

SHEET INDEX

General	
G01	GENERAL INFORMATION
G02	CODE PLAN & INFORMATION
G03	SPECIFICATIONS
G04	SPECIFICATIONS
Architecture	
A10	FLOOR PLAN
A15	REFLECTED CEILING PLAN
A20	ELEVATIONS
A25	INTERIOR ELEVATIONS
A30	SECTIONS
A40	ENLARGED PLANS
A50	PLAN & SECTION DETAILS
A60	FINISH PLAN & SCHEDULE
A65	SCHEDULES & DETAILS
MEP	
MEP10	SPECIFICATIONS
MEP11	SPECIFICATIONS
Mechanical	
M01	FLOOR PLAN - MECHANICAL DEMOLITION
M10	FLOOR PLAN - MECHANICAL NEW WORK
M20	MECHANICAL DETAILS
M21	MECHANICAL DETAILS & SCHEDULES
Plumbing	
P01	FLOOR PLAN - PLUMBING DEMOLITION
P10	FLOOR PLAN - PLUMBING NEW WORK
Electrical	
E01	FLOOR PLAN - ELECTRICAL DEMOLITION
E10	FLOOR PLAN - POWER & SYSTEMS
E20	FLOOR PLAN - LIGHTING
E30	ELECTRICAL DETAILS
E40	ELECTRICAL SCHEDULES, GEN NOTES & SYMBOLS

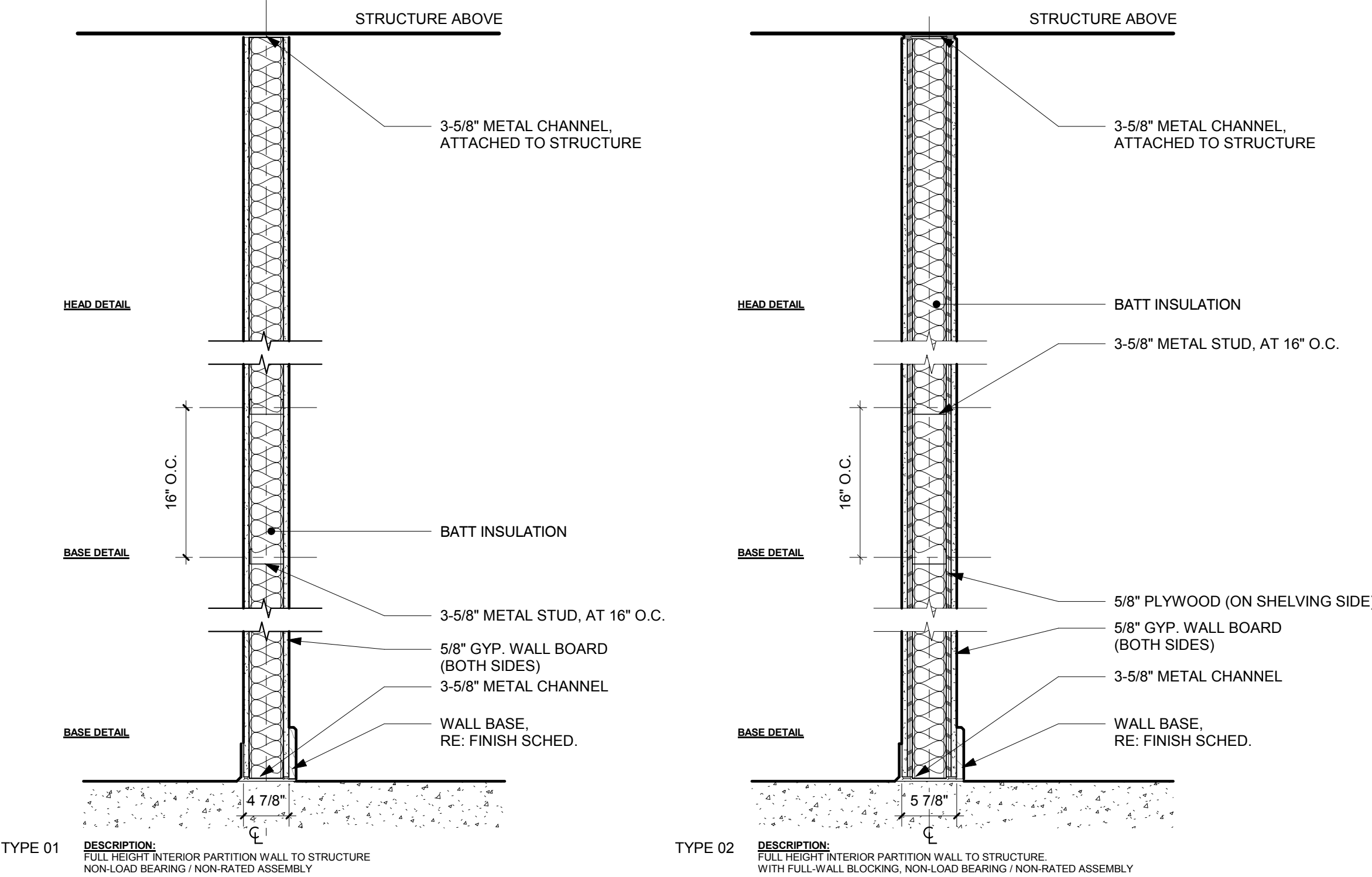
FRESH GREEN - LEES SUMMIT

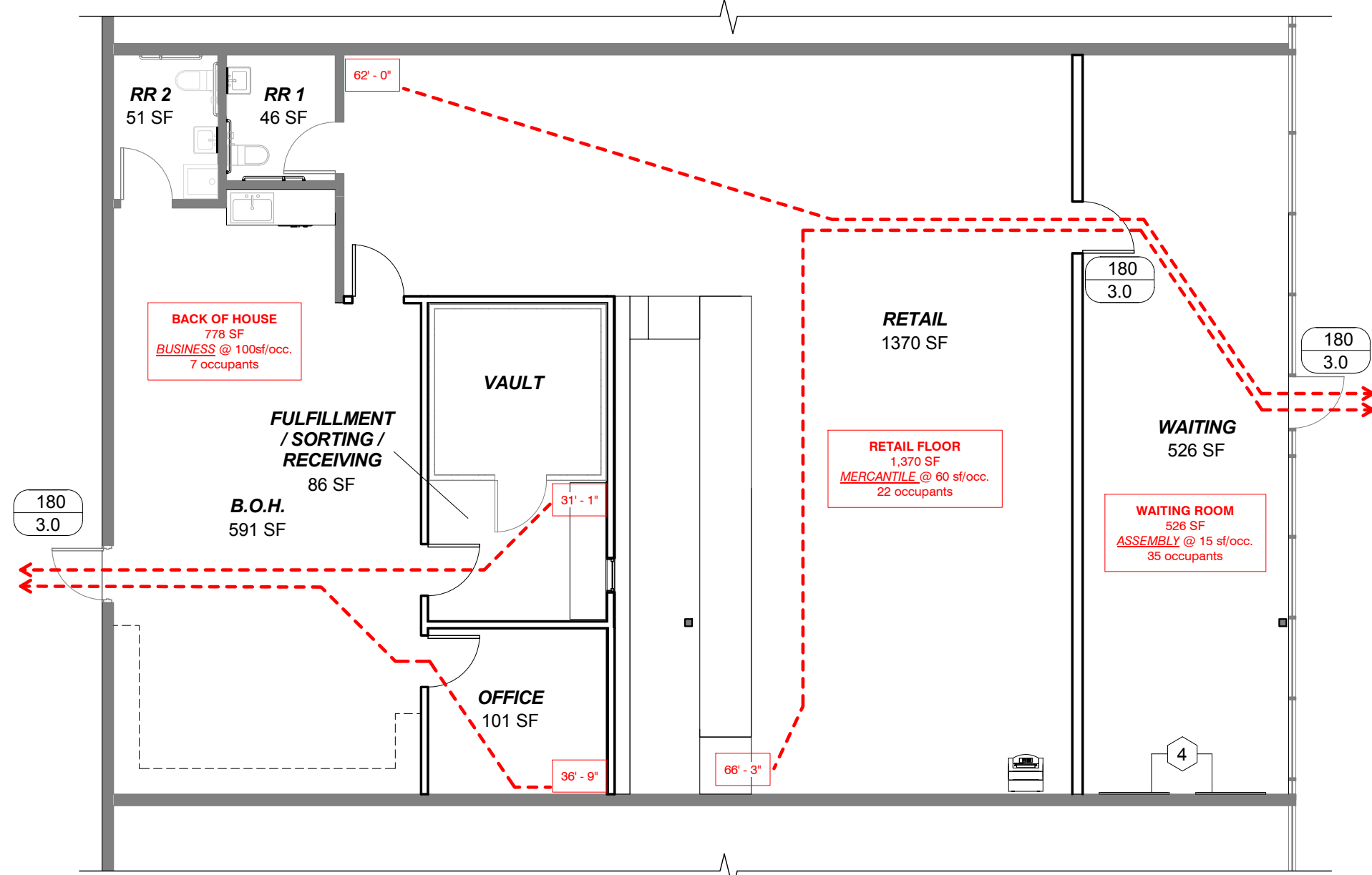
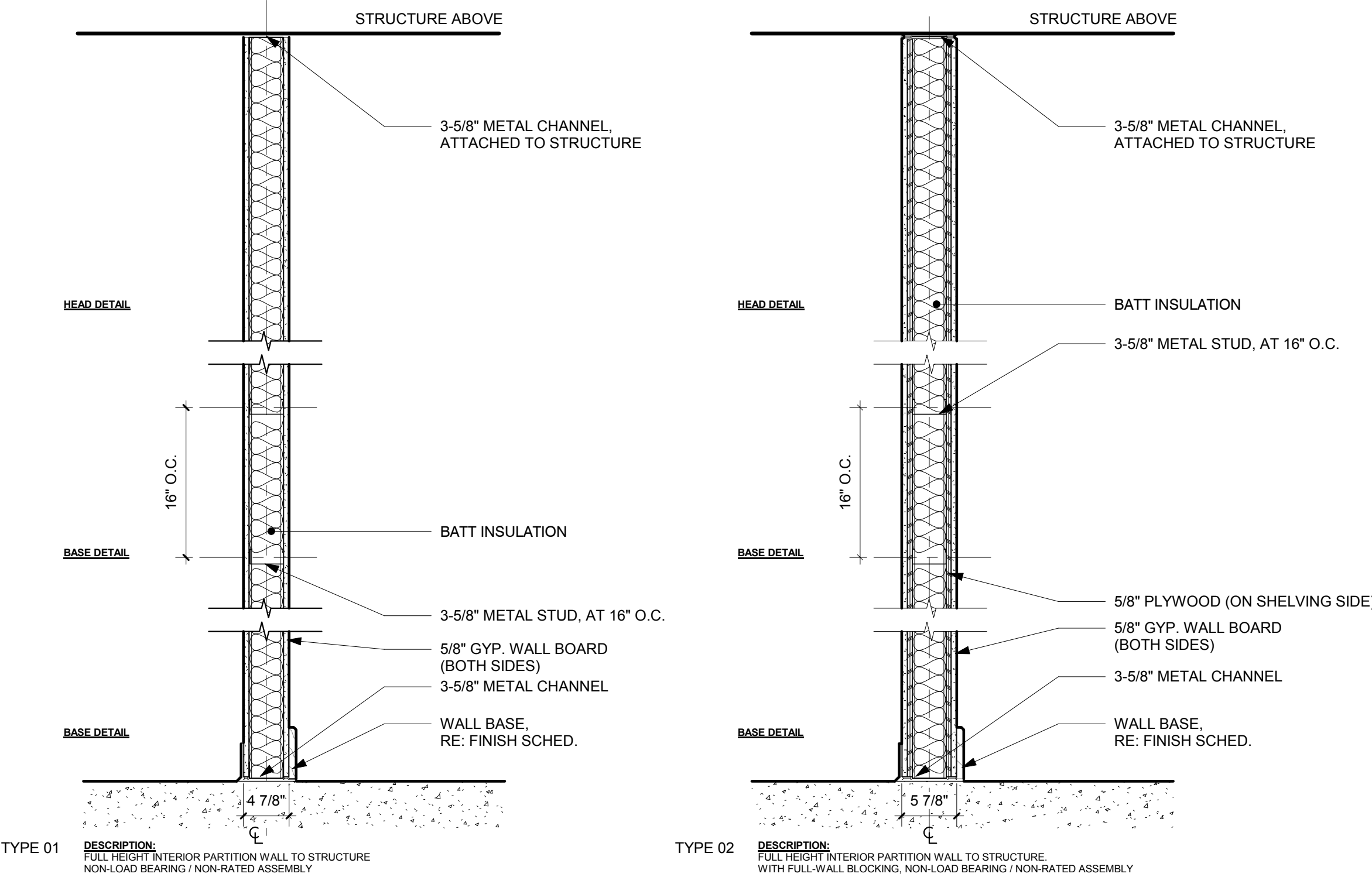


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APPLICABLE CODES JURISDICTION : THE CITY OF LEES SUMMIT, MO. 2018 INTERNATIONAL BUILDING CODE 2018 INTERNATIONAL MECHANICAL CODE 2017 NATIONAL ELECTRICAL CODE 2018 INTERNATIONAL PLUMBING CODE		
PROJECT DESCRIPTION FRESH GREEN - LEES SUMMIT IS LOCATED AT 1041 NE SAM WALTON DR. IN LEES SUMMIT, MO. THE EXISTING PROPERTY CONSISTS OF A SINGLE STORY COMMERCIAL BUILDING. THE CONSTRUCTION TYPE OF THE EXISTING BUILDING IS <u>II-B</u> . THE SCOPE OF THE PROJECT INCLUDES DEMOLITION OF EXISTING NON LOAD-BEARING INTERIOR WALLS AND PATCHING, REMOVAL OF INTERIOR FINISHES AND FIXTURES. THE SCOPE OF THE PROJECT INCLUDES TENANT INTERIOR FINISH OF AN EXISTING 1 STORY RETAIL BUILDING. LEGAL DESCRIPTION RITTER PLAZA LOT 2 (EX PT IN ROW) GENERAL BUILDING HEIGHTS AND AREAS EXISTING BUILDING IS SINGLE STORY BUILDING - 3,039 GSF GENERAL BUILDING CODE INFORMATION CHAPTER 3 - USE AND OCCUPANCY OCCUPANCY CLASSIFICATION: <u>M</u> (MERCANTILE) OCCUPANCY (SECTION 309) <u>B</u> (BUSINESS) OCCUPANCY (SECTION 304) CHAPTER 5 - GENERAL BUILDING HEIGHTS AND AREAS ALLOWABLE BUILDING HEIGHT AND AREAS (SECTION 503): 2 STORIES, <u>12,500</u> SF PER STORY BUILDING HEIGHT MODIFICATIONS (SECTION 504): <u>NONE</u> BUILDING AREA MODIFICATIONS (SECTION 506): <u>NONE</u> CHAPTER 6 - TYPES OF CONSTRUCTION FIRE RESISTANT REQUIREMENTS FOR BUILDING ELEMENTS (SECTION 601): STRUCTURAL FRAME: 2 HOUR BEARING WALLS, EXTERIOR: 2 HOUR NON BEARING WALLS: 0 HOUR FLOOR CONSTRUCTION: 2 HOUR ROOF CONSTRUCTION: 1 HOUR CONSTRUCTION TYPE (SECTION 602): TYPE <u>II-B</u> CHAPTER 7 - FIRE AND SMOKE PROTECTION FEATURES FIRE RESISTANT REQUIREMENTS FOR BUILDING ELEMENTS FIRE WALLS (SECTION 706): 2 HOUR FIRE BARRIERS (SECTION 707): 2 HOUR FIRE PARTITIONS (SECTION 708): <u>N/A</u> SMOKE BARRIERS (SECTION 709): <u>N/A</u> HORIZONTAL ASSEMBLIES (SECTION 711): <u>N/A</u> SHAFT ENCLOSURES (SECTION 713): 2 HOUR CONCEALED SPACES (SECTION 718): <u>N/A</u> CHAPTER 9 - FIRE PROTECTION SYSTEM AUTOMATIC SPRINKLER SYSTEM (903.2.11.3) - NONE FIRE ALARM SYSTEM (907.2.2.2) - EXISTING FIRE EXTINGUISHERS (906) - <u>REQUIRED</u> CHAPTER 10 - MEANS OF EGRESS TENANT ALLOWABLE OCCUPANCY (SECTION 1004): <u>A-3 (ASSEMBLY)</u> 526 / 15 = 35 OCCUPANTS 35 < 49 = 1 EXIT REQUIRED TENANT ALLOWABLE OCCUPANCY (SECTION 1004): <u>B (BUSINESS)</u> 1370 / 100 = 13.7 OCCUPANTS 13.7 < 49 = 1 EXIT REQUIRED TENANT ALLOWABLE OCCUPANCY (SECTION 1004): <u>M (MERCANTILE)</u> 1,370 / 60 = 22.83 OCCUPANTS 22.83 < 49 = 1 EXIT REQUIRED SPACES WITH ONE MEANS OF EGRESS (SECTION 1021.2): <u>B (BUSINESS)</u> 49 OCC. MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (SECTION 1014.3): OCCUPANCY W/O SPRINKLER W/ SPRINKLER <u>B</u> 75 FEET 100 FEET EXIT ACCESS TRAVEL DISTANCE (SECTION 1016): OCCUPANCY W/O SPRINKLER W/ SPRINKLER <u>B</u> 200 FEET 300 FEET CORRIDOR RATING REQUIRED (SECTION 1018.1): OCCUPANCY W/O SPRINKLER W/ SPRINKLER <u>B</u> 1 HOUR 0 HOURS DEAD ENDS (SECTION 1018.4): OCCUPANCY W/O SPRINKLER W/ SPRINKLER <u>B</u> 20 FEET 50 FEET CHAPTER 29 - MINIMUM PLUMBING FACILITIES WATER CLOSET REQUIREMENTS: 1 PER 500 SEPARATE FACILITIES NOT REQUIRED FOR OCCUPANCY <u>M</u> (MERCANTILE) FOR LOADS LESS THAN 100. BUILDING OCCUPANT LOAD = 64 1 RESTROOM REQUIRED <u>PROVIDED</u> = 1 CONFORMING RESTROOM, 1 EXISTING NON-CONFORMING RESTROOM LAVATORY REQUIREMENTS: 1 PER 750 BUILDING OCCUPANT LOAD = 64 1 RESTROOM REQUIRED <u>PROVIDED</u> = 1 CONFORMING RESTROOM, 1 EXISTING NON-CONFORMING RESTROOM CODE PLAN LEGEND ROOM OCCUPANT LOAD 101 ROOM NAME & NUMBER 150 SF ROOM NAME 150 SF SQUARE FEET OF SPACE OR ROOM FE FIRE EXTINGUISHER EXIT WIDTH FACTORS: STAIRS: 0.2" PER OCCUPANT SERVED DOORS: 0.3" PER OCCUPANT SERVED EXITING OCCUPANT LOAD XXX ALLOWABLE NUMBER OF OCCUPANTS X.X EXIT WIDTH IN DECIMAL FEET TRAVEL PATH / DISTANCE 2-HR RATED WALL 1-HR RATED WALL		
CODE INFORMATION		

	
03	VICINITY MAP
/	N.T.S.
	
01	INTERIOR WALL ASSEMBLIES
	1" = 1'-0"

	
02	FLOOR PLAN
	1/8" = 1'-0"
	
CODE PLAN & INFORMATION	
sheet number	
G02	



FRESH GREEN - LEES SUMMIT

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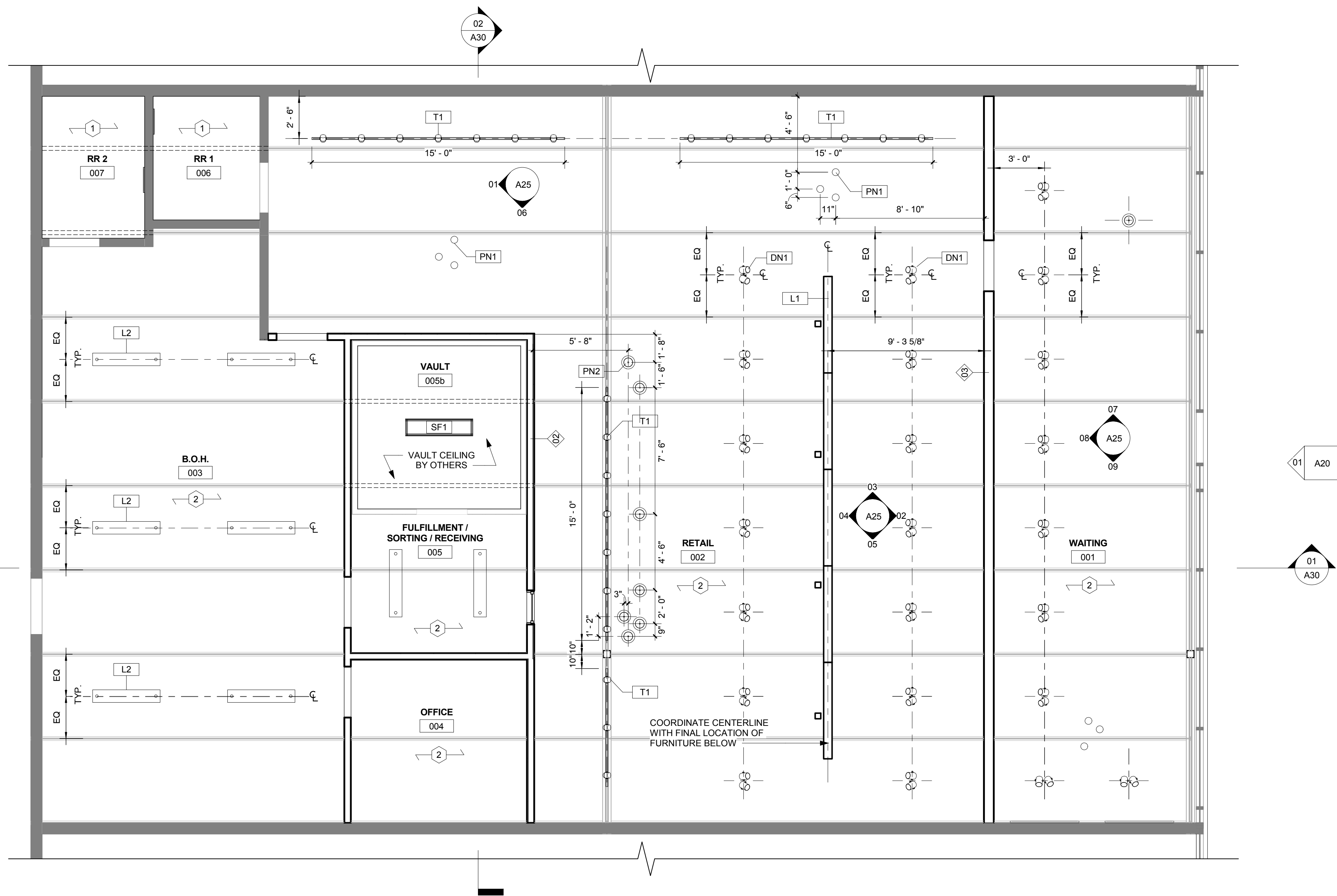
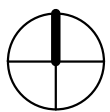
CODE PLAN & INFORMATION

