOADS - 250422.rup

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LICENSED PROFESSIONAL ENGINEER
No. 260219
E. TAYLOR GROBERG
5.29.2025
STATE OF UTAH

SENSAPURE TI

4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

PERMIT SET

AE2024.387

MECHANICAL LOAD CALCS

DATE:

SHEET #:

M3.4

bluefield engineering

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COM*check* Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: Sensapure
Location: Lehi, Utah
Climate Zone: 5b
Project Type: New Construction

Construction Site:
Lehi, Utah

Owner/Agent:

Designer/Contractor:
Bluefield Engineering
81 South 700 East
American Fork, Utah 84003

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Mechanical Systems List

Quantity	System Type & Description
1	RTU-1 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 50 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 11.50 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 1600 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 1600 Supply, Constant Volume, 1600 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW
1	RTU-2 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 90 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 11.00 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 3000 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 3000 Supply, Constant Volume, 3000 CFM, 5.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment
1	RTU-3 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 50 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 11.50 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 1600 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 1600 Supply, Constant Volume, 1600 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW
1	RTU-4 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 50 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 11.50 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 1600 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 1600 Supply, Constant Volume, 1600 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW
1	RTU-5 (Single Zone w/ PerimeterSystem):

Quantity	System Type & Description
	Cooling: 1 each - Packaged Terminal Unit, Capacity = 37 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 11.50 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 1200 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 1200 Supply, Constant Volume, 1200 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.1 kW
1	RTU-6 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 139 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 18.60 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 3100 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 3100 Supply, Constant Volume, 3100 CFM, 3.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment
1	RTU-7 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 149 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 21.30 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 4000 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 4000 Supply, Constant Volume, 4000 CFM, 5.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment
1	RTU-8 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 204 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 18.80 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 4530 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 4530 Supply, Constant Volume, 4530 CFM, 5.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment
1	RTU-9 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 204 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 18.80 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 4530 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 4530 Supply, Constant Volume, 4530 CFM, 5.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment
1	RTU-10 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 204 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 18.80 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 4530 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 4530 Supply, Constant Volume, 4530 CFM, 5.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment
1	RTU-11 (Single Zone w/ PerimeterSystem): Cooling: 1 each - Packaged Terminal Unit, Capacity = 325 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 17.90 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 7700 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 7700 Supply, Constant Volume, 7700 CFM, 8.4 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment
1	CC-1 (Single Zone): Cooling: 1 each - Split System, Capacity = 12 kBtu/h, Air-Cooled Condenser, Unknown Economizer

Quantity	System Type & Description
	Proposed Efficiency = 22.00 SEER2, Required Efficiency = 13.40 SEER2 Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 400 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 400 Supply, Constant Volume, 400 CFM, 0.1 motor nameplate hp, 0.00 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.1 kW
1	CC-2 (Single Zone): Cooling: 1 each - Split System, Capacity = 18 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 20.70 SEER2, Required Efficiency = 13.40 SEER2 Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 600 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 600 Supply, Constant Volume, 600 CFM, 0.1 motor nameplate hp, 0.00 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.1 kW
1	FC-1 (Single Zone): Cooling: 1 each - Split System, Capacity = 42 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 18.70 SEER2, Required Efficiency = 13.40 SEER2 Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 1400 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 1400 Supply, Constant Volume, 1400 CFM, 0.4 motor nameplate hp, 0.00 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.1 kW
1	FC-2 (Single Zone): Cooling: 1 each - Split System, Capacity = 18 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 20.10 SEER2, Required Efficiency = 13.40 SEER2 Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 600 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 600 Supply, Constant Volume, 600 CFM, 0.3 motor nameplate hp, 0.00 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.1 kW
1	FC-3 (Single Zone): Cooling: 1 each - Split System, Capacity = 12 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 20.00 SEER2, Required Efficiency = 13.40 SEER2 Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 400 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 400 Supply, Constant Volume, 400 CFM, 0.2 motor nameplate hp, 0.00 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.1 kW
1	FC-4 (Single Zone): Cooling: 1 each - Split System, Capacity = 12 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 20.00 SEER2, Required Efficiency = 13.40 SEER2 Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 400 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 400 Supply, Constant Volume, 400 CFM, 0.2 motor nameplate hp, 0.00 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.1 kW
1	FC-5 (Single Zone): Cooling: 1 each - Split System, Capacity = 12 kBtu/h, Air-Cooled Condenser, Unknown Economizer Proposed Efficiency = 20.00 SEER2, Required Efficiency = 13.40 SEER2 Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: 400 CFM -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: 400 Supply, Constant Volume, 400 CFM, 0.2 motor nameplate hp, 0.00 fan energy index , fan exception: Fan array <= 5 total HP or <= 4.1 kW
1	WH-1: Gas Storage Water Heater, Capacity: 75 gallons, Input Rating: 80 kBtu/h w/ Circulation Pump Proposed Efficiency: 80.00 % Et, Required Efficiency: 80.00 % Et

Quantity	System Type & Description
1	WH-2: Gas Storage Water Heater, Capacity: 100 gallons, Input Rating: 150 kBtu/h w/ Circulation Pump Proposed Efficiency: 80.00 % Et, Required Efficiency: 80.00 % Et

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Derek Steadman

Name - Title | Signature | Date

COM*check* Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 86.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical and service water heating systems and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. Hot water system sized per manufacturer's sizing guide.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6][1]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.1, C404.6.2 [PL3][1]	Automatic time switches installed to automatically switch off the recirculating hot-water system or heat trace.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.3 [PL7][1]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.1, C404.6.1.1 [PL8][1]	Demand recirculation water systems have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

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Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41][3]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.12.3 [ME61][2]	HVAC piping insulation insulated in accordance with Table C403.11.3. Insulation exposed to weather is protected from damage and is provided with shielding from solar radiation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.8.1 [ME65][3]	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. *See the Mechanical Systems list for values.*
C403.8.3 [ME117][2]	Fans have a fan energy index (FEI) >= 1.00. Variable volume fans will have an FEI >= 0.95.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.8.4 [ME142][2]	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. These motors have the means to adjust motor speed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.8.6 [ME143][2]	Each DX cooling system > 65 kBtu and chiller water/evaporative cooling system with fans > 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.9 [ME144][2]	Large diameter fans where installed shall be tested and labeled in accordance with AMCA 230.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.13.1 [ME71][2]	Systems that heat outside the building envelope are radiant heat systems controlled by an occupancy sensing device or timer switch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.3 [ME55][2]	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.5.5 [ME113][2]	Fault detection and diagnostics installed with air-cooled unitary DX units or VRF units having economizers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [ME59][1]	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.7.1 [ME59][1]	Demand control ventilation provided for spaces >500 ft2 and >15 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.2 [ME115][3]	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.6 [ME141][3]	HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.4 [ME57][1]	Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.5 [ME116][3]	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.12.1 , C403.12.2 [ME60][2]	HVAC ducts and plenums insulated in accordance with C403.11.1 and constructed in accordance with C403.11.2, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5, C403.5.1, C403.5.2 [ME62][1]	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5.2 [ME16][1]	Economizer operation will not increase heating energy use during normal operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5.3. 3 [ME124][1]	Air economizers automatically reduce outdoor air intake to the design minimum outdoor air quantity when outdoor air intake will not reduce cooling energy usage. See Table C403.5.3.3 for applicable device types and climate zones.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5.3. 4 [ME125][1]	System capable of relieving excess outdoor air during air economizer operation to prevent over pressurizing the building. The relief air outlet located to avoid recirculation into the building.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.5.3. 5 [ME126][1]	Return, exhaust/relief and outdoor air dampers used in economizers have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Reference section C403.7.7 for details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1. 4 [ME63][2]	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.3.3 [ME35][1]	Hot gas bypass limited to: <=240 kBtu/h – 50% >240 kBtu/h – 25%	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.2.1 [ME111][2]	Gas-fired water-heating equipment installed in new buildings: where a singular piece of water-heating equipment >= 1,000 kBtu/h serves the entire building, thermal efficiency >= 92 Et. Where multiple pieces of water-heating equipment serve the building with combined rating >= 1,000 kBtu/h, the combined input-capacity-weighted-average thermal efficiency >= 90 Et. Exclude input rating of equipment in individual dwelling units and equipment <= 100 kBtu/h.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.2. 1 [ME53][3]	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.11.3 , C403.11.3 .1, C403.11.3 .2 [ME123][3]	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.11.3.1 and refrigeration compressor systems that comply with C403.11.3.2..	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.7 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9.1, C405.9.2 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.10 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.1.1 [EL30][2]	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.11, C405.11.1 [EL31][2]	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.12 [EL32][2]	Buildings with gross conditioned floor area > 25,000 ft2 will be equipped with a energy monitoring system in compliance with C405.12.1 through C405.12.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5. 3 [FI8][3]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.1.1 [FI50][3]	HVAC systems and equipment design loads calculated in accordance with ANSI/ASHRAE/ACCA Standard 183 or by an approved equivalent computational procedure	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.3.1 [FI27][3]	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1. 2 [FI38][3]	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1. 3 [FI20][3]	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [FI39][3]	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2. 1, C403.4.2. 2 [FI40][3]	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2. 3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.3 [FI11][3]	Heat traps installed on supply and discharge piping of non-circulating systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.4 [FI25][2]	All piping insulated in accordance with section details and Table C403.12.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.1 [FI12][3]	Controls are installed that limit the operation of a recirculation pump installed to maintain temperature of a storage tank. System return pipe is a dedicated return pipe or a cold water supply pipe.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.1 [FI28][1]	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3. 1 [FI31][1]	HVAC equipment, systems and system-to-system relationships have been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3. 2 [FI10][1]	HVAC and service water heating control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3. 3 [FI32][1]	Economizers have been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.4 [FI29][1]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5 [FI7][3]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5. 1 [FI43][1]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5. 2 [FI30][1]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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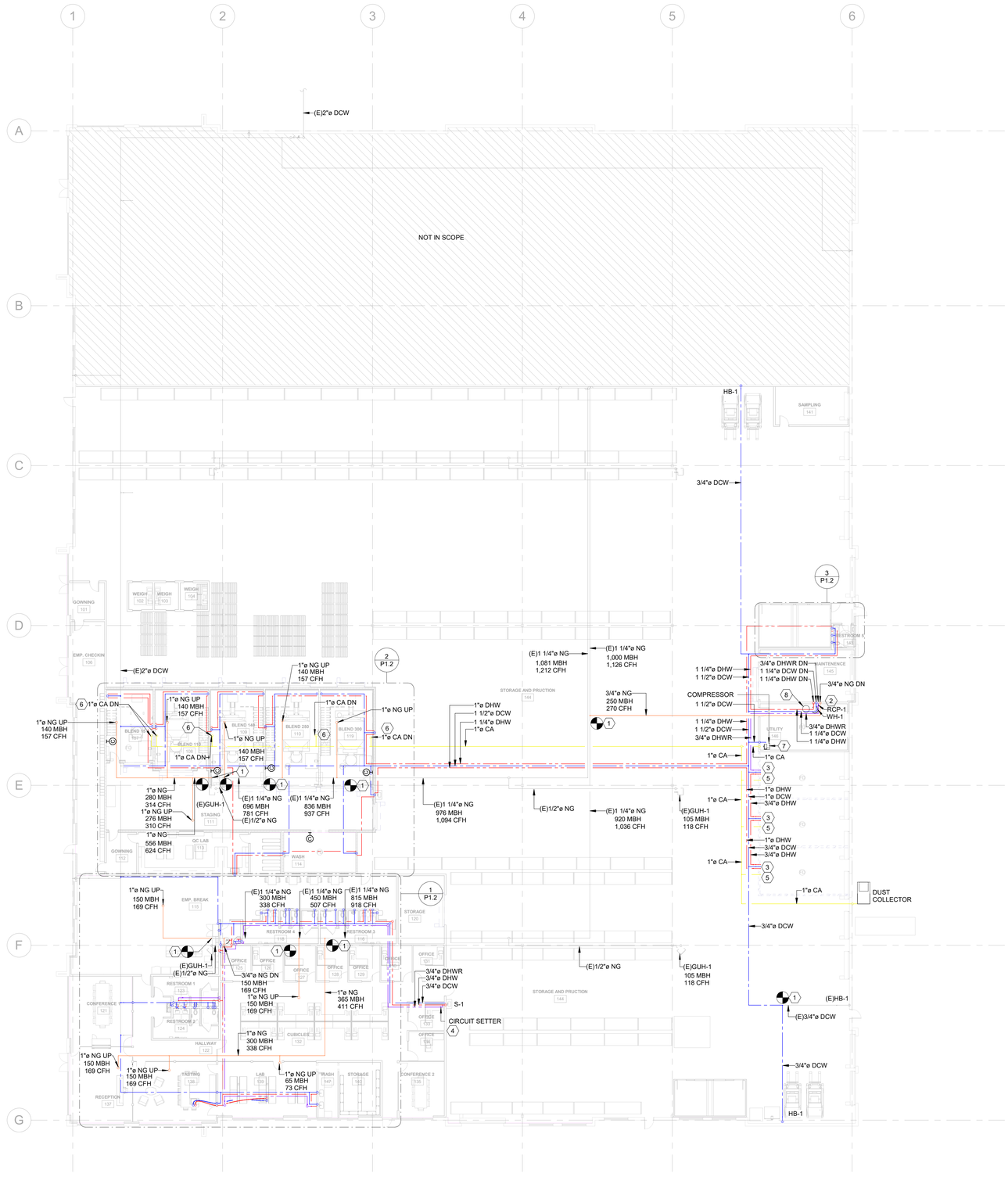
KEYED NOTES

1. CONNECT NEW TO EXISTING.
2. PROVIDE HOT WATER RECIRCULATING PUMP IN THIS APPROXIMATE LOCATION.
3. INSTALL BALL VALVE AND CAP FOR FUTURE USE.
4. PROVIDE CIRCUIT SETTER IN THIS APPROXIMATE LOCATION. FIELD VERIFY EXACT LOCATION. SET TO 0.5 GPM.
5. CAP AND STUB 1" COMPRESSED FOR FUTURE USE.
6. PROVIDE COMPRESSED AIR DROP IN THIS APPROXIMATE LOCATION WITH DUAL CONNECTION QUICK DISCONNECT AND DRIP LEG WITH SHUTOFF VALVE. MOUNT AT 45" A.F.F. COORDINATE EXACT LOCATION OF DROPS WITH TENANT.
7. AIR COMPRESSOR SHALL BE PROVIDED BY OTHERS.COORDINATE EXACT LOCATION WITH ARCHITECT AND TENANT. COMPRESSED AIR PIPING SHALL BE TYPE 'L'COPPER WITH WROT COPPER FITTINGS.
8. LOCATION FOR FUTURE WATER HEATER.



1 LEVEL 1 DOMESTIC PLUMBING PLAN
1/16" = 1'-0"

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LEVEL 1 DOMESTIC PLUMBING PLAN

DATE:

SHEET #:

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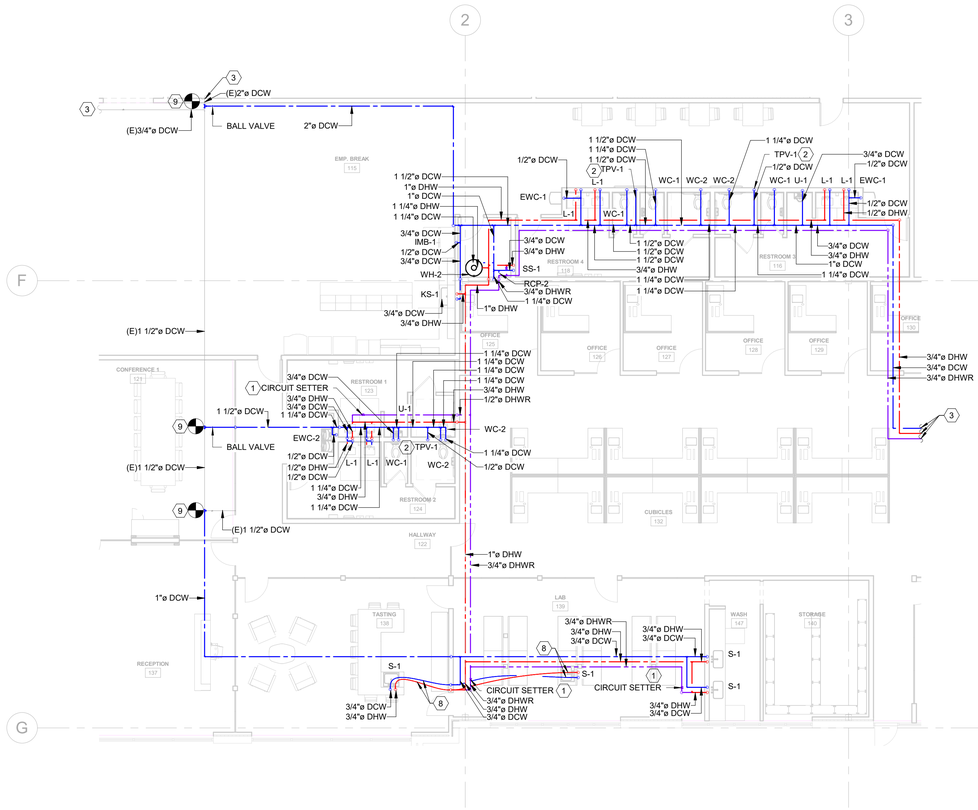
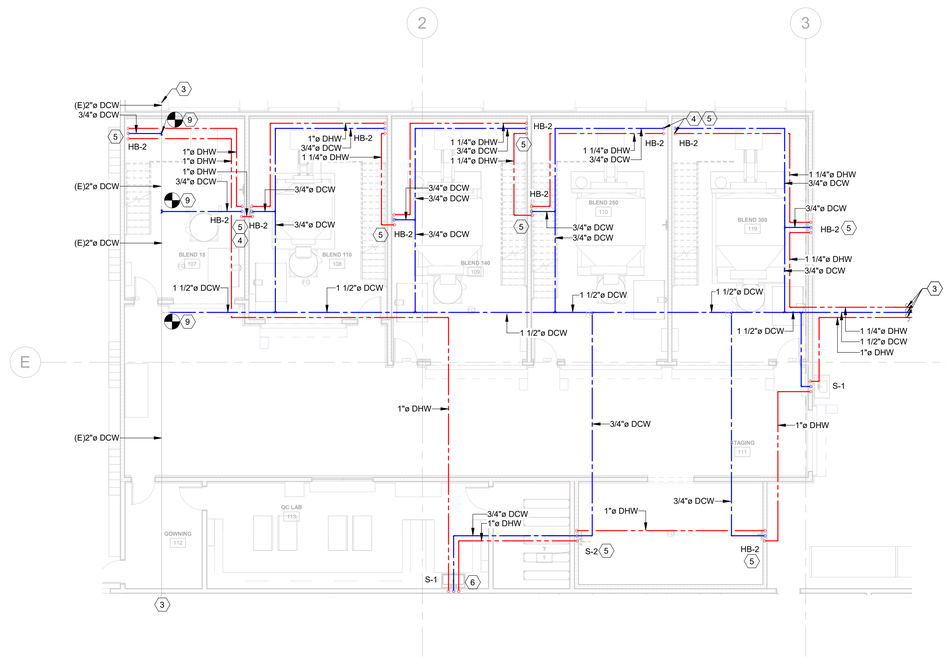
KEYED NOTES

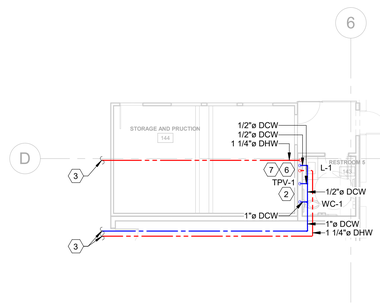
1. PROVIDE CIRCUIT SETTER IN THIS APPROXIMATE LOCATION. FIELD VERIFY EXACT LOCATION. SET TO 0.5 GPM.
2. 1/2" DCW UNDER SLAB TO TPV FOR FLOOR DRAIN(S).
3. REFER TO OVERALL PLAN FOR CONTINUATION.
4. CONNECT TO FIXTURES ON BOTH SIDES OF THE WALL.
5. DO NOT PENTRATE WALLS IN MIXING ROOMS. ROUTE DHW DOWN SURFACE OF WALL. ALL EXPOSED PIPING IN ROOM MUST BE FOOD GRADE STAINLESS STEEL.
6. SERPENTINE HOT WATER LOOP. DROP IN WALL TO WITHIN 18" ELEVATION OF FIXURE. TYPICAL.
7. NEW HOT WATER LOOP TO INCLUDE EXISTING FIXTURES AND NEW FIXTURES.
8. FLEX PIPE RUNS UNDER SLAB.
9. CONNECT NEW TO EXISTING.



1 LEVEL 1 OFFICE DOMESTIC PLAN
1/8" = 1'-0"



2 LEVEL 1 CLEAN ROOM DOMESTIC PLAN
1/8" = 1'-0"



3 LEVEL 1 RESTROOM-5 DOMESTIC PLAN
1/8" = 1'-0"

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5.29.2025
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LEVEL 1 DOMESTIC ENLARGED PLUMBING PLAN

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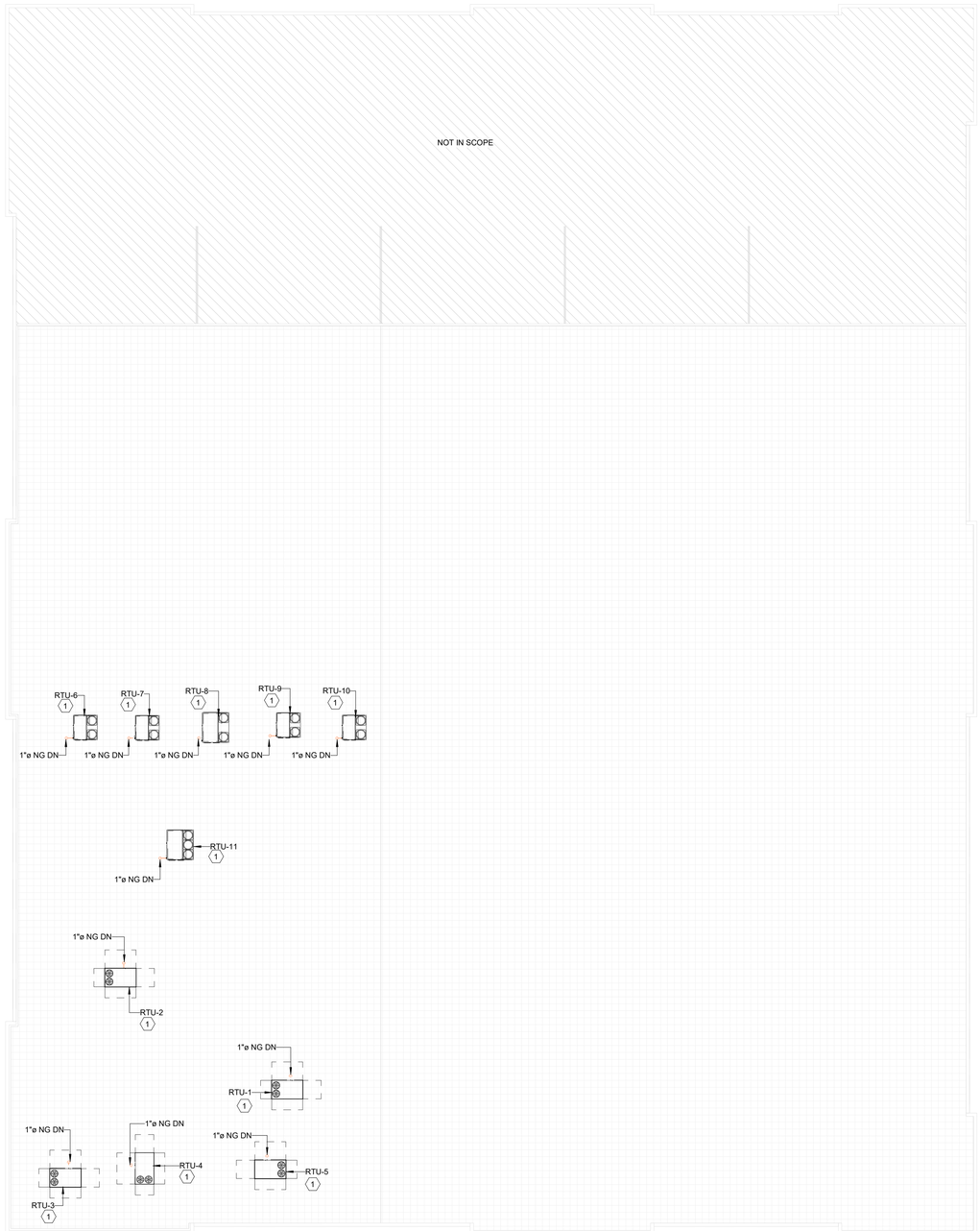
KEYED NOTES

1 PROVIDE GAS LINE WITH SHUT-OFF VALVE FOR RTU CONNECTION AT ROOF.



1 ROOF DOMESTIC PLUMBING PLAN
1/16" = 1'-0"

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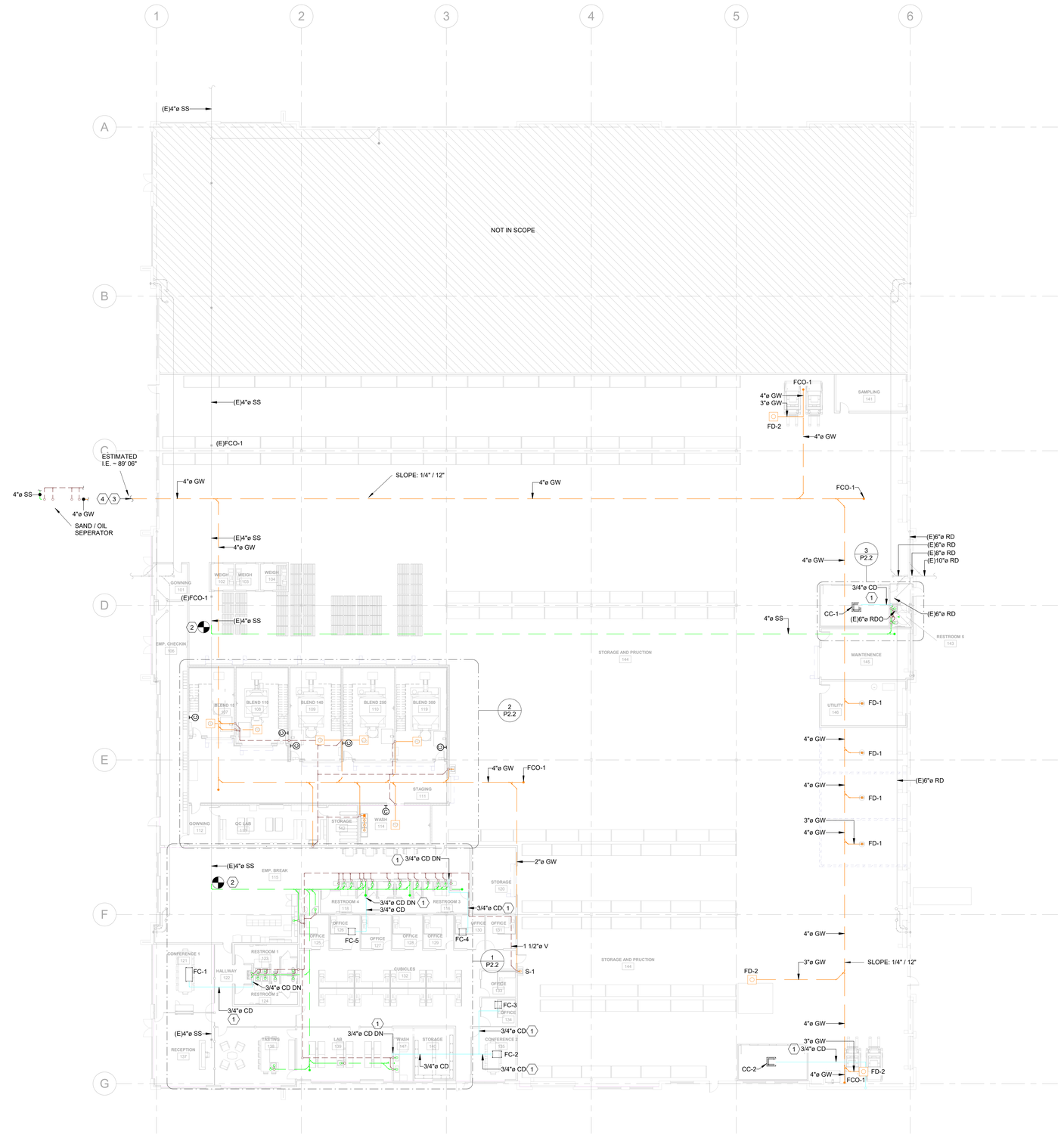
KEYED NOTES

1 ROUTE CONDENSATE PIPING AT MINIMUM 1 /8" / FT AND TERMINATETO THE NEAREST SINK.
2 CONNECT NEW TO EXISTING.
3 CONNECT TO GREASE INTERCEPTOR.
4 REFER TO CIVIL FOR CONTINUATION.



1 LEVEL 1 DWV PLUMBING PLAN
1/16" = 1'-0"

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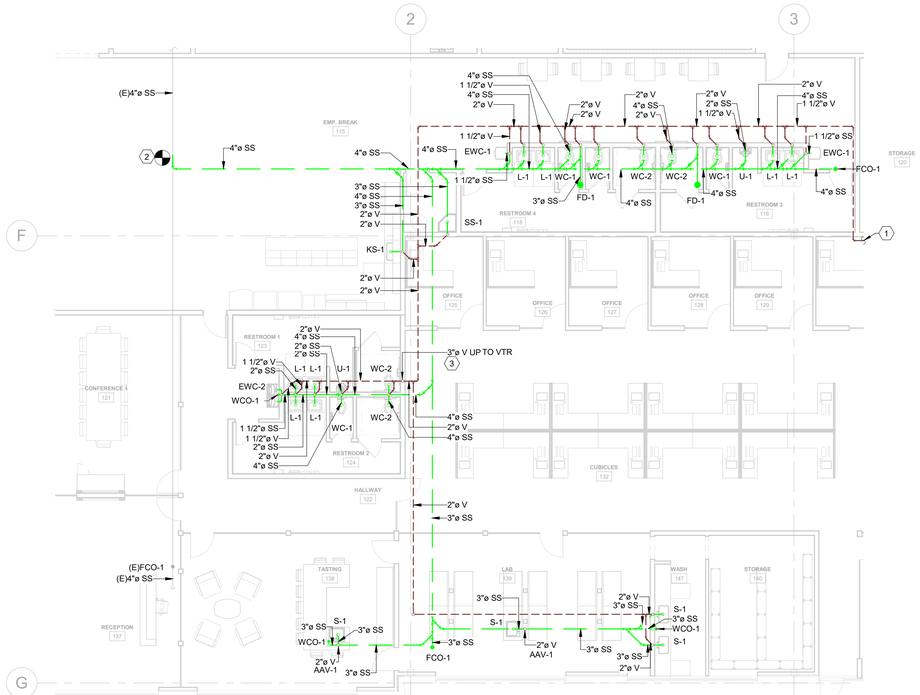
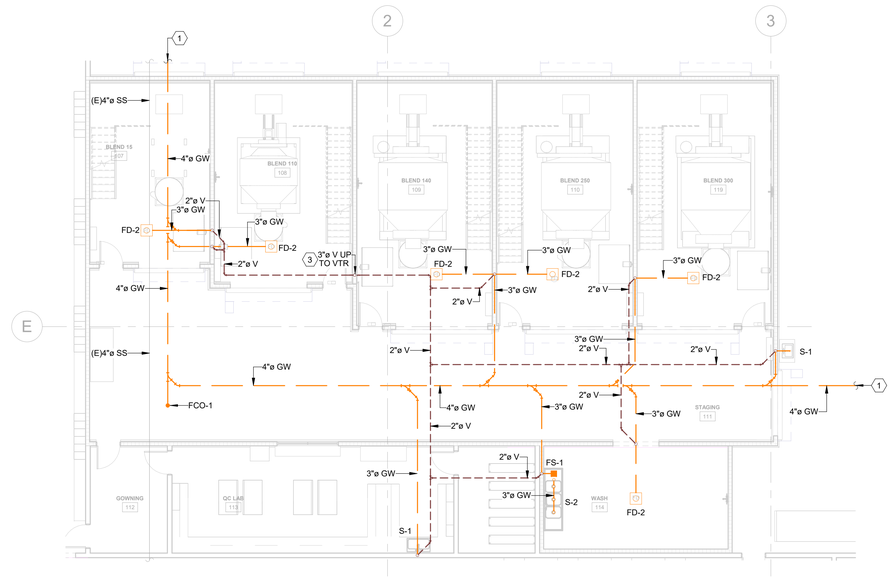
KEYED NOTES

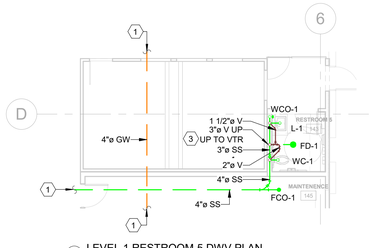
1 REFER TO OVERALL PLAN FOR CONTINUATION.
2 CONNECT NEW TO EXISTING.
3 ROUTE VENT PIPING UP THROUGH ROOF IN THIS APPROXIMATE LOCATION. FIELD VERIFY EXACT LOCATION.