sheet number

G02

SECTION 01 00 - SUMMARY 1. Project Name: FRESH GREEN - LEES SUMMIT 2. Owner's Name: FRESH GREEN 3. Architect's Name: HIVE Design Collaborative, Inc. 4. The Project consists of typical interior Tenant Finish Retail 5. Coordinate with Owner / Tenant on all items to be supplied and installed by Owner. 6. Coordinate with Owner / Tenant on occupancy requirements during the construction period. 7. Coordinate with Owner / Tenant to minimize conflict and to facilitate building operations. 8. Coordinate with Owner / Tenant on Utility Outages and Shutdowns. 9. Provide access to and from spaces as required by law and by Owner. 10. Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered. 11. Do not obstruct roadways, sidewalks, or other public ways without permit. SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES 1. Coordinate requirements with Owner / Tenant on all pricing and payment procedures. SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS 1. Coordinate requirements with Owner / Tenant for progress meetings, construction schedules, shop drawings and submittals. SECTION 01 40 00 - QUALITY REQUIREMENTS 1. For products and workmanship specified by reference to a document or documents not included in these specifications, also referred to as reference standards, comply with requirements of the standard, except where more rigid requirements are specified or are required by applicable codes. 2. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code. 3. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding. 4. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document. 5. Monitor quality control over suppliers, manufacturers, products, service, site conditions, and workmanship, to produce Work of specified quality. 6. Comply with manufacturers' instructions, including each step in sequence. 7. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding. 8. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship. 9. Have Work performed by persons qualified to produce required and specified quality. 10. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer. 11. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical disturbance, and disfigurement. 12. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate. 13. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding. 14. Adjust products to appropriate dimensions; position before securing products in place. 15. Replace Work or portions of the Work not conforming to specified requirements. 16. If, in the opinion of the Owner or Architect, it is not practical to remove and replace the Work, the Owner or Architect will direct an appropriate remedy or adjust payment. SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS 1. Coordinate requirements and restrictions with Owner / Tenant on all temporary utilities, facilities, barriers and enclosures as well as security, vehicle access, parking, waste removal and project signs. SECTION 01 60 00 - PRODUCT REQUIREMENTS 1. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this installation. 2. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances. 3. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work. 4. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns. 5. Provide new products unless specifically required or permitted by the Contract Documents. 6. Where all other criteria are met, Contractor shall give preference to products that are extracted, harvested, and/or manufactured closest to the location of the project; have longer documented life span under normal use, result in less waste, and are made of vegetable materials that are rapidly renewable. 7. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description. 8. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed. 9. Provide extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections. 10. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials. 11. Transport and handle products in accordance with manufacturer's instructions. 12. Protect existing equipment and personnel by handling products by proper hoisting, disfigurement, or damage. 13. Arrange for the return of packing materials, such as wood pallets, where economically feasible. 14. Store and protect products in accordance with manufacturers' instructions. SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS 1. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions. 2. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached. 3. Examine and verify specific conditions described in individual specification sections. 4. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication. 5. Verify that utility services are available, of the correct characteristics, and in the correct locations. 6. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions. PREPARATION 1. Clean substrate surfaces prior to applying new material or substance. 2. Seal cracks or openings of substrate prior to applying new material or substance. 3. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact with substrate. GENERAL INSTALLATION REQUIREMENTS 1. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and as so as to avoid waste due to necessity for replacement. 2. Make vertical elements plumb and horizontal elements level, unless otherwise indicated. 3. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated. 4. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated. 5. Make neat transitions between different surfaces, maintaining texture and appearance. ALTERATIONS 1. Adapt existing work to fit new work: Make as neat and smooth transition as possible. 2. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish. 3. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified finish, and patch to match with a neat transition to adjacent finishes. 4. Clean existing systems and equipment. 5. Do not begin new construction in alterations areas before demolition is complete. CUTTING AND PATCHING 1. Whenever possible, execute the work by methods that avoid cutting or patching. 2. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to specified condition. 3. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces. 4. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval. 5. Restore work with new products in accordance with requirements of Contract Documents. 6. Fit work air tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces. 7. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element. 8. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit. Match color, texture, and appearance. 9. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish. PROGRESS CLEANING 1. Maintain area free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition. 2. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space. 3. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust. 4. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury. PROTECTION OF INSTALLED WORK 1. Protect installed work from damage by construction operations. 2. Provide special protection where specified in individual specification sections. 3. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage. 4. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings. 5. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials. 6. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer. 7. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.	ADJUSTING 1. Adjust operating products and equipment to ensure smooth and unhindered operation. 2. FINAL CLEANING AND CLOSEOUT PROCEDURES 3. Use cleaning materials that are nonhazardous. 4. Clean glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces. 5. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on electrical and mechanical equipment. 6. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned. 7. Clean filters of operating equipment. 8. Remove waste, surplus materials, and trash/rubbish; dispose of in legal manner. 9. Coordinate with Owner / Tenant on project closeout procedures. SECTION 01 78 00 - CLOSEOUT SUBMITTALS PROJECT RECORD DOCUMENTS 1. Maintain on site one set of the following record documents; record actual revisions to the Work: Drawings. Addenda. Change Orders and other modifications to the Contract. 2. Ensure entries are complete and accurate, enabling future reference by Owner. 3. Store record documents separate from documents used for construction. 4. Record information concurrent with construction progress. 5. Record Drawings - Legibly mark each item to record actual construction including: Field changes of dimension and detail. Record actual construction of the Work. OPERATION AND MAINTENANCE DATA 1. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts. 2. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inappropriate information. 3. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings. 4. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions. OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES 1. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance. OPERATION AND MAINTENANCE MANUALS 1. Prepare manuals and data by personnel experienced in maintenance and operation of described products. 2. Prepare data in the form of an instructional manual. WARRANTIES AND BONDS 1. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty item to the Date of Substantial completion is determined. 2. Verify that documents are in proper form, contain full information, and are notarized. 3. Co-execute submittals when required. 4. Retain warranties and bonds until time specified for submittal. SECTION 02 41 19 - SELECTIVE STRUCTURE DEMOLITION 1. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public. 2. Obtain required permits. 3. Comply with applicable requirements of NFPA 241. 4. Provide, erect, and maintain temporary barriers and security devices. 5. Conduct operations to minimize effects on and interference with adjacent spaces, structures and occupants. 6. Do not close or obstruct roadways or sidewalks without permit. 7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations. 8. Do not cover or install freestanding utility inspected by authority having jurisdiction. 9. Protect existing structures and other elements that are not to be removed. 10. Provide bracing and shoring. 11. Prevent movement or settlement of adjacent structures. 12. Stop work immediately if adjacent structures appear to be in danger. 13. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns. 14. Perform demolition in a manner that maximizes salvage and recycling of materials. 15. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only. Verify that construction and utility arrangements are as shown. Report discrepancies to Architect before disturbing existing installation. 16. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition. 17. Maintain weatherproof interior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage. 18. Remove existing work as indicated and as required to accomplish new work. 19. Remove existing systems and equipment as indicated. 20. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components. 21. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service. 22. Verify that abandoned services serve only abandoned facilities before removal. 23. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification. 24. Protect
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A10



REFLECTED CEILING PLAN GENERAL NOTES:

a. REFER TO THE FINISH SCHEDULE FOR CEILING MATERIAL AND FINISH.

b. NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN ELECTRICAL LIGHTING PLAN LAYOUT AND REFLECTED CEILING PLAN LAYOUT.

c. REFER TO ELECTRICAL DRAWINGS FOR LIGHTING, CIRCUITING, AND SPECIFICATIONS. ARCHITECTURAL DRAWINGS GOVERN LIGHTING LOCATIONS.

d. REFER TO MECHANICAL FOR DUCTWORK, DIFFUSERS, ETC.

e. GC TO VERIFY ANY & ALL LIGHTING, FIRE SPRINKLER AND HVAC CONFLICTS PRIOR TO ANY BIDDING AND GRID MODIFICATIONS. NOTIFY ARCHITECT OF ISSUES.

CEILING PLAN KEY NOTES:

1 EXISTING GYP. BD. CEILING AND LIGHT FIXTURES TO REMAIN. PROTECT AS REQUIRED.

2 EXPOSED CEILING & STRUCTURE PAINTED, RE: FINISH SCHED.



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SUMMIT

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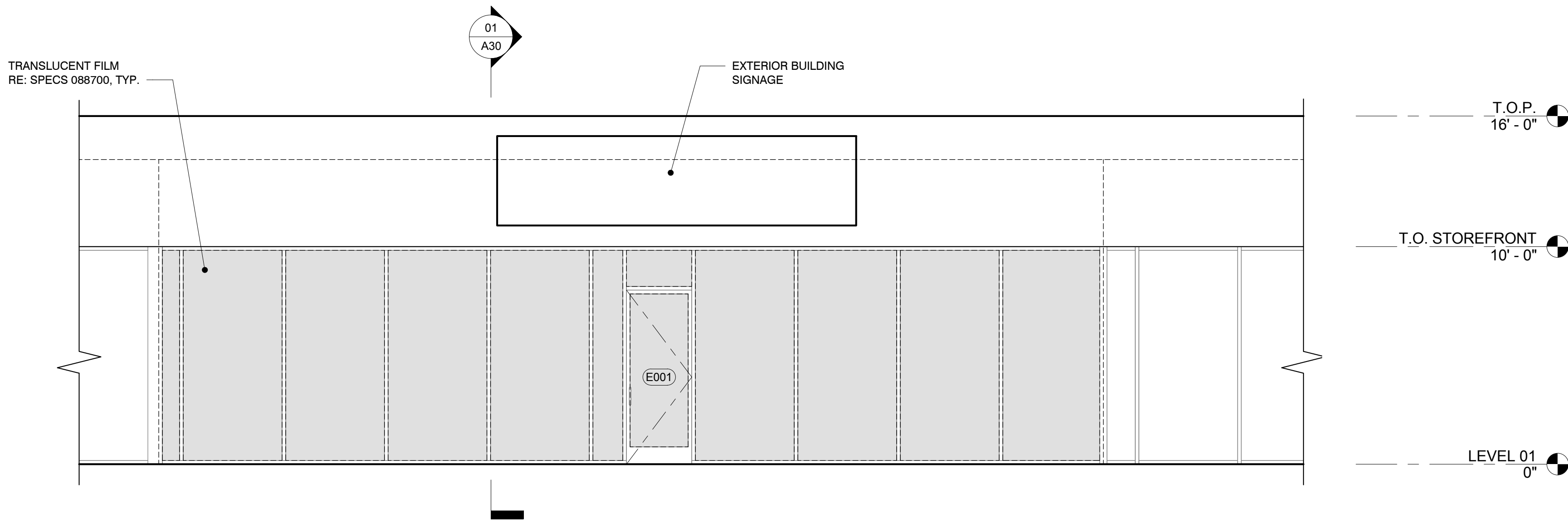
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CEILING PLAN

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A15

01 EXTERIOR ELEVATION

1/4" = 1'-0"



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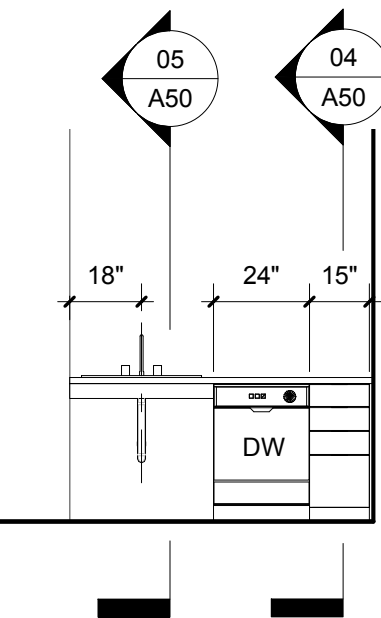
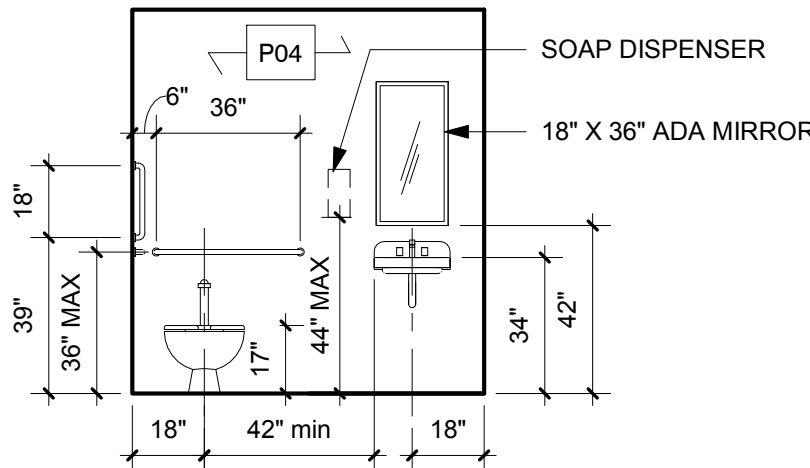
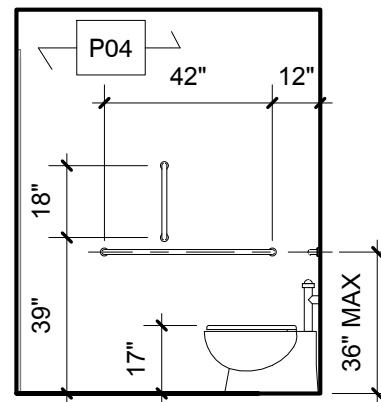
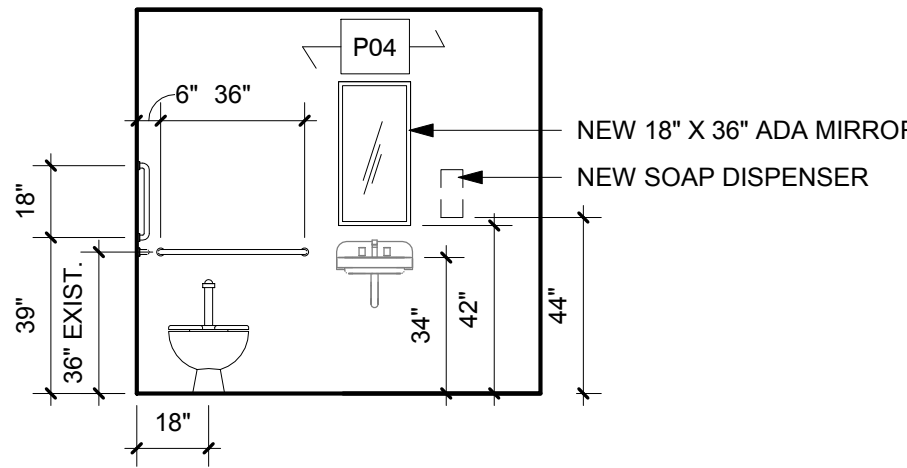
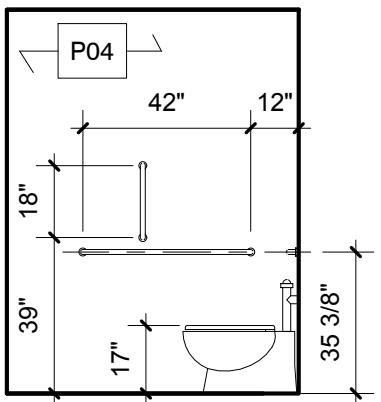
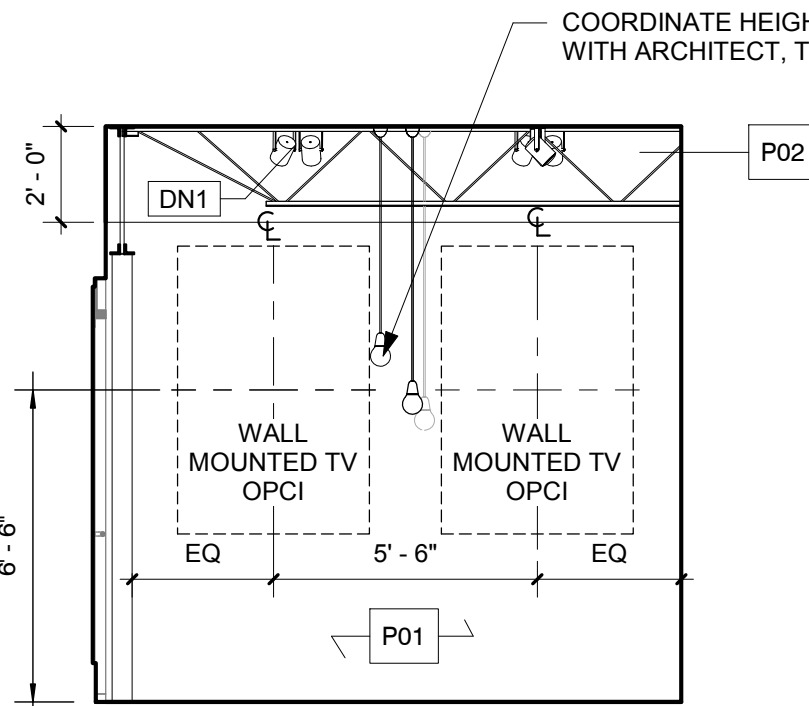
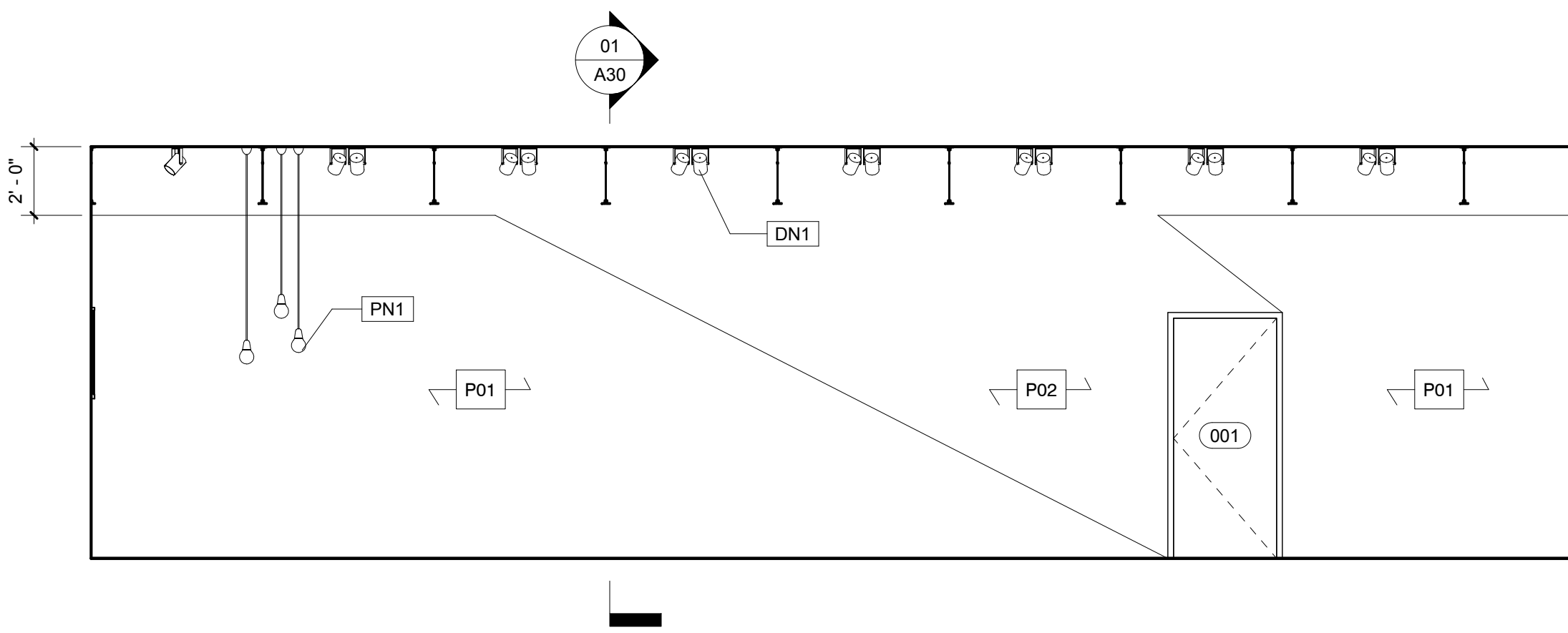
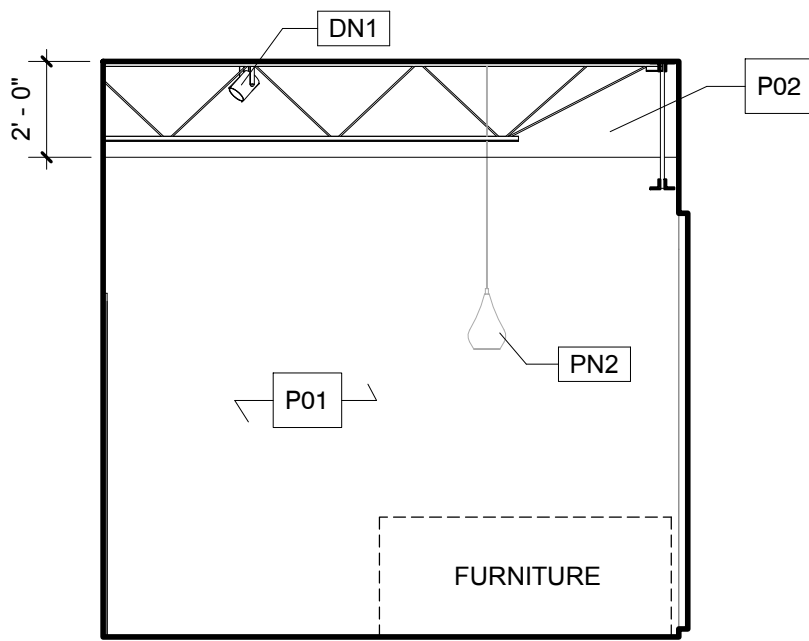
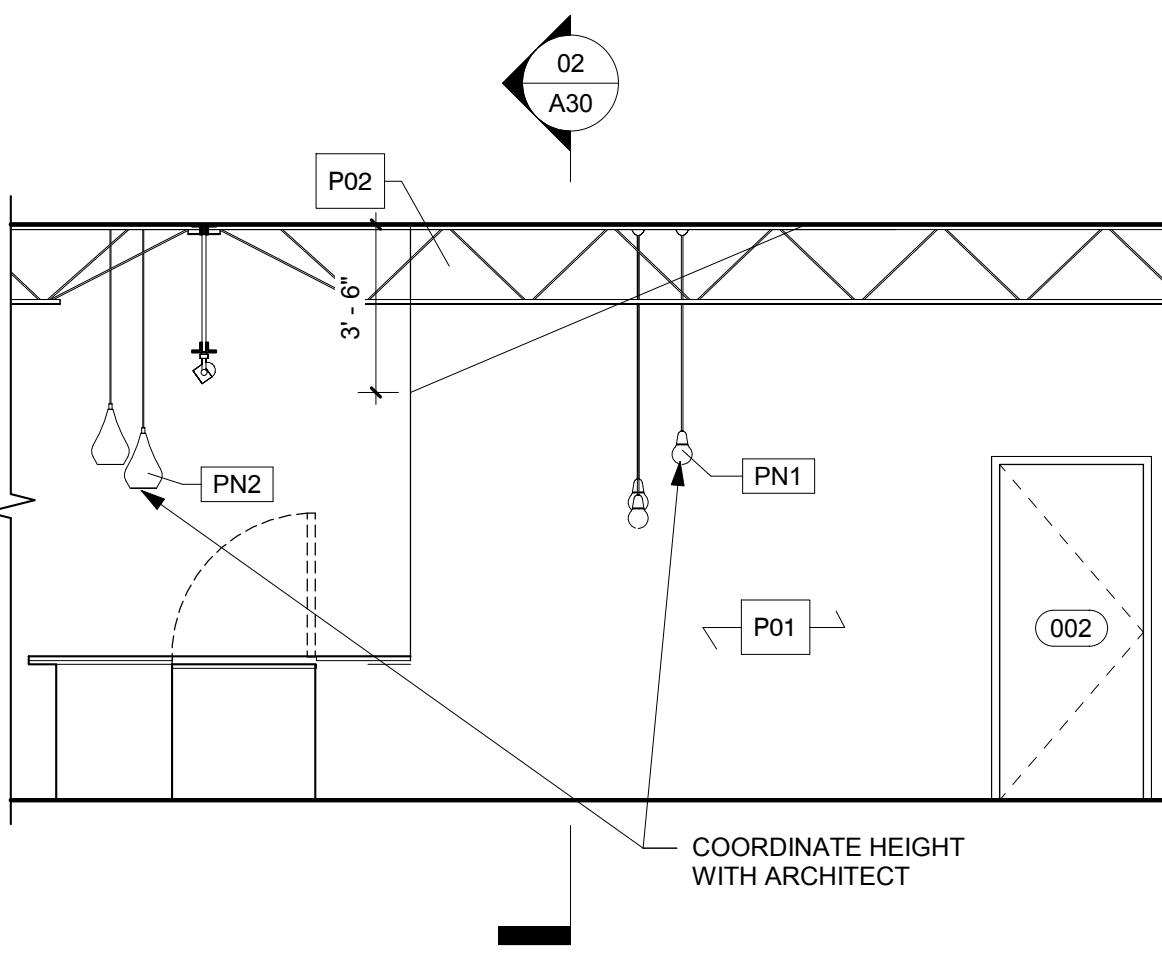
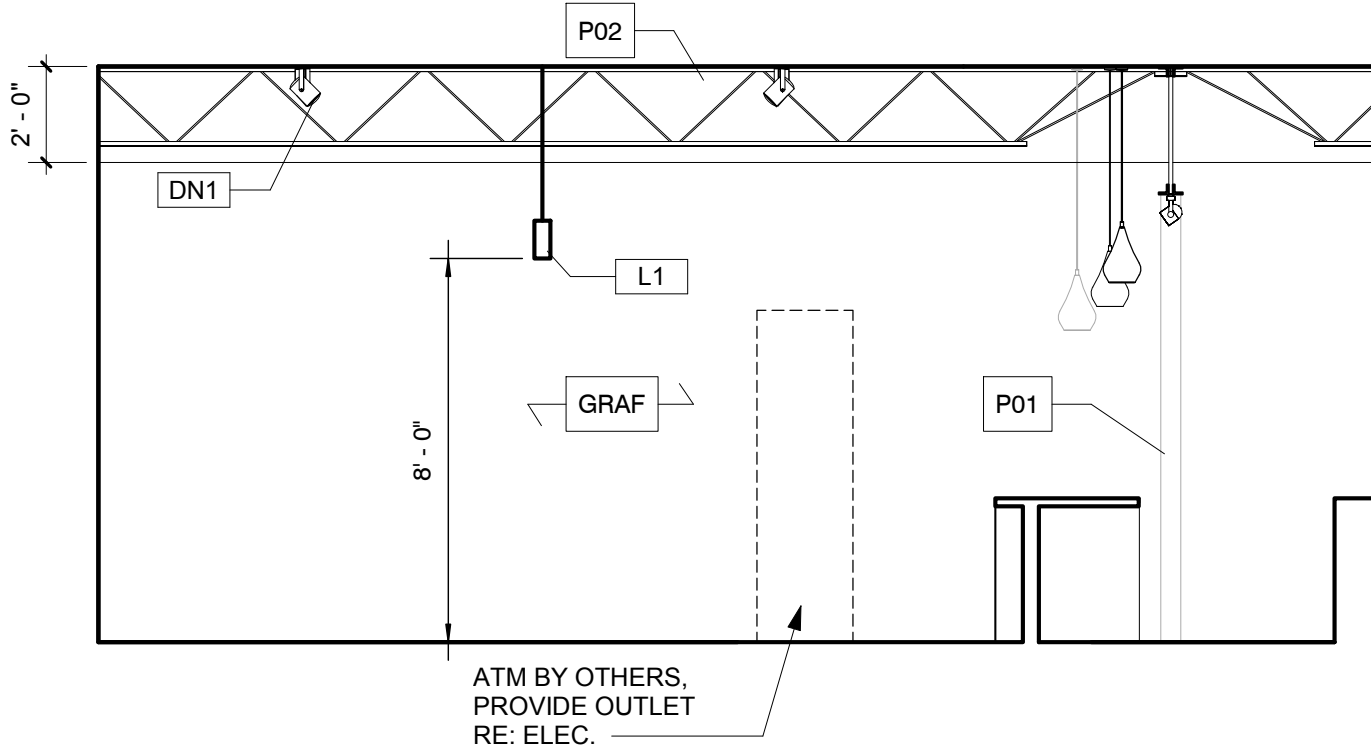
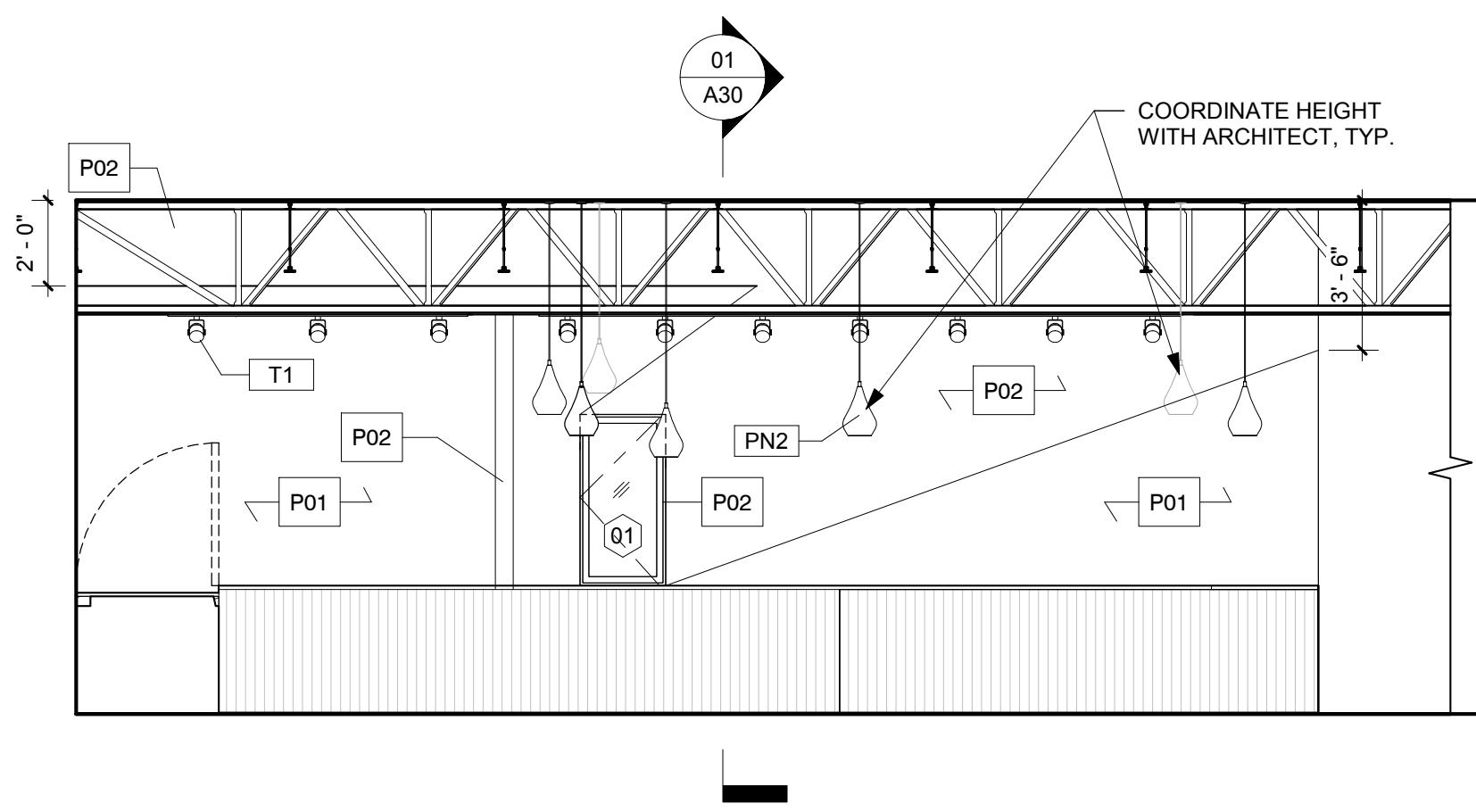
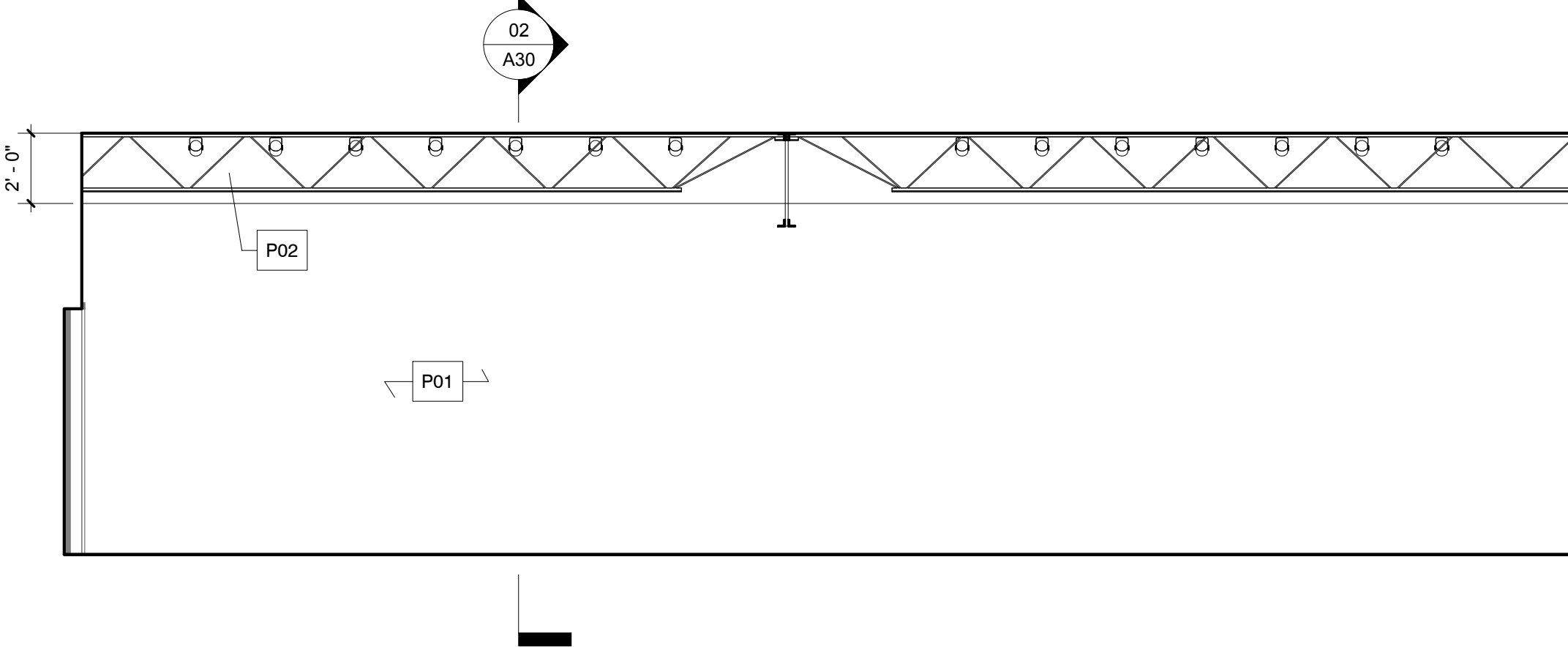
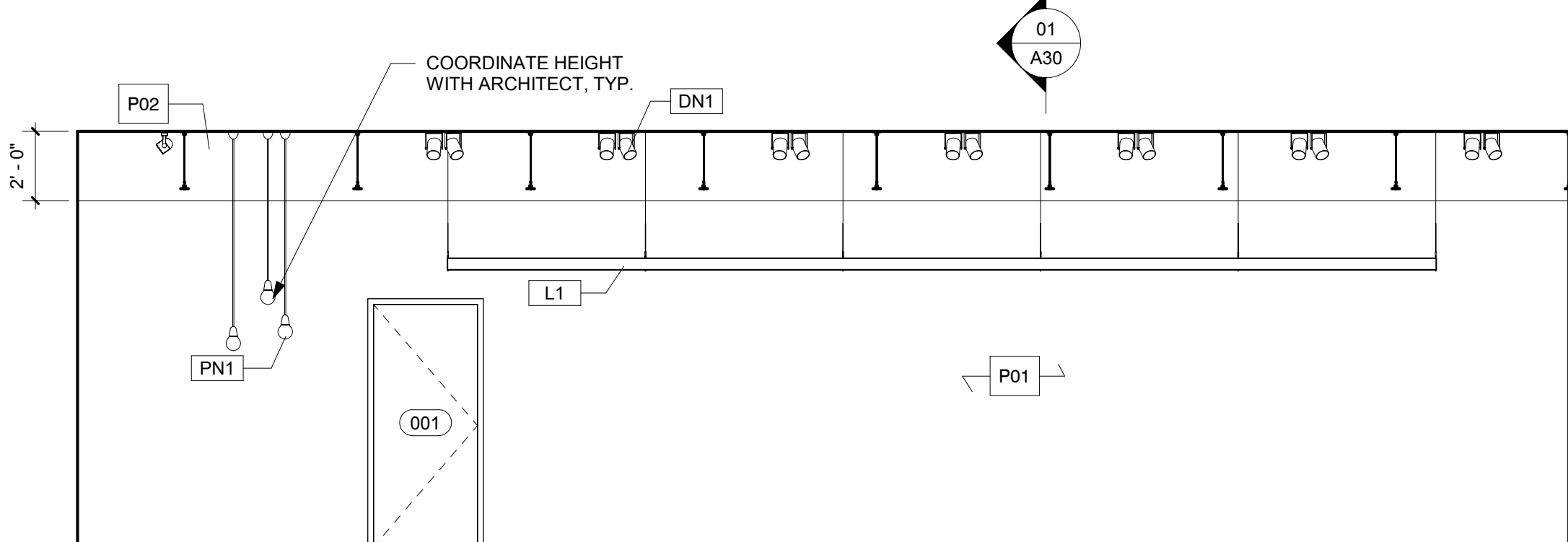
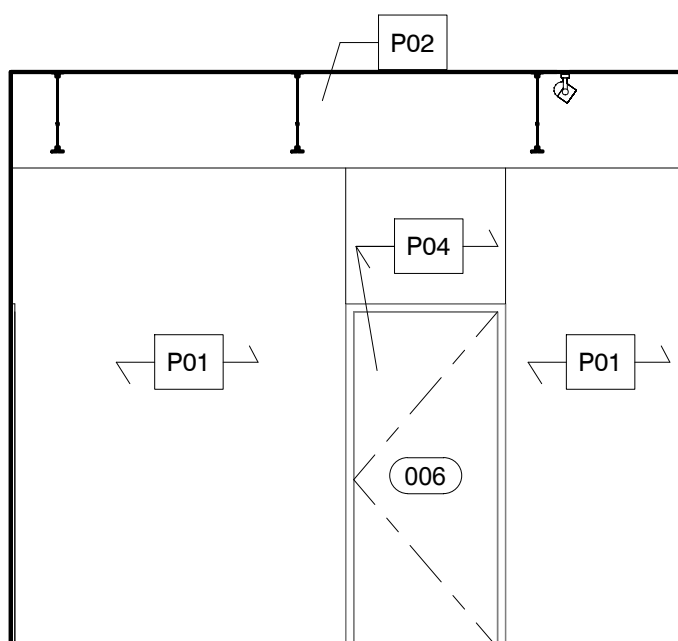
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ELEVATIONS

sheet number

A20

				
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09	08	07		
1/4" = 1'-0"				
				
06	05	04		
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03	02	01		
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rev date description

INTERIOR ELEVATIONS

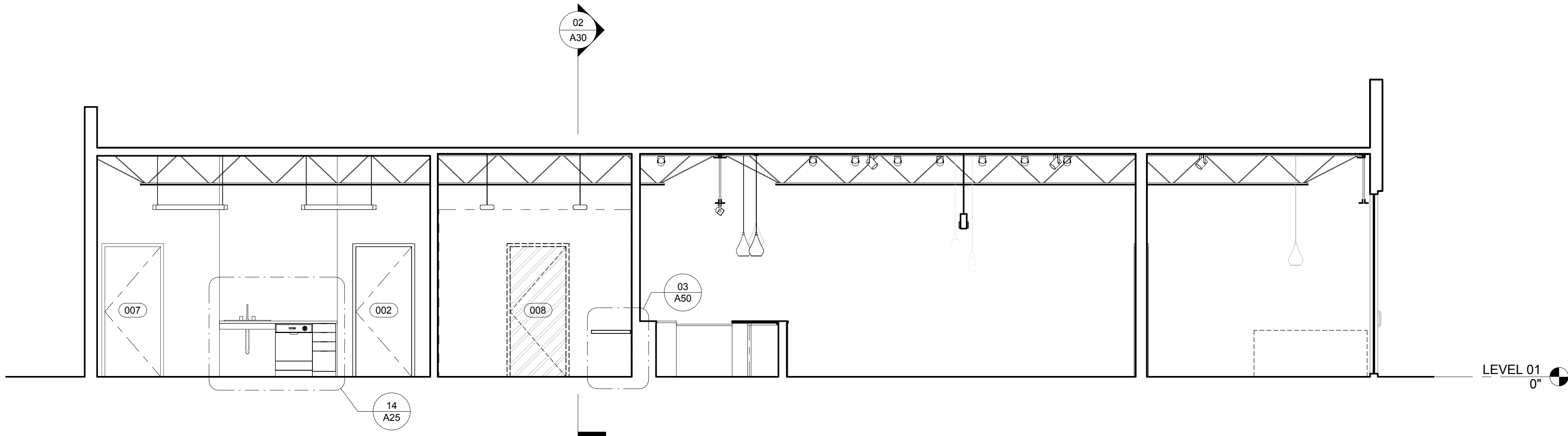
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A25

02

BUILDING SECTION

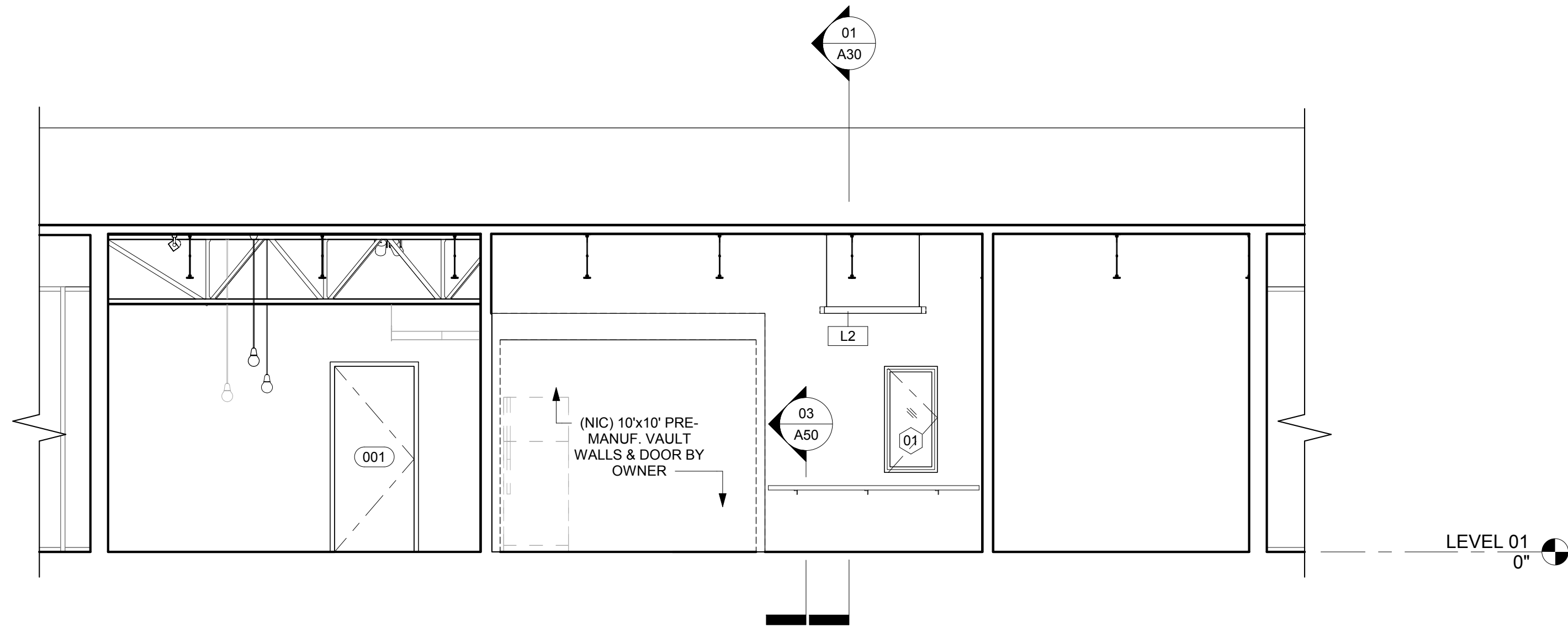
1/4" = 1'-0"



01

BUILDING SECTION

1/4" = 1'-0"