1 LEVEL 1 OFFICE DWV PLAN
1/8" = 1'-0"



2 LEVEL 1 CLEAN ROOM DWV PLAN
1/8" = 1'-0"



3 LEVEL 1 RESTROOM-5 DWV PLAN
1/8" = 1'-0"

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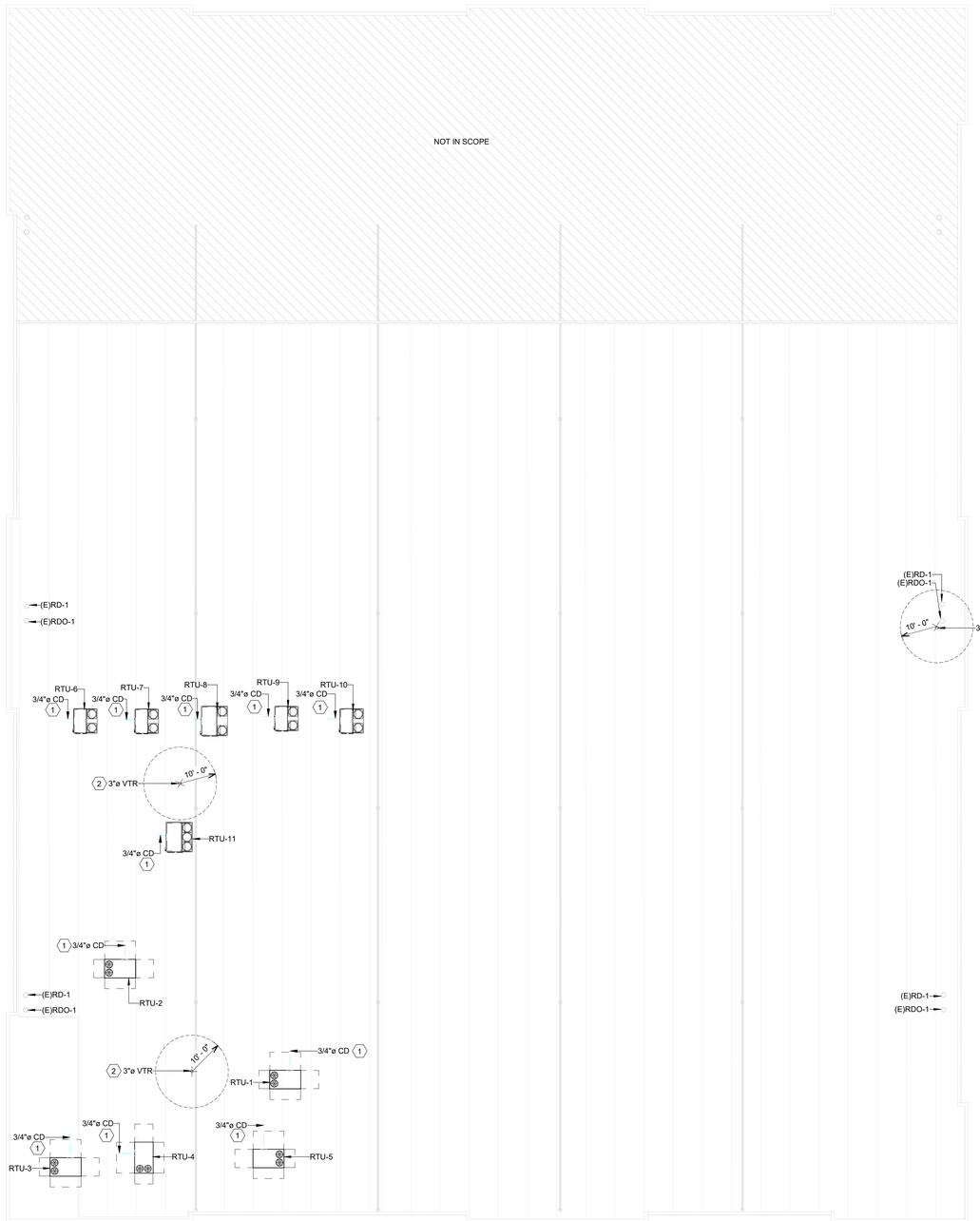
KEYED NOTES

1 ROUTE CONDENSATE PIPING AT MINIMUM 1 /8" / FT AND TERMINATE AT THE ROOF.
2 VENT THRU ROOF, IN THIS APPROXIMATE LOCATION. MAINTAIN MINIMUM 10'-0" CLEARANCE FROM ALL OUTSIDE AIR INTAKES. FIELD VERIFY EXACT LOCATION.



1 ROOF DWV PLUMBING PLAN
1/16" = 1'-0"

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PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE	MANUFACTURER	MODEL	INDIVIDUAL LINE SIZES				NOTES
				WASTE	VENT	COLD WATER	HOT WATER	
EWC-1	DRINKING FOUNTAIN	ELKAY	LZS8WSSP	1-1/2"	1-1/2"	1/2"	-	ELKAY ENHANCED EZH2O® BOTTLE FILLING STATION & SINGLE ADA COOLER, FILTERED REFRIGERATED STAINLESS. CHILLING CAPACITY OF 8.0 GPH (GALLONS PER HOUR), ANTIMICROBIAL, AUTOMATIC FILTER STATUS RESET, ENERGY SAVINGS, FILTERED, GREEN TICKER™, HANDS FREE, LAMINAR FLOW, REAL DRAIN, VISUAL FILTER MONITOR. FURNISHED WITH FLEXI-GUARD ® SAFETY BUBBLER. ELECTRONIC BOTTLE FILLER SENSOR WITH ELECTRONIC FRONT AND SIDE BUBBLER PUSHBAR ACTIVATION.
EWC-2	DRINKING FOUNTAIN	ELKAY	LZSTL8WSLK	1-1/2"	1-1/2"	1/2"	-	ELKAY EZH2O® BOTTLE FILLING STATION & VERSATILE BI-LEVEL ADA COOLER, FILTERED REFRIGERATED LIGHT GRAY. CHILLING CAPACITY OF 8.0 GPH (GALLONS PER HOUR). FEATURES SHALL INCLUDE ANTIMICROBIAL, FILTERED, GREEN TICKER™, HANDS FREE, LAMINAR FLOW, REAL DRAIN, VISUAL FILTER MONITOR. FURNISHED WITH FLEXI-GUARD ® SAFETY BUBBLER. ELECTRONIC BOTTLE FILLER SENSOR WITH ELECTRONIC FRONT AND SIDE BUBBLER PUSHBAR ACTIVATION.
FD-1	FLOOR DRAIN	SMITH	2010-A-U	3"	2"	-	-	6 INCH STRAINER SQUARE, CAST IRON BODY. PROSET TRAP GUARD, SIZED TO MATCH DRAIN OUTLET.
FD-2	FLOOR DRAIN	WATTS	FD-1100-A	3"	2"	-	-	6 INCH STRAINER ROUND, STAINLESS STEEL BODY. PROSET TRAP GUARD, SIZED TO MATCH DRAIN OUTLET.
FS-1	FLOOR SINK	ZURN	Z1750	3"	2"	3/4"	3/4"	12" X 12" X 6" DEEP, 16 GAGE, STAINLESS STEEL LIGHT-DUTY SANI-FLOR RECEPTOR WITH NON-TILT, LOOSE SET FULL GRATE WITH 1/2" SQUARE OPENINGS AND ANTI-SPLASH STAINLESS STEEL INTERIOR DOME STRAINER.
L-1	LAVATORY	AMERICAN STANDARD	0614.300	2"	1-1/2"	1/2"	1/2"	PROVIDE WITH AMERICAN STANDARD, MOMENTS SELECTRONIC LAVATORY FAUCET. MODEL 2506.143. PROVIDE WITH OPTIONAL THERMOSTATIC MIXING VALVE 605XTMV1070.
S-1	HAND SINK	KOHLER	K-2196	2"	1-1/2"	1/2"	1/2"	SELECTION BY OWNER/ARCHITECT.COUNTER MOUNT, OVAL, PROVIDE WITH SLOAN EBF655 CP BATTERY FAUCET W/ GRID DRAIN. POWERS E-480 THERMOSTATIC MIXING VALVE, MOUNTED UNDER SINK.
S-2	TRIPLE COMPARTMENT SINK	ADVANCE TABCO	FC-3-1824-18RL	3"	-	3/4"	3/4"	SELECTION BY OWNER/ARCHITECT.COUNTER MOUNT.
KS-1	SINK	AMERICAN STANDARD	18SB.301800S.075	3"	2"	3/4"	3/4"	DANVILLE 30X18 UNDERMOUNT, SINGLE BOWL, STAINLESS STEEL KITCHEN SINK. PROVIDE WITH AMERICAN STANDARD, BEALE 4931.380 PULL-DOWN FAUCET WITH SELECTRONIC HANDS-FREE TECHNOLOGY AND MANUAL MODE. PROVIDE WITH IN-SINK-ERATOR, MODEL EVOLUTION EXCEL WITH MULTIGRIND PLUS AND SOUND SEALPLUS, 1.0HP MOTOR, STAINLESS STEEL GRIND...
WC-1	WATER CLOSET	AMERICAN STANDARD	2257528.020	4"	2"	1-1/4"	-	AFWALL MILLENNIUM WALL-HUNG TOILET SYSTEM WITH TOUCHLESS SELECTRONIC PISTON FLUSH VALVE, 1.28 GPF.
WC-2	WATER CLOSET(ADA)	AMERICAN STANDARD	3043528.020	4"	2"	1-1/4"	-	MADERA CHAIR HEIGHT (ADA) TOILET SYSTEM WITH TOUCHLESS SELECTRONIC PISTON FLUSH VALVE, 1.28 GPF.
U-1	URINAL	AMERICAN STANDARD	6590001.020	2"	1-1/2"	3/4"	-	WASHBROOK FLOWISE UNIVERSAL URINAL VITREOUS CHINA, ULTRA EFFICIENCY LOW CONSUMPTION, FLUSHING RIM, ELONGATED 14" RIM, WASHOUT FLUSH ACTION, EXTENDED SIDES, 3/4" INLET SPUD, 2" OUTLET, 2 WALL HANGERS, FIXTURE ONLY, STRAINER INCLUDED. PROVIDE WITH SLOAN ECOS 8186-0.125 HIGH EFFICIENCY ELECTRONIC VALVE EXPOSED,...
FCO-1	FLOOR CLEANOUT	WATTS	CO-204-RX	SEE PLAN	-	-	-	ADJUSTABLE FLOOR CLEANOUT, 5 IN ROUND DUCTILE IRON TOP, 4 IN PIPE, GAS TIGHT GASKETED BRASS PLUG, NO HUB OUTLET, XHD LOAD RATING.
WCO-1	WALL CLEANOUT	WATTS	CO-443-RD	SEE PLAN	-	-	-	WALL CLEANOUT WITH TWO-PIECE EXPANDABLE CLEANOUT PLUG, STAINLESS STEEL ACCESS COVER, AND VANDAL PROOF STAINLESS STEEL SCREW.
SS-1	MOP SINK	AMERICAN STANDARD	CORLOW	3"	2"	3/4"	3/4"	MOP SINK. PROVIDE WITH DRAIN FITTING, SERVICE SINK FAUCET WITH VACUUM BREAKER, HOSE, 3 STATION MOP HOLDER, HOSE HANGER, & STAINLESS STEEL SPLASH GUARD
IMB-1	ICE MAKER BOX	GUY GRAY	MIB SERIES	-	-	1/2"	-	FURNISH & INSTALL RECESSED. WHITE POWDER COATEO ICE MAKER BOX.
HB-1	WALL HYDRANT	WOODFORD	WOODFORD MODEL 865	-	-	3/4"	-	WOODFORD MODEL 865 (W/ INTEGRAL VACUUM BREAKER. CHROME BOX, AMD TYPE C INLET). STANDARD WALL HYDRANT, KEY-OPERATED, INSTALL AT 18"-24" AFF.
HB-2	WALL HYDRANT	AMERICAN STANDARD	8344212.004	-	-	3/4"	3/4"	WALL MOIUNT HOSE BIBB. VACUUM BREAK OR BACKFLOW PREVENTOR OR EQUAL. RATED FOR 160°F HOT WATER SUPPLY.
AAV-1	AIR ADMITANCE VALVE	-	-	-	SEE PLAN	-	-	AAVs IN ACCESSIBLE LOCATIONS ABOVE THE FLOOD LEVEL RIM OF THE FIXTURE SERVED. ENSURE SUFFICIENT AIR CLEARANCE FOR PROPER FUNCTION AND FUTURE MAINTENANCE.

GAS FIRED WATER HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	FIRST HOUR RATING (GAL)	UNIFORM ENERGY FACTOR	RECOVERY RATE AT 90 DEGREES DELTA T (GPH)	GAS INPUT (BTUH)	TANK CAPACITY (GAL)	DIAMETER (IN)	HEIGHT (IN)	MCA	VOLT / PHASE	NOTES
WH-1	BRADFORD WHITE	EF-100T-250E-3N	330	0.69	86	250000	100	65	78	3.1	120 / 1	1
WH-2	BRADFORD WHITE	EF-100T-150E-3N	134	0.69	86	150000	100	28	78	3.1	120 / 1	1

1. MANUFACTURING AREA WATER HEATER TANK TO HOLD 160 DEG F WH THERMOSTATIC MIXING VALVE TO SUPPLY 150 DEG F.
2. OFFICE WATER HEATER TANK TO HOLD 140 DEG F, WH THERMOSTATIC MIXING VALVE TO SUPPLY 105 DEG F.

RECIRCULATION PUMP SCHEDULE

TAG	FIXTURE	MANUFACTURER	MODEL	FLOW RATE(GPM)	HEAD LOSS(FT)	FLUID TYPE	VOLT/PHASE	NOTES
RCP-1	RECIRCULATION PUMP	GRUNDFOS	ALPHA2	1.8	10	WATER	120/1	1
RCP-2	RECIRCULATION PUMP	GRUNDFOS	ALPHA2	0.3	10	WATER	120/1	1

1. HIGH-EFFICIENCY CIRCULATOR PUMP DESIGNED FOR CIRCULATING LIQUIDS IN HEATING SYSTEMS, DOMESTIC HOT-WATER SYSTEMS.

GAS USAGE SCHEDULE

EQUIPMENT	CFH	TOTAL CFH
RTU-2	169	169
WH-2	169	338
RTU-1	169	507
RTU-3	169	676
RTU-4	169	845
RTU-5	73	918
GUH-1	118	1030
WH-1	270	1300
RTU-6	157	157
RUT-7	157	314
RTU-11	310	624
RTU-8	157	781
RTU-9	157	937
RTU-10	157	1094
GUH-1	118	1212
TOTAL CFH		**2236**

SAND / OIL INTERCEPTOR SCHEDULE

TAG	MANUFACTURER	MODEL	INLET / OUTLET	CAPACITY (GAL)	L x W x H (IN)	NOTES
SI-1	JENSEN	JP	4" / 4"	1,200	105" X 72" X 73"	1, 2, 3

1. SEE SITE PLANS FOR EXACT LOCATION
2. PRECAST CONCRETE
3. OR EQUAL

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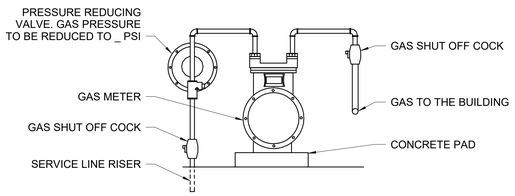

1 GAS METER DETAIL
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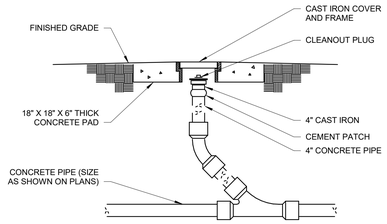

2 CLEANOUT TO GRADE DETAIL
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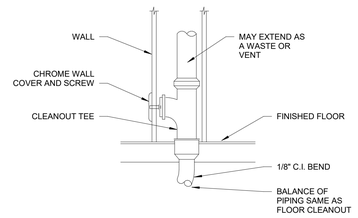

3 WALL CLEANOUT DETAIL
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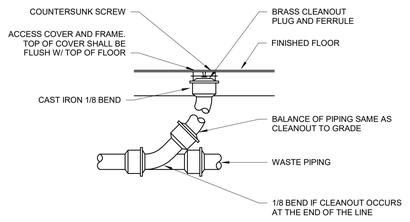

4 FLOOR CLEANOUT DETAIL
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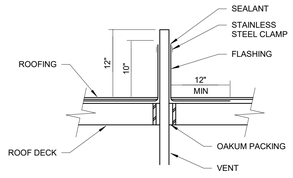
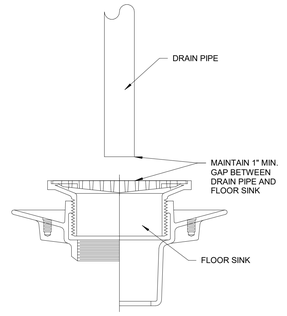


5 VENT THRU ROOF DETAIL
NTS



6 FLOOR SINK DETAIL
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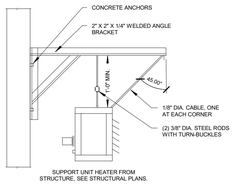

7 GAS FIRED UNIT HEATER DETAIL
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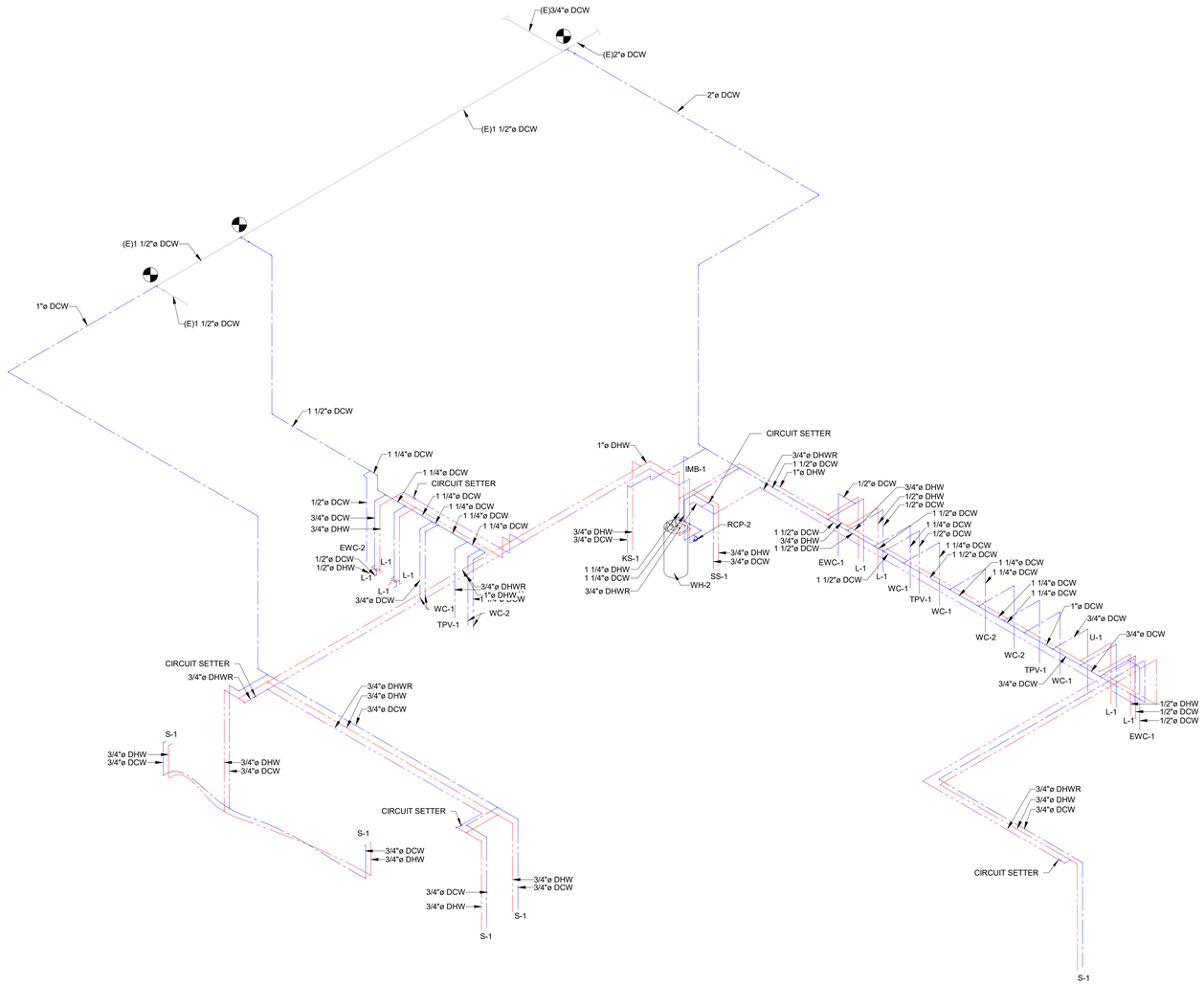

1 DOMESTIC ISOMETRIC DIAGRAM - OFFICE
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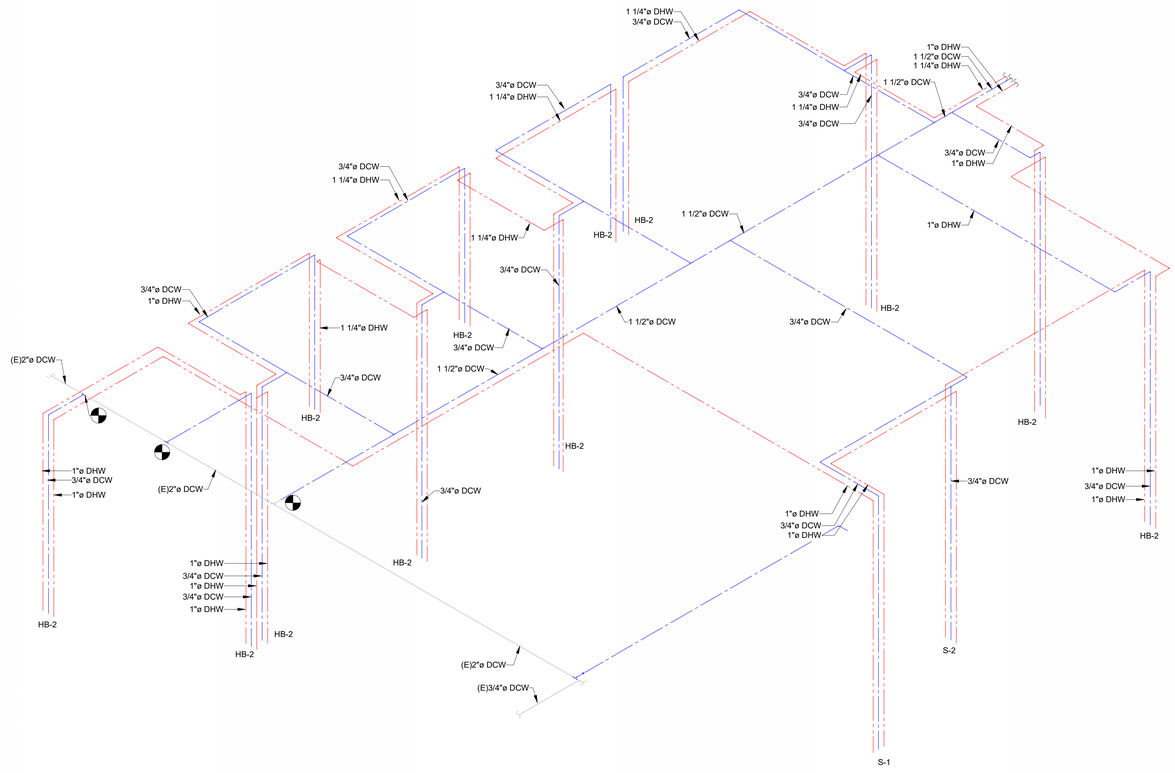

1 DOMESTIC ISOMETRIC DIAGRAM - CLEAN ROOM

2 DOMESTIC ISOMETRIC DIAGRAM - RESTROOM 5

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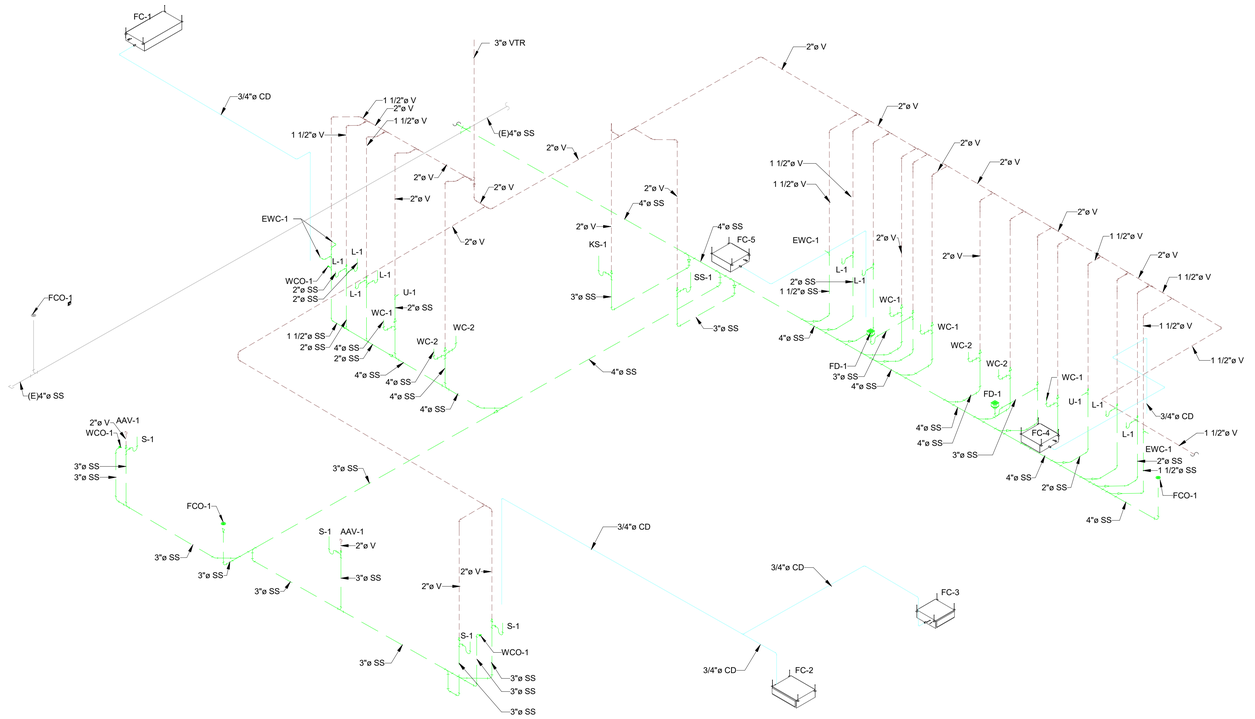

1 DWV ISOMETRIC DIAGRAM - OFFICE
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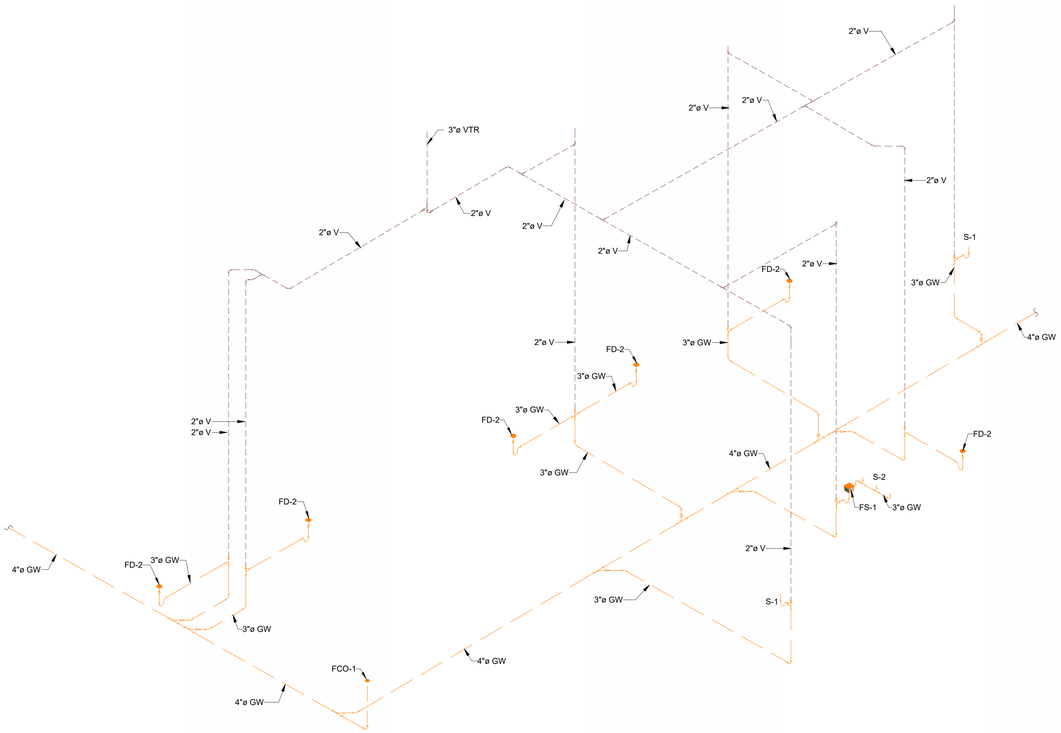
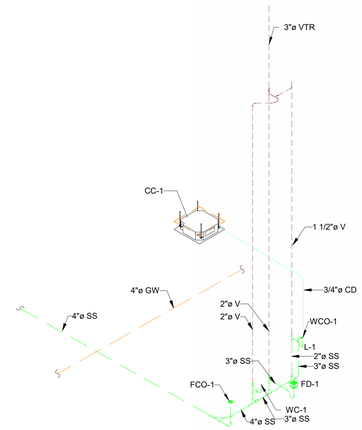


1 DWV ISOMETRIC DIAGRAM - CLEAN ROOM



2 DWV ISOMETRIC DIAGRAM - RESTROOM 5

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LICENSED PROFESSIONAL ENGINEER
No. 260219
E. TAYLOR GROBERG
5.29.2025
STATE OF UTAH

SENSAPURE TI

4170 W 2100 N, LEHI

Revision Schedule		
MARK	DESCRIPTION	Revision Date

AE2024.387

PLUMBING ISOMETRIC SANITARY

DATE:

SHEET #:

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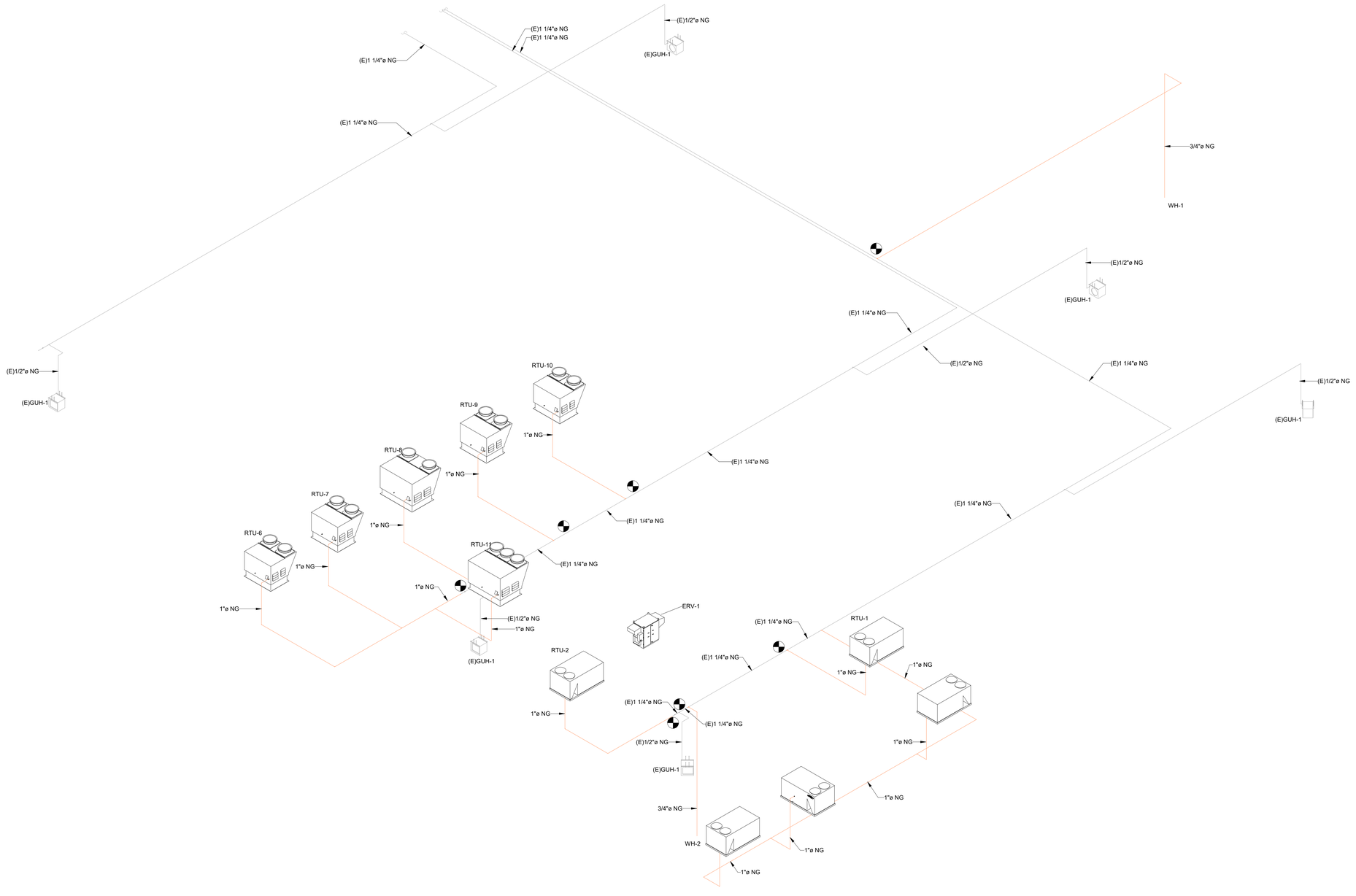

1 PLUMBING ISOMETRIC DIAGRAM - GAS
NTS

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MARK	DESCRIPTION	Revision Date

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PLUMBING ISOMETRIC GAS

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DIVISION 22/23 - PLUMBING/HVAC

SECTION 22 05 00/23 05 00
COMMON WORK RESULTS FOR PLUMBING/HVAC

GENERAL CONDITIONS:

1. The General Conditions of the Contract, with the amendments, supplements, forms and requirements in Division 1, and herewith made a part of this Division.
2. All Sections of Division 15 shall comply with the Mechanical General Requirements. The standards established in this Section as to quality of materials and equipment, the type and quality of workmanship, mode of operations, safety rules, code requirements, etc., shall apply to all Sections of this Division as though they were repeated in each Division.

SCOPE OF WORK:
The project described herein is the SENSAPURE TI, , Lehi, Utah. This work shall include all labor, materials, equipment, fixtures, and devices for the entire mechanical work and a complete operating and tested installation as required for this project.

SECTION 22/23 05 50 - COMMON WORK RESULTS FOR PLUMBING AND HVAC
SECTION 22/23 05 53 - IDENTIFICATION FOR PLUMBING/HVAC PIPING & EQUIPMENT
SECTION 22/23 07 00 - PLUMBING/HVAC INSULATION
SECTION 22 11 16 - DOMESTIC WATER PIPING
SECTION 22 13 19 - SANITARY WASTE AND VENT PIPING
SECTION 22 11 19 - DOMESTIC WATER PIPING SPECIALTIES
SECTION 22 11 23 - FACILITY NATURAL GAS PIPING
SECTION 22 11 25 - DOMESTIC WATER PUMPS
SECTION 22 34 00 - FUEL FIRED DOMESTIC WATER HEATERS
SECTION 22 40 00 - PLUMBING FIXTURES
SECTION 23 23 00 - REFRIGERANT PIPING
SECTION 23 31 13 - METAL DUCTS
SECTION 23 33 00 - DUCT ACCESSORIES
SECTION 23 57 80 - ROOFTOP AIR CONDITIONERS
SECTION 23 83 00 - POWER VENTILATORS
SECTION 23 85 00 - DIFFUSERS, REGISTERS AND GRILLES
SECTION 23 90 00 - TEMPERATURE CONTROLS
SECTION 23 99 00 - TESTING, ADJUSTING, BALANCING AND MAINTENANCE MANUALS

CODES & ORDINANCES:

All work shall be executed in accordance with all underwriters, public utilities, local and state rules and regulations applicable to the trade affected. Should any change in the plans and Specifications be required to comply with these regulations, the Contractor shall notify the Engineer before the time of submitting his bid. After entering into contract, the Contractor will be held to complete all work necessary to meet these requirements without extra expense to the Owner. Where work required by drawings or specifications is above the standard required, it shall be done as shown or specified.

Applicable codes are as follows:
2021 International Mechanical Code
2021 International Building Code
2021 International Plumbing Code
Utah State Codes and ammendments

SUBMITTALS AND SHOP DRAWINGS:

Submittals:

1. As soon as possible after the Contract is awarded, but in no case more than 5 calendar days thereafter, the Contractor shall submit to the Engineer four (4) copies of the descriptive literature covering products and materials to be used in the installation of mechanical systems for this Project. The review of the submitted data will require a minimum of 7 days. If the Contractors schedule requires return of submitted literature in less than the allotted time, the Contractor shall accelerate his submittal delivery date. The Contractor shall resubmit all items requiring re-review within 7 days of returned Submittals. Refer to each specification section for items requiring submittal review. Written approval of the Owner's Representative shall be obtained before installing any such equipment or materials for the project. The Submittals shall be prepared in an orderly manner, contained in a 3-ring loose-leaf binder with index and identification tabs each item or group of items and for each Specification Section. All items shall be submitted at one time except automatic temperature control drawings and seismic restraint drawings which may be submitted separately within 60 days of the Contract award date. Partial Submittals will not be reviewed until the complete Submittal is received.

2. Submitted literature shall bear the Contractor's stamp, indicating that he has checked all equipment being submitted; that each item will fit into the available space with the accesses shown on the Drawings; and, further, that each item conforms to the capacity and quality standards given in the Contract Documents.

3. Coordination Drawings: Detail major elements, components, and systems of plumbing and HVAC equipment and materials in relationship with other systems, installations, and building components. Show space requirements for installation and access. Indicate if sequence and coordination of installations are important to efficient flow of the Work. Include the following:

a. Planned piping and duct layout, including specialty locations and access areas.
b. learances for installing and maintaining insulation.
c. Clearances for servicing and maintaining equipment, accessories, and specialties, including space for disassembly required for periodic maintenance.
d. Equipment and accessory service connections and support details.
e. Exterior wall and foundation penetrations.
f. Fire-rated wall and floor penetrations.
g. Sizes and location of required concrete pads and bases.
h. Scheduling, sequencing, movement, and positioning of large equipment into building during construction.
i. Floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.

4. Submitted literature shall clearly indicate performance, quality, and utility requirements; shall show dimension and size of connection points; and shall include derating factors that were applied for each item of equipment to provide capacity at job site elevation. Temperature control submittals shall include piping and wiring diagrams, sequence of operation and equipment. Equipment must fit into the available space with allowance for operation, maintenance, etc. Factory piped and wired equipment shall include shop drawings for all internal wiring and piping furnished with the unit.

5. Submitted literature shall clearly show all required field install wiring, piping, and accessory installations required by the Contractor to provide a complete operating system.

6. Review by the Owner's Representative is for general conformance of the submitted equipment to the Project Specification. In no way does such review relieve this Contractor of his obligation to furnish equipment and materials that comply in detail to the Specification nor does it relieve the Contractor of his obligation to determine actual field dimensions and conditions that may affect his work. Regardless of any items overlooked by the submittal review, the requirements of the Contract Drawings and Specifications must be followed and are not waived or superseded in any way by the review.

7. The Contractor is to review equipment by description, catalog number, and manufacturer's names. Standards of quality have been established by the Engineer for certain manufactured equipment items and specialties that are to be furnished by this Division. Alternate products and equipment may be proposed for use only if specifically named in the Specifications or if given written prior approval in published Addenda. Design equipment is the equipment listed on the drawings or if not listed on the drawings is the equipment first named in the Specifications.

Alternate Equipment:
1. The Contractor should protect himself with the supplier of alternate named equipment. Alternate named equipment will be reviewed only one time.

2. Should alternate equipment be submitted and be rejected, it shall not be resubmitted for review and it shall be the responsibility of this Contractor. The Contractor shall only submit on design equipment on future Submittals. Incomplete Submittal data will be rejected.

3. If the Engineer is required to do additional design work to incorporate changes caused by submitting equipment or products, different than the design equipment specified, as defined above, the Contractor shall reimburse the Engineer for additional time and expenses at the Engineers current, recognized, hourly rates.

DRAWINGS AND MEASUREMENTS:

Drawings:

1. The Contract Document Drawings show the general design, arrangements, and extent of the system. In certain cases, the Drawings may include details that show more nearly exact locations and arrangements; however, the locations, as shown diagrammatically, are to be regarded as general.

2. It shall be the Work of this Section to make such slight alterations as may be necessary to make adjustable parts fit to fixed parts, leaving all complete and in proper shape when done. All dimensions given on the Drawings shall be verified as related to this Work and with the Engineer's office before Work is started.

3. This Section shall carefully study building sections, space, clearances, etc., and then provide offsets in piping or ductwork as required to accommodate the building structure without additional cost to the Owner. In any case and at any time, a change in location required by obstacles or the installation of other trades not shown on the Mechanical Plans shall be made without charge.

4. The Drawings shall not be scaled for roughing in measurements nor shall they be used as shop drawings. Where Drawings are required for these purposes or where Drawings must be made from field measurements, the Contractor shall take the necessary measurements and prepare the Drawings. Shop drawings of the various subcontractors shall be coordinated to eliminate all interferences and to provide sufficient space for the installation of all equipment, piping, ductwork, etc.

5. The Drawings and Specifications have been prepared to supplement each other and they shall be interpreted as an integral unit with items shown on one and not the other being furnished and installed as though shown and called out on both.

Record Drawings:

1. Record Drawings for all systems and Sections of this Division shall be furnished as Work of this Section. Blue-line white prints of floor plans shall be furnished by the Engineer's office. These prints shall be accurately and neatly marked in colored pencil, showing all changes from schematics. Installation and commissioning checklists that are provided on the Drawings are to be initialed and dated upon completion.

2. These Drawings shall be reviewed with the Engineer's at least once each month, shall be submitted at time of final inspection, and shall be checked for accuracy. Failure to keep Record Drawings up-to-date shall be cause for withholding monthly payments.

CONTRACTOR'S USE OF BUILDING EQUIPMENT:

1. The Contractor may use equipment such as electric motors, fans, heat exchangers, filters, etc., with the written permission of the Owner. As each piece of equipment is used (such as electric motors and fans), maintenance procedures approved by the manufacturer are to be followed. A careful record is to be kept of the length of the time the equipment is used, maintenance procedures followed, and any difficulty encountered. The record is to be submitted to the Owner upon acceptance. All fan belts and filter media (such as bearings) shall be carefully inspected just prior to acceptance. Any excessive wear noted shall require replacement. Any damage by Contractor to be replaced by Contractor.

EXISTING CONDITIONS:

1. The Contractor shall carefully examine all existing conditions that might affect the mechanical system and shall compare these conditions with all Drawings and Specifications for Work included under this Contract. He shall, at such time, ascertain and check all conditions that may affect his Work. No allowance shall subsequently be made in his behalf for an extra expense incurred as a result of his failure or neglect to make such examination. This Contractor shall include in his bid proposal all necessary allowances to repair or replace any item that will remain or will be removed, and any item that will be damaged or destroyed by new construction.

2. The Contractor shall remove all abandoned piping, etc., required by new construction and cap or plug openings. No capping, etc., shall be exposed in occupied areas. All openings of items removed shall be sealed to match adjacent surfaces.

3. The Contractor shall verify the exact location of all existing services, utilities, piping, etc., and make connections to existing systems as required or as shown on the Drawings. The exact location of each utility line, together with size and elevation, shall be established before any on-site lines are installed. Should elevation or size of existing main utility lines make connections to them impossible as shown on Drawings, then notification of such shall immediately be given to the Owners Representative for a decision.

EQUIPMENT CAPACITIES:

1. Capacities shown for equipment in the Specifications and on the Drawings are the minimum acceptable. No equipment shall be considered as an alternate without prior approval of the design Engineer.
2. All equipment shall give the specified capacity and performance at the job-site elevation of 4,200 feet above sea level. Manufacturers' standard ratings shall be adjusted accordingly. All capacities and performances listed on Drawings or in Specifications are for job-site conditions.

SEISMIC REQUIREMENTS FOR EQUIPMENT:

1. All equipment must be furnished structurally adequate to withstand seismic forces as for the location of the Project. Equipment bases shall be designed for direct attachment of seismic snubbers and/or seismic anchors. Coordinate with structural.

COOPERATION WITH OTHER TRADES:

1. The general contractor shall be responsible for job site coordination. The Contractor shall refer to other Drawings and parts of this Specification that cover Work of other trades that is carried on in conjunction with the mechanical Work such that all Work can proceed without interference resulting from lack of coordination.

2. The Contractor shall properly size and locate all openings, chases, sleeves, equipment bases, and accesses. He shall provide accurate wiring diagrams to the Electrical Contractor for all equipment furnished under this Division.

3. The ceiling cavity must be carefully reviewed and coordinated with all trades. In the event of conflict, the installation of the mechanical equipment and piping shall be in the following order: plumbing, waste, and soil lines; supply, return, and exhaust ductwork; water piping; medical gases; fire protection piping; and pneumatic control piping.

4. The mechanical Contractor shall insure that the installation of all piping, ducts and equipment is in compliance with Articles 110-16 and 384-4 of the National Electrical Code relative to proper clearances in front of and over all electrical panels and equipment. No piping or ductwork will be allowed to run over an electrical panel.

RESPONSIBILITY OF CONTRACTOR:

1. The Contractor is responsible for the installation of a satisfactory piece of Work in accordance with the true intent of the Drawings and Specifications. He shall provide, as a part of his work and without expense, all incidental items required even though these items are not particularly specified or indicated. The installation shall be made so that its several component parts will function together as a workable system and shall be left with all equipment properly adjusted and in working order. (The Contractor shall familiarize the Owner's Representative with maintenance and lubrication instructions as prepared by the Contractor and shall explain and fully instruct him relative to operating, servicing, and maintenance of them.) Part of training package and P.M. program.

UNFIT OR DAMAGED WORK:
1. Any part of this installation that fails, is unfit, or becomes damaged during construction, shall be replaced or otherwise made good. The cost of such remedy shall be the responsibility of this Division and General Contractor.

WORKMANSHIP:
1. Workmanship shall be the best quality of its kind for the respective industries, trades, crafts, and practices, and shall be acceptable in every respect to the Owner's Representative. Nothing contained herein shall relieve the Contractor from making good and perfect work in all details in construction. All work shall be performed under the directories of any licensed journeyman. Contractor shall maintain a licensed journeyman on site at all times during construction.

SAFETY REGULATION:
1. The Contractor shall comply with all local and OSHA safety requirements in performance with this work. (See General Conditions). This Contractor shall be required to provide equipment, supervision, construction, procedures, and all other necessary items to assure safety to life and property.

ELECTRICAL SERVICES:
Motors:
1. All motors required under this Division shall be furnished and installed as work of this Division. All motor-starting equipment, unless otherwise specified in Division 23 shall be furnished as work of Division 26, Electrical. Motors shall be name plated with Class F insulation as manufactured by Lincoln Electric, US Motors, General Electric, Allis Chalmers, Century, or Reliance, designed for quiet continuous operations with maximum (Class B) 90 Degree C resistance heating rise with 40 Degree C ambient temperature at full load and rated speed and voltage individually specified with minimum 1.15 service factor. Motors shall be all of the same make except those incorporated in packaged units. All motors shall be provided with ball bearings and conduit connection boxes. Lifting eyes shall be provided on motors 1-1/2 horsepower and larger.
2. Unless Otherwise Specified, motors 3/4 horsepower and larger shall be 3 phase, 60 cycle, and motors 1/2 horsepower and smaller shall be single phase, 60 cycle. Contractor is to coordinate with available power voltage and phase. Refer to fan and equipment schedules on drawings for voltage characteristics, horsepower, size, etc. All single-phase motors shall have thermal overload protection. If motor-starting equipment is included in packaged units, all three phases shall have overload protection. All motors shall have a power factor of 85 percent or better. All motors 20 horsepower and larger shall be manufacturers Premium Efficiency grade and shall meet the NEMA MG 1-12.54" efficiency ratings for energy efficient motors. All two speed motors, unless otherwise specified, shall be 1800/1200 rpm dual winding type. All 3 phase motors shall be designed and manufactured to be capable of speed control through a variable frequency drive controller.
3. Motors and other electrical control equipment installed in damp or moist areas or in areas of other special conditions shall be designed and approved for the installation. Motors and electrical equipment in explosive locations shall be approved for those locations. Motors located outside buildings shall be totally enclosed.

Electric Wiring:
1. All equipment control wiring and all boiler control wiring, water heater control wiring, pump interlocks, automatic temperature control wiring including all necessary contacts, relays, and interlocks, whether low or line voltage, except power wiring, shall be furnished and installed as Work of this Division.
2. All equipment that requires an electrical connection shall be furnished so that it will operate properly and deliver full capacity on the electrical service available and also satisfy the requirements under "Motors," as Specified above.
3. The Mechanical Contractor must refer to the electrical control equipment and wiring shown on the Diagrams. Any changes or additions required by specific equipment furnished shall be the complete responsibility of the Contractor furnishing the equipment.
4. The Mechanical Contractor must coordinate with the Electrical Contractor to insure that all required components of control Work are included and fully understood. No additional cost shall accrue to the Owner as a result of lack of such coordination.

WORK, MATERIALS, AND QUALITY OF EQUIPMENT:
1. Unless Otherwise Specified, all materials shall be new and of the best quality of their respective kinds and all labor shall be done in a most thorough and workmanlike manner. Work shall be performed by an Electrician licensed in the state of Utah.
2. Products or equipment of any of the manufacturers cited herein or any of the products approved by the Addenda may be used. However, where lists of products are cited herein, the one first listed in the design equipment used in Drawings and Schedules to establish size, quality, function, and capacity standards. If other than design equipment is used, it shall be carefully checked for access to equipment, electrical and control requirements, valving, and piping. Should changes or additions occur in piping, valving, electrical work, etc., or if the work of other Contractors would be revised by the alternate equipment, the cost of all changes shall be borne as work of this Division.
3. Pipe of foreign manufacture will not be acceptable.
4. The access to equipment shown on the Drawings are the minimum acceptable space requirements. No equipment that reduces or restricts accessibility to this or any other equipment will be considered.

END OF SECTION 22 05 00/23 05 00

DIVISION 22/23 - PLUMBING/HVAC

SECTION 22 05 50/23 05 50
COMMON WORK RESULTS FOR PLUMBING/HVAC PIPING

SUBMITTALS
1. Product Data: For each type of pipe hanger, channel support system component, and thermal-hanger shield insert indicated.
2. Shop Drawings: Signed and sealed by a qualified professional engineer for multiple piping supports and trapeze hangers. Include design calculations and indicate size and characteristics of components and fabrication details.
3. Welding Certificates: Copies of certificates for welding procedures and operators.

QUALITY ASSURANCE
1. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
2. Engineering Responsibility: Design and preparation of Shop Drawings and calculations for multiple pipe supports, trapeze, equipment anchorage, and seismic restraint by a qualified professional engineer.
3. Professional Engineer Qualifications: A Professional Engineer licensed in the state of Utah, and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of hangers and supports that are similar to those indicated for this Project in material, design, and extent.

SUPPORTING DEVICES
1. Hanger and Pipe Attachments: Factory fabricated with galvanized coatings; nonmetallic coated for hangers in direct contact with copper tubing.
2. Mechanical-Anchor Fasteners: Epoxy Insert-type attachments with pullout and shear capacities appropriate for supported loads and building materials; UL listing and FM approval for fire-protection systems.

EXECUTION
1. Install piping free of sags and bends.
2. Install fittings for changes in direction and branch connections.
3. Install sleeves for pipes passing through concrete walls, gypsum-board partitions, and concrete floor and roof slabs.
4. Exterior Wall, Pipe Penetrations: Mechanical sleeve seals installed in hot dipped galvanized steel pipes for wall sleeves.
5. Fire-Barrier Penetrations: Seal pipe penetrations with through-penetration firestop systems.
6. Install unions adjacent to each valve and at final connection to each piece of equipment.
7. Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals in water and steam piping.
8. Install building attachments within concrete or to structural steel. Install additional attachments at concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping.
9. Install mechanical-anchor fasteners in concrete after concrete is cured. Do not use in lightweight concrete or in slabs less than 4 inches thick.
10. Load Distribution: Install hangers and supports so piping live and dead loading and stresses from movement will not be transmitted to connected equipment.
11. Pipe Hanger and Support Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
12. Channel Support System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled channel systems.
13. Field assemble and install according to manufacturer's written instructions.
14. Install building attachments within concrete slabs or attach to structural steel. Space attachments within maximum piping span length indicated in MSS SP-69. Install additional attachments at concentrated loads, including valves, flanges, guides, strainers, and expansion joints, and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
15. Install mechanical-anchor fasteners in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
16. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.
17. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
18. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.9, "Building Services Piping," is not exceeded.

PAINTING
1. Touching Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
2. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.
3. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 22 05 50/23 05 50

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E. TAYLOR GROBERG
5.29.2025
STATE OF UTAH

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4170 W 2100 N, LEHI

MARK	DESCRIPTION	Revision Date

Revision Schedule

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MECHANICAL & PLUMBING SPECIFICATIONS

DATE:

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DIVISION 22/23 - PLUMBING/HVAC

SECTION 22 05 53/23 05 53
IDENTIFICATION FOR PLUMBING/HVAC PIPING & EQUIPMENT

SUBMITTALS
1. Product Data: For identification materials and devices.
2. Samples: Of color, lettering style, and graphic representation required for each.

QUALITY ASSURANCE
1. Comply with ASME A13.1, "Scheme for the Identification of Piping Systems" for lettering size, length of color field, colors, and viewing angles of identification.

PRODUCTS
1. Products specified are for applications referenced in other Division 23 Sections. If more than a single type is specified for listed applications, selection is Installer's option.
2. Equipment Nameplates: Metal permanently fastened to equipment with data engraved or stamped.
3. Data: Manufacturer, product name, model number, serial number, capacity, operating, power characteristics, labels of tested compliances, essential data
4. Location: Accessible and visible.
5. Stencils: Standard stencils, prepared with letter sizes conforming to recommendations of ASME A13.1. Minimum letter height is 1-1/4 inches for ducts, and 3/4 inch for access door signs and similar operational instructions.
6. Stencil Paint: Exterior, oil-based, alkyd gloss black enamel, unless otherwise indicated. Paint may be in pressurized spray-can form. No overspray allowed.
7. Identification Paint: Exterior, oil-based, alkyd enamel in colors according to ASME A13.1, unless otherwise indicated.
8. Snap-On Plastic Pipe Markers: Manufacturer's standard preprinted, semi-rigid, snap-on type. Include color-coding according to ASME A13.1.
9. Pipes with OD, Including Insulation, Less Than 6 Inches: Full-band pipe markers, extending 360 degrees around pipe at each location.
10. Pipes with OD, Including Insulation, 6 Inches and Larger: Either full-band or strip-type pipe markers, at least 3 times letter height and of length required for label.
11. Lettering: Manufacturer's standard preprinted captions as selected by Engineer.
12. Lettering: Use piping system terms indicated and abbreviate only as necessary for each application length.
13. Arrows: Either integrally with piping system service lettering, to accommodate both directions, or as separate unit, on each pipe marker to indicate direction.
14. Plastic Duct Markers: Manufacturer's standard laminated plastic:
Green: Cold-air supply.
Yellow: Hot-air supply.
Blue: Exhaust, outside, return, and mixed air.
Hazardous Material Exhausts: Use colors and designs recommended by ASME A13.1.
Terminology: Include direction of airflow; duct service such as supply, return, and exhaust; duct origin, duct destination, and design flow.
15. Plastic Tape: Manufacturer's standard color-coded, pressure-sensitive, self-adhesive, vinyl tape, at least 3 mils thick.
16. Width: 1-1/2 inches on pipes with OD, including insulation, less than 6 inches; 2-1/2 inches for larger pipes.
17. Color: Comply with ASME A13.1, unless otherwise indicated.
18. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch sequenced numbers. Include 5/32-inch hole for fastener.
19. Material: 0.032-inch- thick, stainless steel only.
20. Size: 1-1/2-inches diameter, unless otherwise required.
21. Indicate valve service and normal position on valve. Example Cold water, N.O.
22. Valve Tag Fasteners: Stainless steel only.
23. Valve Tag Fasteners: Stainless steel only.
24. Access Panel Markers: 1/16-inch- thick, engraved plastic-laminate markers, with abbreviated terms and numbers corresponding to concealed valve. Provide 1/8-inch center hole for attachment.
25. Plastic Equipment Markers: Manufacturer's standard laminated plastic, in the following color codes:
Green: Cooling equipment and components.
Yellow: Heating equipment and components.
Brown: Energy reclamation equipment and components.
Blue: Equipment and components that do not meet criteria above.

VALVE TAGS
1. Install on valves and control devices in piping systems, except check valves, valves within factory-fabricated equipment units, plumbing fixture supply stops, shutoff valves, faucets, convenience and lawn-watering hose connections, and HVAC terminal devices and similar roughing-in connections of end-use fixtures and units. Indicate service and normal position of all tagged valve and control devices. List tagged valves in valve schedule.
Tag Material: Brass.

EQUIPMENT SIGNS AND MARKERS

1. Install engraved plastic-laminate signs or equipment markers on or near each major item of mechanical equipment. Include signs for the following general categories of equipment:
1.1. Main control and operating valves, including safety devices and hazardous units such as gas outlets.
1.2. Fire department hose valves and hose stations.
1.3. Meters, gages, thermometers, and similar units.
1.4. Fuel-burning units, including furnaces and heaters.
1.5. Fans, blowers, primary balancing dampers, and mixing boxes.
1.6. Packaged HVAC central-station and zone-type units.
1.7. Tanks and pressure vessels.
1.8. Strainers, filters, water-treatment systems, and similar equipment.

2. Optional Sign Types: Stenciled signs may be provided instead of engraved plastic, at Installer's option, where lettering larger than 1-inch high is needed for proper identification because of distance from normal location of required identification.
3. Lettering Size: Minimum 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
4. Terms on Signs: Distinguish between units, indicate operational requirements, indicate safety and emergency precautions, warn of hazards and improper operations, and identify units.
5. Duct Systems: Identify air supply, return, exhaust, intake, and relief ducts with duct markers; or provide stenciled signs and arrows showing service and direction of flow.
6. Location: Locate signs near points where ducts enter into concealed spaces and at maximum intervals of 50 feet in each space where ducts are exposed or concealed by removable ceiling system.

ADJUSTING AND CLEANING

1. Relocate mechanical identification materials and devices that have become visually blocked by work of this or other Divisions.
2. Clean faces of identification devices and glass frames of valve charts.

END OF SECTION 22/23 05 53

DIVISION 22/23 - PLUMBING/HVAC

SECTION 22/23 07 00
PLUMBING/HVAC INSULATION

This section includes insulation specifications for heating, ventilating and air conditioning piping, ductwork and equipment.

QUALITY ASSURANCE
Refer to division 1, General Conditions, Equals and Substitutions

Label all insulating products delivered to the construction site with the manufacturer's name and description of materials.

Insulation systems shall be applied by experienced contractors. Within the past five (5) years, the contractor shall be able to document the successful completion of a minimum of three (3) projects of at least 50% of the size and similar scope of the work specified in this section.

DESCRIPTION
Furnish and install all insulating materials and accessories as specified or as required for a complete installation. The following types of insulation are specified in this section:

Pipe Insulation
Duct Insulation
Equipment Insulation

Install all insulation in accordance with the latest edition of MICA (Midwest Insulation Contractors Association) Standard and manufacturer's installation instructions. Exceptions to these standards will only be accepted where specifically modified in these specifications, or where prior written approval has been obtained from the DFD Project Representative.

DEFINITIONS
Concealed: shafts, furred spaces, space above finished ceilings, utility tunnels and crawl spaces. All other areas, including walk-through tunnels, shall be considered as exposed.

SHOP DRAWINGS
Refer to division 1, General Conditions, Submittals.

Submit a schedule of all insulating materials to be used on the project, including adhesives, fastening methods, fitting materials along with material safety data sheets and intended use of each material. Include manufacturer's technical data sheets indicating density, thermal characteristics, jacket type, and manufacturer's installation instructions. Include copies of the MICA plates that are applicable to this project.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

P A R T 2 - P R O D U C T S

MATERIALS
Manufacturers: Armacell, CertainTeed, Manson, Childers, Dow, Extol, Fibrex, Halstead, Foster, Imcoa, ITW, Johns Manville, Knauf Insulation, Owens-Corning, Pittsburgh Corning, VentureTape or approved equal.

Materials or accessories containing asbestos will not be accepted.

Use composite insulation systems (insulation, jackets, sealants, mastics, and adhesives) that have a flame spread rating of 25 or less and smoke developed rating of 50 or less, with the following exceptions:

INSULATION TYPES
Insulating materials shall be fire retardant, moisture and mildew resistant, and vermin proof. Insulation shall be suitable to receive jackets, adhesives and coatings as indicated.

FLEXIBLE FIBERGLASS INSULATION:
Minimum nominal density of 0.75 lbs. per cu. ft., and thermal conductivity of not more than 0.30 at 75 degrees F mean temperature, rated for maximum service temperature of 250 degrees F.
Knauf Insulation – Duct Wrap;
Owens Corning – Softr
Johns Manville – Microlite EQ

RIGID FIBERGLASS INSULATION:
Minimum nominal density of 3 lbs. per cu. ft., and thermal conductivity of not more than 0.23 at 75 degrees F mean temperature, 0.25 at 125 degrees F, 0.27 at 150 degrees F, 0.29 at 200 degrees F, 0.32 at 250 degrees F, minimum compressive strength of 25 PSF at 10% deformation, rated for maximum service temperature of 450 degrees F.
Knauf – Earthwool insulation Board
Johns Manville – 814 Spin-Glas;
Owens Corning Fiberglas type 703

SEMI-RIGID FIBERGLASS INSULATION:
Minimum nominal density of 3 lbs. per cu. ft., thermal conductivity of not more than 0.28 at 75 degrees F mean temperature, minimum compressive strength of 25 PSF at 10% deformation, rated for service temperature range of 0 degrees F to 450 degrees F. Insulation fibers perpendicular to jacket and scored for wrapping cylindrical surfaces.
Owens Corning Fiberglas 703

CALCIUM SILICATE INSULATION:
Rigid hydrous calcium silicate, ASTM C533, Type I, minimum dry density of 12.5 lbs. per cu. ft., thermal conductivity of not more than 0.44 at 300 degrees F mean temperature, maximum water absorption of 90% by volume, minimum compressive strength 140 psi at 5% deformation, rated for service temperature range of 0 degrees F to 1,200 degrees F. Material to be visually coded or marked to indicate it is asbestos free.

ELASTOMERIC INSULATION:
Flexible closed cell, minimum nominal density of 5.5 lbs. per cu. ft., thermal conductivity of not more than 0.28 at 75 degrees F mean temperature, minimum compressive strength of 4.5 psi at 25% deformation, maximum water vapor permeability of 0.08 perm inch, maximum water absorption of 6% by weight, rated for service temperature range of -20 degrees F to 220 degrees F on piping and 180 degrees F where adhered to equipment.
Armaflex AP
Aerocel - SSPT
K-Flex – Insul-lock DS

EXTRUDED POLYSTYRENE INSULATION:
Rigid closed cell, minimum nominal density of 1.6 lbs. per cu. ft., thermal conductivity of not more than 0.26 at 75 degrees F mean temperature, minimum compressive strength of 20 psi, maximum water vapor permeability of 1.5 perm inch, maximum water absorption of 0.5 % by volume (ASTM C272), rated for service temperature range of -290 degrees F to 165 degrees F.
Owens Corning – Foamular Thermapink
Dow – Styrofoam
ITW Insulation Systems – For Piping

POLYISOCYANURATE INSULATION:
Rigid closed cell polyisocyanurate, minimum nominal density of 2.0 lbs. per cu. ft., thermal conductivity of not more than 0.19 at 75 degrees F mean temperature aged 180 days, minimum compressive strength of 24 psi parallel and 13 psi perpendicular, maximum water vapor permeability of 4 perm inch, maximum water absorption of 2% by volume, rated for service temperature range of -290 degrees F to 300 degrees F.
ITW – Trymer 2000 XP (Pipe)

MINERAL WOOL INSULATION:
Rigid preformed mineral wool, minimum nominal density of 8 lbs. per cu. ft., thermal conductivity of not more than 0.24 at 75 degrees F mean temperature, 0.30 at 200 degrees F, 0.38 at 300 degrees F, minimum compressive strength of 3 psi, maximum wicking of 1%, maximum water adsorption of 1% by volume, rated for service temperature range of -120 degrees F to 1200 degrees F.

FIREPROOFING INSULATION:
Mineral wool with nominal density of 8 lbs. per cu. ft., flame spread index of 25, fuel contribution index of 0, and smoke developed index of 0, thermal conductivity of not more than 0.23 at 75 degrees F mean temperature, rated for service temperature range of -120 degrees F to 1200 degrees F. Use rigid or semi-rigid board for duct insulations.

FIRE RATED INSULATION:
Noncombustible, non-asbestos, non-ceramic fiber, high temperature blanket or board fireproofing insulation, constructed of calcium silicate or calcium/magnesium/silica amorphous wool with 2-hour ***(1-hour, 3-hour)*** ASTM E814 "F" and "T" fire ratings, UL or equivalent third party listed, labeled and specifically evaluated for such purpose in accordance with ASTM E2336. Foil-scrim-polyethylene fiberglass reinforced factory applied jacket.

ADHESIVES, MASTIC, SEALANTS, AND REINFORCING MATERIALS
Products shall be compatible with surfaces and materials on which they are applied and shall be suitable for use at operating temperatures of systems to which they are applied.

FIBERGLASS INSULATION ADHESIVE:
Must comply with ASTM C916, Type II: Foster 85-60, Childers CP-127, Duro Dyne SSG.

PROTECTIVE METAL JACKETS (PMJ):
0.016 inch thick aluminum or 0.010 inch thick stainless steel with safety edge for indoor installations and 0.024 inch thick aluminum or 0.016 inch thick stainless steel with safety edge for outdoor installations.

EXPANSION JOINT AND VALVE INSULATION BLANKETS

Manufacturers: Advance Thermal Corporation, TANI Division B.D. Schiffler, Sprinkman and Sons. Site fabricated blankets are not acceptable.

Blanket shall be 16.5 ounces per square yard PTFE (polytetrafluoroethylene) designed for wet and dry steam applications to 600ºF. Jacket shall have coated fabric on both exterior and interior. Wire mesh interior is not acceptable.

ACCESSORIES
All products shall be compatible with surfaces and materials on which they are applied and be suitable for use at operating temperatures of the systems to which they are applied.

P A R T 3 - E X E C U T I O N

Do not apply insulation to the following systems, materials, and equipment:
Flexible connectors, fire-protection piping systems, sanitary drainage and vent piping.
Drainage piping located in crawl spaces, unless otherwise indicated, below-grade piping,
Chrome-plated pipes and fittings, except for plumbing fixtures for the disabled.
Piping specialties, including air chambers, unions, strainers, check valves, plug valves, and flow regulators.

SCHEDULE
Duct Insulation Thickness Application Schedule - Comply with IECC: Section C403.12.1 - Insulate ducting with the following materials and thicknesses:

Supply and Return in vented attic: Mineral-Fiber, 3", R-6,
Supply and Return in unvented attic: Not Required, unless so specified due to Rh,
Supply and Return exterior of building: Mineral-Fiber, 3", R-12, aluminum cladding,
Supply and Return in exposed shaft: Mineral-Fiber, 3", R-6,

Return ducts in indirectly conditioned ceiling spaces, Not Required,
Supply ducts in return plenum, Not Required, unless so specified due to Rh,
Supply and return ducts in conditioned space, Not Required, unless so specified due to Rh,
Supply and return ducts below grade, 3", R-12,

Exhaust: Mineral-Fiber, 3", R-6, from exterior of building to back-draft damper,
Outside Air: Mineral-Fiber, 3" R-6, from exterior of building to appliance connection,

Pipe Insulation Thickness Application Schedule - Comply with IECC table C403.12.3 - Insulate piping with the following materials and thicknesses:

Domestic cold water: 1/2 to 1 inch preformed fiber, depending on diameter.
Domestic hot water: 1 to 1-1/4 inch preformed fiber, depending on diameter.
Refrigeration piping: 1 inch Armaflex.
Mechanical hot water piping: 1-1/2 to 2 inch preformed fiber, depending on diameter.
Chilled water piping: 1 inch preformed fiber,

EXAMINATION
Verify that all piping, equipment, and ductwork are tested and approved prior to installing insulation. Do not insulate systems until testing and inspection procedures are completed.

Verify that all surfaces are clean, dry and without foreign material before applying insulation materials.

INSTALLATION
All materials shall be installed by skilled labor regularly engaged in this type of work. All materials shall be installed in strict accordance with manufacturer's recommendations, building codes, and industry standards. Do not install products when the ambient temperature or conditions are not consistent with the manufacturer's recommendations. Surfaces to be insulated must be clean and dry.

Locate insulation and cover seams in the least visible location. All surface finishes shall be extended in such a manner as to protect all raw edges, ends and surfaces of insulation.

Install insulation with smooth and even surfaces. Poorly fitted joints or use of filler in voids will not be accepted. Provide neatly beveled and coated terminations at all nameplates, uninsulated fittings, or at other locations where insulation terminates.

Install fabric reinforcing without wrinkles. Overlap seams a minimum of 2 inches.

Use full length material (as delivered from manufacturer) wherever possible. Scrap piecing of insulation or pieces cut undersize and stretch

END OF SECTION 22/23 07 00

DIVISION 22 - PLUMBING

SECTION 22 11 16
DOMESTIC WATER PIPING

GENERAL
1. Performance Requirements: Unless otherwise indicated minimum pressure requirements for water piping are as follows:

PRODUCTS

PIPES AND TUBES
1. Hard Copper Tube: ASTM B 88, Types L and M, water tube, drawn temper.
2. Soft Copper Tube: ASTM B 88, Type L water tube, annealed temper.