FRESH GREEN - LEES
SUMMIT

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Lees Summit, MO 64086

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SECTIONS

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A30



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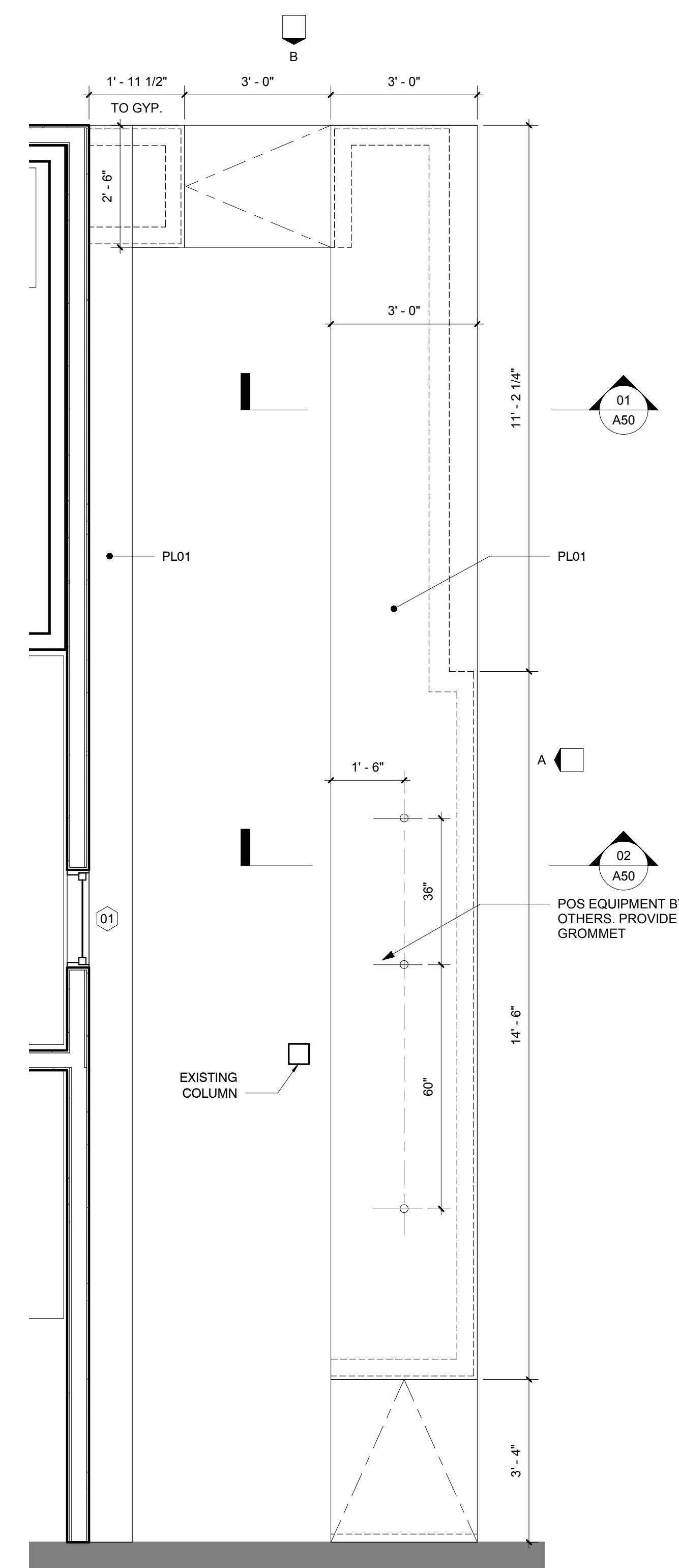
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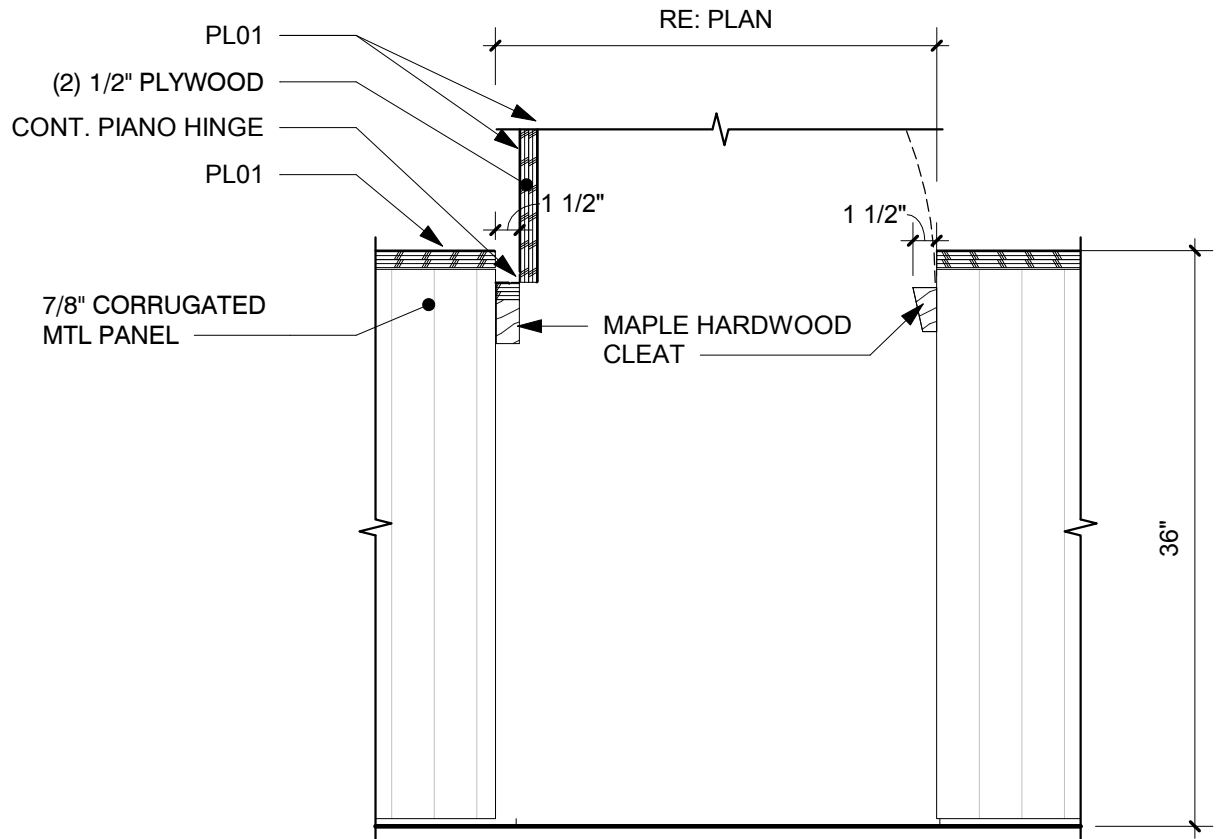
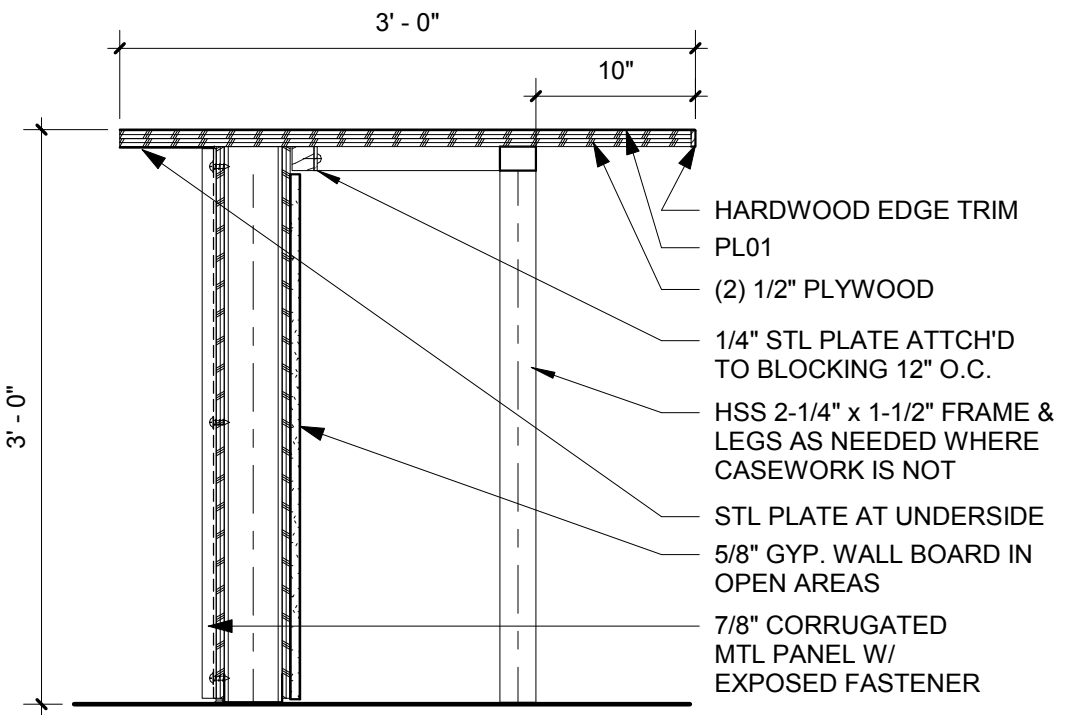
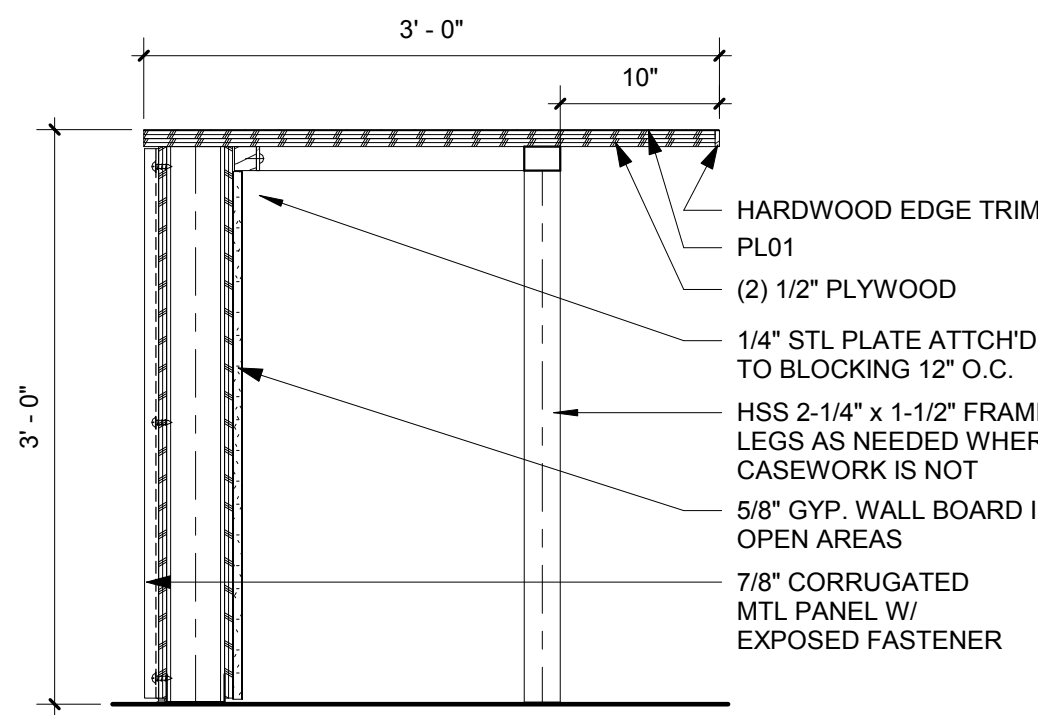
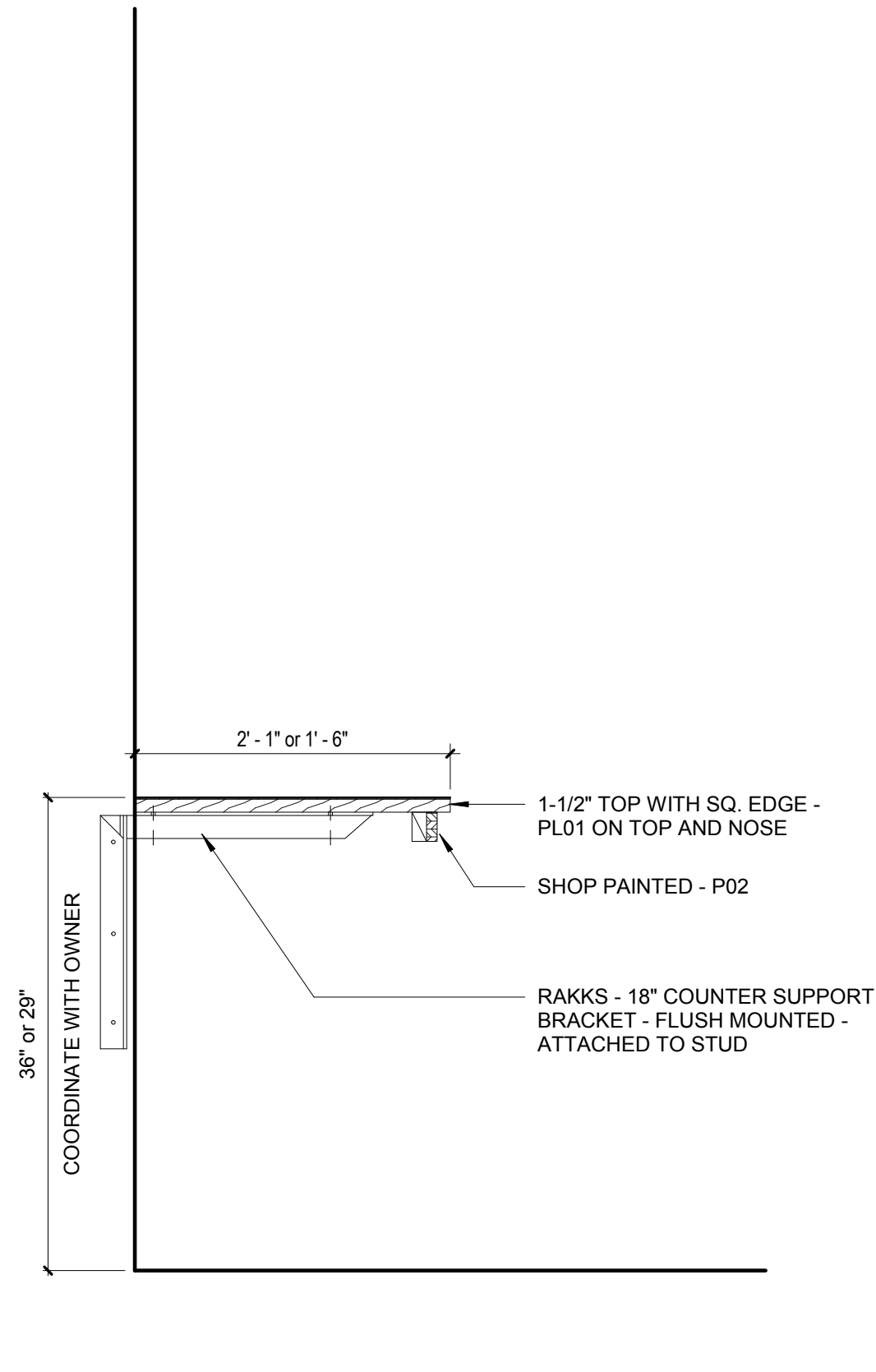
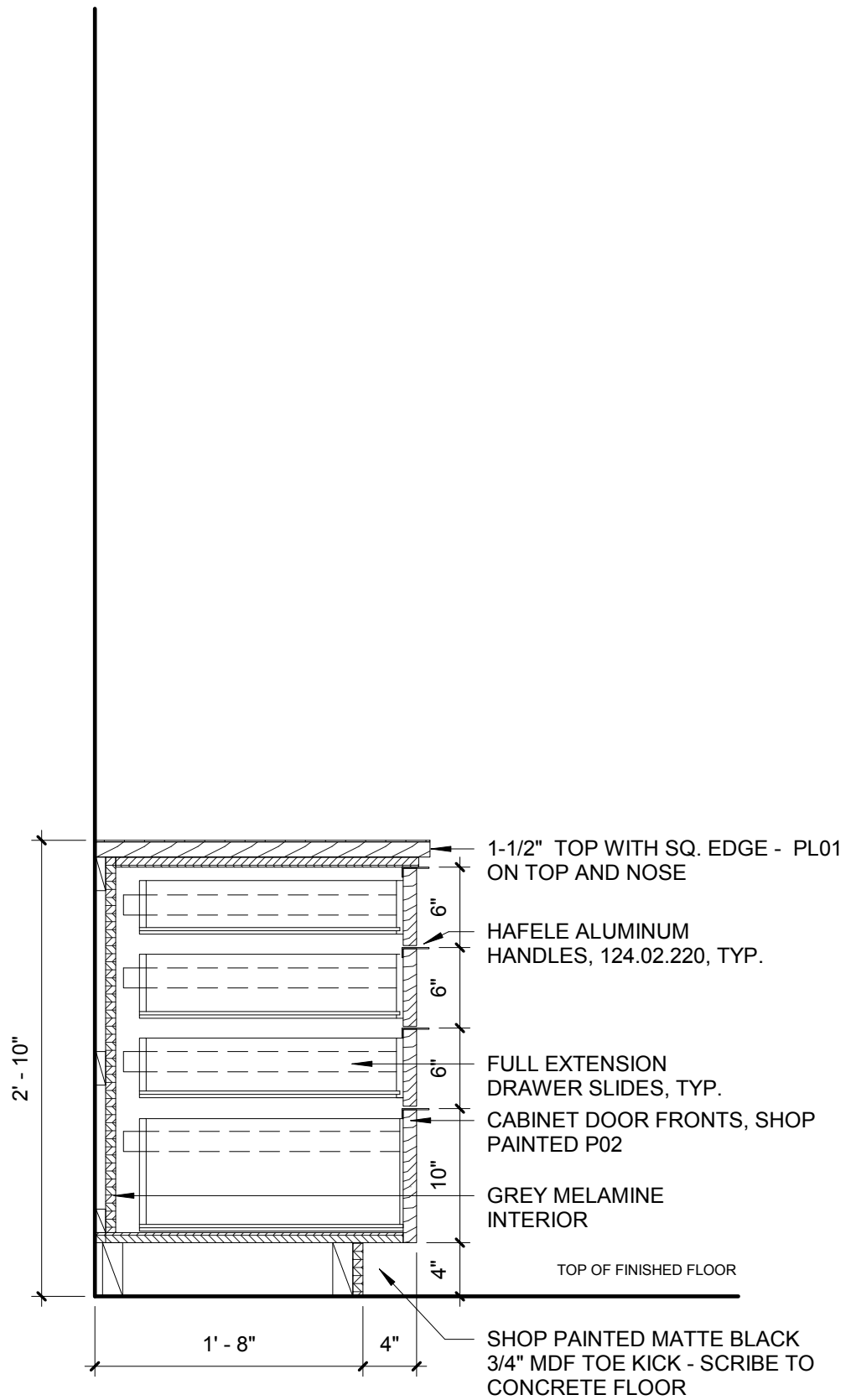
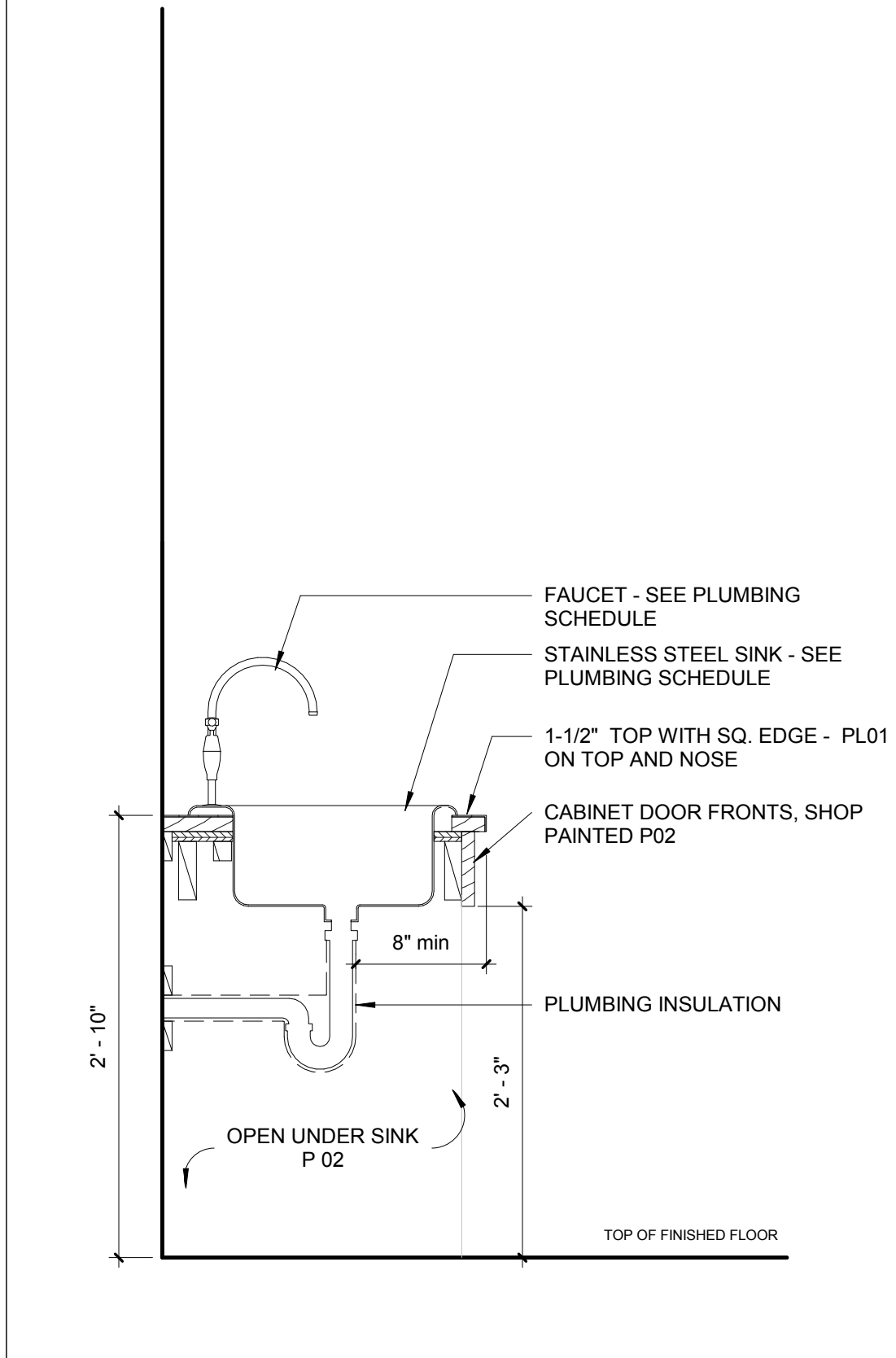
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sheet number

ENLARGED PLANS

A40





05 SECTION DETAIL

04 SECTION DETAIL

03 SECTION DETAIL

02 SECTION DETAIL

01 SECTION DETAIL

06 SECTION DETAIL



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PLAN &
SECTION
DETAILS

sheet number

A50

HARDWARE BASIS OF DESIGN:

1. MK - McKinney
2. PE - Pemko
3. SA - SARGENT
4. HS - HESV
5. RO - Rockwood
6. RF - Rixson
7. OT - Other
8. SU - Securitron

Set: 1.0

Doors: E001
Description: Exterior Single, Waiting - CR, Remote Release (Existing)

4	Hinge (stainless heavy weight)	T4A3386 NRP (size as required)	US26D	MK	087100
1	Rim Exit Device, Exit Only	AD8510 EO	US32D	SA	087100
1	Electric Strike	9400-LBSM	630	HS	087100 □
1	SMART Pac Bridge Rectifier	2005M3		HS	087100 □
1	Pull	RM3101-24 Mtg-Type 12HD	US32D	RO	087100
1	Surface Closer	1431 CPS	EN	SA	087100
1	Kit	581-1/581-2 (as required)	EN	SA	087100
1	Threshold (thermal)	253x3AFG		PE	087100
1	Rain Guard	346C		PE	087100
1	Sweep	3151CN		PE	087100
1	ElectroLynx Harness (frame)	QC-C_ (size as required)		MK	087100 □
1	Request to Exit	By Security		OT	
1	Card Reader	By Security		OT	
1	Position Switch	DPS-M-BK	SU		087100 □
1	Power Supply	AQD Series	SU		087100 □
1	Remote Release	By Security		OT	
1	Wiring Diagram	Point to Point Wiring Diagram		OT	

Notes: Field verify products specified will fit existing door/frame preps.

Operation:

1. Door normally closed, latched and locked. Access is obtained from the secure side by valid credential or remote release from front desk. In the event of power failure door mechanically locks.
2. Free egress from the interior by depressing inside push pad.
3. Contact switch in electric strike sends positive strike and latch status to access control.
4. Request to exit signals authorized egress to the access control system.
5. Door position switch signals door/open closed to access control system.

Set: 2.0

Doors: E002
Description: Exterior Single, BOH - Exit, CR, Remote Release

3	Hinge (stainless heavy weight)	T4A3386 NRP (size as required)	US26D	MK	087100
1	Rim Exit Device, Exit Only	8810 EO	US32D	SA	087100
1	Electric Strike	9400-LBSM	630	HS	087100 □
1	SMART Pac Bridge Rectifier	2005M3		HS	087100
1	Pull	RM3101-24 Mtg-Type	EN	SA	087100
1	Surface Closer	1431 CPS	EN	SA	087100
1	Armor Plate	K1050 34" high CSK BEV	US32D	RO	087100
1	Threshold (thermal)	253x3AFG		PE	087100
1	Rain Guard	346C		PE	087100
1	Sweep	3151CN		PE	087100
1	Request to Exit	By Security		OT	
1	Card Reader	By Security		OT	
1	Position Switch	DPS-M-BK	SU		087100 □
1	Power Supply	AQD Series	SU		087100 □
1	Remote Release	By Security		OT	
1	Wiring Diagram	Point to Point Wiring Diagram		OT	

Notes: Field verify products specified will fit existing door/frame preps.

Operation:

1. Door normally closed, latched and locked. Access is obtained from the secure side by valid credential or remote release from front desk. In the event of power failure door mechanically locks.
2. Free egress from the interior by depressing inside push pad.
3. Contact switch in electric strike sends positive strike and latch status to access control.
4. Request to exit signals authorized egress to the access control system.
5. Door position switch signals door/open closed to access control system.

Set: 3.0

Doors: 002, 004
Description: Interior Single, B.O.H. - CR

2	Hinge, Full Mortise	TA2714 NRP (size as required)	US26D	MK	087100
1	Hinge, Full Mortise	TA2714 QC12 (size as required)	US26D	MK	087100 □
1	Fail Secure Lock	LX RX 8271 LNF	US26D	SA	087100 □
1	Surface Closer	1431 O/P10 (as required)	EN	SA	087100
1	Armor Plate	K1050 34" high CSK BEV	US32D	RO	087100
1	Wall Stop	406/409 (as required)	US26D	RO	087100
1	Gasketing	S88BL		PE	087100
1	ElectroLynx Harness (frame)	QC-C_ (size as required)		MK	087100 □
1	ElectroLynx Harness (door)	QC-C_ (size as required)		MK	087100 □
1	Card Reader	By Security		OT	
1	Position Switch	DPS-M-BK	SU		087100 □
1	Power Supply	AQD Series	SU		087100 □
1	Wiring Diagram	Point to Point Wiring Diagram		OT	

Notes: Operation:

1. Door normally closed and locked. Access is obtained by valid credential. Locksets mechanically lock during power failure.
2. Free egress from inside by depressing inside lever.
3. Request to exit switch in lever to signal authorized egress to the access control system.
4. Door position switch to signal door open/closed to the access control system.

Set: 4.0

Doors: 005
Description: Interior Single, Fulfillment - CR, OH Stop

2	Hinge, Full Mortise	TA2714 NRP (size as required)	US26D	MK	087100
1	Hinge, Full Mortise	TA2714 QC12 (size as required)	US26D	MK	087100 □
1	Fail Secure Lock	LX RX 8271 LNF	US26D	SA	087100 □
1	Conc Overhead Stop	6ADJ-X3S	630	RF	087100
1	Surface Closer	1431 O/P10 (as required)	EN	SA	087100
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1	Gasketing	S88BL		PE	087100
1	ElectroLynx Harness (frame)	QC-C_ (size as required)		MK	087100 □
1	ElectroLynx Harness (door)	QC-C_ (size as required)		MK	087100 □
1	Card Reader	By Security		OT	
1	Position Switch	DPS-M-BK	SU		087100 □
1	Power Supply	AQD Series	SU		087100 □
1	Wiring Diagram	Point to Point Wiring Diagram		OT	

Notes: Operation:

1. Door normally closed and locked. Access is obtained by valid credential. Locksets mechanically lock during power failure.
2. Free egress from inside by depressing inside lever.
3. Request to exit switch in lever to signal authorized egress to the access control system.
4. Door position switch to signal door open/closed to the access control system.

Set: 5.0

Doors: 001
Description: Interior Single, Retail - CR

2	Hinge, Full Mortise	TA2714 NRP (size as required)	US26D	MK	087100
1	Hinge, Full Mortise	TA2714 QC12 (size as required)	US26D	MK	087100 □
1	Fail Secure Lock	LX RX 8271 LNF	US26D	SA	087100 □
1	Surface Closer	1431 CPS	EN	SA	087100
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1	Gasketing	S88BL		PE	087100
1	Door Bottom	411APKL		PE	087100
1	ElectroLynx Harness (frame)	QC-C_ (size as required)		MK	087100 □
1	ElectroLynx Harness (door)	QC-C_ (size as required)		MK	087100 □
1	Card Reader	By Security		OT	
1	Position Switch	DPS-M-BK	SU		087100 □
1	Power Supply	AQD Series	SU		087100 □
1	Wiring Diagram	Point to Point Wiring Diagram		OT	

Notes: Operation:

1. Door normally closed and locked. Access is obtained by valid credential. Locksets mechanically lock during power failure.
2. Free egress from inside by depressing inside lever.
3. Request to exit switch in lever to signal authorized egress to the access control system.
4. Door position switch to signal door open/closed to the access control system.

Set: 6.0

Doors: 007
Description: Interior Single, B.O.H Restroom - Privacy, Indicator

3	Hinge (stainless)	TA2314 (size as required)	US26D	MK	087100
1	Privacy Lock	V21 EMC 8265 LNF	US26D	SA	087100
1	Surface Closer	1431 O/P10 (as required)	EN	SA	087100
1	Mop Plate	K1050 6" high CSK BEV	US32D	RO	
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1	Wall Stop	406/409 (as required)	US26D	RO	087100
1	Gasketing	S88BL		PE	087100

Set: 7.0

Doors: 006
Description: Interior Single, Public Restroom - Keyed Privacy, Indicator

3	Hinge (stainless)	TA2314 NRP (size as required)	US26D	MK	087100
1	Institutional Privacy Lock	DG1 V21 EMC 8257 LNF	US26D	SA	087100
1	Surface Closer	1431 O/P10 (as required)	EN	SA	087100
1	Mop Plate	K1050 6" high CSK BEV	US32D	RO	
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1	Wall Stop	406/409 (as required)	US26D	RO	087100
1	Gasketing	S88BL		PE	087100

Set: 8.0

Doors: 008
Description: Vault Door

1	Hardware	By Door/Frame Provider	OT
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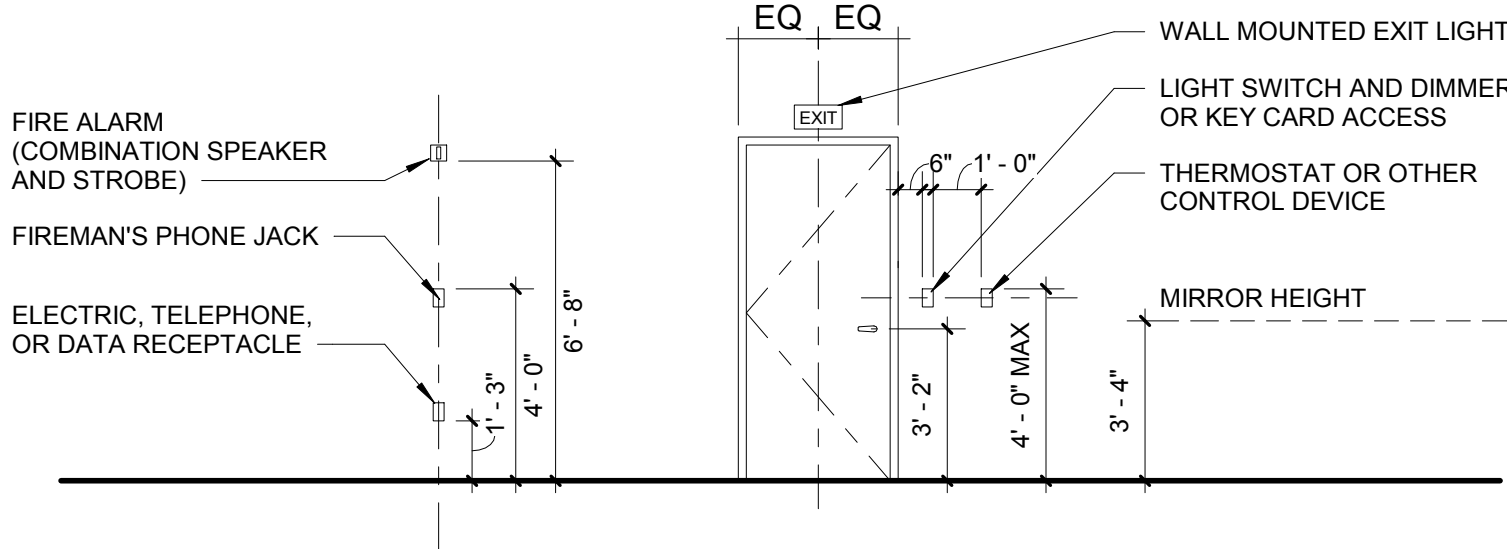
HARDWARE SCHEDULE

1/4" = 1'-0"

DOOR SCHEDULE									
DOOR NO.	DOOR				FRAME		DETAILS		HDWR SET
	DOOR TYPE	WIDTH	HEIGHT	FINISH	TYPE	FINISH	HEAD	JAMB	
001	B	3' - 0"	7' - 0"	PAINT	F1	PAINT TO MATCH	3/A65	2/A65	05
002	B	3' - 0"	7' - 0"	PAINT	F1	PAINT TO MATCH	3/A65	2/A65	03
004	B	3' - 0"	7' - 0"	PAINT	F1	PAINT TO MATCH	3/A65	2/A65	03
005	B	3' - 0"	7' - 0"	PAINT	F1	PAINT TO MATCH	3/A65	2/A65	04
006	EXIST.	3' - 0"	7' - 0"	PAINT	EXIST	PAINT TO MATCH	EXIST.	EXIST.	07
007	EXIST.	3' - 0"	7' - 0"	PAINT	EXIST	PAINT TO MATCH	EXIST.	EXIST.	06
008	C	3' - 0"	7' - 0"	N/A	N/A	N/A	BY OWNER	BY OWNER	08
E001	EXIST.	3' - 0"	8' - 0"	N/A	N/A	N/A	STRFNT	STRFRNT	01
E002	EXIST.	3' - 0"	7' - 0"	P02	EXIST.	PAINT TO MATCH	EXIST.	EXIST.	02

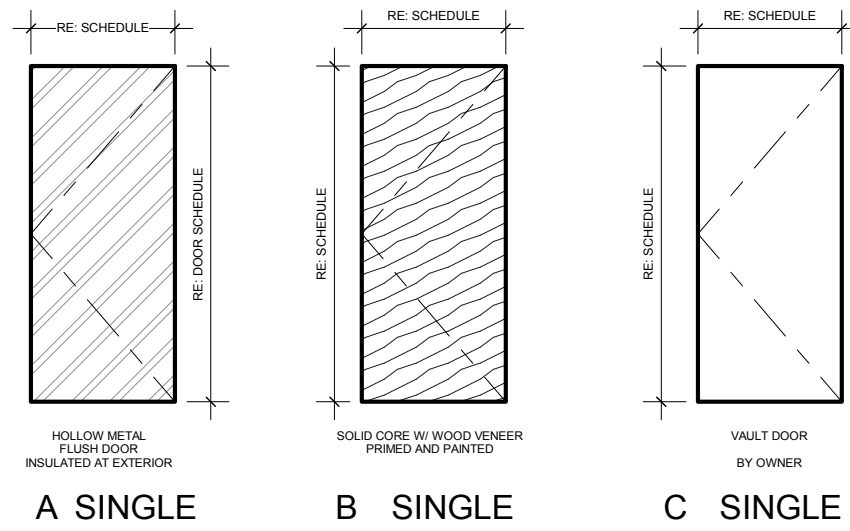
DOOR GENERAL NOTES:

- a. ALL NEW WOOD DOORS TO BE PLAIN SLICED RED OAK & PRIMED FOR PAINT.
b. ALL EXISTING DOORS NOT INDICATED IN DOOR SCHEDULE BUT SHOWN ON PLANS TO REMAIN ARE TO BE STRIPPED, FILLED AS NECESSARY, AND FINISHED PER SCHEDULE
c. CONTRACTOR TO COORDINATE KEYING WITH THE BUILDING MANAGER.

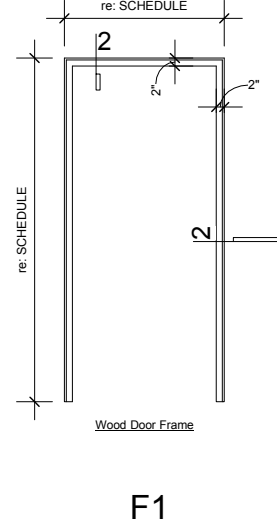


NOTE:
ALIGN CENTER OF ALL FIXTURE
COVERS AS OCCUR

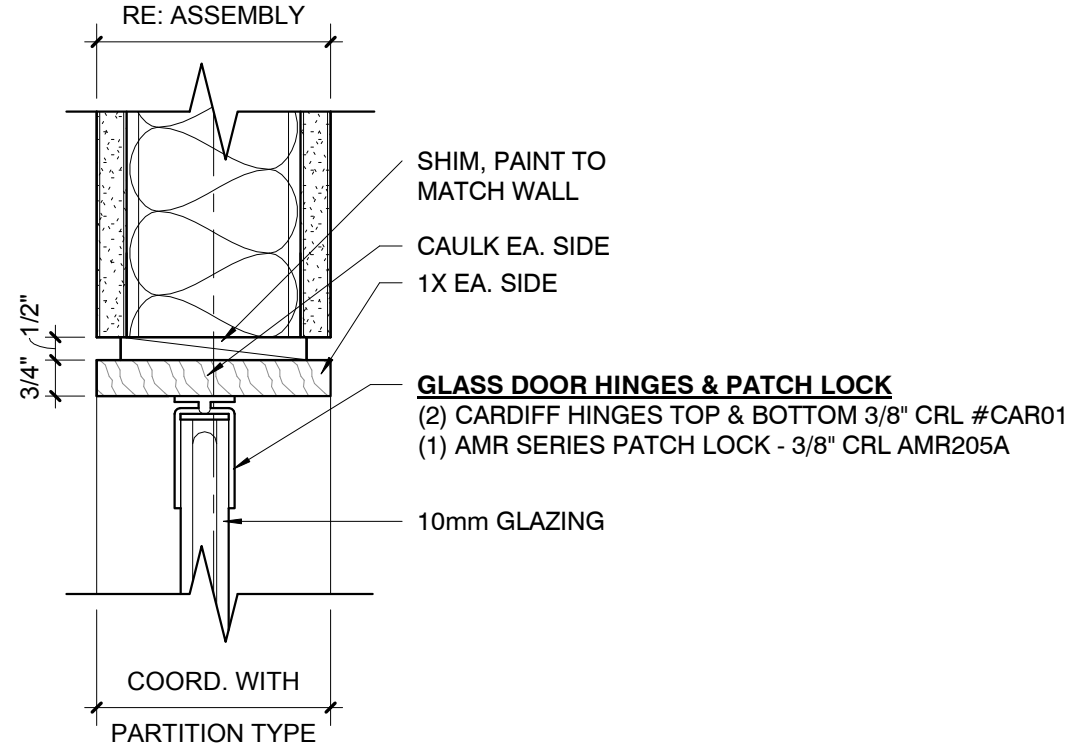
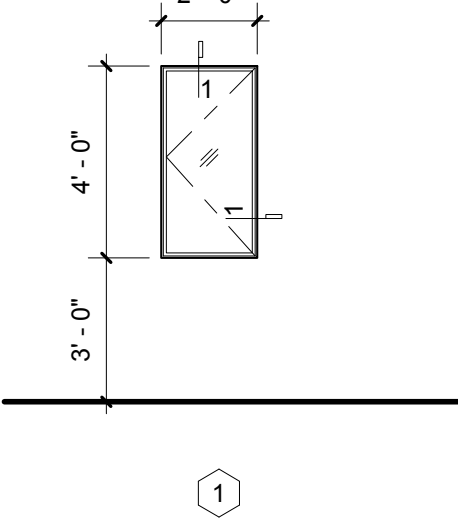
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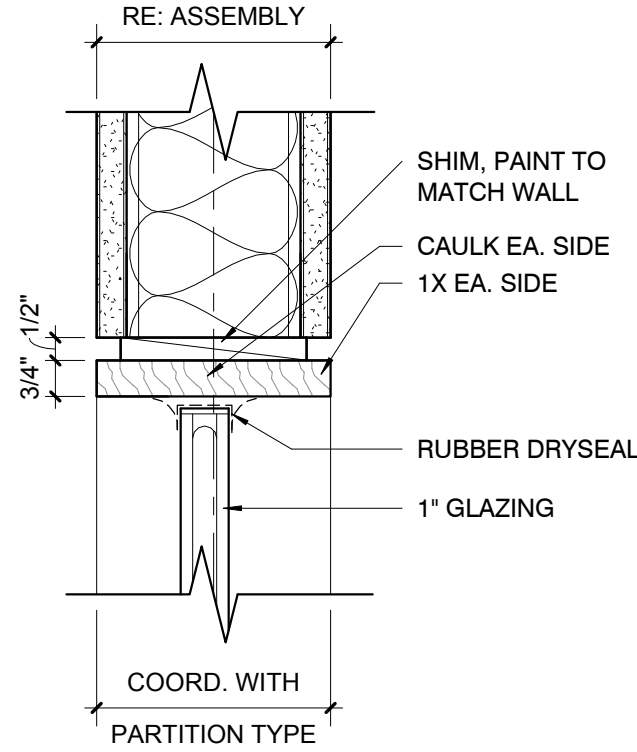
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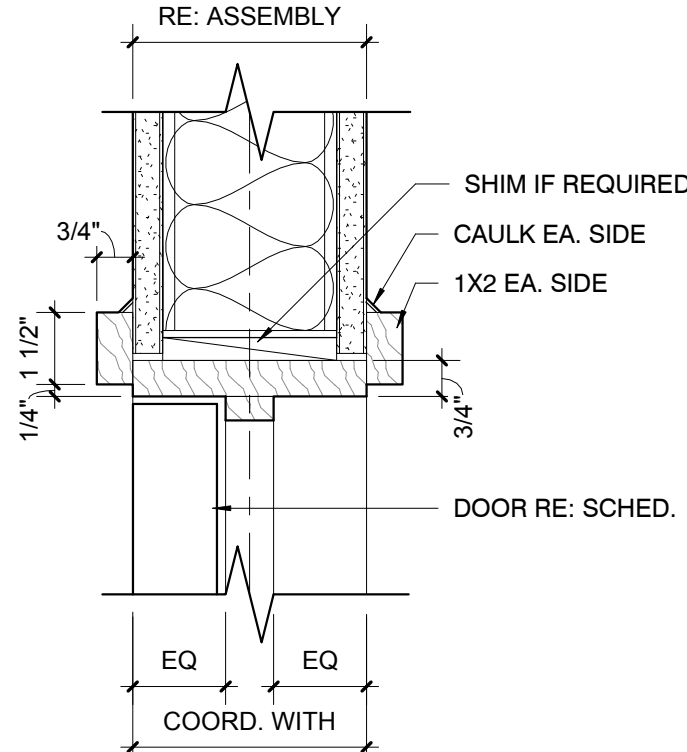
WINDOW TYPE:



1 - JAMB



1 - HEAD



2

FRESH GREEN - LEES
SUMMIT

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SCHEDULES &
DETAILS

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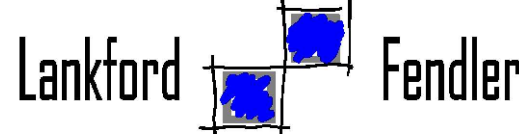
A65

01 TYPICAL MOUNTING HEIGHTS AND DOOR ELEVATIONS

JAMB AND HEAD DETAILS

1/4" = 1'-0"

3" = 1'-0"



+ associates
1720 Walnut Street Kansas City, Missouri 64108
1915 Frederick Avenue, St. Joseph, Missouri 64501
Phone: 816.221.1411 | Fax: 816.221.1429
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C04 No. 2006001108

FRESH GREEN - Lees Summit

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sheet number

MEP10

1.0 DESCRIPTION:

- A. Divisions 21, 22, 23 and 26 shall be governed by all applicable provisions of the Contract Document.
- B. The Contractor shall furnish, install and connect all materials, equipment, apparatuses, and incidentals required for a complete and working installation. For all systems shown and required, the Contractor shall supply all necessary labor, equipment, tools, insurance, and tax services, and shall assume full responsibility for all obligations associated with completion of work as provided by the Contract Documents.
- 2.0 STANDARDS, REGULATIONS AND CODES:
- A. Work shall comply with the edition of the applicable standards, regulations and codes currently in force of all Federal, State and local authorities having jurisdiction. Where quantities, sizes, or other requirements indicated on the drawings or herein specified are in excess of the standard or code requirements, the specifications and/or drawings shall govern. In the absence of other applicable local codes, acceptable to the Architect/Engineer, the International Set of Codes and Uniform Plumbing and the National Electrical Code shall apply to this work.
- B. The Contractor shall comply with rules and regulations of public utilities and municipal departments affected by connections of services. The Contractor shall pay all fees associated therewith.
- C. The Contractor shall be licensed to perform associated work in the municipality in which the project is located.
- D. All products and types of construction shall meet or exceed the latest edition of applicable standards of manufacturer, testing, performance and installation.
- E. Where indicated or required, comply with all provisions of the ADA and/or the ABA Accessibility Guidelines.
- F. Where indicated or required, comply with all applicable provisions of energy and ventilation codes in force at the local jurisdiction.

3.0 GRAPHIC REPRESENTATION AND JOB CONDITIONS:

- A. The Contract Documents shall serve as working drawings for the general layout of the various items of equipment; are diagrammatic unless specifically dimensioned, and do not necessarily indicate every required item. The contractor shall include all necessary components and accessories as required for a complete working system whether so specifically indicated or not.
- B. Architectural and Structural drawings take precedence over all other drawings in the representation of the general construction work; any conflicts shall be resolved prior to commencing work. Failure to do so shall not be considered a basis for the granting of additional compensation.
- C. Arrange work in a neat, well organized manner. Coordinate work with other trades involved, prior to commencing work. Sub-contractors shall work together to resolve any conflicts of space or routing.

4.0 GUARANTEES/WARRANTY:

- A. The Contractor shall guarantee/warranty all work performed, including labor, materials and equipment furnished under this contract, against defects in materials and workmanship for a minimum period of one year from the date of the Owner's Representative Final Acceptance of the work. Provide extended warranties as noted in each section or specified for specific products.

5.0 WORKMANSHIP:

- A. All work performed under this Contract shall provide a neat and "workmanlike" appearance when completed, to the satisfaction of the Owner's Representative. The complete installation shall function as designed and intended with respect to efficiency, capacity, and noise level, etc.

6.0 LOCAL CONDITIONS:

- A. The Contractor shall carefully examine and become thoroughly familiar with local conditions, existing installations and all other conditions which may affect associated work. The Contractor shall locate all existing utilities and protect them during the execution of the work.
- B. The Contractor shall carefully examine all contract documents including project drawings and specifications to become familiar with the type of construction, materials, and equipment to be used for all work and how it will affect the installation of this contract.
- C. By the act of submitting a bid, the Contractor will be deemed to have made such examination, to have accepted such conditions, to have made allowance therefore, and included all costs in his proposal. Failure to determine existing conditions will not be considered a basis for the granting of additional compensation.

7.0 OPERATION DURING CONSTRUCTION:

- A. The Contractor is responsible for the installation and operation, service and maintenance of all new equipment during construction and prior to acceptance by the Owner of the completed project. Warranty periods shall not commence until final acceptance by the Owner or Owner Representative.
- B. The Contractor shall provide, at his own expense, all temporary utilities required to provide for and protect the work and as necessary to maintain an adequate work force unless use of existing facilities is specifically permitted.

8.0 SAFETY REGULATIONS:

- A. All work shall be performed in compliance with all applicable governing safety regulations, including OSHA regulations. Provide safety lights, guards and signs required.

9.0 HOUSEKEEPING:

- A. The Contractor shall be responsible for keeping stocks of material and equipment stored on the premises in a neat and orderly manner.
- B. The Contractor shall clean and maintain their specific portions of the work on a daily basis or as specified in the General Conditions.
- C. The Contractor shall remove from the premises all waste material present as a result of his work.

10.0 CONNECTION AND ALTERATION TO EXISTING SYSTEMS:

- A. Connection to the existing building systems must be accomplished under this contract. System "downtime" due to connection shall be kept to an absolute minimum. The Owner's Representative shall judge if at what time, and for what length of time a shut-down can be tolerated.
- B. Provide all temporary piping and wiring systems required during construction in order to keep all existing systems functioning.
- C. Demolition, cutting and patching to restore surfaces to original condition as necessitated for access to work performed by the Contractor or his subcontractors shall be the responsibility of the Contractor.

11.0 SUBSTITUTIONS:

- A. Materials, products and equipment described in the Bidding Documents established a standard of quality to be met by any proposed substitution.
- B. Contractor's bids shall be based on the material identified or specified in the contract documents. Any proposals for substitution shall be made in writing to the Architect/Engineer with all supporting documentation, allowing adequate time for appropriate action. The products of other manufacturers may be accepted, if in the opinion of the Architect/Engineer, the substitute material is of quality as good or better than the material specified, and will serve with equal efficiency and dependability the purpose for which the items specified were intended. The burden of proof of equality is entirely upon the proposer.
- C. Refer to Division 1 requirements for additional substitution procedures.
- D. Wherever substitutions alter the design or space requirements, the Contractor shall be responsible for and include all associated cost items of the revised design and/or construction work required by his or other trades affected by the proposed substitution.

12.0 SHOP DRAWINGS AND PRODUCT DATA:

- A. The checking of shop drawings is a gratuitous assistance and in no way relieves the Contractor of responsibility for deviations from the Contract Documents.
- B. Shop drawings and catalog data on all major items of equipment and apparatus, and such other illustrative materials as may be considered necessary by the Owner's Representative shall be submitted by the Contractor in adequate time to prevent delay and changes during construction.
- C. Refer to Architectural Documents for additional shop drawing submission procedures.

13.0 OPERATING AND MAINTENANCE BROCHURE:

- A. On completion of the project, the Contractor shall provide manuals electronically (PDF format unless otherwise instructed) containing operating, service and lubrication instructions, and parts lists for all major equipment and manufacturer's guarantees or warranties.

14.0 RECORD DRAWINGS:

- A. On completion of the project, the Contractor shall provide record drawings electronically in PDF or AutoCAD dwg format (unless otherwise instructed) with all field changes neatly noted. The original routing and layout shall be clearly marked out.
- B. Refer to Architectural Documents for additional record drawing submission procedures.

15.0 FOUNDATIONS AND SUPPORTS:

- A. The Contractor shall provide concrete bases, hangers and foundations for all machinery and equipment specified or shown in this contract, including fans, air conditioning units, water heaters, pumps, motors, electrical gear, etc., unless specifically noted otherwise.
- B. All hangers, brackets, clamps, etc., shall be of standard weight steel. Perforated strap hangers shall not be used in any work. When two (2) or more pipes or conduits are run parallel, or where ducts interfere with the proper location of hangers, they may be supported on trapeze hangers. Other hangers shall be hinged ring malleable iron, by Grinnell or Fee and Mason or approved equal with rods and hanger adjusters for adequate size to carry the loads imposed. All piping, ductwork and conduit systems shall each be independently supported from other systems and from equipment so that no weight is born by equipment.
- C. The Contractor shall take all precautions against excessive noise or vibration by isolating the various items of equipment from the building structure. Provide flexible connectors where indicated and at all rotating equipment and for equipment mounted on vibration isolators.

16.0 CUTTING AND PATCHING:

- A. All necessary cutting, drilling and patching shall be provided by this Contractor. Structural members shall not be disturbed without prior approval of the Structural Engineer and/or the Owner's Representative. All areas and surfaces disturbed by work performed under this Contract shall be neatly repaired and refinished to the condition of adjoining surfaces in a manner suitable to the Owner's Representative.