FITTINGS
1. Wrought-Copper, Solder-Joint Pressure Fittings: ASME B 16.22.
2. Cast-Copper-Alloy, Solder-Joint Pressure Fittings: ASME B 16.18.
3. Bronze Flanges: ASME B 16.24, Classes 150 and 300.
4. Copper Unions: ASME B 16.18, cast-copper-alloy body, hexagonal stock, with ball-and-socket joint, metal-to-metal seating surfaces, and solder-joint, threaded, or solder-joint and threaded ends. Threads complying with ASME B 1.20.1.

JOINING MATERIALS
1. Solder Filler Metal: ASTM B 32, lead free.
2. Brazing Filler Metals: AWS A5.8, alloys to suit system requirements.
3. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

EXECUTION
1. Install listed pipe materials and joining methods below in the following applications:
2. Aboveground: Hard copper tube, Type L ; wrought-copper or cast-copper-alloy pressure fittings; copper unions; bronze flanges; and solder joints.

VALVE APPLICATIONS
1. Install gate valves close to main on each branch and riser serving two or more plumbing fixtures or equipment connections and where indicated.
2. Install gate or ball valves on inlet to each plumbing equipment item, on each supply to each plumbing fixture not having stops on supplies, and elsewhere as indicated.
3. Install drain valve at base of each riser, at low points of horizontal runs, and where required to drain water distribution piping system.

PIPING INSTALLATIONS
1. Install hangers and supports at intervals indicated in the applicable plumbing code and as recommended by pipe manufacturer.
2. Support vertical piping at each floor.

INSPECTING AND CLEANING
1. Inspect and test piping systems following procedures of authorities having jurisdiction.
2. Clean and disinfect water distribution piping following procedures of authorities having jurisdiction.

END OF SECTION 22 11 16

DIVISION 22 - PLUMBING

SECTION 22 13 19
SANITARY WASTE AND VENT PIPING

GENERAL
Minimum Pressure Requirement for Soil, Waste and Vent: 10 feet head.

PRODUCTS

PIPES AND TUBES
1. Hub-and-Spigot, Cast-Iron Soil Pipe: ASTM A 74, Service class; ASTM C 564 rubber gaskets.
2. Hubless, Cast-Iron Soil Pipe: CISPI 301.

FITTINGS
1. Hub-and-Spigot, Cast-Iron Soil Pipe Fittings: ASTM A 74, Service class.
2. Hubless, Cast-Iron Soil Pipe Fittings: CISPI 301.
3. Cast-Iron, Sovent Drainage Fittings: ASME B16.45.
4. Cast-Iron Soil Pipe and Fittings: ASTM C 564 neoprene rubber gaskets and lubricant.
5. CISPI Couplings for Hubless, Cast-Iron Soil Pipe and Fittings: CISPI 310, having ASTM C 564 neoprene sealing sleeve, 300 series stainless-steel, corrugated shield/clamp assembly.
6. Cast-Iron-Pipe Sleeve-Type Couplings for Plain-End, Nonpressure System Pipe: Rubber or elastomeric sleeve and stainless-steel band assembly, match OD of pipes to be joined.

EXECUTION

BELOW-GROUND applications use one of the following:
1. 1.25 to 4" NPS: ABS plastic pipe, ABS socket fittings, and solvent -cemented joints.
2. 1.25 to 4" NPS: Cellular-core, ABS plastic pipe: ABS socket fittings; and solvent-cemented joints.
3. 1.25 to 4" NPS: PVC plastic pipe. PVC socket fittings, and solvent-cemented joints.
4. 1.25 to 4" NPS: Cellular-core, PVC plastic pipe; PVC socket fittings; and solvent-cemented joints.
5. Plastic pipe shall conform to: ABS Plastic Pipe: ASTM D2661, Schedule 40, Cellular-Core, ABS Plastic Pipe: ASTM F 628, Schedule 40, PVC Plastic Pipe: ASTM D 2665, Schedule 40, Cellular-Core, PVC Plastic Pipe: ASTM F 891, Schedule 40.

ABOVE-GROUND applications use one of the following:
1. 1.25 to 4" NPS: hubless, cast-iron soil pipe and fittings .

PIPING INSTALLATION AND INSPECTION
1. Install cleanout and extension to grade at of building sanitary drain and sanitary sewer.
2. Locate drainage piping runouts close to bottom of floor slab supporting fixtures. Inspect and test piping systems following authorities having jurisdiction guidelines.

END OF SECTION 22 13 19

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MARK	DESCRIPTION	Revision Date
Revision Schedule		

AE2024.387

MECHANICAL & PLUMBING SPECIFICATIONS

DATE:

SHEET #:

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PERMIT SET

bluefield engineering

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DIVISION 22 - PLUMBING

SECTION 22 11 19
DOMESTIC WATER/SANITARY WASTE PLUMBING SPECIALTIES

GENERAL
1. Reduced-Pressure-Principle Backflow Preventers: ASSE 1013, suitable for continuous pressure application. Include outside screw and yoke gate valves on inlet and outlet, and strainer on inlet; test cocks; and pressure-differential relief valve with ASME A112.1.2 air-gap fitting located between 2 positive-seating check valves.

2. Hose-Connection Backflow Preventers: ASSE 1052, suitable for at least flow and applications with up to back pressure. Include 2 check valves; intermediate atmospheric vent; and nonremovable, ASME B1.20.7 garden-hose thread on outlet.

3. Double-Check Backflow Prevention Assemblies: ASSE 1015, suitable for continuous pressure application. Include shutoff valves on inlet and outlet, and strainer on inlet; and test cocks with 2 positive-seating check valves.

4. PRV: Pressure Reducing Valves, Watts, Ductile Iron Body and Cover ASTM A536, NSF listed fusion bonded epoxy lined and coated coating. 316 Stainless Steel Trim, EPDM Elastomers and Stainless Steel Stem, Nut and Spring. One-piece disc and diaphragm assembly. Coordinate sizing with manufacturer. Pressure protection to zero flow. Provide Lead Free unit with strainer.

END OF SECTION 22 11 19

DIVISION 22 - PLUMBING

SECTION 22 11 23
FACILITY NATURAL GAS PIPING

GENERAL

1. Steel Pipe: ASTM

2. Gas Stops, 2" and Smaller: AGA-certified, bronze-body, plug type with bronze plug, ball type with chrome-plated brass ball, or butterfly valve with stainless-steel disc and fluorocarbon elastomer seal, for 2 psig or less natural gas. Include AGA stamp, flat or square head or lever handle, and threaded ends conforming to ASME

3. Gas Meters: Diaphragm-type, positive displacement, with aluminum cases, temperature compensated, with internal corrosion-resistant components. Include threaded ends conforming to ASME and flanged ends for and larger. Meter pressure ratings and flow volume in of natural gas at specific gravity are as indicated.
3.1. Capacity 500 ft^3/hr or Less: ANSI
3.2. Capacity Greater than 500 ft^3/hr: ANSI

4. Gas Pressure Regulators: ANSI smaller and flanged ends for 2 1/2" and larger. Regulator pressure ratings, inlet and outlet pressures, and flow volume in cubic feet per hour of natural gas at specific gravity are as indicated.
4.1. Service Pressure Regulators: Inlet pressure rating not less than natural gas distribution system service pressure.
4.2. Line Gas Pressure Regulators: Inlet pressure rating not less than system pressure.
4.3. Appliance Gas Pressure Regulators: Inlet pressure rating not less than system pressure, with capacity and pressure setting matching appliance.
4.4. Gas Pressure Regulator Vents: Factory- or field-installed corrosion-resistant screen in opening when not connected to vent piping.

5. Flexible Connectors: ANSI

6. Low-Pressure, .5 psig or Less, Natural Gas Systems: Use the following:
6.1. Z21.24, copper alloy.
6.2. 1" NPS and Smaller: Steel pipe, malleable-iron threaded fittings, and threaded joints.
6.3. 1.25 to 2" NPS: Steel pipe, malleable-iron threaded fittings, and threaded joints.

7. Medium-Pressure, .5 to 2 psig , Natural Gas Systems: Use the following:
7.1. 1" NPS and Smaller: Steel pipe, butt-welding fittings, and welded joints.
7.2. 1.25" and Larger: Steel pipe, butt-welding fittings, and welded joints.

8. High-Pressure, above 2 to 5 psig, Natural Gas Systems: Steel pipe, butt-welding fittings, and welded joints.

9. Underground Natural Gas Systems, All Pressures: Steel pipe, butt-welding fittings, and welded joints. Encase gas carrier piping in containment conduits.

10. Gas Service, above , 5 psig Natural Gas Piping at Gas Meters and Regulators: Steel pipe, butt-welding fittings, and welded joints.

END OF SECTION 22 11 23

DIVISION 22 - PLUMBING

SECTION 22 11 25
DOMESTIC WATER PUMPS

SUBMITTALS

1. Submit Letter of Conformance" in accordance with Section 01 33 00 (01330) indicating items selected for use in Project with the following supporting data:
2. Include certified performance curves and rated capacities of selected models; shipping, installed, and operating weights; furnished specialties; and accessories for each type and size of pump specified. Indicate pumps' operating point on curves.
3. For each pump specified to include in maintenance manuals specified in Division 01.

QUALITY ASSURANCE

1. Source Limitations: Obtain same type of pumps through one source from a single manufacturer.
2. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70,
3. Article 100, by a testing agency acceptable to authorities having jurisdiction.

PRODUCTS

Domestic Water Inline Pumps: Armstrong Pumps, Inc., ITT Industires, Taco, Grundfos, Watts,

GENERAL

1. Description: Factory-assembled and -tested, single-stage, centrifugal pump units; complying with UL 778; suitable for potable-water service; with all-bronze or stainless-steel construction and components in contact with water made of corrosion-resistant materials.
2. Motors:
2.1. Comply with requirements in Section 22 05 13 "Common Motor Requirements for Plumbing Equipment" with built-in thermal-overload protection appropriate for motor size and duty.
3. End Connections for NPS 2 (DN50) and Smaller: Threaded. Pumps available only with flanged ends may be furnished with threaded companion flanges.
4. End Connections for NPS 2-1/2 (DN65) and Larger: Flanged.
5. Finish: Manufacturer's standard paint applied to factory-assembled and -tested units before shipping.
5.1. Manufacturer's Preparation for Shipping: Clean flanges and exposed machined metal surfaces and treat with anticorrosion compound after assembly and testing. Protect flanges, pipe openings, and nozzles.

DOMESTIC WATER IN-LINE PUMPS
1. Description: Horizontal in-line circulator, rated for 125-psig minimum working pressure and minimum continuous water temperature of 225 deg F.
2. Construction: Radially split, all-bronze casing.
3. Impeller: ASTM B36, rolled brass; or ASTM B584, cast bronze; overhung, single suction, and keyed to shaft.
4. Seal: Mechanical.
5. Shaft and Sleeve: Steel shaft, with oil-lubricated copper sleeve.
6. Pump Bearings: Oil-lubricated, bronze-journal or thrust type.
7. Shaft Coupling: Flexible, capable of absorbing torsional vibration and shaft misalignment.
8. Motor: Single speed, with oil-lubricated bearings, unless otherwise indicated; and resiliently mounted to pump casing.
9. Motor Size: For motors larger than 1/2 hp, select motor size that will not overload through full range of pump performance curve.

EXECUTION

1. Examine roughing-in of water distribution piping to verify actual locations of connections before pump installation.
2. Install pumps according to manufacturer's written instructions and with access for periodic maintenance, including removing motors, impellers, couplings, and accessories.
3. Support pumps and piping so weight of each is not supported by the other.
4. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping and specialties. The following are specific connection requirements:
5. Connect water distribution piping to pumps. Install suction and discharge pipe equal to or greater than size of pump nozzles. Refer to Section 22 11 16 - "Domestic Water Piping."
6. Install shutoff valve and strainer on suction side of pumps, and check valve and throttling valve on discharge side of pumps. Install valves same size as connected piping. Refer to Section 22 05 23 - "General Duty Valves for Plumbing Piping" for general-duty valves.
7. Install pressure gages at suction and discharge of pumps. Install at integral pressure-gage tappings where provided or install pressure-gage connectors in suction and discharge piping around pumps. Refer to Section 22 05 19 - "Meters and Gages for Plumbing Piping" for pressure gages and gage connectors.
8. Electrical wiring and connections are specified in Division 26 Sections.
9. Ground equipment.
10. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

COMMISSIONING

1. Check suction piping connections for tightness.
2. Final Checks before Starting: Perform the following preventive maintenance operations:
2.1. Lubricate oil-lubricated-type bearings.
2.2. Verify that pump is free to rotate by hand and that pump for handling hot liquids is free to rotate with pump hot and cold. Do not operate pump if it is bound or drags, until cause of trouble is determined and corrected.
3. Verify that pump controls are correct for required application.
4. Starting procedure for pumps is as follows:
4.1. Prime pump by opening suction valves and closing drains, and prepare pump for operation.
4.2. Open circulating line valve if pump should not be operated against dead shutoff.
4.3. Open discharge valve slowly.
4.4. Check general mechanical operation of pump and motor.
4.5. Close circulating line valve once there is sufficient flow through pump to prevent overheating.
5. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain pumps as specified below:
5.1. Conduct training as specified in Division 01 Sections.
5.2. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining pumps.

END OF SECTION 22 11 25

DIVISION 22 - PLUMBING

SECTION 22 3400
FUEL FIRED DOMESTIC WATER HEATERS

SUBMITTALS

Product Data: For each type and size of water heater. Include rated capacities; shipping, installed, and operating weights; furnished specialties; and accessories.

Shop Drawings: Detail water heater assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

Wiring Diagrams: Power, signal, and control systems. Differentiate between manufacturer-installed and field-installed wiring.

Product Certificates: Signed by manufacturers of water heaters certifying that products furnished comply with requirements.

Maintenance Data: For water heaters to include in maintenance manuals specified in Division 1.

Warranties: Special warranties specified in this Section.

PRODUCTS

WATER HEATERS, GENERAL:
ASME 150-psig working pressure rating,
UL 795
ASHRAE 90.1
NSF 60
A.O. SMITH
BRADFORD WHITE
STATE
LOCHINVAR
RANNAI

WATER HEATER ACCESSORIES

A. Combination Temperature and Pressure Relief Valves: According to the following:
1. Gas Water Heaters: ANSI Z21.22, combination temperature and pressure relief valve.

B. Vacuum Relief Valves: According to the following:
1. Gas Water Heaters: ANSI Z21.22.
2. Gas Shutoff Valves: ANSI Z21.15, manually operated. Furnish for installation in piping.

C. Gas Pressure Regulators: ANSI Z21.18, appliance type, factory or field installed. Include pressure rating, capacity, and pressure differential required for water heater and gas supply.

D. Automatic Valves: ANSI Z21.21, appliance, electrically operated, on-off automatic valve.

EXECUTION

1. Install temperature and pressure-relief valves and extend to closest floor drain.
2. Install vacuum-relief valves in cold-water-inlet piping.
3. Install expansion tank to service hot water system.
4. Install shutoff valves and unions at hot and cold water piping connections.

5. Install recirculation pump for hot water system.
6. Make piping connections with dielectric fittings for dissimilar piping materials.
7. Clean and disinfect the domestic water system upon installation completion.
8. Electrically ground units according to authorities having jurisdiction.

9. Install temperature gage on water inlet and outlet piping.
10. Install pressure gage on inlet piping.
11. Install expansion tank
12. Install seismic restraints for water heaters. Anchor to substrate.

COMMISSIONING

Engage a factory-authorized service representative to perform startup service.

In addition to manufacturer's written installation and startup checks, perform the following:

Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment and retest until satisfactory results are achieved.

Verify that piping system tests are complete.
Check for piping connection leaks.
Check for clear relief valve inlets, outlets, and drain piping.
Check operation of circulators.

Test operation of safety controls, relief valves, and devices.
Energize electric circuits.
Adjust operating controls.
Adjust hot-water-outlet temperature settings. Do not set above 140 deg F (60 deg C) unless piping system application requires higher temperature.

Balance water flow through manifolds of multiple-unit installations.

DEMONSTRATION

Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain water heaters.

Train on procedures to start, stop, troubleshoot, service and maintain heater,
Review data in O&M.
Schedule training with Owner, through Architect, with at least seven days advance notice.

END OF SECTION 22 3400

DIVISION 22 - PLUMBING

SECTION 22 40 00
PLUMBING FIXTURES

GENERAL

1. Submittals: Product Data for each type of plumbing fixture.
2. Comply with requirements of Public Law 102-486, "Energy Policy Act," regarding water flow rate and water consumption of plumbing fixtures.
3. Comply with applicable standards below:
4. Enameled, Cast-Iron Fixtures: ASME A112.19.1M.
5. National Sanitation Foundation Construction: NSF 2.
6. Porcelain-Enameled Fixtures: ASME A112.19.4M.
7. Slip-Resistant Bathing Surfaces: ASTM F 462.
8. Stainless-Steel Fixtures: ASME A112.19.3M.
9. Vitreous-China Fixtures: ASME A112.19.2M.

PRODUCTS
1. Contractor shall verify fit of all fixtures in cabinets, floors, etc. and coordinate with architect prior to procurement of all fixtures.
2. See plumbing schedules for specified fixture manufacturer and model.

INSTALLATION
1. Install fixtures with flanges and gasket seals.
2. Fasten wall-hanging plumbing fixtures securely to supports attached to building substrate when supports are specified, and to building wall construction where no support is indicated.
3. Fasten floor-mounted fixtures to substrate. Fasten fixtures having holes for securing fixture to wall construction, to reinforcement built into walls.
4. Fasten wall-mounted fittings to reinforcement built into walls.
5. Fasten counter-mounting plumbing fixtures to casework.
6. Secure supplies to supports or substrate within pipe space behind fixture.
7. Set mop basins in leveling bed of cement grout.
8. Install individual supply inlets, supply stops, supply risers, and tubular brass traps with cleanouts at fixture.
9. Install water-supply stop valves in accessible locations.
10. Install traps on fixture outlets. Omit traps on fixtures having integral traps. Omit traps on indirect wastes, unless otherwise indicated.
11. Install escutcheons at wall, floor, and ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons where required to conceal protruding pipe fittings.
12. Seal joints between fixtures and walls, floors, and counters using sanitary-type, one-part, mildew-resistant, silicone sealant. Match sealant color to fixture color.
13. Install piping connections between plumbing fixtures and piping systems and plumbing equipment. Install insulation on supplies and drains of fixtures for the disabled.
14. Ground equipment. Tighten electrical connectors and terminals according to UL 486A and UL 486B.

END OF SECTION 22 40 00

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MARK	DESCRIPTION	Revision Date

Revision Schedule

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AE2024.387

MECHANICAL & PLUMBING SPECIFICATIONS

DATE:

SHEET #:

SM1.3

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DIVISION 23 - HVAC

SECTION 23 23 00
REFRIGERANT PIPING

SUBMITTALS
A. Submit "Letter of Conformance" in accordance with Section 01 33 00 (01330) indicating specified items selected for use in Project with the following supporting data:
1. Product Data for each valve type and refrigerant piping specialty specified.

2. Refrigerant piping indicated is schematic only. Contractor shall size and design the piping configuration and install the piping, including oil traps, double risers, specialties, and pipe and tube sizes, to ensure proper operation and conformance with warranties of connected equipment.

3. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience.

4. Maintenance data for refrigerant valves and piping specialties to include in the operation and maintenance manual specified in Division 01 Sections.

1.3 QUALITY ASSURANCE
A. ASME Compliance: Qualify brazing and welding processes and operators according to ASME Boiler and Pressure Vessel Code, Section IX, "Welding and Brazing Qualifications."
B. Regulatory Requirements: Comply with provisions of the following codes:
1. ASME B31.5, "Refrigeration Piping."
2. ASHRAE 15, "Safety Code for Mechanical Refrigeration."
C. UL Standard: Provide products complying with UL 207, "Refrigerant-Containing Components and Accessories, Non-electrical"; or UL 429, "Electrically Operated Valves."
D. Listing and Labeling: Provide products specified in this Section that are UL listed and labeled.

PART 2 PRODUCTS

2.1 MANUFACTURERS

Refrigerant Valves and Specialties:
a. Henry Pratt Company, Subsidiary of Mueller Water Products, Inc. (877-436-7966)
b. Parker-Hannifin Corporation; Refrigeration & Air Conditioning Division (800-272-7537)
c. Sporlan Valve Company (314-647-2775)

TUBES
A. Use pre-charged tubing where possible.
B. Soft Copper Tube: ASTM B280, Type ACR, annealed temper.

TUBE FITTINGS
A. Copper Fittings: ASME B16.22, wrought-copper streamlined pattern.

JOINING MATERIALS
A. Brazing Filler Metals: AWS A5.8, Classification BAg-1 (Silver).

REFRIGERANT PIPING SPECIALTIES
A. Moisture/Liquid Indicators: 500-psig operating pressure, 200 deg F operating temperature; forged-brass body, with replaceable, polished, optical viewing window with color-coded moisture indicator, and solder-end connections.
B. Permanent Filter-Dryer: 350-psig maximum operating pressure, 225 deg F maximum operating temperature; steel shell, and wrought-copper fittings for solder-end connections; molded-felt core surrounded by desiccant.

PART 3 EXECUTION

3.1 EXAMINATION
A. Examine roughing-in for compliance with requirements for installation tolerances and other conditions affecting performance of refrigerant piping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 APPLICATIONS
A. Above ground, within Building: Type ACR drawn-copper tubing.
B. Below ground for 2-Inch NPS (DN50) and Smaller: Type L (Type B) annealed-copper tubing installed in schedule 40 PVC sleeve.

3.3 INSTALLATION
A. Install refrigerant piping according to ASHRAE 15.
B. Basic piping installation requirements are specified in Section 21/22/23 95 00 (15050) - "Basic Mechanical Materials and Methods."
C. Install piping in short and direct arrangement, with minimum number of joints, elbows, and fittings.
D. Arrange piping to allow normal inspection and service of compressor and other equipment. Install valves and specialties in accessible locations to allow for service and inspection.
E. Install piping with adequate clearance between pipe and adjacent walls and hangers, or between pipes for insulation installation. Use sleeves through floors, walls, or ceilings, sized to permit installation of full-thickness insulation. Maximum fill: 40%
F. Below ground, install copper tubing in schedule 40 PVC conduit. Vent conduit outdoors.
G. Insulate suction lines.
1. Do not install insulation until system testing has been completed and all leaks have been eliminated.
H. Install branch lines to parallel compressors of equal length, and pipe identically and symmetrically.
I. Install copper tubing in rigid or flexible conduit in locations where copper tubing will be exposed to mechanical injury.
J. Slope refrigerant piping as follows:
1. Install horizontal suction lines with a uniform slope of 0.4 percent downward to compressor.
2. Install traps and double risers where indicated and where required to entrain oil in vertical runs.
3. Liquid lines may be installed level.
K. Use fittings for changes in direction and branch connections.
L. Install exposed piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated.
M. Reduce pipe sizes using eccentric reducer fittings installed with level side down.
N. Provide bypass around moisture-liquid indicators in lines larger than 2-inch NPS (DN50).
O. Install unions to allow removal of solenoid valves, pressure-regulating valves, expansion valves, and at connections to compressors and evaporators.
P. Install refrigerant valves according to manufacturer's written instructions.
Q. When brazing, remove solenoid-valve coils; remove sight glasses; and remove stems, seats, and packing of valves, and accessible internal parts of refrigerant specialties. Do not apply heat near bulb of expansion valve.
R. Electrical wiring for solenoid valves is specified in Division 16 Sections. Coordinate electrical requirements and connections.
S. Charge and purge systems, after testing, dispose of refrigerant following ASHRAE 15 procedures.

3.4 HANGERS AND SUPPORTS
A. General: Hangers, supports, and anchors are specified in Section 23 05 29 - "Hangers and Supports for HVAC Piping and Equipment." Provide according to ASME B31.5 and MSS SP-69.
B. Install hangers for copper tubing with the following maximum spacing and minimum rod sizes. Tube sizes are nominal or standard tube sizes as expressed in ASTM B88.
1. 1/2 Inch: Maximum span, 60 inches; minimum rod size, 1/4 inch.
2. 5/8 Inch: Maximum span, 60 inches; minimum rod size, 1/4 inch.
3. 1 Inch: Maximum span, 60 inches; minimum rod size, 1/4 inch.
4. 1-1/4 Inches: Maximum span, 72 inches; minimum rod size, 1/4 inch.
5. 1-1/2 Inches: Maximum span, 96 inches; minimum rod size, 3/8 inch.

3.5 PIPE INSULATION
A. Piping insulation is specified in Section 23 07 00 "HVAC Insulation".

3.6 SPECIALTIES APPLICATION AND INSTALLATION
A. Install permanent filter dryers in low-temperature systems using hermetic compressors, and before each solenoid valve.

3.7 PIPE JOINT CONSTRUCTION
A. Basic pipe and tube joint construction is specified in Section 23 05 00 - "Common Work Results for HVAC."
B. Fill pipe and fittings with an inert gas (nitrogen or carbon dioxide) during brazing to prevent formation of scale.

3.8 VALVE INSTALLATIONS
A. Install refrigerant valves according to manufacturer's written instructions.

3.9 CONNECTIONS
A. Electrical: Conform to applicable requirements of Division 26 Sections for electrical connections.

3.10 FIELD QUALITY CONTROL
A. Inspect and test refrigerant piping according to ASME B31.5, Chapter VI.
1. Pressure test with nitrogen to 200 psig. Perform final tests at 27-psig vacuum and 200 psig using halide torch or electronic leak detector. Test to no leakage.
B. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.
C. Repair leaks using new materials; retest.

3.11 ADJUSTING
A. Adjust thermostatic expansion valve to obtain proper evaporator superheat requirements.

3.12 CLEANING
A. Before installation of copper tubing other than Type ACR, clean tubing and fittings with trichloroethylene.

COMMISSIONING
A. Charge system using the following procedures:

1. Install core in filter dryer after leak test, but before evacuation.

2. Evacuate refrigerant system with vacuum pump until temperature of 35 deg is indicated on vacuum dehydration indicator.

3. During evacuation, apply heat to pockets, elbows, and low spots in piping.

4. Maintain vacuum on system for minimum of 5 hours after closing valve between vacuum pump and system.

5. Break vacuum with refrigerant gas, allowing pressure to build up to 2 psig.

6. Complete charging of system, using new filter-dryer core in charging line. Provide full-operating charge.

PIPING SCHEDULE

Hard Copper Tube: ASTM B 280, Type ACR, drawn temper.
Soft Copper Tube: ASTM B 280, Type ACR, annealed temper.

Brazing Filler Metals: AWS A5.8, Classification BAg-1 (Silver).

Aboveground, within Building: Type ACR drawn-copper tubing.

Aboveground, within Building: drawn-copper tubing.

NOTE:
Refrigerant piping indicated is schematic only. Size and design the layout and installation of the piping, including oil traps, double risers, specialties, and pipe and tube sizes, to ensure proper operation and conformance with warranties of connected equipment.

END OF SECTION 23 23 00

DIVISION 23 - HVAC

SECTION 23 31 13
METAL DUCTS

GENERAL

1. Duct system design, as indicated, has been used to select and size air-moving and -distribution equipment and other components of air system. Changes to layout or configuration of duct system must be specifically approved in writing by Architect. Accompany requests for layout modifications with calculations showing that proposed layout will provide original design results without increasing system total pressure.
2. Duct material: galvanized, sheet steel, lock-forming quality; ASTM A 653/A 653M, coating designation; mill-phosphatized finish for surfaces of ducts exposed to view.
3. Underground duct shall be PVC pipe or PVC coated galvanized steel encased in concrete.
4. Duct liner: Comply with NFPA 90A or NFPA 90B and NAIMA's "Fibrous Glass Duct Liner Standard." ASTM C 1071 with coated surface exposed to airstream to prevent erosion of glass fibers.

Thickness: 1".
Thermal Conductivity (k-Value): .26 at 75 deg Fmean temperature.
Fire-Hazard Classification: Maximum flame-spread rating of 25 and smoke-developed rating of 50, when tested according to ASTM C 411.
Liner Adhesive: Comply with NFPA 90A or NFPA 90B and ASTM C 916.

5. Round duct: Diameter as applied to flat-oval ducts in this Article is the diameter of the size of round duct that has a circumference equal to perimeter of a given size of flat-oval duct.
Round Ducts: Fabricate supply ducts of galvanized steel according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."
6. Rectangular duct: Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction with galvanized, sheet steel, according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible." Comply with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.
a. Lengths: Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure classification.
b. Materials: Free from visual imperfections such as pitting, seam marks, roller marks, stains, and discolorations.
7. Static-Pressure Classifications: Unless otherwise indicated, construct ducts to the following:
a. Supply Ducts: 3" wg.
b. Return Ducts: 2" wg, negative pressure.
c. Exhaust Ducts: 2" wg, negative pressure.
8. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19" and larger and .0359" thick or less, with more than 10Ø of unbraced panel area, unless ducts are lined.

END OF SECTION 23 31 13

DIVISION 23 - HVAC

SECTION 23 32 00
AIR DUCT ACCESSORIES

GENERAL

1. Volume dampers: Factory fabricated with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single-blade dampers in a fixed position without vibration. Close duct penetrations for damper components to seal duct consistent with pressure class.

2. Pressure Classifications of 2" or Higher: End bearings or other seals for ducts with axles full length of damper blades and bearings at both ends of operating shaft.

3. Fire Dampers where indicated and as code required: Labeled to UL 555.
Fire Rating: One and one-half and three hours.
Frame: SMACNA Type B with blades out of airstream; fabricated with roll-formed, thick galvanized steel; with mitered and interlocking corners.
Provide access door though ductwork and other systems for damper access.
Fusible Link: Replaceable, 165° rated as indicated.
4. Manufactured Turning Vanes: Fabricate of 1.5" wide, curved blades set 3/4" o.c.; support with bars perpendicular to blades set 2" o.c.; and set into side strips suitable for mounting in ducts.

5. Flexible Ducts, Insulated: Factory-fabricated, insulated, round duct, with an outer jacket enclosing 1.5" thick, glass-fiber insulation around a continuous inner liner.

END OF SECTION 23 32 00

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Revision Schedule

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DATE:

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DIVISION 23 - MECHANICAL

SECTION 23 57 80
ROOFTOP AIR CONDITIONERS

OUTDOOR ROOFTOP MOUNTED, HEATING AND COOLING UNIT.
SUBMITTALS
A. Product Data: For each model indicated.
B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection. Prepare the following by or under the supervision of a qualified professional engineer:
C. Design Calculations: Calculate requirements for selecting vibration isolators,vibration isolation base design, and seismic restraint design.
D. Detail mounting, securing, and flashing of roof curb to roof structure. Indicate coordinating requirements with roof membrane system.
E. Wiring Diagrams: Power, signal, and control wiring.
F. Field quality-control test reports.
G. Operation and maintenance data.
H. Warranties: Special warranties specified in this Section.
I. Rooftop unit fans and compressors are to be spring isolated.

QUALITY ASSURANCE
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
B. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Code for Mechanical Refrigeration."
C. Energy-Efficiency Ratio: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
D. Coefficient of Performance: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
E. Comply with NFPA 54 for gas-fired furnace section.
F. ARI Compliance for Units with Capacities Less Than 135,000 Btuh (39.6 kW): Rate rooftop air-conditioner capacity according to ARI 210/240, "Unitary Air-Conditioning and Air-Source Heat Pump Equipment."
G. Sound Power Level Ratings: Comply with ARI 270, "Sound Rating of Outdoor Unitary Equipment."
H. ARI Compliance for Units with Capacities 135,000 Btuh (39.6 kW) and More: Rate rooftop air-conditioner capacity according to ARI 340/360, "Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment."
I. Sound Power Level Ratings: Comply with ARI 270, "Sound Rating of Outdoor Unitary Equipment."

WARRANTY
Special Warranty: Manufacturer's standard form in which manufacturer agrees to replace components of rooftop air conditioners that fail in materials or workmanship within specified warranty period.
1. Warranty Period for Compressors: Manufacturer's standard, but not less than five years from date of Substantial Completion.
2. Warranty Period for Heat Exchangers: Manufacturer's standard, but not less than 10 years from date of Substantial Completion.
3. Warranty Period for Control Boards: Manufacturer's standard, but not less than three years from date of Substantial Completion.

PRODUCTS
MANUFACTURERS
The following requirements apply for product selection:
Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified:
1. Allied - Lennox Industries Inc.
2. American Standard - Trane

DESCRIPTION
Unit is an outdoor rooftop mounted, electrically controlled heating and cooling unit utilizing fully hermetic scroll compressors with on demand crankcase heaters for cooling duty and induced draft gas combustion for heating duty. Supply air shall be discharged downward or horizontally, as shown on contract drawings.

QUALITY ASSURANCE
A. Unit shall exceed 2012 IECC Energy Efficiency Standards. All units shall be ENERGY STAR qualified. On 03 to 06 sizes -- SEER shall be as high as 13. On 06 to 16 sizes -- EER shall be as high as 12.5 and on sizes 20 to 28 -- EER shall be as high as 11.6.
B. Unit shall be rated in accordance with ARI Standards 210 (03-12) and 360 on all others. All units shall be designed in accordance with UL Standard 1995. Unit shall be rated in accordance with ARI sound standards 270 or 370.
C. Unit shall be designed to conform to ASHRAE 15.
D. Unit shall be UL and UL, Canada, tested and certified in accordance with ANSI Z21.47 Standards as a total package.
E. Roof curb shall be designed to conform to NRCA Standards.
F. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
G. Unit casing shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).
H. Unit shall be manufactured in a facility registered to ISO 9001:2000.
I. Each unit shall be subjected to a completely automated run testing on the assembly line.

DELIVERY, STORAGE, AND HANDLING
Unit shall be stored and handled per manufacturer's recommendations.

EQUIPMENT
A. General: The unit shall be a fully factory assembled, pre-tested, single-piece heating and cooling unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, Puron refrigerant charge (R-410A), and special features required prior to field start-up.
B. Unit Cabinet:
1. Constructed of galvanized steel, bonderized and coated with a pre-painted baked enamel finish on all externally exposed surfaces. Internal surfaces shall be of a primer coated finish.
2. All airstream interior surfaces shall be insulated with a minimum 1/2-in. thick, 1 lb density foil-faced cleanable insulation. Insulation shall be bonded with a thermosetting resin (8 to 12% by weight nominal, phenol formaldehyde typical), and coated with an acrylic or other material that meets the NFPA 90 flame retardance requirements and has an “R” value of 3.70. Insulation shall also be encapsulated with panel design or tape edges ensuring secure fit.