17.0 SLEEVES AND ESCUTCHEONS:

- A. Penetrations thru walls and floors shall be as detailed.
- B. Where not otherwise shown, penetrations shall conform to the following:
- Where pipes or conduits pass through interior partitions, galvanized steel pipe sleeves or galvanized steel sheet sleeves shall be used.
 - Where pipes or conduits pass thru concrete floors and walls, walls below grade or exterior walls and slabs on grade, cast iron or steel pipe sleeves shall be used.
- C. Sleeves through interior non-rated walls, including walls indicated as sound partitions, shall be packed with fiberglass or mineral wool and caulked.
- D. Sleeves below grade, in exterior walls or thru slabs on grade shall have lead and oakum or mechanical link seals. Thunder line or acceptable equivalent.
- E. Penetrations of fire rated structure shall be made with a UL listed fire penetration assembly suitable for the rating at each location. Where required, sleeves through fire rated structure shall be fire barrier caulked with putty stip or sheet by 3M, Hilti or acceptable equal.
- F. Provide steel (dry locations) or brass (damp locations) escutcheons to completely cover pipe penetration holes in floors, walls, or ceilings. Provide pipe escutcheons with nickel or chrome finish for occupied areas, prime paint finish for unoccupied areas, brass for exterior.

18.0 MOTORS, CONTROLS AND FIRE ALARM INTERFACE:

- A. All motors furnished under this specification shall be recognized manufacturer and of adequate capacity for the loads involved. All motors shall conform to the standards of manufacturer and performance of the National Electrical Manufacturers Association as shown in their latest publications.
- B. Disconnects and motor starters for equipment shall be by the Electrical Contractor unless furnished integral with the equipment or as otherwise indicated. Installation shall be by the Electrical Contractor except for devices factory installed and shipped with equipment. Provide manual or magnetic starters with necessary auxiliary contacts to accomplish the specified or required sequence of operation.
- C. All temperature controls unless noted otherwise shall be the responsibility of the Mechanical Contractor.
- D. If no sequence of operation is included, submit a proposed sequence to the Engineer for approval.
- E. All fire alarm devices including duct smoke detector and shut down/interlock wiring shall be the responsibility of the Electrical or Fire Alarm Contractor otherwise noted.

END OF SECTION

1.0 SCOPE:

- A. The work included under this contract consists of providing all labor, materials, tools, transportation, services, etc., necessary to complete the installation of the heating, ventilating, and air conditioning systems and other items herein listed and as described in these specifications, as illustrated in the accompanying drawings or as directed by the Architect/Engineer.

2.0 SHEET METAL:

- A. Ductwork shall be new prime grade galvanized steel sheets constructed per ASHRAE and SMACNA Standards. Duct system(s) installation shall be in accordance with SMACNA Duct Construction Standards Manual and industry standards. Provide round or rectangular duct as indicated.
1. Provide Duct System(s), including all necessary components such as dampers, turning vanes, offsets and takeoffs, etc. required by the project (whether shown or not), which shall be fabricated and installed for maximum efficiency and to minimize pressure drops and objectionable sound and to provide for complete system balancing.
2. All duct sizes shown are free area size and do not include liner.
- B. Fabricate for the pressure and SMACNA seal class required by the application.
- Leakage class minimum requirements are:
1. Up thru 2" WG pressure - rectangular - Class 24, round - Class 12.
- Seal class minimum requirements are:
1. Up thru 2" WG pressure - class A for all duct joints.
- C. Duct Sealants
1. Duct sealant shall have 25/50 flame and smoke rating with a static pressure class of 10" WG, mold and mildew resistant. Sealant shall be installed per manufacturer instructions.
2. Sealant for concealed ductwork shall be an externally applied solvent or water based joint and seam sealant with or without tape.
3. Ductwork exposed to view shall be sealed with clear silicone or have gasketed joints. Exposed rectangular flanged duct joints shall have gasketed joints. Exposed round ducts shall have joints with EPDM gaskets in grooves, O-ring seals or flanged with neoprene gaskets. Where sealant beads are used, they shall be minimized or concealed, smooth and uniform with any excess sealant trimmed flush with duct and removed.
4. Spiral lock seams and gasketed duct joints are exempted from other sealant requirements.
- D. Duct Finishes
1. Concealed ductwork shall be manufacturer's standard mill finished.
2. Ductwork that is indicated or required to be field painted shall have paint grip finish.
3. Ductwork that will remain exposed to view shall be furnished without marks, markers, shipping, identification or other tags located on exterior duct surfaces, no exceptions. Any ductwork so installed shall be removed at contractor expense. Protect exposed ductwork from dents, scratches or other damage during construction. Wipe down and thoroughly clean all exposed duct, fittings and accessories.
- E. Round or oval duct shall be factory built of galvanized steel, suitable for pressure class required or indicated. Snap lock duct and fittings shall be used for low pressure/velocity applications only. Fittings shall have 1.5 times diameter centerline radius. Spiral duct may be used for any pressure/velocity class. Spiral duct shall be Sermco or acceptable equal by McGill Airflow or Lindab.
1. Single wall, 2.0" WG minimum.
2. Round or oval duct joints shall be Ductmate quick sleeve, slip joint, welded or flanged.

3.0 DUCTWORK ACCESSORIES:

- A. Provide single thickness turning vanes in all supply duct turns.
- B. Provide duct access doors for all internal mounted equipment. Access doors shall be insulated double wall, constructed airtight in accordance with SMACNA standards for the appropriate pressure class where they are installed. They shall have butt or piano hinged with cam latches. Minimum size shall be 12"x12" or 12"x duct depth unless noted otherwise.
- C. Branch take-offs to air terminal units shall be high efficiency type.
- D. All take-offs to diffusers and grilles shall be made with high efficiency take-offs, 45° take-offs or conical fittings unless specifically indicated otherwise on drawings. Provide locking quadrant volume damper at take-offs in accessible ceilings, unless shown otherwise. Extractors and scoops are not permitted.
- E. Duct splits, elbows and reducing fittings shall be fabricated per SMACNA standards. "Ductmate" or acceptable equal flanged and gasketed joint systems are approved.
- F. Provide dampers where shown and required. Dampers shall be by Greenheck or acceptable equal by Ruskin, American Warming & Ventilating, Air Balance, Inc., Carnes, Krueger, Nailor, United Enertech.

- | | Equipment Capacity, Tons | Min. Pipe Size, In. |
|--|----------------------------|------------------------|
| 1. Balance and control dampers shall be rated in accordance with AMCA 5000. They shall be opposed blade except air mixing dampers shall be parallel blade. | Up to 3
3-1/2 to 20 | 3/4"
1" |
| a. Manual dampers shall have standoff and locking quadrant. | 21-80
91-125
126-250 | 1-1/4"
1-1/2"
2" |
| 2. Damper Schedule: | | |
| a. Manual Damper Rectangular:
Greenheck MBD-15, Galv. Steel formed blade, manual locking quadrant actuator, 4" WG, 2000 fpm. | | |
| b. Manual Damper Round:
Greenheck MBDR-50, Galv. Steel formed blade, manual locking quadrant actuator, 1" WG, 2000 fpm. | | |
| c. Manual Damper Round:
Greenheck VCDR-53, Galv. Steel single formed blade, blade seals, 4" WG, 3000 fpm, 4 CFM/SF leakage at 1" WG. | | |

4.0 DUCT SUPPORTS AND ROUTING

A. Hangers and Supports

1. Ductwork shall be supported in accordance with all SMACNA standards including support methods, sizes and spacing.
2. All hanger and support parts shall be galvanized steel for non-corrosive environments or stainless steel for corrosive or damp environments.
3. Provide sheetmetal straps, adjustable hangers, clamps, channels, rods, flexible connectors, supplementary steel, etc as required for proper support of all ductwork. Trapeze may be used for support of single or multiple ducts. Provide accompanying attachments including bolts and nuts, sheetmetal screws or rivets compatible with duct materials.
4. Upper attachments shall be manufactured items specific to the applicable structure. Include concrete inserts, wedge type drilled in inserts, steel beam and joist clamps, plates, rods, clips, straps and brackets as required by the application.
5. Cable systems may be used at contractor option. They shall be a complete assembly including cables, adjustable locking fasteners or clips and all upper and lower attachments by Gripple or acceptable equal.

B. Routing

1. Ductwork shall be routed as shown on drawings, parallel to building lines unless otherwise shown, coordinated with building structure and other trades. Adjust ductwork routing and elevations with necessary offsets to accommodate beams and other obstructions.

5.0 GRILLES, REGISTERS, INLETS AND OUTLETS:

- A. All supply, return and exhaust grilles, registers and diffusers shall be as scheduled on the drawings. Commercial quality - E.H. Price or acceptable equal by Titus, Carnes, Krueger or Nailor.
1. All air distribution devices shall be selected for throw and low noise (25 NC or less) performance characteristics unless otherwise indicated.
2. Unless otherwise indicated, louvered supply grilles shall be double deflection devices with front blades parallel to the long dimension.
3. A balancing damper shall be provided for each and every diffuser, register and grille where airflow control is required. Unless otherwise indicated, provide integral volume damper where a duct mounted damper would not be accessible.
4. Ceiling supply diffuser connection shall be made with hard elbow or flex duct with Thermaflex flex flow elbow support.

6.0 HEATING AND AIR CONDITIONING UNITS:

A. Ductless Split System Units:

1. Provide wall mounted, indoor units with integral cabinet, fan, grille, washable filter, cooling coil and wireless thermostat coupled with remote DC inverter condensing units with low ambient wind baffle. Provide heat pump configuration where shown. Provide all mounting hardware, refrigerant line set.
2. Ductless split systems shall be by Mitsubishi or acceptable equal by LG, Hitachi, Toshiba, or Sanyo.
- B. Provide units with manufacturer's standard control package. Controls to include factory wired terminals with overload devices and transformers as required. Unit safety control to include high-low pressure switches, fan relays, short cycle safety and internal pressure relief, gas controls with hi limit and anti-cycle protection.
- C. Provide unit accessories as noted on drawings and as required for a complete operating system.
- D. Mount units to provide the required service, access and airflow space.

7.0 FANS:

- A. Fans shall be as scheduled with all required accessories including vibration isolators, hangers, rate of rise thermostats, etc. Commercial quality fans shall be AMCA rated by Greenheck or acceptable equal by Cook, Acme, Carnes, Penn Barry.

8.0 FILTERS:

- A. Provide filters in air intake to each units A/C system with size and number of filters standard with air unit manufacturer. Provide 1" and/or 2" thick to suit equipment requirements, hi-velocity, throw-away MERV 8 filters, Farr 30/30 or acceptable equal by American Air Filter, Airguard, Air Filters, Inc, Puroilator. Filters shall be new and clean at time of Owner's acceptance. Supply extra set of filters for each unit.

9.0 CONTROLS AND LOW VOLTAGE SYSTEMS:

- A. All temperature controls unless otherwise noted shall be the responsibility of the Mechanical Contractor.
- B. Controls system shall be electric/electronic with stand alone programmable digital thermostats by Johnson Controls, Automated Logic, Trane or acceptable equal.
- C. Provide control installation to accomplish the indicated or required sequence of operation including thermostats/ sensors, controllers, actuators, wiring, piping and tubing, software, graphics and other components as required for a complete operating system. Where no sequence is indicated, contractor shall submit a proposed sequence for approval.
- D. Devices exposed to view and mounted in finished spaces shall be white in color unless otherwise noted or directed.
- E. All occupant adjustable devices shall be mounted in accordance with ADA and ADAAG requirements.

10.0 PIPE, FITTINGS AND VALVES:

- A. Provide service valves for each item of equipment, at branch piping and elsewhere as indicated or required. Provide control valves, balance valves, strainers, check valves and other valves as indicated or required by the application.
- B. Provide a union or flanged connection between each item of equipment and its service valve. Copper to ferrous pipe connections shall have isolation coupling, flange or union.
- C. Refrigerant:
1. Piping - ASTM B280 type ACR pre-charged copper tube, wrought copper or brass fittings, flared compression or brazed joints. Piping and fittings shall be rated for 700 PSIG at 170F.
2. Brazing material shall be hi silver content AWS A5.8 BA9-35 alloy or acceptable equal.
3. Valves - Shutoff, check, filters/dryers, sight glasses, expansion and solenoid valves rated for refrigerant service.
4. All refrigerant piping work and accessories shall be in strict accordance with manufacturer's requirements, including but not limited to compliance with piping slopes, traps and risers, maximum permitted lengths and cleaning and purging.
5. All refrigerant piping systems shall be eddy current tested, nitrogen purged during brazing and ends capped. They shall be cleaned and triple evacuated in accordance with manufacturer and industry standards.
6. All systems shall be leak tested prior to insulation installation and prior to refrigerant charging and shall be certified leak free with report provided to the engineer. Contractor is responsible for repair of any system leaks including system evacuation and recharging.

D. Condensate drain piping:

1. PVC Pipe - Schedule 40 with solvent cement joints. PVC not permitted in plenums used for supply or return air.
2. Provide with plugged tee cleanouts unless otherwise accessible for cleaning. Trap all air unit condensate drains with deep traps.
3. Where indicated or where required for positive drainage, provide mechanical units with condensate pump.
4. Condensate drain piping:
- a. Indoor units shall discharge indirectly to floor drains or to daylight or as otherwise indicated on drawings and shall be in accordance with local codes.
- b. Outdoor units shall discharge indirectly to grade or to primary roof drains or gutters or as otherwise indicated on drawings and shall be in accordance with local codes. Condensate shall not drain to overflow roof drains.
5. Condensate pipe sizing:
- a. Minimum condensate pipe size shall be 3/4".
- b. Piping for individual units shall be as specified by manufacturer or a minimum of the unit connection size.
- c. Install manufacturer supplied condensate lift pumps and pipe discharge adaptors where indicated or required.
- d. Common or manifold condensate system shall be minimum size as follows:

	Equipment Capacity, Tons	Min. Pipe Size, In.
1. Balance and control dampers shall be rated in accordance with AMCA 5000. They shall be opposed blade except air mixing dampers shall be parallel blade.	Up to 3 3-1/2 to 20	3/4" 1"
a. Manual dampers shall have standoff and locking quadrant.	21-80 91-125 126-250	1-1/4" 1-1/2" 2"

6. Valves.

- a. Service -
- 1) 2" - 2", Nibco 585-70 full port ball, bronze with chrome plated ball.
7. Provide dielectric fittings at joints of dissimilar metals.
8. Provide valve with stem extensions on all insulated piping systems to accommodate insulation thickness.

11.0 PIPE SUPPORTS AND ROUTING:

A. Hangers and Supports

1. Piping shall be supported in accordance with industry standards including support methods, sizes and spacing. All supports shall conform to MSS SP58 and Fed Spec WW-H-171E and A-A-1192A.
2. Pipe Slopes: Install hangers and supports to provide indicated or required pipe slopes to provide for drainage and venting.
3. Deflection: Maximum pipe deflections and stresses as allowed by ANSI B31 are not exceeded.
4. Each piping system shall be independently supported with no piping bearing on another and installed such that no weight of piping is borne by the equipment.
5. Space hangers and supports within maximum piping span length indicated in MSS SP-58. Install building attachments at required locations for proper piping support.
6. Provide adjustable hangers, inserts, brackets, rolls, clamps, channels, rods, guides, anchors, flexible connectors, supplementary steel, etc., as required for proper support of all pipe lines. Trapeze may be used for support of multiple pipes. Provide accompanying attachments including bolts and nuts, sheetmetal screws or rivets suitable for application.
7. Provide copper plated, plastic coated or felt lined hangers where required to prevent electrolysis or abrasion on copper or plastic piping systems.
8. Upper attachments shall be manufactured items specific to the applicable structure. Include concrete inserts, wedge type drilled in inserts, steel beam and joist clamps, plates, rods, clips, straps and brackets as required by the application.
9. Hangers shall be designed to allow for expansion and contraction of pipe lines and shall be of adequate size to permit covering when required. Provide protective saddles and blocking where supporting insulated piping to prevent crushing insulation.
10. All hanger and support parts shall be galvanized steel for non-corrosive environments or stainless steel for corrosive or damp environments.
11. Cable systems may be used at contractor option. They shall be a complete assembly including cables, adjustable locking fasteners or clips and all upper and lower attachments by Gripple or acceptable equal.

B. Routing

1. Piping shall be routed as shown on drawings, parallel to building lines unless otherwise shown, coordinated with building structure and other trades. Adjust pipe routing and drop locations with necessary pipe offsets or changes in elevation to accommodate beams and other obstructions.

12.0 FOUNDATIONS AND VIBRATION ISOLATION:

- A. Foundations: Provide fabricated supports for all equipment. Mount on 4" concrete housekeeping pads where indicated.
- B. Provide flexible connections at all motor driven equipment, where shown and where required to hold transmitted noise and vibration to an acceptable minimum at piping and duct connections.
- C. Duct flexible connection shall be Durodyne non-combustible, 22 ounce (minimum) polymer coated woven fabric or acceptable equal.
- D. Equipment Vibration Isolation: All motor driven equipment shall be furnished with isolating mountings. Motors shall be mounted on resilient bases, spring or rubber supports as recommended by the manufacturer. Isolators shall be Amber Booth or acceptable equal by Kinetics, Mason Industries, Vibration Eliminator Co.

13.0 SLEEVES AND SEALS, FLASHINGS, ROOF PIPE SUPPORTS AND UV PROTECTION:

- A. Flash all pipes and vents extending through roof. Flashing details shall be in accordance with roof manufacturer's requirements.
- R. Continuous roof niple penetrations shall be thru a niple nortal assembly with roof curb, can and niple

230 100
HEATING, VENTILATION AND AIR CONDITIONING CONTINUED

1.0 SCOPE:

A. The work included under this contract consists of providing all labor, materials, tools, transportation, services, etc., necessary to complete the installation and to provide complete working systems of the Plumbing Systems, including hot and cold water, waste and vent, storm drainage, fixtures, equipment and other items described in these specifications, as illustrated in the accompanying drawings or as directed by the Architect/Engineer.

B. Extend piping systems as indicated on contract documents or to point of connection as follows:

1. Points of connection within the existing building.

2.0 PIPING, FITTINGS AND VALVES:

A. Provide service valves for each item of equipment, at branch piping and elsewhere as indicated or required. Provide balance valves, strainers, check valves and other valves as indicated or required by the application.

B. Provide a union or flanged connection between each item of equipment and its service valve. Copper to ferrous pipe connections shall have isolation coupling, flange or union.

C. Domestic water, interior, above ground -

1. Pipe, copper tube -

a. 2-1/2" and Smaller -Type "L" hard temper, wrought or cast copper fittings, Lead free 95/5 or Eagle Hard Silvalbite or "CB" solder joints, or roll grooved mechanical joints or pressure seal pipe fittings with EPDM O-ring seals.

2. Valves -

a. 1/4 turn Service -

1) 1/2" thru 2" - Nibco 585-66-LF bronze lead free, 600 PSIG, full port, stainless steel ball and stem.

b. Balance - Bell & Gossett lead free Circuit Setter "RF-S-LF" or "CB-S-LF".

3. Provide valves where indicated on the drawings, where required by code or required for service.

4. Securely anchor and support piping, valves and fittings, with adequate provisions for expansion and contraction. Grade lines, free of traps, to low point at cut-off and drain valve.

5. Hot and cold supply lines to have manufactured pre-charged piston type water hammer arrestors at each end and every fixture or group or battery of fixtures to prevent water hammer, sized as shown or per manufacturers recommendation. An arrestor shall also be required at each solenoid actuated quick closing valve. Sioux Chief, JR Smith or equal. Provide access panel where required.

D. Sanitary sewer, vent, interior --

1. Pipe - Standard weight cast iron hubless with no-hub shielded mechanical joints; solid wall schedule 40 PVC, ABS with solvent cement joints; vents may be galvanized malleable iron.

2. Plastic piping shall not be allowed in return air plenums.

3. Hub drains, where shown, shall be of material compatible with piping system, 2" minimum connection size, top flared out to accept indirect wastes required at each location. Hub drains shall be fitted with trap guards. Floor mounted hub drains shall extend 2" above finish floor.

4. All gravity drainage shall be graded per code but not less than 1/8" per foot unless noted otherwise. 3" and 4" piping shall be sloped at 1/4" per foot where possible and where required by local codes..

E. Sanitary sewer, vent, below grade --

1. Pipe - Standard weight cast iron hubless with no-hub mechanical joint fittings; solid wall schedule 40 PVC, ABS with solvent cement joints.

2. All gravity drainage shall be graded per code but not less than 1/8" per foot unless noted otherwise. 3" and 4" piping shall be sloped at 1/4" per foot where possible and where required by local codes.

3.0 CLEANOUTS, TEST TEES, TRAPS AND TRAP SEALS:

A. Provide cleanout at the base of each stack or riser, at ends of runs greater than 10', each 135° aggregate change of direction in horizontal piping, where indicated on the drawings or as required by code. Plugs, extra heavy cast brass, screwed. Sconiated tops in unfinished areas, carpet markets in carpet floors, tie up in tile floors, stainless steel cover in finished walls. Cleanouts same size as pipe up to 4" diameter, 4" cleanouts for larger pipe unless otherwise noted.

B. Provide test tees at base of risers and elsewhere as required by code.

C. All traps shall be deep seal type with liquid seal not less than specified by code.

D. Where trap primers are not specified provide all floor and hub drains with trap seal with EPDM diaphragm, Provent Proset Series SG22 or TG22, Rectorseal SS series or acceptable equal.

4.0 SLEEVES AND SEALS, FLASHINGS, ROOF PIPE SUPPORTS AND UV PROTECTION:

A. Provide sleeves where piping penetrations are required thru partitions, concrete floors, concrete slabs on or below grade or foundation walls. Where penetrations are through fire rated assemblies, sleeves shall be in accordance with UL listing requirements. Sleeves shall be galvanized steel pipe, sheet steel or cast iron. Sleeves are not required for core drilled penetrations of existing concrete slabs above grade. Penetrations of below grade structures and slabs on grade shall be water proofed with mechanical link seal system, Thunder Line or acceptable equivalent.

B. Plastic piping without UV inhibitors which is exposed to UV radiation from sunlight shall be protected by coating with a UV resistant paint.

5.0 CROSS- CONNECTIONS AND INTERCONNECTIONS:

A. No plumbing device or piping shall be installed which will provide cross-connection or interconnection between a distributing supply or waste so as to make possible the backflow or back-siphonage of polluted water into the potable water supply system. Where the possibility of back-siphonage exists, water supply to the fixture shall be introduced through a suitable backflow preventer device suitable for the hazard protected. Installed backflow preventers must be approved through the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.

1. They may be an air gap, anti-syphon valve, atmospheric vacuum breaker, pressure vacuum breaker, double check, reduced pressure backflow preventer or as otherwise required by the authority having jurisdiction.

2. Where not otherwise indicated, miscellaneous equipment items with direct water connections, shall have backflow devices in accordance with authority having jurisdiction. Where not otherwise indicated, equipment such as coffee and tea makers, shall be equipped with dual check valves, ASSE 1024. Drink or carbonated water systems shall be equipped with stainless steel backpressure or backsiphonage devices, ASSE 1022.

6.0 INSULATION:

A. Pipe insulation shall conform to the International Energy Conservation Code.

B. Insulate all cold water, hot water and hot water recirculating piping., Owens Corning or acceptable equal.

1. Cold water piping insulation: 1" fiber glass sectional pipe covering with universal vapor barrier jacket.

2. Hot Water and hot water recirculating piping insulation: 1" fiber glass sectional pipe covering with universal all service jacket.

3. Hot water recirculating pump body shall be insulated with 3/4" flexible elastomeric sheet or 1" fiberglass semi-rigid board with FSK jacket. All seams and joints shall be taped or mastic sealed.

C. At Contractor's option, Armacel AP Armaflex unicellular insulation or acceptable equal with 25/50 flame and smoke rating with equal thermal performance may be substituted for fiberglass products.

D. Seal all joints on cold water insulation to maintain vapor barrier.

E. Insulation shall run continuously thru hangers and supports without interruption.

F. Refer to plumbing fixture schedule for insulation of fixture drains and water piping for compliance with ADA requirements for People with Disabilities.

END OF SECTION

220 100
PLUMBING

1.0 SCOPE:

A. The work included under this contract consists of providing all labor, materials, tools, transportation, services, etc., necessary to complete the installation and to provide complete working systems of the Plumbing Systems, including hot and cold water, waste and vent, storm drainage, fixtures, equipment and other items described in these specifications, as illustrated in the accompanying drawings or as directed by the Architect/Engineer.

B. Extend piping systems as indicated on contract documents or to point of connection as follows:

1. Points of connection within the existing building.

2.0 PIPING, FITTINGS AND VALVES:

A. Provide service valves for each item of equipment, at branch piping and elsewhere as indicated or required. Provide balance valves, strainers, check valves and other valves as indicated or required by the application.

B. Provide a union or flanged connection between each item of equipment and its service valve. Copper to ferrous pipe connections shall have isolation coupling, flange or union.

C. Domestic water, interior, above ground -

1. Pipe, copper tube -

a. 2-1/2" and Smaller -Type "L" hard temper, wrought or cast copper fittings, Lead free 95/5 or Eagle Hard Silvalbite or "CB" solder joints, or roll grooved mechanical joints or pressure seal pipe fittings with EPDM O-ring seals.

2. Valves -

a. 1/4 turn Service -

1) 1/2" thru 2" - Nibco 585-66-LF bronze lead free, 600 PSIG, full port, stainless steel ball and stem.

b. Balance - Bell & Gossett lead free Circuit Setter "RF-S-LF" or "CB-S-LF".

3. Provide valves where indicated on the drawings, where required by code or required for service.

4. Securely anchor and support piping, valves and fittings, with adequate provisions for expansion and contraction. Grade lines, free of traps, to low point at cut-off and drain valve.

5. Hot and cold supply lines to have manufactured pre-charged piston type water hammer arrestors at each end and every fixture or group or battery of fixtures to prevent water hammer, sized as shown or per manufacturers recommendation. An arrestor shall also be required at each solenoid actuated quick closing valve. Sioux Chief, JR Smith or equal. Provide access panel where required.

D. Sanitary sewer, vent, interior --

1. Pipe - Standard weight cast iron hubless with no-hub shielded mechanical joints; solid wall schedule 40 PVC, ABS with solvent cement joints; vents may be galvanized malleable iron.

2. Plastic piping shall not be allowed in return air plenums.

3. Hub drains, where shown, shall be of material compatible with piping system, 2" minimum connection size, top flared out to accept indirect wastes required at each location. Hub drains shall be fitted with trap guards. Floor mounted hub drains shall extend 2" above finish floor.

4. All gravity drainage shall be graded per code but not less than 1/8" per foot unless noted otherwise. 3" and 4" piping shall be sloped at 1/4" per foot where possible and where required by local codes..

E. Sanitary sewer, vent, below grade --

1. Pipe - Standard weight cast iron hubless with no-hub mechanical joint fittings; solid wall schedule 40 PVC, ABS with solvent cement joints.

2. All gravity drainage shall be graded per code but not less than 1/8" per foot unless noted otherwise. 3" and 4" piping shall be sloped at 1/4" per foot where possible and where required by local codes.

3.0 CLEANOUTS, TEST TEES, TRAPS AND TRAP SEALS:

A. Provide cleanout at the base of each stack or riser, at ends of runs greater than 10', each 135° aggregate change of direction in horizontal piping, where indicated on the drawings or as required by code. Plugs, extra heavy cast brass, screwed. Sconiated tops in unfinished areas, carpet markets in carpet floors, tie up in tile floors, stainless steel cover in finished walls. Cleanouts same size as pipe up to 4" diameter, 4" cleanouts for larger pipe unless otherwise noted.

B. Provide test tees at base of risers and elsewhere as required by code.

C. All traps shall be deep seal type with liquid seal not less than specified by code.

D. Where trap primers are not specified provide all floor and hub drains with trap seal with EPDM diaphragm, Provent Proset Series SG22 or TG22, Rectorseal SS series or acceptable equal.

4.0 SLEEVES AND SEALS, FLASHINGS, ROOF PIPE SUPPORTS AND UV PROTECTION:

A. Provide sleeves where piping penetrations are required thru partitions, concrete floors, concrete slabs on or below grade or foundation walls. Where penetrations are through fire rated assemblies, sleeves shall be in accordance with UL listing requirements. Sleeves shall be galvanized steel pipe, sheet steel or cast iron. Sleeves are not required for core drilled penetrations of existing concrete slabs above grade. Penetrations of below grade structures and slabs on grade shall be water proofed with mechanical link seal system, Thunder Line or acceptable equivalent.

B. Plastic piping without UV inhibitors which is exposed to UV radiation from sunlight shall be protected by coating with a UV resistant paint.

5.0 CROSS- CONNECTIONS AND INTERCONNECTIONS:

A. No plumbing device or piping shall be installed which will provide cross-connection or interconnection between a distributing supply or waste so as to make possible the backflow or back-siphonage of polluted water into the potable water supply system. Where the possibility of back-siphonage exists, water supply to the fixture shall be introduced through a suitable backflow preventer device suitable for the hazard protected. Installed backflow preventers must be approved through the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.

1. They may be an air gap, anti-syphon valve, atmospheric vacuum breaker, pressure vacuum breaker, double check, reduced pressure backflow preventer or as otherwise required by the authority having jurisdiction.

2. Where not otherwise indicated, miscellaneous equipment items with direct water connections, shall have backflow devices in accordance with authority having jurisdiction. Where not otherwise indicated, equipment such as coffee and tea makers, shall be equipped with dual check valves, ASSE 1024. Drink or carbonated water systems shall be equipped with stainless steel backpressure or backsiphonage devices, ASSE 1022.

6.0 INSULATION:

A. Pipe insulation shall conform to the International Energy Conservation Code.

B. Insulate all cold water, hot water and hot water recirculating piping., Owens Corning or acceptable equal.

1. Cold water piping insulation: 1" fiber glass sectional pipe covering with universal vapor barrier jacket.

2. Hot Water and hot water recirculating piping insulation: 1" fiber glass sectional pipe covering with universal all service jacket.

3. Hot water recirculating pump body shall be insulated with 3/4" flexible elastomeric sheet or 1" fiberglass semi-rigid board with FSK jacket. All seams and joints shall be taped or mastic sealed.

C. At Contractor's option, Armacel AP Armaflex unicellular insulation or acceptable equal with 25/50 flame and smoke rating with equal thermal performance may be substituted for fiberglass products.

D. Seal all joints on cold water insulation to maintain vapor barrier.

E. Insulation shall run continuously thru hangers and supports without interruption.

F. Refer to plumbing fixture schedule for insulation of fixture drains and water piping for compliance with ADA requirements for People with Disabilities.

END OF SECTION

7.0 PIPE SUPPORTS AND ROUTING:

A. Hangers and Supports

1. Piping shall be supported in accordance with industry standards including support methods, sizes and spacing. All supports and installation shall conform to MSS SP58 and 69 and Fed Spec WW-H-171E and A-A-1192A.

2. Pipe Slopes: Install hangers and supports to provide indicated or required pipe slopes to provide for drainage and venting

3. Deflection: Maximum pipe deflections and stresses as allowed by ANSI B31 are not exceeded.

4. Each piping system shall be independently supported with no piping bearing on another and installed such that no weight of piping is borne by the equipment.

5. Space hangers and supports within maximum piping span length indicated in MSS SP-58. Install building attachments at required locations for proper piping support.

6. Provide adjustable hangers, inserts, brackets, rolls, clamps, channels, rods, guides, anchors, flexible connectors, supplementary steel, etc., as required for proper support of all pipe lines. Trapeze may be used for support of multiple pipes. Provide accompanying attachments including bolts and nuts, sheetmetal screws or rivets suitable for application.

7. Provide copper plated, plastic coated or felt lined hangers where required to prevent electrolysis or abrasion on copper or plastic piping systems.

8. Upper attachments shall be manufactured items specific to the applicable structure. Include concrete inserts, wedge type drilled in inserts, steel beam and joist clamps, plates, rods, clips, straps and brackets as required by the application.

9. Hangers shall be designed to allow for expansion and contraction of pipe lines and shall be of adequate size to permit covering when required. Provide protective saddles and blocking where supporting insulated piping to prevent crushing insulation.

10. All hanger and support parts shall be galvanized steel for non-corrosive environments or stainless steel for corrosive or damp environments.

11. Cable systems may be used at contractor option. They shall be a complete assembly including cables, adjustable locking fasteners or clips and all upper and lower attachments by Gripple or acceptable equal.

B. Routing

1. Piping shall be routed as shown on drawings, parallel to building lines unless otherwise shown, coordinated with building structure and other trades. Adjust pipe routing and drop locations with necessary pipe offsets or changes in elevation to accommodate beams and other obstructions.

8.0 PIPE LABELS:

A. Equipment labels shall be provided for all plumbing equipment and shall be self-adhesive engraved plastic, blue with white lettering, sized, minimum 1-1/2" high, and located for viewing from ground or floor level. Label shall indicate drawing designation or unique equipment number.

B. Pipe labels for domestic water, waste, vent and gas piping shall be preprinted, color-coded, with 1-1/2" lettering indicating service, and showing flow direction, locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and locations as follows:

1. Near each valve and control device.

2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.

3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.

4. At access doors, and similar access points that permit view of concealed piping.

5. Near major equipment items and other points of origination and termination.

6. Spaced at maximum intervals of 50 feet along each run. Reduced intervals to 25 feet in areas of congested piping and equipment.

7. On piping above removable acoustical ceilings, omit intermediately spaced labels.

C. Warning labels shall be self-adhesive engraved plastic or preprinted plastic as required by application with white lettering on red background provided at locations as required by code or where hazards to personnel exist.

9.0 MISCELLANEOUS

A. Indirect wastes shall discharge full size thru an air gap to a floor, equipment drain or sanitary floor sink. The floor or equipment drain grate shall be fitted with a funnel, the sanitary floor sink shall have a partial grate or the grate shall be omitted. Drains shall be located so they are accessible and not a tripping hazard.

B. Provide escutcheons at all penetrations of exposed walls and ceilings. Escutcheons shall be chrome plated brass in occupied areas, prime paint finish for unoccupied areas unless otherwise noted. Escutcheons for exterior or moist areas shall be brass.

C. All cable ties for controls and other cable systems located in plenums utilized for air movement that are not installed in conduit shall be 25/50 flame and smoke rated, Hellermann Tyton T50R2C2JUL or equal.

10.0 PROTECTION OF WORK

A. Protection

1. Protect and cover piping and fixture waste and water openings to prevent entry of dirt and debris.

2. Cover and protect fixtures and plumbing equipment to prevent damage.

11.0 TEST, ADJUSTMENTS AND CLEANING:

A. Soil, waste and vent piping testing:

1. Fill with water to the top of the highest point of the system extending through roof, but not less than 10 feet water column, and allow to remain for a period of two hours.

2. Where applicable, isolate new portions of the system(s) piping with test tee and Oatey Clean Seal inflatable plug prior to testing.

B. Water and gas line testing:

1. Water piping shall be purged and tested with compressed air or water at 50 PSIG above the operating pressure but not to exceed the pressure rating of piping system materials for a period of 2 hours with no measurable pressure drop.

2. Where applicable, isolate new portions of pressure piping from existing piping with valves prior to testing.

3. For renovation projects, isolate and protect fixtures, valves and equipment from over pressurization during testing.

C. After successful testing, sterilize water system with an approved solution in accordance with local health officials.

D. Contractor to submit all test data and other documentation for record.

12.0 FIXTURE BRANCH PIPING:

A. Fixture branch and connection sizes shall be as shown in the plumbing fixture schedule on the drawings and not less than required by code.

B. Minimum waste or vent size below slab on grade shall be 2".

13.0 PLUMBING FIXTURES:

A. Refer to plumbing fixture schedule for plumbing fixtures and accessories. Include all fittings and accessories as required for a complete working system.

B. At contractor option, flexible stainless steel braided hose, 125 PSIG rated, with non-toxic liner and compression fittings may be used in lieu of chrome plated brass riser tube.

14.0 FIXTURE AND ACCESSORY MANUFACTURERS:

A. Fixtures, equipment and accessories are specified by manufacturer's numbers as to the type and quality required.

B. Specified manufacturers and approved equal manufacturers are as follows:

FIXTURE, ITEM OR EQUIPMENT	APPROVED EQUAL MANUFACTURERS
Vitreous China Fixtures	American Standard, Toto, Kohler, Zurn
Stainless Steel Sinks	Elkay, Just, Kohler, Advance Tabco
Supply Faucets & Trim	Chicago Faucets, Delta, Elkay, Kohler, Sloan, T & S Brass, Watts, Zurn
Stops & Supplies	BrassCraft, McGuire, ProFlo, Watts, Jones Stephens
Waste Fittings	Dearborn Brass, McGuire, ProFlo, Jones Stephens, Watts
ADA Under Lavatory Pipe Covers	Trubor, ProFlo, Plumberex
Water Closet Seats	Church, Bemis, Bencke, Olsonite, Toto
Carriers	J R Smith, Josam, Wade, Watts, Zurn
Drains and Drainage Products	J R Smith, Wade, Watts, Zurn, Josam

END OF SECTION

260 100
ELECTRICAL

1.0 SCOPE:

A. The work included under this contract consists of the furnishing of all labor, materials, tools, transportation, services, etc., necessary to complete the installation of the electrical systems and other items herein listed, all as directed by the Architect or Engineer, which work is comprised of, but not limited to the following principal items:

1. Electrical system for light and power:

a. Electrical service and distribution system revisions.

b. Switches and panel boards.

c. Systems of conduit, conductors, and boxes.

d. Receptacles and wiring devices.

e. Lighting fixtures and lamps.

f. Power service to the various motors.

g. Complete lighting and power systems.

h. All systems, wiring and conduit as required.

2. Control wiring and electrical installation and connections for items in other contracts as may be listed in the drawings.

3. Empty conduit and boxes for future installation of telephone wiring and miscellaneous systems.

4. Rough-in and final connection to equipment furnished by others.

5. All cable ties for low voltage cable systems located in plenums utilized for air movement that are not installed in conduit shall be 25/50 flame and smoke rated, Hellermann Tyton T50R2C2JUL or equivalent.

B. Raceway wiring systems shall be concealed in all finished parts of the building, where possible. Where the raceways are exposed, they shall be run parallel with the building walls in a neat and workmanlike manner. Should it appear necessary to expose any conduit or wiring in finished spaces, it shall be brought to the Architect's attention immediately and this Contractor shall rearrange associated work as directed to facilitate an approved installation. Contractor to coordinate with mechanical trades to avoid ductwork and piping.

2.0 RACEWAYS:

A. All electrical conductors are to be installed in metal raceways, unless specifically specified or noted otherwise. Galvanized steel or intermediate steel conduit as permitted by code. No conduit smaller than 3/4" to be used. Use set screw or compression type fittings. Provide flexible conduit connection for final connection to each motor not to exceed 3' in length and recessed lighting fixtures not to exceed 6' in length. Provide pull wires in all empty conduit systems. Identify terminus of each pull wire. All exposed raceways shall be installed with runs parallel and/or perpendicular with building walls. Fasten all rigid/non-flexible conduit every 8' and 2' from each box. Conduit shall be EMT where not subject to mechanical damage as permitted by National Electric Code (N.E.C.). EMT connectors and couplings 4" and smaller shall be compression type. Type MC Cable is not permitted, excluding final connections to motors and lighting fixtures.

B. Conduit bushings shall be provided and installed inside all disconnects, pull boxes, panelboards, switchboard or similar type equipment and where permitted by National Electric Code (N.E.C.).

3.0 WIRES AND CABLES:

A. Electrical conductors, soft annealed copper with conductivity 98% of that of pure, stranded copper, 90 degree - 600V insulation and equal to General Cable Company. Wire and cable for all feeders, subfeeders, motor circuits and high ambient location type shall be THHN. All other branch circuit wiring shall be type XHHN or THHN. Minimum wire size shall be #12 gauge AWG. Control wiring may be #14 gauge.

B. For conductors #4 or small use the following color-code:

- 208Y/120V, 3-phase: black, red, blue, white.
- Green shall be used for ground wire conductor.
- Contractor shall use the following color designations and be consistent throughout the project. Color designation for switch legs and or travelers: Violet, Pink or Purple may be used.

C. Conductor Material Applications:

a. Branch Circuits: Copper, Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.

D. Conductor insulation and multi-conductor cable application and wiring methods:

b. Exposed Branch Circuits, Including in Crawlspace: Type THHN, single conductors in raceway.

c. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN, single conductors in raceway.

d. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THWN-2, single conductors in raceway.

4.0 GROUNDING:

A. Ground all electrical apparatus in accordance with N.E.C. and as specified herein. Provide a separate grounding conductor for all lighting, receptacle and equipment circuits. All cabinets, switchboards, equipment cases, motor frames, interior metal cold water piping systems, and system neutral conductors shall be effectively grounded. Use solderless pressure type connectors, no perforated strap connectors will be allowed. Ensure continuous bond where flexible conduit is used. Provide bonding jumper inside all flexible conduit. Grounding per N.E.C. 250, and any local requirements.

5.0 SPLICE AND TAPS:

A. Make splices at junction boxes, pull boxes, or outlet boxes only.

6.0 CABINETS, JUNCTION AND PULL BOXES:

A. Flush or surface mounted as indicated on drawings. Provide where shown on drawings and where required by code. Construct of cold gauge steel for flush surface mounting.

7.0 OUTLET BOXES:

A. General Electric, Appleton, Steel City or Raco hot dipped galvanized steel boxes, or equal. Install at terminal of each conduit run, each outlet, or device. Provide size, type and design to suit structural conditions. Adequate to accommodate size and number of raceways, conductors, device or fixture served. Provide plaster rings or covers on boxes where required on exposed work, use approved cast ferrous alloy outlet, junction boxes and fittings. Fixture or device cover shall completely conceal the size outlet box used. Install 3/8" fixture stud for lighting fixtures where required. Locate ceiling outlets to work with architectural features as directed. Switches installed 48" above floor on strike side of door as finally hung. Receptacles and telephone outlets, 18" above finished floor unless otherwise noted. Verify all outlet locations on job with Architect.

8.0 DISCONNECT SWITCHES:

A. Heavy duty NEMA type "HD" - same manufacturer as panelboards. Plastic nameplate properly engraved with name of equipment served, secured to switch cover. Fuses shall be Busmann of sizes and types scheduled.

9.0 MOTOR AND CONTROL WIRING AND CONNECTIONS:

A. This Contractor to provide all necessary conduit, boxes and supports to equipment furnished by Owner and as indicated on drawings. Provide a disconnect switch and starter if required.

10.0 LABELING:

A. Contractor shall label each and every j-box above ceiling with a permanent marker with panel and circuit number.

B. Outlets, adhesive film label, machine printed clear background with black letters, by thermal transfer or equivalent process. Minimum letter height shall be 1/4 inch. Face plate shall be labeled with panel and circuit number.

C. Interior equipment self-adhesive, engraved, laminated acrylic or melamine label: adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

D. Exterior equipment: Stenciled or engraved, laminated acrylic or melamine label: punched or drilled for screw mounting. White letters on a black background. Minimum letter height shall be 1 inch (25 mm).

11.0 WIRING DEVICES:

A. Duplex -receptacles shall be Hubbell #5352-X grounding type, 20A., 125V.; G.F.C.I. shall be Hubbell GF-5352-X, 20A., 125V.; duplex, G.F.C.I. TYPE. Isolated ground receptacles shall be orange in color, Hubbell IG-5352, 20A, 125V, duplex. Isolated ground receptacles shall be equipped with a Hubbell IGP-8 plate, orange in color inscribed "Isolated Ground". Wall toggle switches shall be Hubbell Number 1221-X and Number 1223-X for single pole and three way types respectively. Other switch, receptacle, and outlet device variations shall be by Hubbell of "Spec. Grade" quality. Equivalent devices of P & S or Leviton will be acceptable in lieu of the above listed devices. Contractor to verify color of devices with Architect before purchase. Provide smooth plastic cover plates to mate and match device for each outlet.

B. Motion sensor: contractor shall verify with owner for proper time delay settings.

12.0 LIGHTING FIXTURES:

A. This Contractor shall furnish and install complete, unless otherwise specified, a lighting fixture on each and every lighting outlet shown on the drawings of each type scheduled by letter and description. All fixtures shall be equipped with lamps as scheduled or specified herein. All fixtures installed in suspended ceilings must be securely fastened to framing members per NEC 410-36b and local seismic code requirements.



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C04 No. 2006001100

FRESH GREEN - Lees Summit

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project number 2020-017

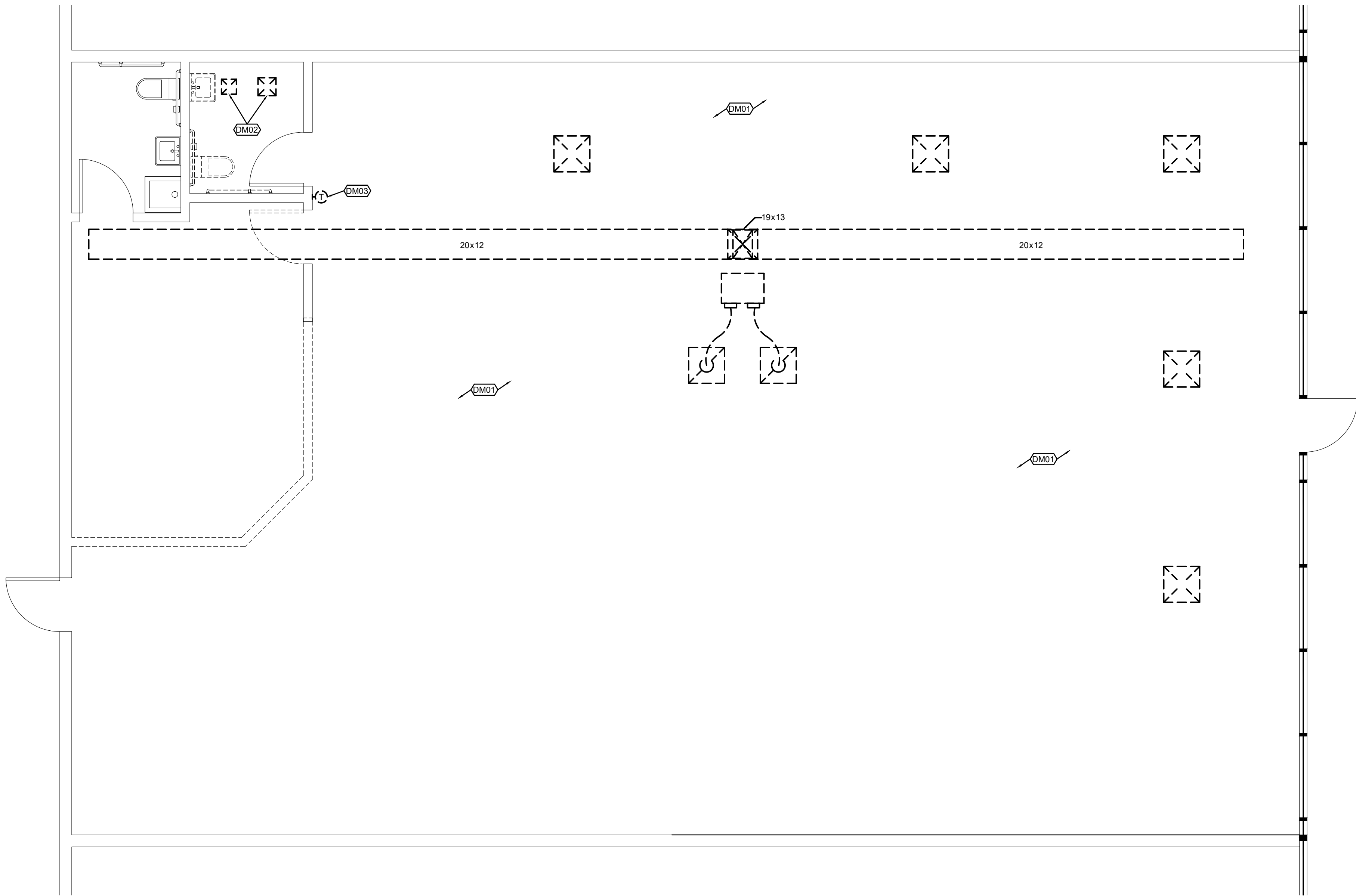
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issued for PERMIT

rev	date	description
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sheet number

MEP11



FLOOR PLAN-MECHANICAL DEMOLITION
SCALE: 1/4" = 1'-0"

FLOOR PLAN NOTES

1. DISCONNECT AND REMOVE ALL DUCTWORK, DIFFUSERS, GRILLES, HANGERS, ETC. IN THEIR ENTIRETY THROUGHOUT PROJECT EXTENTS.
2. REMOVE EXHAUST DIFFUSERS, DUCTWORK, ASSOCIATED EQUIPMENT AND CONTROLS.
3. DISCONNECT AND REMOVE THERMOSTATS AND ASSOCIATED CONTROL WIRING. THERMOSTATS TO BE PROVIDED NEW UNDER NEW WORK PLAN.