C. Fans:
1. Indoor blower (evaporator fan):
a. Centrifugal supply air blower shall have rubber-isolated, cartridge type ball bearings (03-16) or pillow-block ball bearings (20-28) and adjustable belt drive.
b. Fan wheel shall be made from steel with a corrosion resistant finish. It shall be a dynamically balanced, double-inlet type with forward-curved blades.
c. The indoor fan system (blower wheels, motors, belts, and both bearings) shall slide out for easy access.
d. Evaporator-fan motors shall be continuous operation, open drip-proof. Bearings shall be sealed, permanently lubricated ball-bearing type for longer life and lower maintenance.
e. On sizes 03 to 16, fan belt shall be located on opposite side of evaporator coil to prevent damage from broken fan belts. On 20 to 28 sizes a fan belt catch system shall beused.
2. Condenser fans shall be of the direct-driven propeller type, with corrosion-resistant aluminum blades riveted to corrosion-resistant steel supports. They shall be dynamically balanced and discharge air upwards. Condenser-fan motors shall be totally enclosed, thermally protected, and be of a shaft down design to protect from direct contact from harsh environments.
3. Induced-draft blower shall be of the direct-driven, single inlet, forward-curved, centrifugal type. It shall be made from aluminized steel with a corrosion-resistant finish and shall be dynamically balanced.

D. Compressor(s):
1. Fully hermetic, scroll type with on demand crankcase heaters, internal high-pressure and temperature protection.
2. Factory mounted on rubber grommets and internally spring mounted for vibration isolation.
3. Be mounted on dedicated mounting plate to ensure secure design and reduced sound levels.

E. Coils:
1. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
2. Dual circuit models shall have face-split type evaporator coil.
3. Condenser and evaporator coils shall be single slab, single pass design to facilitate easy coil cleaning. Composite coils or coils that require unit top panels removed shall be unacceptable.
4. Coils shall be leak tested at 170 psig and pressure tested at 1875 psig.
5. Optional Coils:
a. Optional pre-coated aluminum-fin coils shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.

F. Heating Section:
1. Induced-draft combustion type with energy saving direct-spark ignition system and redundant main gas valve with 2-stage capability on all 3-phase units.
2. Heat Exchanger:
a. The standard aluminized heat exchanger shall be of the tubular-section type constructed of a minimum of 20-gage steel coated with a nominal 1.2 mil aluminum-silicone alloy for corrosion resistance.
b. The optional stainless steel heat exchanger shall be of the tubular-section type, constructed of a minimum of 20-gage type 409 stainless steel, including stainless steel tubes, vestibule plate, and collector box.
3. Burners shall be of the in-shot type constructed of aluminum-coated steel.
4. All gas piping shall enter the unit at a single location. Gas entry shall be capable through side or bottom for unit.
5. All factory-installed orifices are for operation up to 2,000 feet of altitude. For altitudes between 2,000 ft and 7,000 ft, a factory certified kit shall be furnished for field installation.
6. The integrated gas controller (IGC) board shall include gas heat operation fault notification using an LED (light-emitting diode).
7. Unit shall be equipped with anti-cycle protection with one short cycle on unit flame rollout switch or 4 continuous short cycles on the high-temperature limit switch. Fault indication shall be made using an LED.
8. The IGC board shall contain algorithms that modify evaporator-fan operation to prevent future cycling on high-temperature limit switch.
9. The LED shall be visible without removal of control box access panel.

10. Gas burner tray, when disconnected, shall easily slide out for maintenance.
G. Refrigerant Components: Each refrigerant circuit shall include:
1. Balanced port thermostatic expansion valve (TXV) with removable power element.
2. Solid core refrigerant filter driers with pressure ports.
3. Refrigerant pressure gage ports and connections on suction, discharge, and liquid lines.

H. Filter Section:
1. Standard filter section shall consist of factory-installed 2-in. thick disposable fiberglass filters and shall be on a dedicated slide out track to easily facilitate access and replacement.
2. Filter section shall use standard size filters and be of common sizes within cabinet sizes.
3. Optional MERV-8 pleated filters of commercially available sizes shall be available.
4. Standard 2-in. filter rack shall be field convertible to 4-in. by removing a spacer rack on 03-16 sizes. A 4-in. filter capability shall be available as factory-installed option on the other sizes.

I. Controls and Safeties:
2. Safeties:
a. Unit shall incorporate a solid-state compressor lockout that provides optional reset capability at the space thermostat, should any of the following safety devices trip and shut off compressor:
1) Compressor lockout protection provided for overload.
2) Low-pressure protection.
3) Freeze protection (evaporator coil).
4) High-pressure protection (high pressure switch or internal).
5) Compressor reverse rotation protection (ComfortLink™ units only).
6) Loss of charge protection.
7) Start assist on singe-phase units.
b. Supply-air sensor shall be located in the unit and detect both heating and cooling operation.
c. Induced draft heating section shall be provided with the following minimum protections:
1) High-temperature limit switch.
2) Induced-draft motor speed sensor.
3) Flame rollout switch.
4) Flame proving controls.
5) Redundant gas valve.

J. Operating Characteristics:
1. Unit shall be capable of starting and running at 125 F ambient outdoor temperature per maximum load criteria of ARI Standard 210 (03-12 sizes) and 360 (16-28 sizes).
2. Unit with ComfortLink controls will operate in cooling down to an outdoor ambient temperature of 0° F. Electro-mechanical shall operate down to 40 F.
3. Unit shall be provided with fan time delay to prevent cold air delivery in Heating mode.

K. Electrical Requirements:
All unit power wiring shall enter unit cabinet at a single location -- side or bottom.

L. Motors:
1. Compressor motors shall be cooled by refrigerant gas passing through motor windings and shall have line break thermal and current overload protection.
2. Evaporator fan motor shall have permanently lubricated, sealed bearings and inherent automatic-reset thermal overload protection or manual reset calibrated circuit breakers. Evaporator motors are designed specifically for Carrier and do not have conventional horsepower (hp) ratings listed on the motor nameplate. Motors are designed and qualified in the “air-over” location downstream of the cooling coil and carry a maximum continuous bhp rating that is the maximum application bhp rating for the motor; no “safety factors” above that rating may be applied.
3. All evaporator fan motors 5 hp and larger shall meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT), effective October 24, 1997.
4. Totally enclosed condenser-fan motor shall have permanently lubricated, sealed bearings, and inherent automatic-reset thermal overload protection.
5. Induced-draft motor shall have permanently lubricated sealed bearings and inherent automatic-reset thermal overload protection.
J. Operating Characteristics:
1. Unit shall be capable of starting and running at 125 F ambient outdoor temperature per maximum load criteria of ARI Standard 210 (03-12 sizes) and 360 (16-28 sizes).
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4. Totally enclosed condenser-fan motor shall have permanently lubricated, sealed bearings, and inherent automatic-reset thermal overload protection.
5. Induced-draft motor shall have permanently lubricated sealed bearings and inherent automatic-reset thermal overload protection.
M. Special Features:
1. Convenience Outlet:
Optional factory-installed powered convenience outlet shall be internally mounted with an externally accessible 115-v, 2-plug
2. Non-Fused Disconnect Switch:
Shall be factory-installed, internally mounted, NEC and UL approved. Non-fused switch shall provide unit power shutoff. Shall be accessible from outside the unit and shall provide power off lockout capability.
3. Return Air/Supply Air Smoke Detector:
The smoke detector shall send input to the controller to shut down the unit in case smoke is detected. The smoke detector shall be factory installed in the return air section or shall be available as a field-installed accessory.
4. Mid-Low Fan Performance Motor/Drive (16-28 sizes):
This motor/drive shall provide low to medium motor and drive capability to enhance evaporator fan performance.
5. Horizontal Kit:
a. Horizontal kit shall contain all the necessary hardware to convert a vertical airflow unit to a horizontal airflow unit (16-28 sizes).
b. The unit shall also be available as a horizontal airflow unit directly from the factory.
6. Phase Loss Protection (3-phase units only):
Shall provide unit shutdown when an electrical phase loss is detected - automatic reset type.

END OF SECTION 23 57 80

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LICENSED PROFESSIONAL ENGINEER
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E. TAYLOR GROBERG
5.29.2025
STATE OF UTAH

SENSAPURE TI

4170 W 2100 N, LEHI

MARK	DESCRIPTION	Revision Date
Revision Schedule		

AE2024.387

MECHANICAL & PLUMBING SPECIFICATIONS

DATE:

SHEET #:

SM1.5

PERMIT SET

bluefield engineering

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DIVISION 23 - HVAC

SECTION 23 83 00
HVAC POWER VENTILATORS

GENERAL
1. Fan description: Coordiante with Electrical Engineering Plans. Corrosion resistant as requried. Explosion proof and spark proof as required. Centrifugal fans designed for installing in ceiling or wall, or for concealed in-line applications.
2. Housing: Galvanized steel lined with acoustical insulation. Plastic for corrosion resistant areas.
3. Fan Wheel: Centrifugal wheels directly mounted on motor shaft. Fan shrouds, motor, and fan wheel shall be removable for service.
4. Grille: Stainless-steel, louvered grille with flange on intake and thumbscrew attachment to fan housing.
5. Electrical Requirements: Junction box for electrical connection on housing and receptacle for motor plug-in.
6. Variable-Speed Controller: Solid-state control to reduce speed from 100 percent to less than 50 percent.
7. Accessories: Manufacturer's standard roof jack or wall cap, and transition fittings.
8. Provide wall cap and room grille with each fan.

END OF SECTION 23 83 00

DIVISION 23 - HVAC

SECTION 23 85 00
DIFFUSERS, REGISTERS AND GRILLES

GENERAL
The frames for all registers, grilles, and diffusers shall match type of ceiling where they are to be installed. Special frames shall be provided for narrow T-bar ceilings. Refer to reflected ceiling plan and other specification divisions for ceiling type.

1. Floor supply and return registers and grilles shall be Titus CT-541 Linear Bar with Heavy Duty core support and Heavy Duty floor mounting frame Type 5 and Type A fasteners.
2. Sidewall return-air grilles from floor to 6 feet 0 inches above the floor shall be sight-proof, heavy-duty gymnasium type equal to Titus 33RL or 33RS with horizontal 40-degree deflection blades, baked enamel finish; grilles above 6 feet 0 inches from the floor shall be Titus 350RL, or 350RS with horizontal 40-degree deflection blades, baked enamel finish.
3. Exhaust-air registers in other than lay-in ceilings shall be Titus 355FL or 355FS with 40-degree deflection horizontal extruded aluminum blades with opposed-blade damper, baked enamel finish. Exhaust registers from 6 feet 0 inches above floor shall be sight-proof, heavy-duty gymnasium type equal to Titus 33RL or 33RS with horizontal 40-degree deflection blades, baked enamel finish with opposed blade damper.
4. Transfer grilles in ceilings shall be the same as specified for return-air grilles for that type of ceiling. Transfer grilles in walls shall be the same type as specified for return-air grilles in walls.
5. Door grilles shall be Titus T700L, nonvision with telescoping frame, baked enamel finish.
6. Return-air registers shall be the same as specified for exhaust registers.
7. Sidewall supply registers shall be aluminum Titus 300FS with opposed blade damper, baked enamel finish. Finish color as selected by Architect.
8. Ceiling supply registers shall be aluminum Titus 300FS with opposed blace damper, baked enamel finish. Finish color as selected by Architect.

Diffusers, Grilles and Registers to be by Tuttle & Bailey or approved equal.

END OF SECTION 23 85 00

DIVISION 23 - MECHANICAL

SECTION 23 90 00
TEMPERATURE CONTROLS

GENERAL
1. A 7 day programmable temperature thermostat shall be located in each zone and shall control the Roof-Top unit in sequence to maintain the space temperature setpoint.

2. Exhaust fans shall operate based on occupancy sensor with switch over-ride.

END OF SECTION 23 90 00

DIVISION 23 - MECHANICAL

SECTION 23 99 00
TESTING, ADJUSTING, BALANCING AND MAINTENANCE MANUALS

1. All air and water systems to be tested and balanced by an independent testing and balancing firm approved by the engineer. All systems shall be adjusted to perform within 5% of the design document requirements. A complete report shall be provided at the completion of the work.
2. Each system shall be commissioned to insure correct operation. A complete report shall be provided at the completion of the work.
3. Complete maintenance and operations manuals shall be provided for all equipment in the building. Manuals shall be provided in a 3-ring binder with tabs for each piece of equipment, warranty certificates and start-up documentation.

END OF SECTION 23 99 00

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ELECTRICAL GENERAL NOTES

GENERAL NOTES:

1. THE ELECTRICAL SYSTEMS DEFINED BY THESE PLANS AND THE SPECIFICATIONS ARE TO BE CONSTRUCTED AS COMPLETE AND OPERABLE SYSTEMS AND SHALL BE BID WITH THIS INTENT. THE CONTRACTOR SHALL VISIT THE SITE, READ ALL THE RELEVANT DOCUMENTS, AND BECOME FAMILIAR WITH THE TYPE OF CONSTRUCTION AND WORK TO BE ACCOMPLISHED. SHOULD ANY ERROR, OMISSION, OR CONFLICT EXIST IN EITHER THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING BEFORE SUBMITTING THEIR BID PRICE SO A CHANGE CAN BE ISSUED IN A PRE-BID ADDENDUM. OTHERWISE, THE CONTRACTOR AND/OR EQUIPMENT SUPPLIERS SHALL SUPPLY THE PROPER MATERIALS AND LABOR TO INSTALL COMPLETE AND OPERABLE SYSTEMS INCLUSIVE OF THE ORIGINAL BID. WHEN EACH ELECTRICAL SYSTEM IS COMPLETE, THE CONTRACTOR SHALL TEST AND CONFIRM ITS PROPER OPERATION. ANY INCOMPLETE SYSTEM SHALL BE MADE COMPLETE AND OPERABLE PRIOR TO PROJECT CLOSEOUT.
2. THE ARCHITECTURAL AND MECHANICAL PLANS ARE CONSIDERED A PART OF THE ELECTRICAL DOCUMENTS SO FAR AS ANY ELECTRICAL ITEMS THEY MAY CONTAIN. THE ELECTRICAL CONTRACTOR SHALL REFER TO AND COORDINATE WITH THEM. NO EXTRA COST SHALL BE ALLOWED FOR FAILURE TO COORDINATE THE CONTRACT DOCUMENTS WITH OTHER TRADES AND/OR IF EQUIPMENT DIMENSIONS ARE GREATER THAN SPECIFIED AND/OR DIMENSIONED ON THE PLANS.
3. THE ELECTRICAL CONTRACTOR SHALL PROVIDE EQUIPMENT, MATERIALS, AND LABOR FOR THE CONNECTIONS OF ALL EQUIPMENT SHOWN ON THE PLANS - ARCHITECTURAL, MECHANICAL, ETC.
4. THIS PROJECT IS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MOST RECENT LOCAL, STATE, AND NATIONAL CODES. IF AT ANY TIME DURING OR AFTER CONSTRUCTION SOMETHING IS FOUND TO BE INSTALLED IN VIOLATION OF THESE CODES LISTED ABOVE, IT SHALL BE CORRECTED BY THE CONTRACTOR.
5. ALL ELECTRICAL EQUIPMENT THAT IS LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE WHILE ENERGIZED SHALL BE FIELD OR FACTORY LABELED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS PER NEC 110.16. THE LABEL SHALL ALSO CONTAIN THE MAXIMUM AVAILABLE FAULT CURRENT AND THE DATE THE FAULT CURRENT CALCULATIONS WERE PERFORMED AS PER NEC 110.24.
6. EACH DISCONNECTING MEANS SHALL BE LEGIBLY MARKED TO INDICATE ITS PURPOSE AND TO IDENTIFY THE CIRCUIT SOURCE THAT SUPPLIES THE DISCONNECTING MEANS PER NEC 110.22.
7. ALL EQUIPMENT PROVIDED BY THE EC SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING AGENCY, ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, AND BE PROPERLY INSTALLED FOR THE CONDITIONS AND SPACE THAT EQUIPMENT IS BEING INSTALLED WITHIN.
8. THE EC SHALL INSTALL A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT RUN. CONDUIT SHALL NOT BE USED AS AN EQUIPMENT GROUNDING CONDUCTOR. THE EC SHALL GROUND THE ELECTRICAL SYSTEM IN ACCORDANCE WITH LOCAL AND NATIONAL CODES.
9. CONDUIT LAYOUTS SHOWN ON THE PLANS ARE DIAGRAMMATIC, NOT INDICATING THE ROUTING REQUIRED. THE EC SHALL ROUTE THE CONDUITS AS REQUIRED BY THE CONDITIONS OF THE INSTALLATION AND SHALL COORDINATE WITH DUCTWORK, PIPING, EQUIPMENT, BUILDING STRUCTURE, AND OTHER POTENTIAL OBSTRUCTIONS.
10. THE CONTRACTOR SHALL ALLOW THE MOVEMENT, BEFORE ROUGH-IN, OF ANY ELECTRICAL PANEL, DEVICE, LUMINAIRE, ETC. A DISTANCE OF 10 FEET WITHOUT REQUIRING ADDITIONAL COST TO THE PROJECT.
11. THE EC SHALL SECURE ALL CONDUIT TO THE STRUCTURE AS IT IS SET IN PLACE USING INDUSTRY STANDARD METHODS AND PRACTICES. TO ASSURE ALL DEVICES ARE RIGIDLY SET, THE ELECTRICAL CONTRACTOR SHALL SECURE ALL DEVICE BOXES WITH BRACKETS, HANGERS, ETC. DESIGNED FOR THE APPLICATION.
12. MINIMUM SIZE CONDUIT SHALL BE 3/4" UNO. CONDUIT INSTALLED WITHIN THE BUILDING IN DRY LOCATIONS WITHIN WALL, CEILINGS, OR EXPOSED NOT SUBJECT TO PHYSICAL DAMAGE SHALL BE EMT WITH STEEL SET SCREW FITTINGS. IN EXTERIOR LOCATIONS (EXCEPT FOR THE SERVICE ENTRANCE) THE CONDUIT SHALL BE EMT WITH COMPRESSION GLAND TYPE FITTINGS. UNDERGROUND CONDUIT SHALL BE PVC (SCH. 40) WITH GRC ELBOWS AND RISERS WRAPPED IN CORROSION RESISTANT MATERIALS WHERE IN DIRECT CONTACT WITH THE SOIL.
13. FLEXIBLE CONDUIT SHALL BE LIMITED TO CONNECTIONS TO LIGHT FIXTURES AND FINAL CONNECTIONS TO MOTORS OR OTHER EQUIPMENT SUBJECT TO VIBRATION. LENGTHS OF FLEXIBLE OR SEAL-TITE CONDUIT SHALL NOT BE GREATER THAN 72 INCHES.
14. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL EMPTY CONDUITS WITH 200LB RATED NYLON PULL CORD.
15. BEFORE ANY ELECTRICAL CONDUIT, BOXES, ETC. ARE COVERED (FLOOR, CEILINGS, WALLS, ETC.), THEY SHALL BE APPROVED BY THE INSPECTING OFFICER (INSPECTOR).
16. WHERE WIRE SIZE IS NOT SHOWN ON THE DRAWINGS FOR 20A, 120VAC BRANCH CIRCUITS, THE CIRCUIT SHALL CONSIST OF 2#12 (CU,THHN) + 1#12 (CU,THHN) GND IN 3/4" CONDUIT. THIS WIRE SIZE SHALL BE INCREASED TO #10 (CU,THHN) FOR BRANCH CIRCUITS WITH OVERALL LENGTHS EXCEEDING 125' TO ACCOMMODATE FOR VOLTAGE DROP. REFER TO EQUIPMENT SCHEDULES, FEEDER SCHEDULES, AND NOTES ON DRAWINGS FOR ALL OTHER BRANCH CIRCUIT AND FEEDER WIRE/CONDUIT SIZING.
17. CONDUCTORS SHALL BE COPPER, 600VAC RATED, TYPE THHN/THWN-2 UNO. CONDUCTORS UP TO #10AWG SHALL BE SOLID AND CONDUCTORS #8AWG OR LARGER SHALL BE STRANDED.
18. METAL CLAD CABLING MAY BE USED BETWEEN DEVICES SUCH AS LIGHTING, RECEPTACLES, SWITCHES, ETC. UNLESS OTHERWISE REQUIRED BY THE NEC. HOME RUNS SHALL BE INSTALLED IN CONDUIT. MC CABLE SHALL NOT BE INSTALLED EXPOSED.
19. EC SHALL CLEAN THE ENTIRE ELECTRICAL SYSTEM AFTER COMPLETION OF THE INSTALLATION. REMOVE ALL FINGER PRINTS, FOREIGN MATTER, PAINT, DIRT, GREASE, AND UN-NEEDED LABELS OR STICKERS FROM FIXTURES AND EQUIPMENT. REMOVE ALL RUBBISH AND DEBRIS ACCUMULATED DURING INSTALLATION FROM THE PREMISES.
20. IT IS THE INTENT OF THE CONSTRUCTION DOCUMENTS FOR ALL DEVICES TO BE FLUSH MOUNTED AND CONDUIT/CABLING INSTALLED CONCEALED WITHIN WALLS/CEILINGS. IN AREAS WHERE CONDUIT MUST BE INSTALLED EXPOSED IT SHALL BE COORDINATED WITH THE ARCHITECT AND/OR ENGINEER. ALL EFFORTS SHALL BE MADE TO CONCEAL WIRING METHODS.
21. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE SEALED WITH FIRE STOPPING, IE. 3M BRAND CAULK, PUTTY, STRIP AND SHEET FORMS, DOW CORNING 3-6548 SILICONE RTV FOAM.
22. COORDINATE LOCATION OF WALL MOUNTED DEVICES WITH CABINETRY AND OTHER WALL OBSTRUCTIONS. COORDINATE CEILING MOUNTED DEVICES WITH CEILING OBSTRUCTIONS. ANY DEVICES THAT NEED TO BE RELOCATED MUST BE BROUGHT TO THE ATTENTION OF THE ELECTRICAL ENGINEER PRIOR TO ROUGH-IN FOR NEW LOCATION.
23. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE PLACEMENT OF ALL DEVICES INSTALLED WITHIN THE CEILING SUCH AS LIGHTING, SPEAKERS, FIRE SPRINKLERS, SMOKE/HEAT DETECTORS, ETC. ANY EXISTING DEVICES THAT NEED TO BE RELOCATED IN ORDER TO ACCOMMODATE NEW CONSTRUCTION/REMODEL MUST BE BROUGHT TO THE ATTENTION OF THE ELECTRICAL ENGINEER PRIOR TO ROUGH-IN FOR RESOLUTION AND FURTHER DIRECTION.
24. WHERE THE PREMISES WIRING SYSTEM HAS BRANCH CIRCUITS SUPPLIED FROM MORE THAN ONE NOMINAL VOLTAGE, EACH UNGROUNDED CONDUCTOR OF A BRANCH CIRCUIT SHALL BE IDENTIFIED BY PHASE OR LINE AND BY SYSTEM VOLTAGE CLASS AT ALL TERMINATION, CONNECTION, AND SPLICE POINTS. IDENTIFICATION MEANS SHALL BE POSTED AT EACH BRANCH CIRCUIT PANELBOARD.

    ALL CONDUCTORS SHALL BE COLOR-CODED AS FOLLOWS:

PHASE	208/120	480/277
PHASE A	BLACK	BROWN
PHASE B	RED	ORANGE
PHASE C	BLUE	YELLOW
NEUTRAL	WHITE	WHITE
GROUND	GREEN	GREEN

REMODEL NOTES:

25. THE EC SHALL COORDINATE AND CONFIRM THE EXACT LOCATION OF THE EXISTING POWER PANELS FROM WHICH NEW CIRCUITS ARE BEING FED. VERIFY EXISTING BRANCH CIRCUIT BREAKERS AND PROVIDE NEW BRANCH CIRCUIT BREAKERS AS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.
26. THE EC SHALL COORDINATE AND CONFIRM THE EXACT LOCATION OF THE TELECOM ROOM FROM WHICH NEW TELE/DATA OUTLETS WILL BE FED. VERIFY EXISTING PATCH PANEL SPACES AND PROVIDE NEW PATCH PANELS AS NECESSARY TO LAND/TERMINATE NEW TELECOM CABLING.
27. THE EC SHALL MAINTAIN ELECTRICAL CONTINUITY TO REMAINING EQUIPMENT WHEN ANY EXISTING ELECTRICAL EQUIPMENT IS REMOVED.
28. ALL DEVICES NOT SHOWN ON PLANS ARE EXISTING TO REMAIN IN PLACE AND FUNCTIONAL. IN THE EVENT THAT WIRING TO AN EXISTING DEVICE IS DAMAGED, WIRING MUST BE REPLACED AND DEVICE BROUGHT BACK TO FULL OPERATION.

LIGHTING NOTES:

29. ALL BATTERY POWERED OR CONTINUOUS BURN LUMINAIRES SHOWN ON THE PLANS, SUCH AS EXIT LIGHTS, NIGHT LIGHTS, OR EMERGENCY LIGHTS, SHALL BE CONNECTED TO THE UN-SWITCHED LEG OF THE LIGHTING CIRCUIT FEEDING THAT AREA.
30. LUMINAIRES INSTALLED IN THE MECHANICAL ROOM SHALL BE PLACED SO THAT ALL EQUIPMENT IS ADEQUATELY ILLUMINATED AFTER THE MECHANICAL EQUIPMENT IS IN PLACE.
31. ALL LUMINAIRES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE AND NOT THE CEILING GRID OR OTHER NONSTRUCTURAL MEMBERS.
32. TO MAINTAIN CONSISTENT LIGHT QUALITY, FOR ANY ONE LAMP TYPE SUPPLIED, LAMPS SHALL BE OF THE SAME MANUFACTURER, SURFACE TEMPERATURE, COLOR RENDERING INDEX, LAMP EFFICACY, LUMEN OUTPUT, AND STARTING CHARACTERISTICS FOR ALL INSTALLED.
33. LIGHT FIXTURES INSTALLED IN DAMP OR WET LOCATIONS SHALL BE UL LISTED FOR INSTALLATION IN THE PROPER ENVIRONMENT. CARE SHOULD BE TAKEN TO ENSURE THAT DIFFUSERS AND LENSES ARE APPROPRIATE FOR THEIR INSTALLED USE AND PREMATURE DISCOLORATION WILL NOT RESULT DUE TO EXPOSURE TO UV LIGHT, CHEMICALS, OR OTHER CONDITIONS.
34. ELECTRICAL CONTRACTOR SHALL PROVIDE LIGHTING CONTROL SHOP DRAWINGS WITH ELECTRICAL SUBMITTAL FOR REVIEW.

POWER NOTES:

35. ALL PANELBOARDS AND SWITCHBOARDS SHALL BE PERMANENTLY MARKED TO INDICATE EACH DEVICE OR EQUIPMENT WHERE THEIR POWER ORIGINATES AS PER NEC 408.4B.
36. ELECTRICAL CONTRACTOR SHALL CONFIRM MINIMUM CODE (NEC) WORKING CLEARANCE BEFORE INSTALLING ANY ELECTRICAL PANELS OR CABINETS AND SHALL MOVE THE PANELS IF REJECTED BY AN INSPECTOR. IF CLEARANCE IS NOT POSSIBLE, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IN WRITING.
37. WIRING DEVICES SHALL HAVE A NYLON COVER PLATE. COLOR SHALL BE COORDINATED WITH ARCHITECT. EXTERIOR OUTLETS SHALL HAVE CAST COVERS WITH FLIP TYPE LIDS UNO.
38. EC SHALL COORDINATE WITH EQUIPMENT SUPPLIERS ON THE EXACT LOCATIONS OF ALL EQUIPMENT AND ELECTRICAL CONNECTIONS PRIOR TO ROUGH-IN. THE EC SHALL MAKE THE FINAL CONNECTION TO ALL EQUIPMENT UNLESS OTHERWISE DIRECTED BY THE EQUIPMENT SUPPLIER. OBTAIN FROM SUPPLIERS ALL WIRING DIAGRAMS FOR EQUIPMENT PRIOR TO ANY ROUGH-IN. TO ASSURE THAT PROPER CHARACTERISTICS ARE PROVIDED, ANY INCORRECT WIRING OR DEVICES INSTALLED BY THE EC WITHOUT THE WIRING DIAGRAM SHALL BE CORRECTED AT THE EC'S EXPENSE. PROVIDE COPIES OF WIRING DIAGRAMS WITHIN EACH PIECE OF EQUIPMENT AND ADDITIONAL COPIES WITH THE OPERATION AND MAINTENANCE MANUALS.
39. EC SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR TO PROVIDE CONDUIT AND DEVICE MOUNTING BOXES FOR THERMOSTATS AND OTHER MECHANICAL CONTROLS. REFER TO MECHANICAL DRAWINGS FOR THE LOCATION OF THERMOSTATS.
40. PROVIDE A 20AMP, 120VAC RECEPTACLE INSTALLED AT AN ACCESSIBLE LOCATION FOR THE SERVICING OF HEATING, AIR CONDITIONING, AND REFRIGERATION EQUIPMENT PER NEC 210.63. RECEPTACLE SHALL BE OF THE GROUND FAULT CIRCUIT INTERRUPTING TYPE, INSTALLED WITHIN A CAST METAL BOX, AND WITHIN 25' OF ALL REQUIRED EQUIPMENT.

DATA/TELECOM NOTES:

41. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ROUGH-IN ONLY FOR THE TELECOM/CAT6 SYSTEMS. THIS SHALL CONSIST OF A FOUR SQUARE DEVICE MOUNTING BOX WITH CONDUIT TO ABOVE ACCESSIBLE CEILING SPACE OR TO THE CEILING SPACE ABOVE IF OPEN. CABLING, JACKS, FACEPLATES, TESTING AND TERMINATIONS SHALL BE PROVIDED AND INSTALLED BY OTHERS.

ROOF NOTES:

42. ELECTRICAL CONTRACTOR TO INSTALL A ROOF JACK (BOOT) FOR ALL CONDUIT PENETRATIONS THROUGH THE ROOF. ALL ROOF PENETRATION SEALS SHALL BE IN ACCORDANCE WITH THE ROOF WARRANTY AND BE COMPLETELY SEALED WITH ROOF ADHESIVE. UTILIZE PROPER CLAMPING METHODS TO SEAL BOOT AROUND CONDUIT.

ELECTRICAL SYMBOL SCHEDULE

SYMBOL	DESCRIPTION	MOUNTING	NOTES
	LIGHT FIXTURE - SURFACE OR RECESSED	SEE DRAWINGS	1
	EMERGENCY LIGHT FIXTURE - SURFACE OR RECESSED	SEE DRAWINGS	1, 2
	LIGHT FIXTURE - OPEN STRIP	SEE DRAWINGS	1
	EMERGENCY LIGHT FIXTURE - OPEN STRIP	SEE DRAWINGS	1, 2
	LIGHT FIXTURE - WALL MOUNTED	WALL	1
	EMERGENCY LIGHT FIXTURE - WALL MOUNTED	WALL	1, 2
	LIGHT FIXTURE - DOWNLIGHT	CEILING	1
	EMERGENCY LIGHT FIXTURE - DOWNLIGHT	CEILING	1, 2
	LIGHT FIXTURE - WALL WASH DOWNLIGHT	CEILING	1
	LIGHT FIXTURE - CEILING MOUNTED	CEILING	1
	LIGHT FIXTURE - PENDANT / CHANDELIER	CEILING	1
	LIGHT FIXTURE - WALL BRACKET	WALL	1
	EMERGENCY LIGHT FIXTURE - WALL BRACKET	WALL	1, 2
	TRACK LIGHTING	SURFACE	1
	EXIT SIGN - WALL MOUNT	WALL	1, 2, 3
	EXIT SIGN - CEILING MOUNT	CEILING	1, 2, 3
	EXIT SIGN W/ EMERGENCY HEADS - WALL MOUNT	WALL	1, 2, 3
	EXIT SIGN W/ EMERGENCY HEADS - CEILING MOUNT	CEILING	1, 2, 3
EM	DUAL HEAD EMERGENCY LIGHT FIXTURE	WALL	1, 2
	POLE LIGHT FIXTURE	POLE	1
	STEP LIGHT FIXTURE	WALL	1
	LIGHT BOLLARD	SURFACE	1
	GROUND MOUNTED / IN-GRADE LIGHT FIXTURE	GROUND	1
	OCCUPANCY / VACANCY SENSOR - CEILING MOUNT	CEILING	1
TC	TIME CLOCK - 7 DAY	60"	
PC	PHOTO-ELECTRIC CELL WITH RELAY	SURFACE	1
CL	CURRENT LIMITING DEVICE	SURFACE	1
$OS	WALL OCCUPANCY / VACANCY SENSOR SWITCH	48" TO TOP	
$	SINGLE POLE SWITCH	48" TO TOP	
$3	THREE WAY SWITCH	48" TO TOP	
$4	FOUR WAY SWITCH	48" TO TOP	
$D	DIMMER SWITCH	48" TO TOP	
$LV	LOW VOLTAGE SWITCH	48" TO TOP	
$T	TIMER SWITCH - 30 MINUTE	48" TO TOP	
$P	PILOT LIGHT SWITCH	48" TO TOP	
$TH	THERMAL OVERLOAD SWITCH	48" TO TOP	
$2	2-POLE SWITCH	48" TO TOP	
$K	SINGLE POLE KEYED SWITCH	48" TO TOP	
	DUPLEX OUTLET, 20A, 120VAC	18" UNO	
	DUPLEX OUTLET, 20A, 120VAC - GFCI	18" UNO	
	DUPLEX OUTLET - SPLIT WIRED	18" UNO	
	DUPLEX OUTLET - ISOLATED GROUND	18" UNO	
	DUPLEX OUTLET WITH USB-A & USB-C PORTS	18" UNO	
OS	DUPLEX OUTLET - OCCUPANCY SENSOR CONTROLLED	18" UNO	
	DUPLEX OUTLET, 20A, 120VAC - CEILING	CEILING	
	DUPLEX OUTLET, 20A, 120VAC - FLOOR	FLOOR	
	FOURPLEX OUTLET, 20A, 120VAC	18" UNO	
	FOURPLEX OUTLET, 20A, 120VAC - GFCI	18" UNO	
	FOURPLEX OUTLET - ISOLATED GROUND	18" UNO	
	FOURPLEX OUTLET, 20A, 120VAC - CEILING	CEILING	
	FOURPLEX OUTLET, 20A, 120VAC - FLOOR	FLOOR	
	APPLIANCE OUTLET - 208/240V SINGLE PHASE	18" UNO	
	APPLIANCE OUTLET - 208/480V 3-PHASE	18" UNO	
	SINGLE/SIMPLEX OUTLET, 20A, 120VAC	18" UNO	
	MULTI-OUTLET METAL SURFACE RACEWAY	44" UNO	5
	DATA OUTLET	18" UNO	
	TELEPHONE OUTLET	18" UNO	
	DUAL TELEPHONE/DATA OUTLET	18" UNO	
	DATA OUTLET - FLOOR	FLOOR	
	DUAL TELEPHONE/DATA OUTLET - FLOOR	FLOOR	
	CEILING DATA OUTLET/ WIRELESS ACCESS POINT	CEILING	
	CABLE TELEVISION OUTLET	18" UNO	
	JUNCTION BOX	SURFACE	
	WALL JUNCTION BOX	18" UNO	
	FLOOR JUNCTION BOX	FLOOR	
	DISCONNECT SWITCH - NON-FUSED	60" UNO	4
F	DISCONNECT SWITCH - FUSED	60" UNO	4
	DISCONNECT SWITCH - SHUNT TRIP	60" UNO	4
	COMBINATION MAGNETIC STARTER / DISCONNECT	60" UNO	
	MOTOR STARTER	60" UNO	
	CONTACTOR	60" UNO	
	MOTOR	SURFACE	
	METER - PLAN VIEW	WALL	
	PUSH BUTTON SWITCH	48" TO TOP	
	EMERGENCY POWER SHUTOFF SWITCH	48" TO TOP	
	PANELBOARD - SURFACE MOUNTED	78" TO TOP	
	PANELBOARD - RECESSED	78" TO TOP	
	TRANSFORMER - PLAN VIEW	PAD/FLOOR	
	TELEPHONE TERMINAL BOARD	WALL	

SYMBOL	DESCRIPTION	MOUNTING	NOTES
	FIRE ALARM HORN	80" - 96"	
	FIRE ALARM STROBE	80" - 96"	
	FIRE ALARM HORN STROBE	80" - 96"	
	WATERFLOW GONG	80" - 96"	
F	FIRE ALARM DUAL ACTION MANUAL PULL STATION	48" TO TOP	
AR	FIRE ALARM ADDRESSABLE CONTROL RELAY		
MM	FIRE ALARM MONITOR MODULE		
	FIRE ALARM CONTROL PANEL	78" TO TOP	
	FIRE ALARM ANNUNCIATOR PANEL	60" TO TOP	
	PHOTOELECTRIC SMOKE DETECTOR	SURFACE	
	RATE OF RISE/HEAT DETECTOR	SURFACE	
CO	CARBON MONOXIDE DETECTOR	SURFACE	
	DUCT SMOKE DETECTOR	DUCT	7
	FIRE SMOKE DAMPER		
T	FIRE RISER TAMPER SWITCH		
F	FIRE RISER FLOW SWITCH		
	ELECTROMAGNETIC DOOR HOLDER	SURFACE	

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CIRCUIT BREAKER	M	METER - ONE-LINE
	MLO PANEL - ONE-LINE		TRANSFORMER - ONE-LINE
	MCB PANEL - ONE-LINE		PAD MOUNT XFMR - ONE-LINE
	AUTOMATIC TRANSFER SWITCH		GROUND SLEEVE - ONE-LINE
	CT ENCLOSURE - ONE-LINE	XXXA XP XXXA	FUSED DISCONNECT - ONE-LINE
	CURRENT TRANSFORMER		FUSED SWITCH
			GROUND
	OH RISER	XXX	CABLE/WIRE SIZE TAG
X	KEYED NOTE TAG	X / EXXX	DETAIL/VIEW NUMBER
XX X	MECH/ELEC. EQUIPMENT TAG		DETAIL/VIEW REFERENCE TAG
X	OTHER EQUIPMENT TAG		SHEET NUMBER
	WIRING / CONDUIT		UNDERGROUND/FLOOR WIRING
	CONDUIT TURNED UP		CONDUIT TURNED DOWN
	CIRCUIT HOME RUN TO PANEL: # OF ARROWHEADS INDICATE # OF CIRCUITS (SEPARATE NEUTRAL PER CIRCUIT). BOTH EX. INCLUDE AN EQUIP. GROUND.		

NOTES

1. SEE LIGHT FIXTURE SCHEDULE FOR TYPE, MOUNTING, AND OTHER SPECIFICS.
2. CONNECT EMERGENCY AND/OR EXIT LIGHTS TO THE UNSWITCHED SIDE OF THE AREA LIGHTING BRANCH CIRCUIT.
3. ARROW DENOTES EXIT DIRECTION.
4. USE HEAVY DUTY FOR 480 VOLT.
5. PROVIDE RACEWAY WITH OUTLETS 12" ON CENTER UNO.
6. MOUNT SWITCH AT DOOR JAM PER MANUFACTURER'S INSTRUCTIONS.
7. PROVIDE UL LISTED DEVICE TO BE USED WITH THE FIRE ALARM PANEL/SYSTEM OR PROVIDE A MONITOR MODULE TO CONNECT INTO FIRE ALARM SYSTEM.

ABBREVIATIONS

AFCI - ARC FAULT CKT INTERRUPTER
AFF - ABOVE FINISHED FLOOR
AFG - ABOVE FINISHED GRADE
AIC - AMPS INTERRUPTING CAPACITY
AL - ALUMINUM
ATS - AUTOMATIC TRANSFER SWITCH
BC - BARE COPPER
BFC - BELOW FINISHED CEILING
BFG - BELOW FINISHED GRADE
CKT - CIRCUIT
CND. OR C. - CONDUIT
CLG - INSTALLED IN CEILING
C.R. - CORD REEL
CT - CURRENT TRANSDUCER
CU - COPPER
(E) - EXISTING TO REMAIN
EC - ELECTRICAL CONTRACTOR
EM - EMERGENCY
(F) - FUTURE
FACP - FIRE ALARM CONTROL PANEL
FLA - FULL LOAD AMPS
FVNR - FULL VOLTAGE NON REVERSING
GC - GENERAL CONTRACTOR
GFCI - GROUND FAULT CKT INTERRUPTER
GND - GROUND
HP - HORSEPOWER
IG - ISOLATED GROUND
KW - KILOWATTS
LCP - LIGHTING CONTROL PANEL
LTG - LIGHTING
LV - LOW VOLTAGE
MC - MECHANICAL CONTRACTOR
MCA - MINIMUM CIRCUIT AMPS
MCB - MAIN CIRCUIT BREAKER
MCC - MOTOR CONTROL CENTER
MDP - MAIN DISTRIBUTION PANEL
MLO - MAIN LUGS ONLY
MOCP - MAX. OVERCURRENT PROTECTION
(N) - NEW
NIC - NOT IN CONTRACT
NEC - NATIONAL ELECTRICAL CODE
NFPA - NATIONAL FIRE PROT. ASSN.
NL - NIGHT LIGHT
NR - NOT REQUIRED
NTS - NOT TO SCALE
PC - PLUMBING CONTRACTOR
PH - PHASE
PNL - PANEL
POC - POINT OF CONNECTION
POS - POINT OF SALE
(R) - RELOCATED
REC - RECEPTACLES
RMC - RIGID METAL CONDUIT
SCBA - SELECT COLOR BY ARCHITECT
SCA - SHORT CIRCUIT AMPERES
SES - SERVICE ENTRANCE SWITCHGEAR
SPD - SURGE PROTECTIVE DEVICE
TL - TWIST LOCK
TTB - TELEPHONE TERMINAL BOARD
TR - TAMPER RESISTANT
TYP - TYPICAL
UNO - UNLESS NOTED OTHERWISE
VA - VOLT/AMPS
VIF - VERIFY IN FIELD
VR - VANDAL RESISTANT
WP - WEATHERPROOF/NEMA 3R
WU - FURNISHED WITH UNIT
XFMR - TRANSFORMER

ELECTRICAL SHEET INDEX

E000	ELECTRICAL GENERAL SHEET
E101	OVERALL LIGHTING PLAN
E102	OFFICE LIGHTING PLAN
E201	OVERALL POWER PLAN
E202	OFFICE POWER PLAN
E203	ROOF TOP POWER PLAN
E501	ELECTRICAL DETAILS
E601	ELECTRICAL SCHEDULES
E602	ELECTRICAL SCHEDULES

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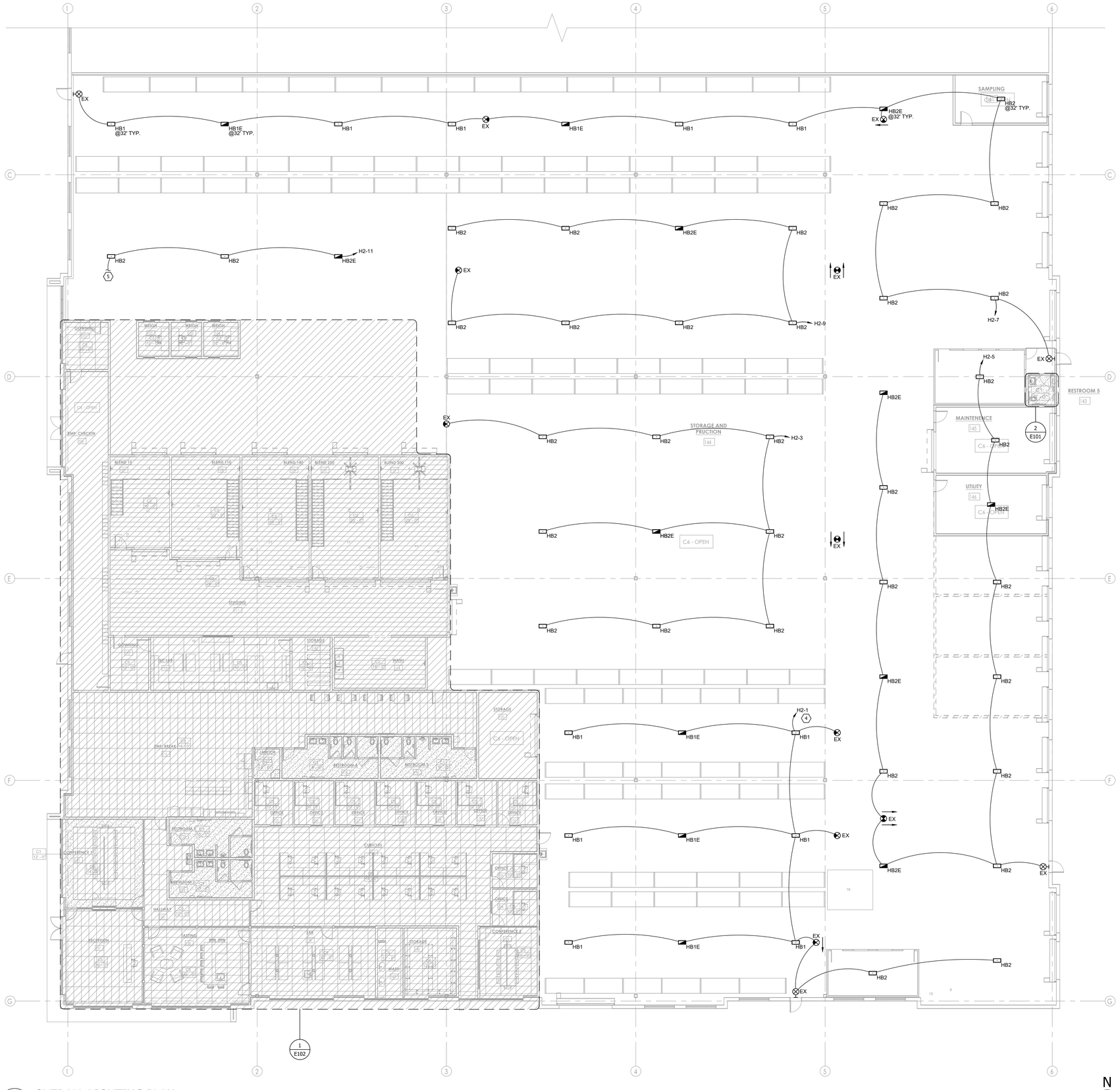
SHEET TITLE:

ELECTRICAL GENERAL SHEET

E000

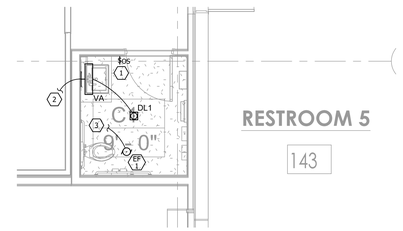


OVERALL LIGHTING PLAN

1 / E101

SCALE: 3/32" = 1'-0"

N



ENLARGED RESTROOM LIGHTING PLAN

2 / E101

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

KEYED NOTES

1. PROVIDE A WALL MOUNT DUAL TECH TWO POLE OCC. SENSOR FOR RESTROOM LIGHT AND FAN CONTROL. VERIFY FAN VOLTAGE AND PROVIDE ADDITIONAL POWER PACK IF NECESSARY. SEE DETAIL 5/E501 FOR MORE INFORMATION.
2. CIRCUIT RESTROOM LIGHTING WITH NEAREST WAREHOUSE LIGHTING CIRCUIT H2-5.
3. CIRCUIT RESTROOM EXHAUST FAN TO RESTROOM CONVENIENCE OUTLET CIRCUIT L2-57.
4. RUN #10AWG CU WIRE TO THE FIRST FIXTURE IN THIS CIRCUIT AND #12AWG CU WIRE BETWEEN FIXTURES AFTER THAT.
5. CIRCUIT WITH WAREHOUSE HIGH BAY LIGHTING NEAR THE WEIGH ROOMS. SEE SHEET E102 FOR CONTINUATION.

GENERAL NOTES

A. CONNECT ALL EMERGENCY AND EXIT LIGHT FIXTURES TO THE UNSWITCHED SIDE OF THE LIGHTING BRANCH CIRCUIT. LIGHT FIXTURES WITH EMERGENCY DRIVERS SHALL BE NORMALLY SWITCHED WITH THE AREA LIGHTING, BUT HAVE THEIR EMERGENCY DRIVERS CONNECTED AHEAD OF THE LIGHT SWITCH OR LIGHTING CONTROL PANEL RELAY. FIXTURES WILL REMAIN ON FOR NOT LESS THAN 90 MINUTES IN CASE OF POWER LOSS.
B. IT IS THE INTENT OF THE CONSTRUCTION DOCUMENTS THAT CONDUIT IS TO BE INSTALLED WITHIN WALLS AND ABOVE CEILINGS CONCEALED WHERE POSSIBLE.
C. COORDINATE MOUNTING HEIGHTS OF ALL PENDANT AND WALL MOUNTED LIGHT FIXTURES WITH ARCHITECTURAL ELEVATIONS.
D. VERIFY FIXTURE DIMMING CONTROLS AND PROVIDE NECESSARY WIRING AND DEVICES REQUIRED FOR DIMMING OPERATION.
E. CONCEAL ALL FIXTURE DRIVERS IN ACCESSIBLE CEILING SPACE OUT OF DIRECT VIEW.
F. FOR OPEN CEILING AREAS WITH OCCUPANCY CONTROLS EC IS TO INSTALL OCCUPANCY SENSORS AT A LEVEL EQUAL TO OR LOWER THAN AREA DUCT WORK TO ENSURE OCCUPANCY SENSOR COVERAGE.

LTG CTRL SEQUENCE OF OPERATION

LIGHTING AND CONTROLS ARE DESIGNED TO MEET IECC 2021.

OCCUPANCY SENSORS WILL CONTROL LIGHTING IN RESTROOMS.

LIGHTING IN AISLEWAY AND OPEN AREAS OF WAREHOUSE SPACES SHALL BE CONTROLLED WITH OCC SENSORS THAT AUTOMATICALLY REDUCE LIGHTING POWER BY NO LESS THAN 50% WITHIN 20 MINUTES AFTER ALL OCCUPANTS HAVE LEFT THE CONTROLLED AREA. OCC SENSORS SHALL CONTROL LIGHTING IN EACH AISLEWAY INDEPENDENTLY AND SHALL NOT CONTROL LIGHTING BEYOND THE AISLE WAY BEING CONTROLLED BY THE SENSOR (C405.2.1.2)

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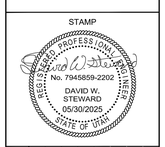

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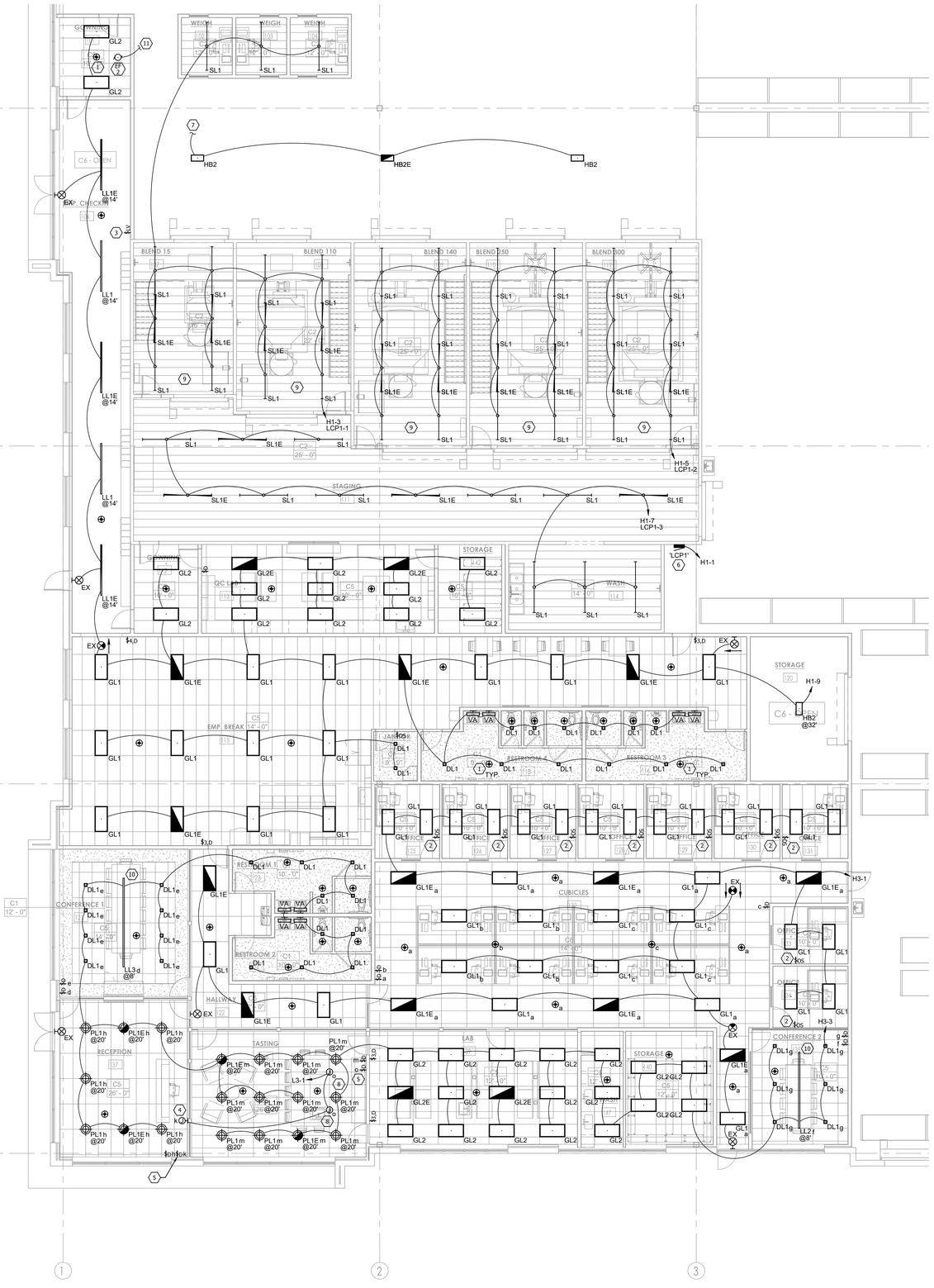
SHEET TITLE:

OVERALL LIGHTING PLAN

E101



KEYED NOTES

1. PROVIDE A CEILING MOUNT DUAL TECH OCC. SENSOR WITH POWER PACK FOR RESTROOM LIGHT AND FAN CONTROL. VERIFY FAN VOLTAGE AND PROVIDE ADDITIONAL POWER PACK IF NECESSARY. SEE DETAIL 6/E501 FOR MORE INFORMATION.
2. WALL MOUNT OCC. SENSOR SHALL BE DUAL TECH DIMMABLE (SENSOR SWITCH WSX PDT D) OR EQUIVALENT.
3. PROVIDE A LOW VOLTAGE OVERRIDE SWITCH FOR LIGHTING CONTROL PANEL. 2 BUTTON (ON/OFF).
4. PROVIDE POWER FOR UNRIVALED/OWNER PROVIDED PHILIPS LED HUE TRACK PENDANT LIGHTING POWER SUPPLY. POWER SUPPLY IS ASSUMED TO BE 120V RATED AND 90W. COORDINATE EXACT LOCATION OF POWER SUPPLY CONNECTION WITH UNRIVALED DRAWINGS PRIOR TO ROUGH-IN.
5. COORDINATE THE EXACT TYPE OF SWITCH NEEDED TO CONTROL THE PHILIPS HUE LIGHTING IN THIS AREA.
6. PROVIDE AN 8 RELAY ARP INTENC08 NLT LIGHTING CONTROL PANEL OR EQUIVALENT.
7. CIRCUIT TO NEAREST WAREHOUSE HIGH BAY LIGHT FIXTURE H2-11. SEE SHEET E101 FOR CONTINUATION.
8. PROVIDE POWER FOR UNRIVALED/OWNER PROVIDED PHILIPS LED HUE TRACK HEAD AND RAIL LIGHTING POWER SUPPLY. POWER SUPPLY IS ASSUMED TO BE 120V RATED AND 90W. COORDINATE EXACT LOCATION OF POWER SUPPLY CONNECTION WITH UNRIVALED DRAWINGS PRIOR TO ROUGH-IN.
9. ALL LIGHT FIXTURES WITHIN THIS SPACE SHALL BE SURFACE MOUNTED, GASKETED, AND NEMA 4 (OR IP65) RATED. ALL CONDUIT SHALL ALSO BE SURFACE MOUNTED WITH APPROPRIATE SEALS ON ALL PENETRATIONS THROUGH WALLS/CEILINGS.
10. LINEAR LIGHT TO BE CENTERED OVER CONFERENCE ROOM TABLE. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
11. CIRCUIT EXHAUST FAN WITH GOWNING ROOM CONVENIENCE RECEPTACLE.

GENERAL NOTES

A. CONNECT ALL EMERGENCY AND EXIT LIGHT FIXTURES TO THE UNSWITCHED SIDE OF THE LIGHTING BRANCH CIRCUIT. LIGHT FIXTURES WITH EMERGENCY DRIVERS SHALL BE NORMALLY SWITCHED WITH THE AREA LIGHTING, BUT HAVE THEIR EMERGENCY DRIVERS CONNECTED AHEAD OF THE LIGHT SWITCH OR LIGHTING CONTROL PANEL RELAY. FIXTURES WILL REMAIN ON FOR NOT LESS THAN 90 MINUTES IN CASE OF POWER LOSS.
B. IT IS THE INTENT OF THE CONSTRUCTION DOCUMENTS THAT CONDUIT IS TO BE INSTALLED WITHIN WALLS AND ABOVE CEILINGS CONCEALED WHERE POSSIBLE.
C. COORDINATE MOUNTING HEIGHTS OF ALL PENDANT AND WALL MOUNTED LIGHT FIXTURES WITH ARCHITECTURAL ELEVATIONS.
D. VERIFY FIXTURE DIMMING CONTROLS AND PROVIDE NECESSARY WIRING AND DEVICES REQUIRED FOR DIMMING OPERATION.
E. CONCEAL ALL FIXTURE DRIVERS IN ACCESSIBLE CEILING SPACE OUT OF DIRECT VIEW.
F. FOR OPEN CEILING AREAS WITH OCCUPANCY CONTROLS EC IS TO INSTALL OCCUPANCY SENSORS AT A LEVEL EQUAL TO OR LOWER THAN AREA DUCT WORK TO ENSURE OCCUPANCY SENSOR COVERAGE.

LTG CTRL SEQUENCE OF OPERATION

LIGHTING AND CONTROLS ARE DESIGNED TO MEET IECC 2021.

OCCUPANCY SENSORS WILL CONTROL LIGHTING IN RESTROOMS, UTILITY, AND BREAK ROOMS.

OCCUPANCY SENSORS WILL CONTROL LIGHTING IN CORRIDORS. CONTROLS IN CORRIDORS SHALL UNIFORMLY REDUCE LIGHTING POWER TO NOT MORE THAN 50 PERCENT OF FULL POWER WITHIN 20 MINUTES AFTER ALL OCCUPANTS HAVE LEFT THE SPACE. (C405.2.1.4)

OCCUPANCY SENSORS IN OPEN OFFICES WILL CONTROL AREAS NOT GREATER THAN 600 SQUARE FEET AND TURN OFF WITHIN 20 MINUTES AFTER OCCUPANTS HAVE LEFT THE SPACE. (C405.2.1.3)

WALL MOUNTED DIMMABLE OCC. SENSORS WILL BE PROVIDED IN PRIVATE OFFICES AND CONFERENCE ROOMS. OCCUPANCY SENSORS SHALL BE MANUAL ON OR CONTROLLED TO AUTOMATICALLY TURN ON TO NOT MORE THAN 50-PERCENT. (C405.2.1)

DAYLIGHT ZONES EXEMPT FROM AUTOMATIC CONTROL REQUIREMENTS PER IECC 2021 405.2.4 (1) (LESS THAN 150W)

LIGHTING IN OPEN AREAS OF WAREHOUSE SPACES SHALL BE CONTROLLED WITH OCC SENSORS THAT AUTOMATICALLY REDUCE LIGHTING POWER BY NO LESS THAN 50% WITHIN 20 MINUTES AFTER ALL OCCUPANTS HAVE LEFT THE CONTROLLED AREA.

1 E102 OFFICE LIGHTING PLAN

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

N

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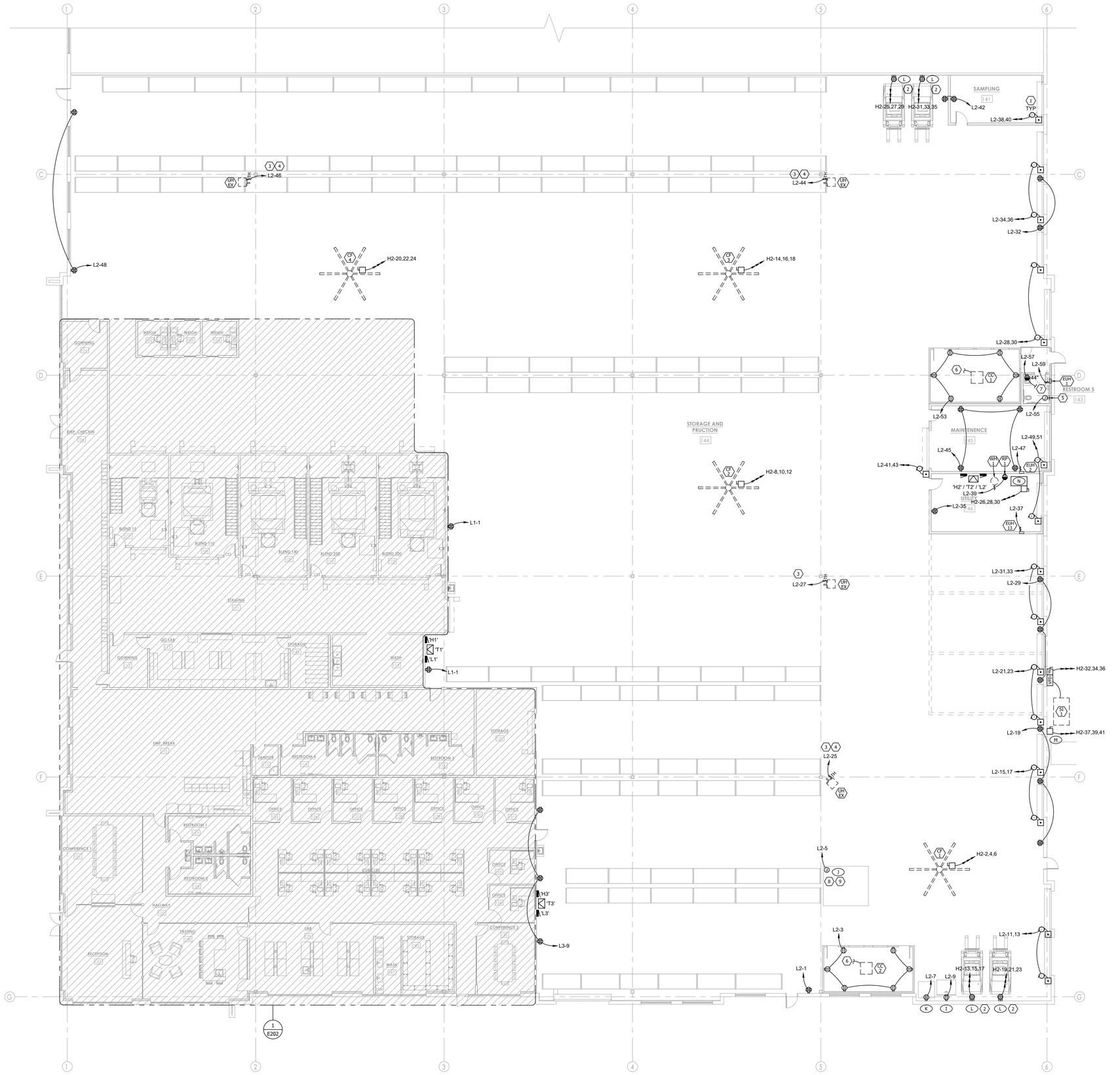
SHEET TITLE:

OFFICE LIGHTING PLAN

E102



1 E201 OVERALL POWER PLAN

SCALE: 3/32" = 1'-0"

N

KEYED NOTES

1. OVERHEAD DOOR OPERATORS ARE ASSUMED TO BE 208V, 1PH, 1/2 HP. EC SHALL VERIFY EXACT ELECTRICAL REQUIREMENTS WITH SUPPLIER/MANUFACTURER PRIOR TO ROUGH-IN.
2. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION OF RECEPTACLE FOR FORKLIFT CHARGER WITH OWNER AND EQUIPMENT MANUFACTURER'S RECOMMENDATIONS PRIOR TO ROUGH-IN.
3. EC SHALL RE-CIRCUIT EXISTING UNIT HEATER FROM SHELL BUILDING AS INDICATED. EXTEND, REPAIR, AND REPLACES EXISTING CONDUIT AND CIRCUITRY AS NECESSARY.
4. INCREASE WIRE SIZE TO #10 AWG FOR THIS RUN TO ACCOUNT FOR VOLTAGE DROP.
5. PROVIDE A DEDICATE 120V, 20A CIRCUIT TO HAND DRYER. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH ARCHITECTURAL DRAWINGS. PROVIDE A GFCI BREAKER FOR THIS CIRCUIT.
6. CIRCUIT WITH CORRESPONDING CONDENSING UNIT LOCATED ON THE ROOF.
7. CIRCUIT BATHROOM RECEPTACLE WITH CEILING MOUNTED EXHAUST FAN.
8. PROVIDE A DEDICATED 120V, 20A CIRCUIT FOR WALK-IN REFRIGERATORS LIGHTING AND CONTROLS.
9. PROVIDE CONDUIT SEALS FOR ALL PENETRATIONS THROUGH WALK-IN WALLS/CEILING TO PREVENT CONDENSATION.

GENERAL NOTES

A. COORDINATE MOUNTING HEIGHTS OF ALL EQUIPMENT WITH ARCHITECTURAL AND MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
B. VERIFY AND COORDINATE EXACT ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT WITH MANUFACTURER'S RECOMMENDATIONS PRIOR TO INSTALLATION OF EQUIPMENT.
C. EC SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR TO PROVIDE CONDUIT AND DEVICE MOUNTING BOXES FOR THERMOSTATS AND OTHER MECHANICAL CONTROLS. REFER TO MECHANICAL DRAWINGS FOR THE LOCATION OF MECHANICAL CONTROLS.
D. OUTLETS REQUIRING GFCI PROTECTION THAT ARE LOCATED BEHIND LARGE OR STATIONARY EQUIPMENT SHALL BE PROTECTED WITH A GFCI BREAKER. SEE PANEL SCHEDULES.
E. CEILING FANS IN WAREHOUSE SPACE SHALL HAVE THEIR OPERATION INTERLOCKED WITH FIRE ALARM SYSTEM SUCH THAT THEY SHUT DOWN WHEN THE FIRE ALARM ACTIVATES.

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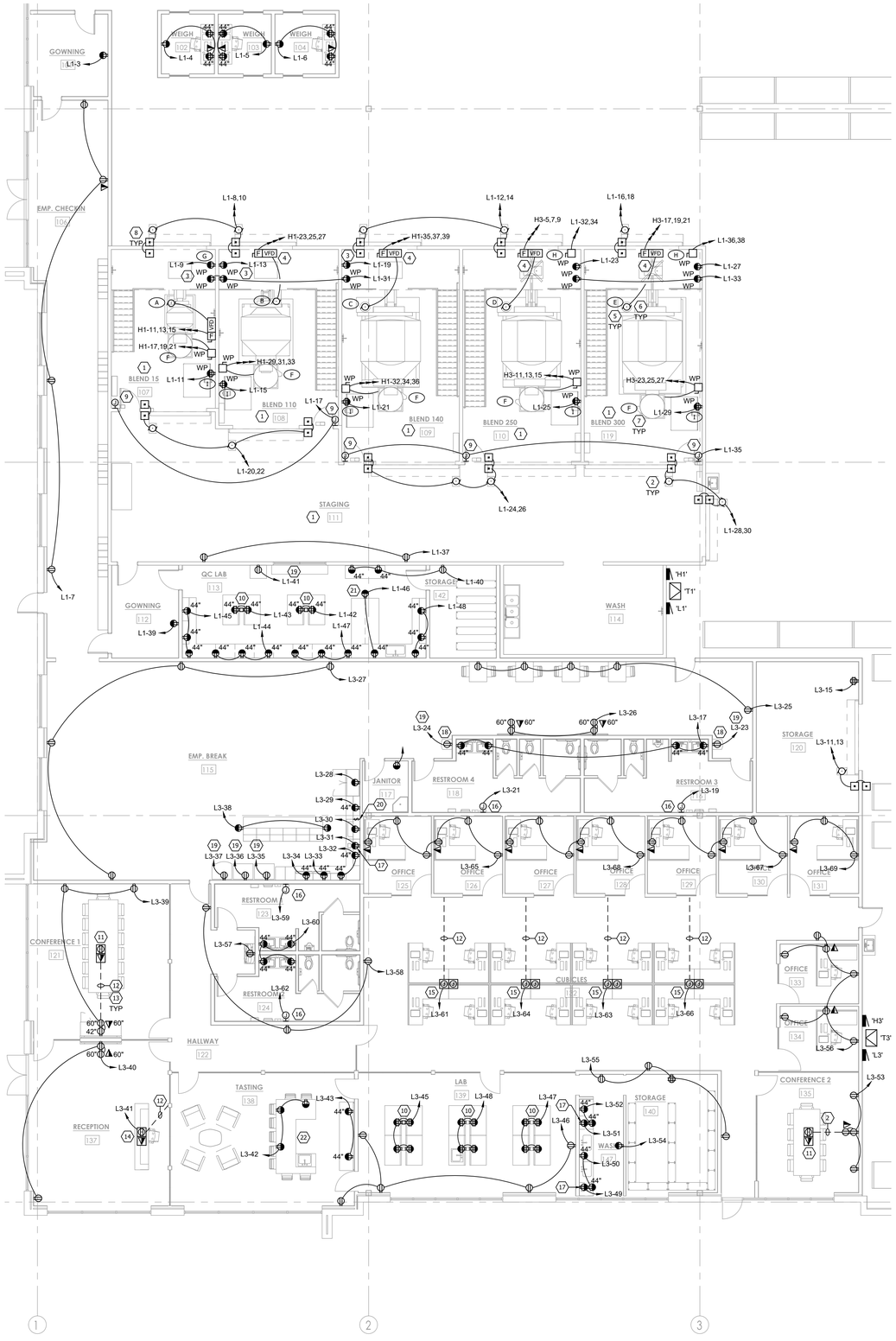
SHEET TITLE:

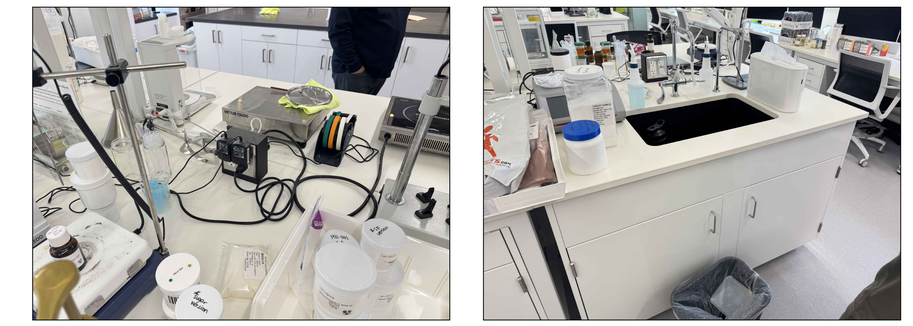
OVERALL POWER PLAN

E201



1 E202 OFFICE POWER PLAN

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



3 E202 LAB DESK RECEPTACLE TOMBSTONE EXAMPLE

SCALE: NO SCALE



2 E202 OFFICE MECHANICAL EQUIPMENT POWER PLAN

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

KEYED NOTES

1. ALL ELECTRICAL DEVICES WITHIN THIS SPACE SHALL BE SURFACE MOUNTED, GASKETED, NEMA 4 (AND/OR IP65) RATED AND GFCI PROTECTED. ALL CONDUIT SHALL ALSO BE SURFACE MOUNTED WITH APPROPRIATE SEALS ON ALL PENETRATIONS THROUGH WALLS/CEILINGS.
2. OVERHEAD DOOR OPERATORS ASSUMED TO BE 208V, 1PH, 1/2 HP. VERIFY EXACT ELECTRICAL REQUIREMENTS WITH EQUIPMENT SUPPLIER.
3. RECEPTACLES MOUNTED 18" ABOVE MEZZANINE.
4. DISCONNECT AND VFD TO BE MOUNTED BELOW MEZZANINE IN ACCESSIBLE LOCATION.
5. EC SHALL COORDINATE WITH MIXER SUPPLIER TO VERIFY IF UNITS WILL BE PROVIDED WITH A REDUCED VOLTAGE SOFT STARTER OR VARIABLE FREQUENCY DRIVE FROM THE SUPPLIER OR IF THE EC WILL NEED TO PROVIDE THOSE ITEMS SEPERATELY.
6. PROVIDE SURFACE MOUNTED CONDUIT, SIZE AS SPECIFIED IN THE EQUIPMENT SCHEDULE, FROM THE VFD TO A J-BOX MOUNTED TO THE BOTTOM SIDE OF THE MEZZANINE ON THE EDGE NEAREST THE MIXER MOTOR. PROVIDE FLEXIBLE SO TYPE CORD FROM J-BOX TO MIXER MOTOR.
7. PROVIDE FLEXIBE SO TYPE CORD FROM DISCONNECT TO THE EQUIPMENT. CABLING SHALL BE RAN THROUGH A HEAVY DUTY RAMP STYLE CABLE GUARD THAT IS SECURELY MOUNTED TO THE FLOOR.
8. MEZZANINE OVERHEAD DOORS CONTROLS INSIDE OF MIXING ROOM SHALL BE MOUNTED AT 48" ABOVE MEZZANINE. CONTROLS LOCATED IN THE WAREHOUSE SPACE SHALL BE MOUNTED 48" AFF.
9. PROVIDE A NEMA 4 RATED J-BOX MOUNTED AT 12' ABOVE DOORWAY FOR MIXING ROOM CLOCK. VERIFY EXACT LOCATION WITH OWNER AND ARCHITECT.
10. LAB DESK RECEPTACLES TO BE MOUNTED IN A TOMBSTONE STYLE BOX MOUNTED TO THE TOP OF THE WORK SURFACE. SEE DETAIL 3/E202 FOR REFERENCE. COORDINATE CONDUIT INSTALLATION WITH MILLWORK INSTALLER.
11. PROVIDE A LEGRAND RFBA SERIES FLOOR BOX WITH (1) DUPLEX RECEPTACLE, (1) HDMI PORT, AND (2) DATA PORTS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
12. PROVIDE (1) 3/4" CONDUIT FOR POWER AND (1) 1-1/2" CONDUIT FOR DATA FROM FLOOR BOX TO THE NEAREST WALL. CONDUIT SHALL BE ROUTED UP THE WALL TO A J-BOX IN ACCESSIBLE CEILING SPACE.
13. SAWCUT EXISTING FLOOR AND TRENCH FOR NEW POWER AND DATA FEEDS. AFTER NEW FEEDS ARE IN PLACE ALL SAWCUTTING AND TRENCHING SHALL BE REPAIRED TO MATCH THE EXISTING SURFACES.
14. PROVIDE A LEGRAND RFBA SERIES FLOOR BOX WITH (1) DUPLEX RECEPTACLE AND (2) DATA PORTS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS.
15. PROVIDE A LEGRAND EVOLUTION SERIES EFBFF, OR EQUIVALENT, TWO-GANG FURNITURE FEED FLOOR BOX. COORDINATE EXACT LOCATION WITH ARCHITECT AND FURNITURE INSTALLER. VERIFY EXACT LENGTH FOR POWER AND DATA WHIPS WITH FURNITURE INSTALLER.
16. PROVIDE A DEDICATED 120V, 20A, GFCI PROTECTED CIRCUIT FOR HAND DRYER. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH ARCHITECTURAL DRAWINGS.
17. COORDINATE DISHWASHER RECEPTACLE LOCATION WITH MILLWORK INSTALLER.
18. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION OF DRINKING FOUNTAIN RECEPTACLE WITH PLUMBING CONTRACTOR.
19. PROVIDE A GFCI BREAKER FOR THIS CIRCUIT.
20. COORDINATE EXACT LOCATION AND TYPE OF DISPOSAL SWITCH WITH ARCHITECT AND MILLWORK INSTALLER.
21. MOUNT RECEPTACLE ON THE SIDE OF THE MILLWORK JUST BELOW COUNTER TOP
22. VERIFY MOUNTING HEIGHT AND LOCATION OF BAR RECEPTACLES WITH OWNER AND MILLWORK INSTALLER.
23. FAN COIL IS POWERED BY THE CORRESPONDING CONDENSING UNIT LOCATED ON THE ROOF.

GENERAL NOTES

A. COORDINATE MOUNTING HEIGHTS OF ALL EQUIPMENT WITH ARCHITECTURAL AND MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
B. VERIFY AND COORDINATE EXACT ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT WITH MANUFACTURER'S RECOMMENDATIONS PRIOR TO INSTALLATION OF EQUIPMENT.
C. EC SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR TO PROVIDE CONDUIT AND DEVICE MOUNTING BOXES FOR THERMOSTATS AND OTHER MECHANICAL CONTROLS. REFER TO MECHANICAL DRAWINGS FOR THE LOCATION OF MECHANICAL CONTROLS.
D. OUTLETS REQUIRING GFCI PROTECTION THAT ARE LOCATED BEHIND LARGE OR STATIONARY EQUIPMENT SHALL BE PROTECTED WITH A GFCI BREAKER. SEE PANEL SCHEDULES.

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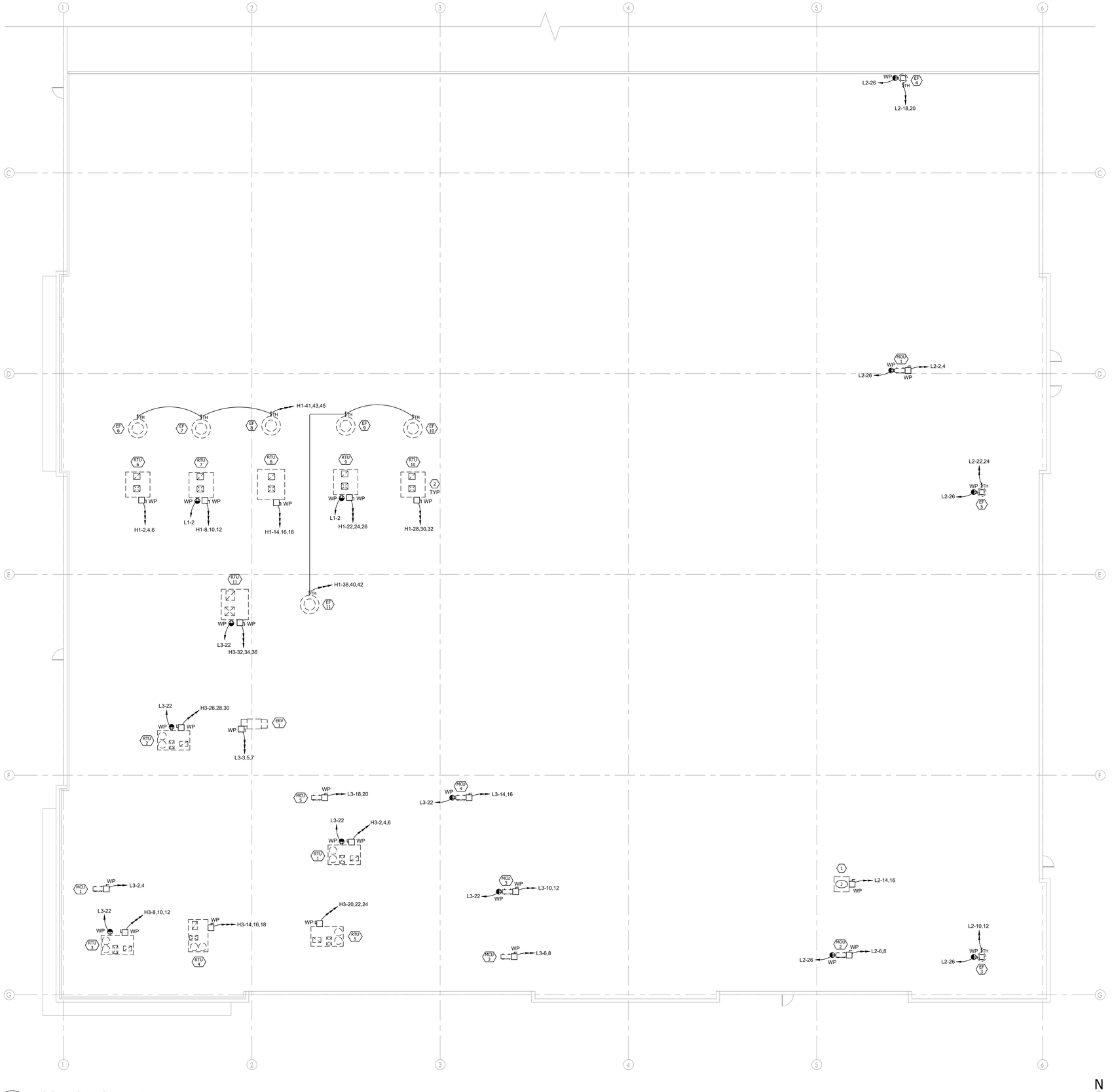
SHEET TITLE:

OFFICE POWER PLAN

E202



1 E203 ROOF TOP POWER PLAN

SCALE: 3/32" = 1'-0"

KEYED NOTES

1. VERIFY EXACT LOCATION OF WALK-IN REFRIGERATOR CONDENSER PRIOR TO ROUGH-IN.
2. EC SHALL VERIFY THAT ALL ROOF TOP EQUIPMENT IS WITHIN 25' OF A CONVENIENCE RECEPTACLE AFTER INSTALLATION IS COMPLETE AND PROVIDE ADDITIONAL RECEPTACLES AS NECESSARY. CIRCUIT ANY ADDITIONAL RECEPTACLES WITH THE NEAREST ROOF TOP RECEPTACLE.

GENERAL NOTES

A. COORDINATE EXACT LOCATION OF ALL EQUIPMENT WITH ARCHITECTURAL AND MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
B. VERIFY EXACT ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT WITH MANUFACTURER'S RECOMMENDATIONS PRIOR TO INSTALLATION OF EQUIPMENT.
C. EC SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR TO PROVIDE CONDUIT AND DEVICE MOUNTING BOXES FOR THERMOSTATS AND OTHER MECHANICAL CONTROLS. REFER TO MECHANICAL DRAWINGS FOR THE LOCATION OF MECHANICAL CONTROLS.
D. FOR ALL ROOFTOP UNITS SUPPLYING 2000 CFM OR MORE, PROVIDE A DUCT SMOKE DETECTOR IN THE RETURN AIR DUCT. THE DETECTOR SHALL BE LOCATED IN AN ACCESSIBLE LOCATION. WHERE NOT ACCESSIBLE, PROVIDE A REMOTE TEST SWITCH IN AN ACCESSIBLE LOCATION WITHIN THE ROOFTOP UNIT SERVICE AREA. FOR THOSE ROOFTOP UNITS MANUFACTURED WITH AN ONBOARD DETECTOR, PROVIDE A MONITOR MODULE TO MONITOR THE ROOF TOP UNIT. COORDINATE WITH THE MECHANICAL CONTRACTOR.

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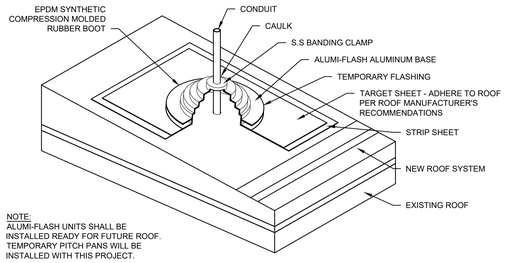
SHEET TITLE:

ROOF TOP POWER PLAN

E203

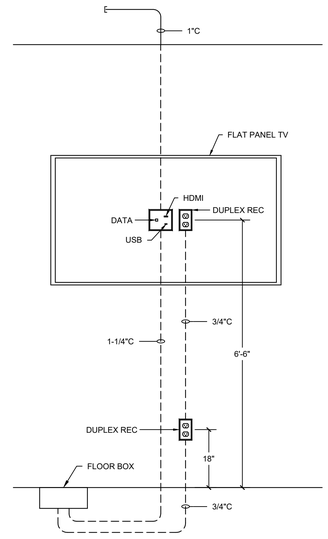
KEYED NOTES

1. PROVIDE A NAMEPLATE ON EACH ELECTRICAL PANEL AND SERVICE DISCONNECT WITH AVAILABLE FAULT CURRENT AND THE DATE WHICH THE CALCULATIONS WERE PERFORMED (05/30/2025) PER NEC 110.24. ON THE NAMEPLATE STATE WHERE POWER ORIGINATES FROM IN ACCORDANCE WITH NEC 408.4(B).



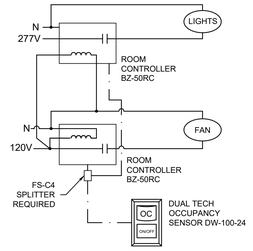
NOTE:
ALUMI-FLASH UNITS SHALL BE INSTALLED READY FOR FUTURE ROOF. TEMPORARY PITCH PANS WILL BE INSTALLED WITH THIS PROJECT.

3 / E501 ROOF CONDUIT PENETRATION DETAIL
NO SCALE

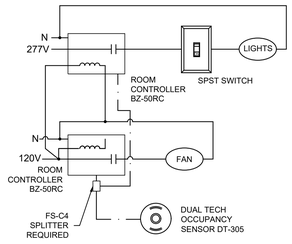


4 / E501 TV ROUGH-IN DETAIL
NO SCALE

LIGHTING CONTROL SCHEMATIC DETAILS



5 / E501 RESTROOM WALL OCCUPANCY
SCALE: NONE



6 / E501 RESTROOM CEILING OCCUPANCY
SCALE: NONE

WIRE LEGEND
- LINE VOLTAGE
- 0-10V
- LOW VOLTAGE

NOTE:
SCHEMATIC DETAILS ARE INTENDED TO SHOW FLOW DIAGRAMS ONLY. ELECTRICAL CONTRACTORS ARE TO INSTALL PER MANUFACTURER'S SPECIFICATIONS.

NOTE:
THIS DESIGN IS BASED ON WATTSTOPPER PRODUCTS. WHEN USING OTHER SYSTEMS, OR IF THE CONTRACTOR FOLLOWS A DIFFERENT DESIGN, A COMPLETED LIGHTING CONTROL DRAWING SHALL BE SUBMITTED TO ROCKY MOUNTAIN CONSULTING ENGINEERS FOR REVIEW. COORDINATE WHETHER ALL PRODUCT NUMBERS SHOWN ARE STILL VALID AND PROVIDE UPDATED PRODUCTS AS NEEDED.

CONDUIT/CONDUCTOR SCHEDULE

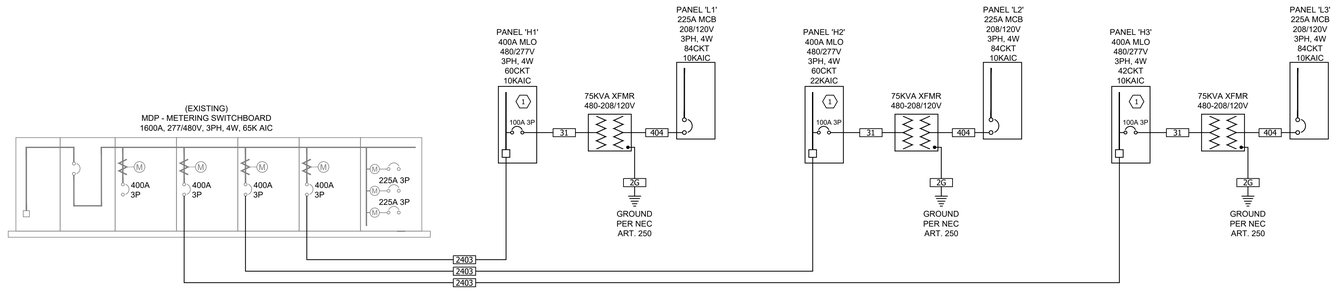
MARK	AMPS	CONDUIT	CU/AL	CONDUCTORS (TOTAL) PHASE	NEUTRAL	GROUND	NOTES
31	110	2"	CU	(3) 1	1	8	1
404	230	2.5"	CU	(3) 4/0	4/0	4	1
2403	400	(2) 4"	CU	(6) 3/0	(2) 3/0	(2) 3	1,3
2G	-	-	CU	-	-	2	2

NOTES:
1. CONDUCTOR INSULATIONS TO BE RATED THWN-2/THHN 90°C.
2. GROUNDING ELECTRODE CONDUCTOR TO BE BONDED TO ALL AVAILABLE GROUNDING ELECTRODES.
3. EXTEND THE (2) 4" EXISTING UNDERGROUND CONDUITS STUBBED INTO THE SPACE OVERHEAD TO NEW PANEL LOCATION. COORDINATE LOCATION OF EXISTING CONDUIT STUBS ON SITE AND SEE SHEET E201 FOR NEW PANEL LOCATIONS.

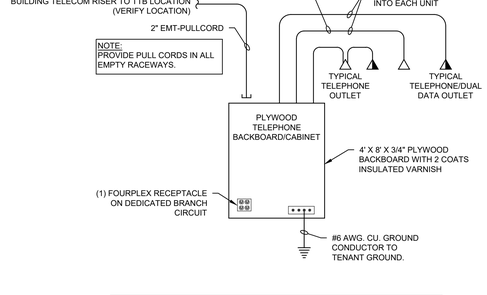
FAULT CURRENT CALCULATIONS			
480 Volts			
Panel	H1	H2	H3
Feed From	MDP	MDP	MDP
Available Fault Current	34309	34309	34309
(L) Length to panel	603	363	630
Conduit Type (P,S)	S	S	S
Conductor Size	3\0	3\0	3\0
Conductor Type (c,a)	C	C	C
No of Runs	2	2	2
C - from chart	12843	12843	12843
Voltage	480	480	480
f	2.90626722	1.74954395	3.03639859
m	0.25599887	0.36369668	0.2477456
I s.c. at Panel	8783	12478	8500

FAULT CURRENT CALCULATIONS			
Transformer	T1	T2	T3
Feed From	H1	H2	H3
Is.c. Primary	8783	12478	8500
%Z	3	3	3
KVA	75	75	75
Constant	100000	100000	100000
Primary Voltage	480	480	480
Secondary Voltage	208	208	208
f	2.92075566	4.14950708	2.82659203
m	0.25505287	0.19419334	0.26132914
I s.c. at secondary	5170	5592	5126

FAULT CURRENT CALCULATIONS			
208 Volt			
Panel	L1	L2	L3
Feed From	T1	T2	T3
Available Fault Current	5170	5592	5126
(L) Length to panel	5	5	5
Conduit Type (P,S)	S	S	S
Conductor Size	4\0	4\0	4\0
Conductor Type (c,a)	C	C	C
No of Runs	1	1	1
C - from chart	15082	15082	15082
Voltage	208	208	208
f	0.01427085	0.01543673	0.01415062
m	0.98592994	0.98479794	0.98604683
I s.c. at Panel	5097	5507	5054



1 / E501 ONE-LINE DIAGRAM
NO SCALE



2 / E501 TYPICAL TELECOM RISER DIAGRAM
NO SCALE

SENSAPURE TI
4170 W 2100 N
LEHI, UT 84043

STAMP
DAVID W. STEWARD
No. 7945859-2202
05/30/2025
STATE OF UTAH
LICENSED PROFESSIONAL ENGINEER

REVISIONS

ROCKY MOUNTAIN CONSULTING ENGINEERS, INC.
2532 West 1260 South, Suite F | Riverton, UT 84065
(801) 540-0063 www.rmcsut.com

PROJECT #:	25075
DRAWN BY:	QG
CHECKED BY:	WW
DATE:	05/30/2025

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SHEET TITLE:
ELECTRICAL DETAILS

E501

PANEL SCHEDULE H1

VOLT/PHASE/WIRE: 277/480/3PH/4W — AIC RATING: 22,000 AIC — MAIN BREAKER:
MOUNT/ENCLOSURE: SURFACE/NEMA 1 — LOCATION: UTILITY ROOM — MAIN LUGS: 400A

CKT NO	DESCRIPTION	LOAD	AMPS	POLES	A	B	C	POLES	AMPS	LOAD	DESCRIPTION	CKT NO
1	LCP1	500	20	1	8786			-	-	8286	RTU-6	2
3	LTG - BLEND ROOMS	2250	20	1		10536		-	-	8286	------------	4
5	LTG - BLEND ROOMS	3600	20	1			11886	-	-	8286	------------	6
7	LTG - STAGING/WASH	1950	20	1	11095			3	35	9145	RTU-7	8
9	LTG - BREAK/RR/LAB/CHECK IN	1945	20	1		11090		-	-	9145	------------	10
11	MUNSON 15	1243	15	3			10388	-	-	9145	------------	12
13	------------	1243	-	-	10942			3	35	9699	RTU-8	14
15	------------	1243	-	-		10942		-	-	9699	------------	16
17	BLEND 15 SIFTER	4434	20	3			14133	-	-	9699	------------	18
19	------------	4434	-	-	13579			3	35	9145	RTU-9	20
21	------------	4434	-	-		13579		-	-	9145	------------	22
23	MUNSON 110	4971	30	3			14116	-	-	9145	------------	24
25	------------	4971	-	-	14116			3	35	9145	RTU-10	26
27	------------	4971	-	-		14116		-	-	9145	------------	28
29	BLEND 110 SIFTER	4434	20	3			13579	-	-	9145	------------	30
31	------------	4434	-	-	8868			3	20	4434	BLEND 140 SIFTER	32
33	------------	4434	-	-		8868		-	-	4434	------------	34
35	MUNSON 140	6214	40	3			10648	-	-	4434	------------	36
37	------------	6214	-	-	9373			3	15	3159	EF-9 / EF-10 / EF-11	38
39	------------	6214	-	-		9373		-	-	3159	------------	40
41	EF-6 / EF-7 / EF-8	3159	15	3			6318	-	-	3159	------------	42
43	------------	3159	-	-	3159					0	SPACE	44
45	------------	3159	-	-		3159				0	SPACE	46
47	SPACE	0					0			0	SPACE	48
49	SPACE	0			0					0	SPACE	50
51	SPACE	0				0				0	SPACE	52
53	SPACE	0					0			0	SPACE	54
55	SPACE	0			14192			3	100	14192	TO PANEL 'L1'	56
57	SPACE	0				12202		-	-	12202	------------	58
59	SPACE	0					14802	-	-	14802	------------	60
TOTALS					94,110	93,865	95,870					

TOTAL LOAD: 283,845

LOADS	CONTINUOUS	NON-CONTINUOUS	DEMAND FACTOR/CALCULATION				DEMAND LOAD
EXISTING	0	0	125% x	0			0
LIGHTING	10,245	0	125% x	10245	+ 100% x	0	12,806
RECEPTACLE	0	13,140	100% x	10000	+ 50% x	3140	11,570
MOTOR	0	113,500	125% x	0	+ 100% x	113500	113,500
FIXED HEAT	0	0	100% x	0			136260.048
A/C	0	136,260	100% x	136260			
KITCHEN EQUIP.	0	1,000	100 % x	1000			1,000
MISC	0	9,700	125% X	0	+ 100% x	9700	9,700
					TOTAL DEMAND LOAD:		284,836 VA
							343 A

PANEL NOTES:
OVERCURRENT PROTECTIVE DEVICES SHALL HAVE SAME AIC RATING AS PANEL THEY ARE LOCATED IN.

PANEL SCHEDULE L1

VOLT/PHASE/WIRE: 120/208V/3PH/4W — AIC RATING: 10,000 AIC — MAIN BREAKER: 225A
MOUNT/ENCLOSURE: SURFACE/NEMA 1 — LOCATION: NEAR BLEND ROOMS — MAIN LUGS:

CKT NO	DESCRIPTION	LOAD	AMPS	POLES	A	B	C	POLES	AMPS	LOAD	DESCRIPTION	CKT NO
1	REC - WAREHOUSE	720	20	1	1080			1	20	360	REC - ROOFTOP	2
3	REC - GOWNING 101	180	20	1		1260		1	20	1080	REC - WEIGH 102	4
5	REC - WEIGH 103	1080	20	1			2160	1	20	1080	REC - WEIGH 104	6
7	REC - EMPLOYEE CHECK-IN	720	20	1	1844			2	15	1124	BLEND 15 / 110 MEZZ OH DOORS	8
9	BLEND 15 LIFT TABLE	1440	20	1		2564		-	-	1124	------------	10
11	REC - BLEND 15 SCALE	360	20	1			1484	2	15	1124	BLEND 140 / 250 MEZZ OH DOORS	12
13	BLEND 110 LIFT TABLE	1440	20	1	2564			-	-	1124	------------	14
15	REC - BLEND 110 SCALE	360	20	1		922		2	15	562	BLEND 300 MEZZ OH DOORS	16
17	BLEND 15 / 110 CLOCKS	1000	20	1			1562	-	-	562	------------	18
19	BLEND 140 LIFT TABLE	1440	20	1	2564			2	15	1124	BLEND 15 / 110 MAIN OH DOORS	20
21	REC - BLEND 140 SCALE	360	20	1		1484		-	-	1124	------------	22
23	BLEND 250 LIFT TABLE	1440	20	1			2564	2	15	1124	BLEND 140 / 250 MAIN OH DOORS	24
25	REC - BLEND 250 SCALE	360	20	1	1484			-	-	1124	------------	26
27	BLEND 300 LIFT TABLE	1440	20	1		2564		2	15	1124	BLEND 300 / STAGING OH DOORS	28
29	REC - BLEND 300 SCALE	360	20	1			1484	-	-	1124	------------	30
31	REC - BLEND 15/110/140 MEZZ CONV.	540	20	1	1788			2	20	1248	BLEND 250 BAG HOIST	32
33	REC - BLEND 250/300 MEZZ CONV.	360	20	1		1608		-	-	1248	------------	34
35	BLEND 140/250/300 CLOCKS	1500	20	1			2748	2	20	1248	BLEND 300 BAG HOIST	36
37	REC - STAGING CONV.	360	20	1	1608			-	-	1248	------------	38
39	REC - GOWNING 112	180	20	1		720		1	20	540	REC - QC LAB NORTH WALL/STORAGE	40
41	QC LAB REFRIGERATOR	1000	20	1			1720	1	20	720	REC - QC LAB DESK PAIR 2	42
43	REC - QC LAB DESK PAIR 1	720	20	1	1260			1	20	540	REC - QC LAB COUNTER 2	44
45	REC - QC LAB COUTNER 1	540	20	1		1080		1	20	540	REC - QC LAB COUNTER 4	46
47	REC - QC LAB COUNTER 3	540	20	1			1080	1	20	540	REC - QC LAB COUNTER 5	48
49	SPARE	0	20	1	0			1	20	0	SPARE	50
51	SPARE	0	20	1		0		1	20	0	SPARE	52
53	SPARE	0	20	1			0	1	20	0	SPARE	54
55	SPARE	0	20	1	0			1	20	0	SPARE	56
57	SPARE	0	20	1		0		1	20	0	SPARE	58
59	SPARE	0	20	1			0	1	20	0	SPARE	60
61	SPARE	0	20	1	0			1	20	0	SPARE	62
63	SPARE	0	20	1		0		1	20	0	SPARE	64
65	SPARE	0	20	1			0	1	20	0	SPARE	66
67	SPARE	0	20	1	0			1	20	0	SPARE	68
69	SPARE	0	20	1		0		1	20	0	SPARE	70
71	SPARE	0	20	1			0	1	20	0	SPARE	72
73	SPARE	0	20	1	0			1	20	0	SPARE	74
75	SPARE	0	20	1		0		1	20	0	SPARE	76
77	SPARE	0	20	1			0	1	20	0	SPARE	78
79	SPARE	0	20	1	0			1	20	0	SPARE	80
81	SPARE	0	20	1		0		1	20	0	SPARE	82
83	SPARE	0	20	1			0	1	20	0	SPARE	84
TOTALS					14,192	12,202	14,802					

TOTAL LOAD: 41,196

LOADS	CONTINUOUS	NON-CONTINUOUS	DEMAND FACTOR/CALCULATION				DEMAND LOAD
EXISTING	0	0	125% x	0			0
LIGHTING	0	0	125% x	0	+ 100% x	0	0
RECEPTACLE	0	13,140	100% x	10000	+ 50% x	3140	11,570
MOTOR	0	17,356	125% x	0	+ 100% x	17356	17,356
FIXED HEAT	0	0	100% x	0			0
A/C	0	0	100% x	0			
KITCHEN EQUIP.	0	1,000	100 % x	1000			1,000
MISC	0	9,700	125% X	0	+ 100% x	9700	9,700
					TOTAL DEMAND LOAD:		39,626 VA
							110 A

PANEL NOTES:
OVERCURRENT PROTECTIVE DEVICES SHALL HAVE SAME AIC RATING AS PANEL THEY ARE LOCATED IN.

MECHANICAL / PLUMBING EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ELECTRICAL V	PH	KW	HP	MCA	FLA	MOCP	CONDUIT SIZE	WIRE QTY.	WIRE SIZE	GND. SIZE	STARTER NEMA SIZE	OVERCURRENT PROTECTION DISCONNECT SIZE/POLE	FUSE SIZE	REMARKS
CF-1	16' CEILING FAN	480	3		1-1/3		5.2	15	3/4"	3	12	12	-	30/3	-	2A
CF-2	16' CEILING FAN	480	3		1-1/3		5.2	15	3/4"	3	12	12	-	30/3	-	2A
CF-3	16' CEILING FAN	480	3		1-1/3		5.2	15	3/4"	3	12	12	-	30/3	-	2A
CF-4	16' CEILING FAN	480	3		1-1/3		5.2	15	3/4"	3	12	12	-	30/3	-	2A
EF-1	CEILING MOUNTED EXHAUST FAN	120	1				0.4	20	3/4"	2	12	12	-	-	-	15A
EF-2	CEILING MOUNTED EXHAUST FAN	120	1				1.8	20	3/4"	2	12	12	-	-	-	15A
EF-3	ROOF MOUNTED EXHAUST FAN	208	1		1/4		3.2	15	3/4"	2	12	12	-	-	-	4A
EF-4	ROOF MOUNTED EXHAUST FAN	208	1		1/4		3.2	15	3/4"	2	12	12	-	-	-	4A
EF-5	ROOF MOUNTED EXHAUST FAN	208	1		1/2		5.3	15	3/4"	2	12	12	-	-	-	4A
EF-6	ROOF MOUNTED EXHAUST FAN	480	3		1-1/2		3	15	3/4"	3	12	12	-	-	-	4A
EF-7	ROOF MOUNTED EXHAUST FAN	480	3		2		3.8	15	3/4"	3	12	12	-	-	-	4A
EF-8	ROOF MOUNTED EXHAUST FAN	480	3		2		3.8	15	3/4"	3	12	12	-	-	-	4A
EF-9	ROOF MOUNTED EXHAUST FAN	480	3		2		3.8	15	3/4"	3	12	12	-	-	-	4A
EF-10	ROOF MOUNTED EXHAUST FAN	480	3		2		3.8	15	3/4"	3	12	12	-	-	-	4A
EF-11	ROOF MOUNTED EXHAUST FAN	480	3		2		3.8	15	3/4"	3	12	12	-	-	-	4A
EUH-1	ELECTRIC UNIT HEATER	120	1	1.5			12.5	20	3/4"	2	12	12	-	-	-	5B
EUH-2	ELECTRIC UNIT HEATER	120	1	1.5			12.5	20	3/4"	2	12	12	-	-	-	5B
EUH-3	ELECTRIC UNIT HEATER	120	1	1.5			12.5	20	3/4"	2	12	12	-	-	-	5B
ERV-1	ENERGY RECOVERY VENTILATOR	208	1			11.1		15	3/4"	3	12	12	-	30/3	-	2A
CC-1	SPLIT SYSTEM CEILING CASSETTE	208	1			-*		20	3/4"	2	12	12	-	-	-	16A
CC-2	SPLIT SYSTEM CEILING CASSETTE	208	1			-*		20	3/4"	2	12	12	-	-	-	16A
FC-1	SPLIT SYSTEM FAN COIL	208	1			-*		20	3/4"	2	12	12	-	-	-	16A
FC-2	SPLIT SYSTEM FAN COIL	208	1			-*		20	3/4"	2	12	12	-	-	-	16A
FC-3	SPLIT SYSTEM FAN COIL	208	1			-*		20	3/4"	2	12	12	-	-	-	16A
FC-4	SPLIT SYSTEM FAN COIL	208	1			-*		20	3/4"	2	12	12	-	-	-	16A
FC-5	SPLIT SYSTEM FAN COIL	208	1			-*		20	3/4"	2	12	12	-	-	-	16A
MCU-1	SPLIT SYSTEM OUTDOOR UNIT	208	1			39.25		60	1"	2	6	10	-	60/2	-	2A
MCU-2	SPLIT SYSTEM OUTDOOR UNIT	208	1			18.25		25	3/4"	2	10	10	-	30/2	-	2A
MCU-3	SPLIT SYSTEM OUTDOOR UNIT	208	1			18.5		25	3/4"	2	10	10	-	30/2	-	2A
MCU-4	SPLIT SYSTEM OUTDOOR UNIT	208	1			18.5		25	3/4"	2	10	10	-	30/2	-	2A
MCU-5	SPLIT SYSTEM OUTDOOR UNIT	208	1			18.5		25	3/4"	2	10	10	-	30/2	-	2A
MOU-1	SPLIT SYSTEM OUTDOOR UNIT	208	1			17		25	3/4"	2	10	10	-	30/2	-	2A
MOU-2	SPLIT SYSTEM OUTDOOR UNIT	208	1			17		25	3/4"	2	10	10	-	30/2	-	2A
RTU-1	ROOFTOP UNIT (4 TON)	480	3			13		15	3/4"	3	12	12	-	30/3	-	2A
RTU-2	ROOFTOP UNIT (6 TON)	480	3			24		30	3/4"	3	10	10	-	30/3	-	2A,14A
RTU-3	ROOFTOP UNIT (4 TON)	480	3			13		15	3/4"	3	12	12	-	30/3	-	2A
RTU-4	ROOFTOP UNIT (4 TON)	480	3			13		15	3/4"	3	12	12	-	30/3	-	2A
RTU-5	ROOFTOP UNIT (3 TON)	480	3			10		15	3/4"	3	12	12	-	30/3	-	2A
RTU-6	ROOFTOP UNIT (10 TON)	480	3			29.9		30	3/4"	3	10	10	-	30/3	-	2A,14A
RTU-7	ROOFTOP UNIT (10 TON)	480	3			33		35	1"	3	8	10	-	60/3	-	2A,14A
RTU-8	ROOFTOP UNIT (12.5 TON)	480	3			35		35	1"	3	8	10	-	60/3	-	2A,14A
RTU-9	ROOFTOP UNIT (10 TON)	480	3			33		35	1"	3	8	10	-	60/3	-	2A,14A
RTU-10	ROOFTOP UNIT (10 TON)	480	3			33		35	1"	3	8	10	-	60/3	-	2A,14A
RTU-11	ROOFTOP UNIT (20 TON)	480	3			70		80	1-1/4"	3	4	8	-	100/3	-	2A,14A
SI-1	DUST COLLECTION SYSTEM	480	3		50		65	100	2"	3	1	6	VFD	200/3	-	1A,11A
UH-EX	EXISTING GAS FIRED UNIT HEATER	120	1				5.8	20	3/4"	2	12	12	-	-	-	4B
WH-1	GAS FIRED WATER HEATER	120	1				3.1	20	3/4"	2	12	12	-	-	-	5A
WH-2	GAS FIRED WATER HEATER	120	1				3.1	20	3/4"	2	12	12	-	-	-	5A
RP-1	HOT WATER RECIRCULATION PUMP	120	1				0.65	20	3/4"	2	12	12	-	-	-	12A
RP-2	HOT WATER RECIRCULATION PUMP	120	1				0.65	20	3/4"	2	12	12	-	-	-	12A

NOTE: COORDINATE FINAL EQUIPMENT CONNECTIONS WITH EQUIPMENT PROVIDER PRIOR TO ROUGH-IN. VERIFY ALL MOUNTING HEIGHTS.

*INDOOR UNIT IS POWERED VIA CORRESPONDING OUTDOOR UNIT. OUTDOOR UNIT MCA IS THE COMBINED LOAD FOR THE ENTIRE SYSTEM.

REMARKS:
1. FUSED DISCONNECT SWITCH
2. NON-FUSED DISCONNECT SWITCH
3. BREAKER IN ENCLOSURE
4. THERMAL OVERLOAD SWITCH
5. TOGGLE SWITCH
6. MAGNETIC STARTER
7. MAGNETIC STARTER/NON-FUSED DISCONNECT SWITCH
8. MAGNETIC STARTER/FUSED DISCONNECT COMBINATION
9. MAGNETIC STARTER/BREAKER COMBINATION
10. REDUCED VOLTAGE STARTER
11. VARIABLE FREQUENCY DRIVE
12. RECEPTACLE/SPECIAL PURPOSE OUTLET/ETC.
13. DIRECT CONNECTION
14. DUCT DETECTOR IN RETURN DUCT
15. SWITCH WITH LIGHTS
16. INDOOR UNIT IS POWERED VIA OUTDOOR UNIT
A. FURNISHED, INSTALLED AND CONNECTED UNDER DIVISION 26
B. FURNISHED AND INSTALLED UNDER ANOTHER DIVISION REQUIRING CONNECTION UNDER DIVISION 26
C. FURNISHED UNDER ANOTHER DIVISION BUT INSTALLED AND CONNECTED UNDER DIVISION 26
D. FURNISHED, INSTALLED, AND CONNECTED UNDER ANOTHER DIVISION
E. FURNISHED AND INSTALLED UNDER DIVISION 26 REQUIRING CONNECTION UNDER ANOTHER DIVISION

PRODUCTION EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ELECTRICAL V	PH	KW	HP	MCA	FLA	MOCP	CONDUIT SIZE	WIRE QTY.	WIRE SIZE	GND. SIZE	STARTER NEMA SIZE	OVERCURRENT PROTECTION DISCONNECT SIZE/POLE	FUSE SIZE	REMARKS	PLUG TYPE
A	MIXER (MUNSON 15)	480	3	3.73	5		4.49	15	3/4"	3	12	12	0	30/3	15	1A,11A*	-
B	MIXER (MUNSON 110)	480	3	14.9	20		17.94	30	3/4"	3	10	10	2	30/3	30	1A,11A*	-
C	MIXER (MUNSON 140)	480	3	18.6	25		22.42	40	1"	3	8	10	2	60/3	40	1A,11A*	-
D	MIXER (MUNSON 250)	480	3	37.3	50		44.85	80	1-1/2"	3	3	8	3	100/3	80	1A,11A*	-
E	MIXER (MUNSON 300)	480	3	44.7	60		53.82	100	1-1/2"	3	2	8	4	100/3	100	1A,11A*	-
F	SWECO SIFTER	480	3				16	20	3/4"	3	12	12	-	30/3	-	2A	-
G	LIFT TABLE	120	1				12	20	3/4"	2	12	12	-	-	-	12A	5-20
H	BULK BAG HOIST	208	1				12	20	3/4"	2	12	12	-	30/2	-	2A	-
I	BULK PRODUCT SCALE	120	1				1.6	20	3/4"	2	12	12	-	-	-	12A	5-20
J	WALK-IN REFRIGERATOR	208	1				11.06	20	3/4"	2	12	12	-	30/2	-	2A	-
K	PALLET WRAP MACHINE	120	1				12	20	3/4"	2	12	12	-	-	-	-	5-20
L	FORKLIFT CHARGER	480	3				24	30	3/4"	3	10	10	-	-	-	12A	L16-30
M	TRASH COMPACTOR	480	3		10		14	30	3/4"	3	10	10	W/ UNIT	30/3	-	2A	-
N	AIR COMPRESSOR	480	3		25		34	60	1"	3	6	10	W/ UNIT	60/3	-	2A	-

NOTE: COORDINATE FINAL EQUIPMENT CONNECTIONS WITH EQUIPMENT PROVIDER PRIOR TO ROUGH-IN. VERIFY ALL MOUNTING HEIGHTS.

*VERIFY WITH EQUIPMENT SUPPLIER WHETHER UNIT WILL BE SUPPLIED WITH SOFT-STARTER/VFD OR IF CONTRACTOR WILL NEED TO PROVIDE THOSE ITEMS.

REMARKS:
1. FUSED DISCONNECT SWITCH
2. NON-FUSED DISCONNECT SWITCH
3. BREAKER IN ENCLOSURE
4. THERMAL OVERLOAD SWITCH
5. TOGGLE SWITCH
6. MAGNETIC STARTER
7. MAGNETIC STARTER/NON-FUSED DISCONNECT SWITCH
8. MAGNETIC STARTER/FUSED DISCONNECT COMBINATION
9. MAGNETIC STARTER/BREAKER COMBINATION
10. REDUCED VOLTAGE STARTER
11. VARIABLE FREQUENCY DRIVE
12. RECEPTACLE/SPECIAL PURPOSE OUTLET/ETC.
13. DIRECT CONNECTION
14. DUCT DETECTOR IN RETURN DUCT
15. SWITCH WITH LIGHTS
A. FURNISHED, INSTALLED AND CONNECTED UNDER DIVISION 26
B. FURNISHED AND INSTALLED UNDER ANOTHER DIVISION REQUIRING CONNECTION UNDER DIVISION 26
C. FURNISHED UNDER ANOTHER DIVISION BUT INSTALLED AND CONNECTED UNDER DIVISION 26
D. FURNISHED, INSTALLED, AND CONNECTED UNDER ANOTHER DIVISION
E. FURNISHED AND INSTALLED UNDER DIVISION 26 REQUIRING CONNECTION UNDER ANOTHER DIVISION

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NO.	VOLTAGE	DELIVERED LUMENS / CCT	CONTROL	MOUNTING	LOAD(VA)	DESCRIPTION	NOTES:
DL1	LITHONIA	LBR6 NCH AL02 SWW1 AR LSS MVD MVOLT UGZ	UNV	1000 LUMINES / 3500K	0-10V	RECESSED	10	6" ADJUSTABLE LED DOWNLIGHT SET TO 1000 LUMENS AND 3500K. PROVIDE A NEW CONSTRUCTION HOUSING.	4
	HALO								
	LITON								
GL1	LITHONIA	2BLT4 48L ADSM GZ10 LP835	UNV	4800 LUMENS / 3500K	0-10V	GRID	39	2x4 LED VOLUMETRIC TROFFER.	4
	METALUX								
	COLUMBIA LIGHTING								
GL1E	SAME AS TYPE GL1 WITH A MINIMUM OF 7W EMERGENCY BATTERY BACKUP								
GL2	LITHONIA	CPANL 2X4 AL06 SWW7 M2	UNV	4000 LUMENS / 3500K	0-10V	GRID	36	2X4 ADJUSTABLE LED FLAT PANEL SET TO 4000 LUMENS AND 3500K. FIXTURE TO BE WASH DOWN RATED (IP5X MINIMUM).	4
	METALUX								
	COLUMBIA LIGHTING								
GL2E	SAME AS TYPE GL2 WITH A MINIMUM OF 7W EMERGENCY BATTERY BACKUP								
HB1	LITHONIA	CPHB 30000LM SEF GCL ND MVOLT GZ10 40K 80CRI LSXR6 HL DWH	UNV	30000 LUMENS / 4000K	0-10V	SUSPENDED @32'	210	RECTANGULAR LED HIGH BAY WITH ONBOARD HIGH/LOW/OFF OCCUPANCY SENSOR AND NARROW DISTRIBUTION.	4
	METALUX								
	COLUMBIA LIGHTING								
HB1E	SAME AS TYPE HB1 WITH A MINIMUM OF 15W EMERGENCY BATTERY BACKUP								
HB2	LITHONIA	CPHB 30000LM SEF GCL MD MVOLT GZ10 40K 80CRI LSXR6 HL DWH	UNV	30000 LUMENS / 4000K	0-10V	SUSPENDED @32'	210	RECTANGULAR LED HIGH BAY WITH ONBOARD HIGH/LOW/OFF OCCUPANCY SENSOR AND MEDIUM DISTRIBUTION.	4
	METALUX								
	COLUMBIA LIGHTING								
HB2E	SAME AS TYPE HB2 WITH A MINIMUM OF 15W EMERGENCY BATTERY BACKUP								
LL1	MARK ARCHITECTURAL	S2PD LLP 8FT MSL8 80CRI 35K 1000LMF SCT MIN10 FLL MVOLT SCBA ZT F1/300A RDCY SCBA SCBA	UNV	1000 LUMENS PER FOOT / 3500K	0-10V	SUSPENDED @14'	64	8' LED ARCHITECTURAL LINEAR WITH DIRECT DISTRIBUTION ONLY. FIXTURE, CORD, AND CANOPY COLOR TO BE SPECIFIED BY THE ARCHITECT.	4
	NULITE								
	STARTEK LIGHTING								
LL1E	SAME AS TYPE GL1 WITH A MINIMUM OF 7W EMERGENCY BATTERY BACKUP								
LL2	MARK ARCHITECTURAL	S2PID LSL 12FT MSL6 80CRI 35K 400LMF I80CRI 35K I400LMF SCT MIN10 FLL MVOLT SCBA ZT F1/36A RDCY SCBA SCBA	UNV	400 LUMENS PER FOOT DOWN / 400 LUMENS PER FOOT DOWN / 3500K	0-10V	SUSPENDED @8'	68	12' LED ARCHITECTURAL LINEAR WITH DIRECT/INDIRECT DISTRIBUTION. FIXTURE, CORD, AND CANOPY COLOR TO BE SPECIFIED BY THE ARCHITECT.	4
	NULITE								
	STARTEK LIGHTING								
LL3	MARK ARCHITECTURAL	S2PID LCB 14FT MSL6 80CRI 35K 400LMF I80CRI 35K I400LMF SCT MIN10 FLL MVOLT SCBA ZT F1/72A RDCY SCBA SCBA	UNV	400 LUMENS PER FOOT DOWN / 400 LUMENS PER FOOT DOWN / 3500K	0-10V	SUSPENDED @8'	80	14' LED ARCHITECTURAL LINEAR WITH DIRECT/INDIRECT DISTRIBUTION. FIXTURE, CORD, AND CANOPY COLOR TO BE SPECIFIED BY THE ARCHITECT.	4
	NULITE								
	STARTEK LIGHTING								
PL1	LITHONIA	LDN6CYL 35/25 L06 AR LSS MVOLT GZ10 PM SCBA	UNV	2500 LUMENS / 3500K	0-10V	SUSPENDED @20'	28	6" LED CYLINDER PENDANT. FINISH TO BE SPECIFIED BY ARCHITECT.	4
	OR APPROVED EQUAL								
SL1	PACO	PUCSW S 160 8 40 MV SCBA ND	UNV	16000 LUMENS / 3500K	0-10V	SURFACE	150	8' LED HIGH ABUSE STRIP LIGHT. FIXTURE TO BE A MINIMUM OF IP65 RATED. FINISH TO BE SPECIFIED BY ARCHITECT.	4
	OR APPROVED EQUAL								
VA	LITHONIA	FMVCSL 24IN MVOLT 30K 90CRI BN	UNV	1300 LUMENS / 3000K	-	WALL	18	2' LED VANITY LIGHT. FIXTURE MUST BE 277V CAPABLE.	4
	OXYGEN								
	ADVANT								
EX	LITHONIA	EXRG EL M6	UNV	-	-	WALL / CEILING	1	THERMOPLASTIC EXIT SIGN WITH NICKEL CADMIUM BATTERY GREEN LETTERING.	4
	EVENLITE								
	COMPASS PRODUCTS								

NOTES:
1. ALL LIGHT FIXTURES SHOWN HALF SHADED SHALL BE PROVIDED WITH A MEANS OF EMERGENCY POWER SUCH AS A BATTERY PACK, INVERTER OR GENERATOR CAPABLE OF PROVIDING 90 MIN OF EGRESS ILLUMINATION. WHERE A GENERATOR PROVIDES EMERGENCY POWER, A GENERATOR TRANSFER DEVICE OR SIMILAR DEVICE SHALL BE PROVIDED TO ENSURE LIGHT IS TURNED ON DURING AN EMERGENCY OCCURANCE.
2. ALL LIGHTING VALUE ENGINEERING PROVIDED FOR THIS PROJECT SHALL BE SUBMITTED TO THE ELECTRICAL ENGINEER FOR REVIEW AND APPROVAL AFTER THE PROJECT HAS BEEN BID AND AWARDED. ANY CREDITS FOR VE SHALL INCLUDE TIME TO COMPENSATE OUR OFFICE FOR ENGINEERING REVIEW AND VERIFICATION OF BRANCH CIRCUIT LOADING AND/OR ENERGY CODE COMPLIANCE. NO VE SUBMITTALS WILL BE APPROVED WITHOU

PANEL SCHEDULE H2

VOLT/PHASE/WIRE: 277/480/3PH/4W | AIC RATING: 22,000 AIC | MAIN BREAKER:
MOUNT/ENCLOSURE: SURFACE/NEMA 1 | LOCATION: UTILITY ROOM | MAIN LUGS: 400A

CKT NO	DESCRIPTION	LOAD	AMPS	POLES	A	B	C	POLES	AMPS	LOAD	DESCRIPTION	CKT NO
1	LTG - WAREHOUSE	2310	20	1	3751			3	15	1441	CF-1	2
3	LTG - WAREHOUSE	1890	20	1		3331		-	-	1441	------------	4
5	LTG - WAREHOUSE	2547	20	1			3988	-	-	1441	------------	6
7	LTG - WAREHOUSE	2730	20	1	4171			3	15	1441	CF-2	8
9	LTG - WAREHOUSE	1680	20	1		3121		-	-	1441	------------	10
11	LTG - WAREHOUSE	1260	20	1			2701	-	-	1441	------------	12
13	FORKLIFT CHARGER	6651	30	3	8092			3	15	1441	CF-3	14
15	------------	6651	-	-		8092		-	-	1441	------------	16
17	------------	6651	-	-			8092	-	-	1441	------------	18
19	FORKLIFT CHARGER	6651	30	3	8092			3	15	1441	CF-4	20
21	------------	6651	-	-		8092		-	-	1441	------------	22
23	------------	6651	-	-			8092	-	-	1441	------------	24
25	FORKLIFT CHARGER	6651	30	3	16073			3	60	9422	AIR COMPRESSOR	26
27	------------	6651	-	-		16073		-	-	9422	------------	28
29	------------	6651	-	-			16073	-	-	9422	------------	30
31	FORKLIFT CHARGER	6651	30	3	24664			3	100	18013	DUST COLLECTOR	32
33	------------	6651	-	-		24664		-	-	18013	------------	34
35	------------	6651	-	-			24664	-	-	18013	------------	36
37	TRASH COMPACTOR	3880	30	3	3880					0	SPACE	38
39	------------	3880	-	-		3880				0	SPACE	40
41	------------	3880	-	-			3880			0	SPACE	42
43	SPACE	0			0					0	SPACE	44
45	SPACE	0				0				0	SPACE	46
47	SPACE	0					0			0	SPACE	48
49	SPACE	0			0					0	SPACE	50
51	SPACE	0				0				0	SPACE	52
53	SPACE	0					0			0	SPACE	54
55	SPACE	0			19709			3	100	19709	TO PANEL 'L2'	56
57	SPACE	0				17226		-	-	17226	------------	58
59	SPACE	0					15977	-	-	15977	------------	60
TOTALS					88,432	84,479	83,467					

TOTAL LOAD: 256,378

LOADS	CONTINUOUS	NON-CONTINUOUS	DEMAND FACTOR/CALCULATION				DEMAND LOAD
EXISTING	0	0	125% x	0			0
LIGHTING	0	12,417	125% x	0	+ 100% x	12417	12,417
RECEPTACLE	0	11,352	100% x	10000	+ 50% x	1352	10,676
MOTOR	0	133,275	125% x	0	+ 100% x	133275	133,275
FIXED HEAT	0	10,500	100% x	10500			10500
A/C	0	7,072	100% x	7072			
KITCHEN EQUIP.	0	0	100 % x	0			0
MISC	0	81,762	125% X	0	+ 100% x	81762	81,762

TOTAL DEMAND LOAD: 248,630 VA
299 A

PANEL NOTES:
OVERCURRENT PROTECTIVE DEVICES SHALL HAVE SAME AIC RATING AS PANEL THEY ARE LOCATED IN.

PANEL SCHEDULE L2

VOLT/PHASE/WIRE: 120/208V/3PH/4W | AIC RATING: 10,000 AIC | MAIN BREAKER: 225A
MOUNT/ENCLOSURE: SURFACE/NEMA 1 | LOCATION: UTILITY ROOM | MAIN LUGS:

CKT NO	DESCRIPTION	LOAD	AMPS	POLES	A	B	C	POLES	AMPS	LOAD	DESCRIPTION	CKT NO
1	REC - WAREHOUSE	360	20	1	2128			-	-	1768	MOU-1	2
3	REC - PORTABLE OFFICE	1080	20	1		2848		-	-	1768	------------	4
5	WALK-IN CONTROLS AND LIGHTS	500	20	1			2268	2	25	1768	MOU-2	6
7	REC - PALLET WRAP	1440	20	1	3208			-	-	1768	------------	8
9	REC - PRODUCT SCALE	192	20	1		535		2	20	343	EF-3	10
11	OVERHEAD DOORS	1040	15	2			1383	-	-	343	------------	12
13	------------	1040	-	-	2190			2	20	1150	WALK-IN FRIDGE CONDENSER	14
15	OVERHEAD DOORS	1040	15	2		2190		-	-	1150	------------	16
17	------------	1040	-	-			1383	2	20	343	EF-4	18
19	REC - WAREHOUSE	1080	20	1	1423			-	-	343	------------	20
21	OVERHEAD DOORS	1040	15	2		1383		2	20	343	EF-5	22
23	------------	1040	-	-			1383	-	-	343	------------	24
25	UNIT HEATER	1500	20	1	2400			1	20	900	REC - ROOFTOP	26
27	UNIT HEATER	1500	20	1		2540		2	15	1040	OVERHEAD DOORS	28
29	REC - WAREHOUSE	1080	20	1			2120	-	-	1040	------------	30
31	OVERHEAD DOORS	1040	15	2	1760			1	20	720	REC - WAREHOUSE	32
33	------------	1040	-	-		2080		2	15	1040	OVERHEAD DOORS	34
35	REC - UTILITY	360	20	1			1400	-	-	1040	------------	36
37	EUH-13	1500	20	1	2540			2	15	1040	OVERHEAD DOORS	38
39	WH-1/RP-1	450	20	1		1490		-	-	1040	------------	40
41	OVERHEAD DOOR	520	15	2			1240	1	20	720	REC - WAREHOUSE/SAMPLING	42
43	------------	520	-	-	2020			1	20	1500	UNIT HEATER	44
45	REC - MAINTENANCE	1440	20	1		2940		1	20	1500	UNIT HEATER	46
47	EUH-2	1500	20	1			2220	1	20	720	REC - WAREHOUSE	48
49	OVERHEAD DOORS	1040	15	2	1040			1	20	0	SPARE	50
51	------------	1040	-	-		1040		1	20	0	SPARE	52
53	REC - PORTABLE OFFICE	1080	20	1			1080	1	20	0	SPARE	54
55	HAND DRYER	1000	20	1	1000			1	20	0	SPARE	56
57	REC - RESTROOM	180	20	1		180		1	20	0	SPARE	58
59	EUH-13	1500	20	1			1500	1	20	0	SPARE	60
61	SPARE	0	20	1	0			1	20	0	SPARE	62
63	SPARE	0	20	1		0		1	20	0	SPARE	64
65	SPARE	0	20	1			0	1	20	0	SPARE	66
67	SPARE	0	20	1	0			1	20	0	SPARE	68
69	SPARE	0	20	1		0		1	20	0	SPARE	70
71	SPARE	0	20	1			0	1	20	0	SPARE	72
73	SPARE	0	20	1	0			1	20	0	SPARE	74
75	SPARE	0	20	1		0		1	20	0	SPARE	76
77	SPARE	0	20	1			0	1	20	0	SPARE	78
79	SPARE	0	20	1	0			1	20	0	SPARE	80
81	SPARE	0	20	1		0		1	20	0	SPARE	82
83	SPARE	0	20	1			0	1	20	0	SPARE	84
TOTALS					19,709	17,226	15,977					

TOTAL LOAD: 52,912

LOADS	CONTINUOUS	NON-CONTINUOUS	DEMAND FACTOR/CALCULATION				DEMAND LOAD
EXISTING	0	0	125% x	0			0
LIGHTING	0	0	125% x	0	+ 100% x	0	0
RECEPTACLE	0	11,352	100% x	10000	+ 50% x	1352	10,676
MOTOR	0	22,038	125% x	0	+ 100% x	22038	22,038
FIXED HEAT	0	10,500	100% x	10500			10500
A/C	0	7,072	100% x	7072			
KITCHEN EQUIP.	0	0	100 % x	0			0
MISC	0	1,950	125% X	0	+ 100% x	1950	1,950

TOTAL DEMAND LOAD: 45,164 VA
125 A

PANEL NOTES:
OVERCURRENT PROTECTIVE DEVICES SHALL HAVE SAME AIC RATING AS PANEL THEY ARE LOCATED IN.

PANEL SCHEDULE H3

VOLT/PHASE/WIRE: 277/480V/3PH/4W | AIC RATING: 10,000 AIC | MAIN BREAKER:
MOUNT/ENCLOSURE: SURFACE/NEMA 1 | LOCATION: EAST WALL OF OFFICE | MAIN LUGS: 400A

CKT NO	DESCRIPTION	LOAD	AMPS	POLES	A	B	C	POLES	AMPS	LOAD	DESCRIPTION	CKT NO
1	LTG - OFFICE/OPEN OFFICE	1599	20	1	5202			3	15	3603	RTU-1	2
3	LTG - TASTING/LOBBY/CONF.	1688	20	1		5291		-	-	3603	------------	4
5	MUNSON 250	12428	80	3			16031	-	-	3603	------------	6
7	------------	12428	-	-	16031			3	15	3603	RTU-3	8
9	------------	12428	-	-		16031		-	-	3603	------------	10
11	BLEND 250 SIFTER	4434	20	3			8037	-	-	3603	------------	12
13	------------	4434	-	-	8037			3	15	3603	RTU-4	14
15	------------	4434	-	-		8037		-	-	3603	------------	16
17	MUNSON 300	14915	100	3			18518	-	-	3603	------------	18
19	------------	14915	-	-	17686			3	15	2771	RTU-5	20
21	------------	14915	-	-		17686		-	-	2771	------------	22
23	BLEND 300 SIFTER	4434	20	3			7205	-	-	2771	------------	24
25	------------	4434	-	-	11085			3	30	6651	RTU-2	26
27	------------	4434	-	-		11085		-	-	6651	------------	28
29	SPACE	0					6651	-	-	6651	------------	30
31	SPACE	0			19398			3	80	19398	RTU-11	32
33	SPACE	0				19398		-	-	19398	------------	34
35	SPACE	0					19398	-	-	19398	------------	36
37	SPACE	0			11431			3	100	11431	TO PANEL 'L3'	38
39	SPACE	0				11243		-	-	11243	------------	40
41	SPACE	0					7079	-	-	7079	------------	42
TOTALS					88,870	88,771	82,919					

TOTAL LOAD: 260,560

LOADS	CONTINUOUS	NON-CONTINUOUS	DEMAND FACTOR/CALCULATION				DEMAND LOAD
EXISTING	0	0	125% x	0			0
LIGHTING	3,557	0	125% x	3557	+ 100% x	0	4,446
RECEPTACLE	0	1,980	100% x	1980	+ 50% x	0	1,980
MOTOR	0	108,633	125% x	0	+ 100% x	108633	108,633
FIXED HEAT	0	0	100% x	0			146389.9872
A/C	0	146,390	100% x	146390			
KITCHEN EQUIP.	0	0	100 % x	0			0
MISC	0	0	125% X	0	+ 100% x	0	0

TOTAL DEMAND LOAD: 261,449 VA
314 A

PANEL NOTES:
OVERCURRENT PROTECTIVE DEVICES SHALL HAVE SAME AIC RATING AS PANEL THEY ARE LOCATED IN.

PANEL SCHEDULE L3

VOLT/PHASE/WIRE: 120/208V/3PH/4W | AIC RATING: 10,000 AIC | MAIN BREAKER: 225A
MOUNT/ENCLOSURE: SURFACE/NEMA 1 | LOCATION: EAST WALL OF OFFICE | MAIN LUGS:

CKT NO	DESCRIPTION	LOAD	AMPS	POLES	A	B	C	POLES	AMPS	LOAD	DESCRIPTION	CKT NO
1	LTG - DECORATIVE	1603	20	1	5685			2	60	4082	MCU-1	2
3	ERV-1	1333	15	3		5415		-	-	4082	------------	4
5	------------	1333	-	-			3231	2	25	1898	MCU-2	6
7	------------	0	-	-	1898			-	-	1898	------------	8
9	REC - WAREHOUSE	1080	20	1		3004		2	25	1924	MCU-3	10
11	STORAGE 120 OH DOOR	562	20	2			2486	-	-	1924	------------	12
13	------------	562	-	-	2486			2	25	1924	MCU-4	14
15	REC - STORAGE 120	360	20	1		2284		-	-	1924	------------	16
17	REC - RESTROOM 3 & 4	720	20	1			2644	2	25	1924	MCU-5	18
19	RESTROOM 3 HAND DRYER*	1440	20	1	3364			-	-	1924	------------	20
21	RESTROOM 4 HAND DRYER*	1440	20	1		2340		1	20	900	REC - ROOFTOP	22
23	DRINKING FOUNTAIN 1	500	20	1			1000	1	20	500	DRINKING FOUNTAIN 2	24
25	REC - BREAK ROOM TABLES	900	20	1	1620			1	20	720	REC - BREAK ROOM TVS	26
27	REC - BREAK ROOM CONV	720	20	1		1720		1	20	1000	BREAK ROOM FRIDGE	28
29	REC - BREAK ROOM COUTNER 1	600	20	1			1600	1	20	1000	BREAK ROOM DISPOSAL	30
31	BREAK ROOM DISHWASHER	1500	20	1	2100			1	20	600	REC - BREAK ROOM COUNTER 2	32
33	BREAK ROOM MICROWAVE 1	1100	20	1		2200		1	20	1100	BREAK ROOM MICROWAVE 2	34
35	VENDING MACHINE 1	1000	20	1			2000	1	20	1000	VENDING MACHINE 2	36
37	VENDING MACHINE 3	1000	20	1	2200			1	20	1200	REC - BREAK ROOM ISLAND	38
39	REC - CONFERENCE ROOM 1	900	20	1		1530		1	20	630	REC - JANITOR CLOSET / WH-2 / RP-2	40
41	REC - RECEPTION DESK	360	20	1			900	1	20	540	REC - RECEPTION AREA	42
43	REC - TASTING ROOM BACK COUNTER	360	20	1	1080			1	20	720	REC - TASTING ROOM BAR	44
45	RE C- LAB DESK PAIR 1	1440	20	1		2340		1	20	900	REC - LAB CONVENIENCE	46
47	REC - LAB DESK PAIR 3	1440	20	1			2880	1	20	1440	REC - LAB DESK PAIR 2	48
49	LAB DISHWASHER 1	1500	20	1	1860			1	20	360	REC - WASH ROOM COUNTER 1	50
51	LAB DISHWASHER 2	1500	20	1		1860		1	20	360	REC - WASH ROOM COUNTER 2	52
53	REC - CONFERENCE ROOM 2	900	20	1			1080	1	20	180	REC - WASH ROOM CONV.	54
55	REC - OPEN OFFICE CONV.	900	20	1	2160			1	20	1260	REC - OFFICES 133/134	56
57	DRINKING FOUNTAIN 3	500	20	1		1040		1	20	540	REC - HALLWAY CONV.	58
59	RESTROOM 1 HAND DRYER	1440	20	1			2160	1	20	720	REC - RESTROOM 1&2	60
61	OPEN OFFICE FLOOR BOX 1	720	20	1	2160			1	20	1440	RESTROOM 2 HAND DRYER	62
63	OPEN OFFICE FLOOR BOX 3	720	20	1		1440		1	20	720	OPEN OFFICE FLOOR BOX 2	64
65	REC - OFFICES 125/126	1080	20	1			1800	1	20	720	OPEN OFFICE FLOOR BOX 4	66
67	REC - OFFICES 129/130	1080	20	1	2160			1	20	1080	REC - OFFICES 127/128	68
69	REC - OFFICE 131	540	20	1		540		1	20	0	SPARE	70
71	SPARE	0	20	1			0	1	20	0	SPARE	72
73	SPARE	0	20	1	0			1	20	0	SPARE	74
75	SPARE	0	20	1		0		1	20	0	SPARE	76
77	SPARE	0	20	1			0	1	20	0	SPARE	78
79	SPARE	0	20	1	0			1	20	0	SPARE	80
81	SPARE	0	20	1		0		1	20	0	SPARE	82
83	SPARE	0	20	1			0	1	20	0	SPARE	84
TOTALS					28,773	25,713	21,781					

TOTAL LOAD: 76,267

LOADS	CONTINUOUS	NON-CONTINUOUS	DEMAND FACTOR/CALCULATION				DEMAND LOAD
EXISTING	0	0	125% x	0			0
LIGHTING	270	0	125% x	270	+ 100% x	0	338
RECEPTACLE	0	27,960	100% x	10000	+ 50% x	17960	18,980
MOTOR	0	2,202	125% x	0	+ 100% x	2202	2,202
FIXED HEAT	0	0	100% x	0			27502.9472
A/C	0	27,503	100% x	27503			
KITCHEN EQUIP.	0	10,700	100 % x	10700			10,700
MISC	0	7,632	125% X	0	+ 100% x	7632	7,632

TOTAL DEMAND LOAD: 67,354 VA
187 A

PANEL NOTES:
OVERCURRENT PROTECTIVE DEVICES SHALL HAVE SAME AIC RATING AS PANEL THEY ARE LOCATED IN.

SENSAPURE TI
4170 W 2100 N
LEHI, UT 84043

STAMP
REGISTERED PROFESSIONAL ENGINEER
No. 7945859-2202
DAVID W. STEWARD
05/30/2025
STATE OF UTAH

REVISIONS

ROCKY MOUNTAIN
CONSULTING ENGINEERS, INC.
2332 West 12600 South, Suite F | Riverton, UT 84065
(801) 566-0503 www.rmceut.com

PROJECT #: 25075
DRAWN BY: QG
CHECKED BY: WW
DATE: 05/30/2025

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SHEET TITLE:
ELECTRICAL SCHEDULES

E602