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date 05.01.2020

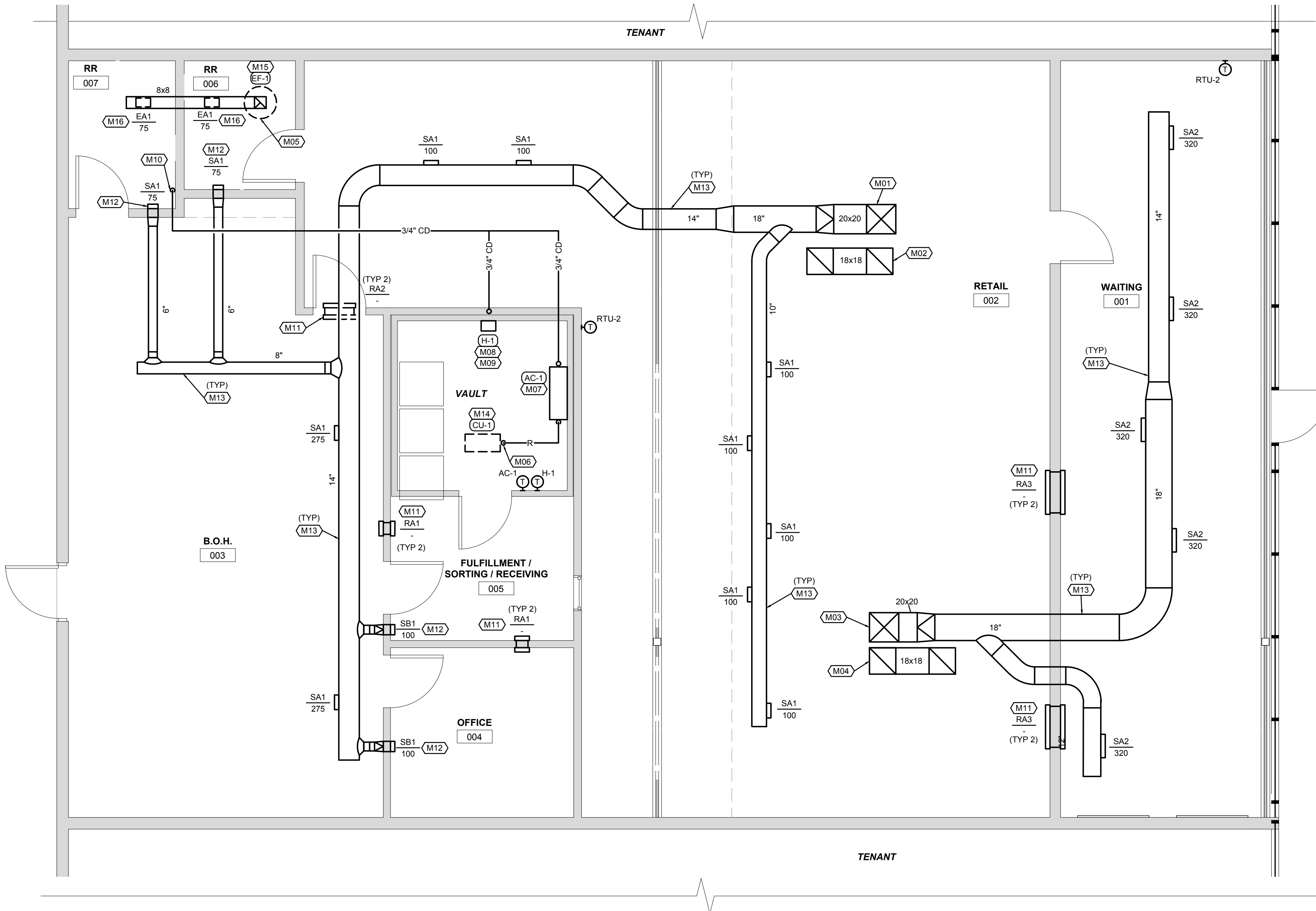
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rev	date	description
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FLOOR PLAN
MECHANICAL
DEMOLITION

sheet number

M01



FLOOR PLAN-MECHANICAL NEW WORK
SCALE: 1/4" = 1'-0"

M## FLOOR PLAN NOTES

1. MAIN DUCT UP TO RTU-1 ON ROOF. FIELD VERIFY RTU AND DUCT RISE LOCATION.
2. RETURN DUCT UP TO RTU-1 ON ROOF. FIELD VERIFY RTU AND DUCT RISE LOCATION.
3. MAIN DUCT UP TO RTU-2 ON ROOF. FIELD VERIFY RTU AND DUCT RISE LOCATION.
4. RETURN DUCT UP TO RTU-2 ON ROOF. FIELD VERIFY RTU AND DUCT RISE LOCATION.
5. EXHAUST DUCT UP TO NEW EF-1 ON ROOF.
6. REFRIGERANT PIPING DOWN FROM CU-1 ON ROOF TO AC-1.
7. WALL MOUNTED SPLIT SYSTEM INDOOR UNIT. MOUNT 12" BELOW VAULT CEILING. ROUTE LINESET TO ASSOCIATED OUTDOOR UNIT AND CONNECT PER MANUFACTURERS RECOMMENDATIONS. ROUTE 3/4" CONDENSATE TO ADJACENT MECHANICAL ROOM FLOOR DRAIN AND INDIRECT WASTE.
8. WALL MOUNTED HUMIDIFIER. INSTALL PER MANUFACTURERS RECOMMENDATIONS. ROUTE DISPERSION TUBE TO FAN PACK IN VAULT ROOM.
9. WALL MOUNTED FAN PACK PROVIDED WITH HUMIDIFIER. INSTALL 12" BELOW VAULT CEILING.
10. CONDENSATE DRAINAGE DOWN TO JANITOR'S SINK.
11. INSTALL RETURN GRILLE IN ROOM TIGHT TO STRUCTURE. INSTALL OPPOSITE RETURN GRILLE AT SAME HEIGHT. PROVIDE IN WALL SHEETMETAL SLEEVE.
12. MOUNT DIFFUSER TIGHT TO STRUCTURE.
13. MOUNT SUPPLY DUCTWORK TIGHT TO STRUCTURE.
14. INSTALL ROOF MOUNTED CONDENSING UNIT ON 4X4 PRESSURE TREATED LUMBER. ROUTE LINESET THROUGH ROOF PER SPECIFICATIONS. COORDINATE ANY ROOF WARRANTY WITH BUILDING OWNER.
15. COORDINATE WITH ELECTRICAL CONTRACTOR TO INTERLOCK FAN WITH RESTROOM MOTION SENSOR.
16. MOUNT EXHAUST DIFFUSERS ON BOTTOM OF DUCT.

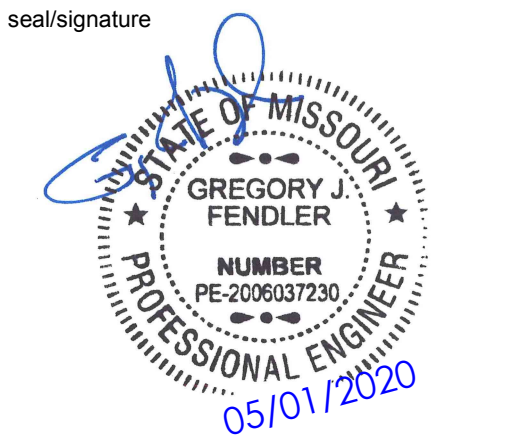


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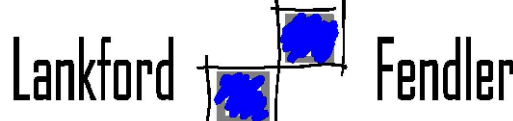


project number		2020-017
date		05.01.2020
issued for		PERMIT
rev	date	description

FLOOR PLAN
MECHANICAL
NEW WORK

sheet number

M10



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MECHANICAL
DETAILS

sheet number

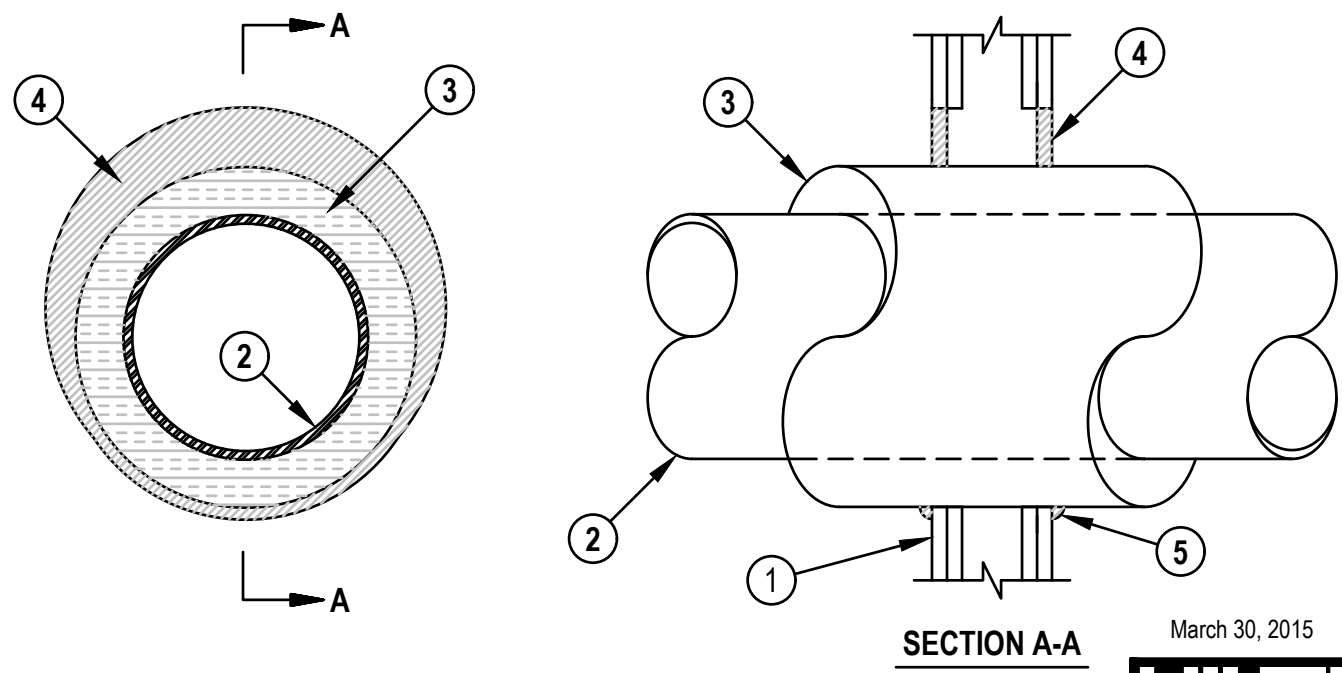
M20



Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CANULC-S115

System No. W-L-5029

ANSI/UL1479 (ASTM E814)	CANULC S115
F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4)	F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4)
T Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)	FT Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)
L Rating At Ambient — 4 CFM/Sq Ft	FH Ratings — 1, 2 and 3 Hr (See Items 1, 2 and 4)
L Rating At 400 F — Less Than 1 CFM/Sq Ft	FTH Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)
	L Rating At Ambient — 4 CFM/Sq Ft
	L Rating At 400 F — Less Than 1 CFM/Sq Ft



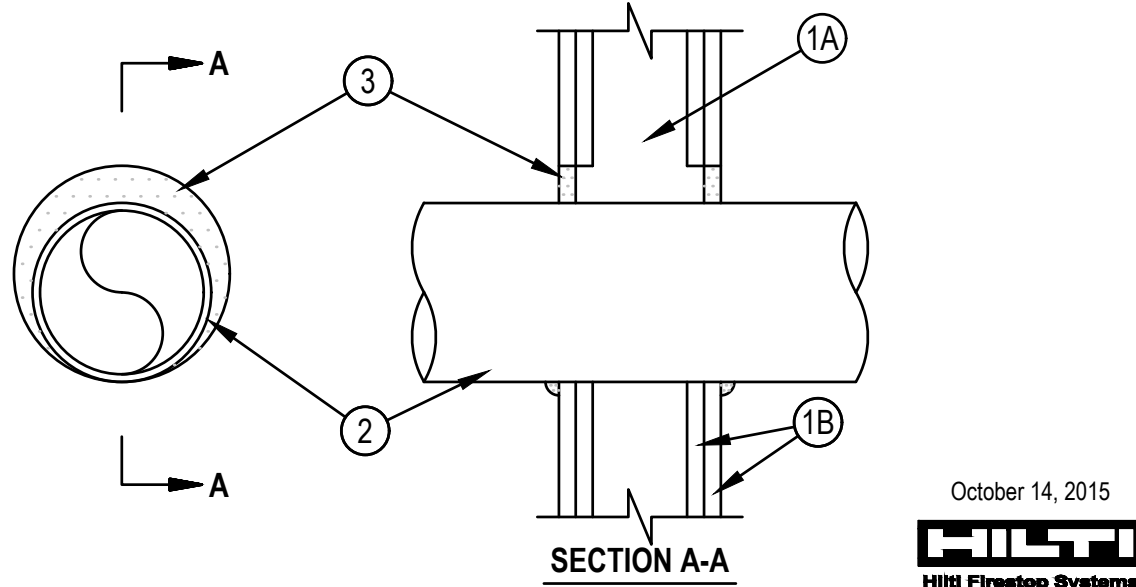
1. Wall Assembly — The 1, 2 or 3 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
- A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide for 1 and 2 hr F and FH rating and 3-1/2 in. (89 mm) wide for 3 hr F and FH rating and spaced max 24 in. (610 mm) OC.
- B. Gypsum Board* — Min 5/8 in. (16 mm) thick with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 18-5/8 in. (473 mm). The hourly F and FH Ratings of the freestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants — One metallic pipe or tubing to be installed within the freestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:
- A. Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. Iron Pipe — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.
- C. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing. When the hourly F or FH Rating of the freestop system is 3 hr, the nom diam of copper tube shall not exceed 4 in. (102 mm).
- D. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe. When the hourly F or FH Rating of the freestop system is 3 hr, the nom diam of copper pipe shall not exceed 4 in. (102 mm).
3. Pipe Covering* — Nom 1, 1-1/2 or 2 in. (25, 38 or 51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m³) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. For 1 and 2 hr F and FH Ratings, the annular space between insulated penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). For 3 hr F and FH Ratings, the annular space shall be min 0 in. (point contact) to max 1-1/4 in. (32 mm).
- See Pipe and Equipment Covering — Materials (BRGU) category in the Building Material Directory for the names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
- The hourly T, FT, FTH Ratings of the freestop system are 1/2 hr for 1 hr rated walls and 1 hr for 2 hr rated walls. For 3 hr rated walls, the hourly T, FT and FTH Ratings when steel and iron pipes are used are 1 hr. For 3 hr rated walls, the hourly T, FT and FTH Ratings when copper penetrants are used are 1-1/4 hr for 2 in. (51 mm) thick pipe covering and 0 hr for pipe covering thickness less than 2 in. (51 mm).
- 3A. Pipe Covering* — (Not Shown) — As an alternate to Item 3, max 2 in. (51 mm) thick cylindrical calcium silicate (min 14 pcf) units sized to the outside diam of the pipe or tube may be used. Pipe insulation secured with stainless steel bands or min 18 AWG stainless steel wire spaced max 12 in. (305 mm) OC. When the alternate pipe covering is used, the T and FT Rating shall be as specified in Item 3 above.
- See Pipe and Equipment Covering — Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
4. Fill, Void or Cavity Material* — Sealant — For 1 and 2 hr F and FH Rating, min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. For 3 hr F and FH Rating, min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point contact location between pipe covering and gypsum board, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe covering/gypsum board interface on both surfaces of wall.
- HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant
- * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CANULC-S115

System No. W-L-1054

ANSI/UL1479 (ASTM E814)	CANULC S115
F Ratings — 1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating at Ambient — Less Than 1 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Items 1 and 3)
L Rating at 400 F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 1 CFM/sq ft
	L Rating at 400 F — Less Than 1 CFM/sq ft



1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
- A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
- B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.
- The F and FH Ratings of the freestop system are equal to the fire rating of the wall assembly.
2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the freestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
- A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
- C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) diam steel conduit.
- D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
- HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant
- * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

GYPSUM/STUD WALL
FIRE STOPPING DETAIL
NO SCALE NON-INSULATED METALLIC PIPES

GYPSUM/STUD WALL
FIRE STOPPING DETAIL
NO SCALE INSULATED METALLIC PIPES

DUCTLESS SPLIT SYSTEM SCHEDULE (ELECTRIC HEAT)

BLOWER COIL							OUTDOOR UNIT										SYSTEM EFFICIENCY		NOTES	
MARK NO.	MANUFACTURER	MODEL	CONFIGURATION	AIRFLOW CFM	EXT. S.P. (IN.W.G.)	FAN DRIVE TYPE	COOLING				HEATING-HEAT PUMP		MARK NO.	MODEL	ELECTRICAL			COOLING EER OR SEER		HEATING COP OR HSPF
							E.D.B. (°F)	E.W.B. (°F)	TOTAL MBH	SENS. MBH	E.D.B. (°F)	SENS. MBH			VOLT	ø	HZ			
AC-1	LENNOX	MMNA009S4	HORIZONTAL	195-370	-	DIRECT	75	63	10.26	8.72	70	6.35	HP-1	MLA009S4S	208-230	1	60	24	10.5	ALL
NOTES:																				
1. PROVIDE WITH WALL MOUNTED 24/7 PROGRAMMABLE THERMOSTAT, CONDENSATE DRAIN TRAP, AND DRAIN PAN OVERFLOW SWITCH TO SHUT DOWN UNIT IF DRAIN BECOMES CLOGGED.																				
2. PROVIDE OUTDOOR UNIT WITH COMPRESSOR CRANKCASE HEATER, 0' F LOW AMBIENT KIT, COMPRESSOR TIME-OFF CONTROL, AND HAIL GUARDS.																				
*HEATING KW IS NET CAPACITY AT VOLTAGE AND PHASE INDICATED.																				

FAN SCHEDULE

MARK NO.	MANUFACTURER	MODEL	TYPE	AIRFLOW (CFM)	S.P. (IN W.G.)	FAN TYPE	RPM	DRIVE	ELECTRICAL			HP/ WATTS	NOTES
									VOLT	ø	HZ		
EF-1	GREENHECK	G-095-VG	ROOF	150	0.05	DIRECT	456	DIRECT	120	60	60	1/6	1,2
NOTES: 1. PROVIDE WITH ROOF CURB, DISCONNECT SWITCH, SPEED CONTROLLER, HINGED CURB CAP, HINGED BASE, CURB SEAL, CURB EXTENSION, BIRD SCREEN, AND DAMPER. 2. INTERLOCK WITH LIGHTING CONTROLS.													

HUMIDIFIER SCHEDULE

MARK NO.	MANUFACTURER	MODEL	HUMIDITY LOAD (GAL./DAY)	ELECTRICAL			NOTES
				VOLT	ø	HZ	
H-1	APRILAIRE	865	11.5	120	1	60	1
NOTES: 1. FURNISH AND INSTALL WITH HIGH LIMIT HUMIDISTAT, WALL FAN PACK UNIT, DUCT PRESSURE SWITCH, TEMP-R-DRAIN AND WALL MOUNTED HUMIDISTAT.							

DIFFUSER SCHEDULE

MARK	MANUFACTURER	MODEL	FACE SIZE (IN.)	NECK SIZE (IN.)	FRAME TYPE*	FINISH	NOTES
SA1	PRICE	SDGE	12x8	10x6	DUCT MOUNTED	WHITE	1,2
SA2	PRICE	SDGE	18x8	16x6	DUCT MOUNTED	WHITE	1,2
SB1	PRICE	530	8x7	6x5	SIDEWALL	WHITE	1,2
RA1	PRICE	530	12x8	10x6	SIDEWALL	WHITE	1,2
RA2	PRICE	530	24x14	22x12	SIDEWALL	WHITE	1,2
RA3	PRICE	530	32x16	30x16	SIDEWALL	WHITE	1,2
EA1	PRICE	530	10	10x6	DUCT MOUNTED	WHITE	1,2
NOTES: 1. PROVIDE OBD AND LOUVER RUNNING WITH LONG SIDE OF GRILLE. 2. APPROVE ALL DIFFUSER FINISHES WITH ARCHITECT.							
*CONTRACTOR SHALL VERIFY CEILING TYPE PRIOR TO ORDERING DIFFUSERS.							

GENERAL NOTES (TYPICAL ALL SHEETS)

- A. MECHANICAL CONTRACTOR IS RESPONSIBLE TO SEE THAT WORK MEETS AND IS IN ACCORDANCE WITH ALL REQUIREMENTS OF FEDERAL, STATE, AND LOCAL LAWS AND CODES AND/OR REQUIREMENTS, INCLUDING HEALTH CODES AND BUILDING OWNER.
- B. ALL EXISTING DUCTWORK SHOWN ON DRAWINGS IS SCHEMATIC AND IS BASED ON EXISTING RECORD DRAWINGS PROVIDED BY THE OWNER AND DO NOT REFLECT EXACT EXISTING CONDITIONS. CONTRACTOR TO FIELD VERIFY EXACT DEPTH AND/OR LOCATIONS ON JOB SITE. CONTRACTOR SHALL REROUTE NEW WORK TO ACCOMMODATE EXACT LOCATIONS OF EXISTING UTILITIES, STUBOUTS AND/OR CONNECTIONS.
- C. CUTTING AND PATCHING OF FLOORS, WALLS, CEILING, ETC., REQUIRED IN STRICT ACCORDANCE WITH THE RULES AND REGULATIONS OF THE ARCHITECTS AND/OR BUILDING OWNER REQUIREMENTS.
- D. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION TO AVOID ROUTING CONFLICTS.
- E. ANY MATERIAL REMOVED THAT OWNER DOES NOT WISH TO RETAIN SHALL BE REMOVED FROM PROJECT SITE AND DISPOSED OF BY CONTRACTOR.
- F. MECHANICAL CONTRACTOR SHALL REMOVE, PATCH AIR TIGHT AND REINSULATE ALL DUCTWORK TAPS NOT REUSED WITH SAME MATERIAL AS EXISTING DUCTWORK.
- G. MECHANICAL CONTRACTOR SHALL AIR BALANCE ALL GRILLES TO CFM'S SHOWN ON PLANS.
- H. ALL THERMOSTATS SHALL BE MOUNTED TO MATCH BUILDING STANDARDS UNLESS OTHERWISE NOTED.
- I. INSTALL ELASTOMERIC JOINT SEALER AROUND ALL DUCTS, PIPES, ETC. PASSING THRU INTERIOR NON-RATED CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS. FOR FIRE RATED INTERIOR CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS SEAL ALL DUCTS, PIPES, ETC. INSTALL FIRESTOP MATERIALS IN ALL GAPS PRIOR TO SEALANT APPLICATION. INSTALL SEALER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

MECHANICAL SYMBOLS

OR

EXISTING DUCTWORK TO BE REMOVED

OR

EXISTING DUCTWORK TO REMAIN

OR

NEW DUCTWORK

SUPPLY DUCT

RETURN DUCT

EXHAUST DUCT

SUPPLY DIFFUSER

RETURN GRILLE

EXHAUST GRILLE

R/D

RISE OR DROP IN DUCT

THERMOSTAT, MOUNT TOP AT 48" AFF.

HUMIDISTAT

MANUAL VOLUME DAMPER

SUPPLY DUCT DOWN

SUPPLY DUCT UP

RETURN DUCT DOWN

RETURN DUCT UP

EXHAUST DUCT DOWN

EXHAUST DUCT UP

WALL MOUNTED DIFFUSER/GRILLE

FLEXIBLE DUCT CONNECTION

EQUIPMENT TYPE AND DESIGNATION

SA

200

MARK NO. SUPPLY (S.), RETURN (R.), EXHAUST (E.) CFM

CONNECT TO EXISTING



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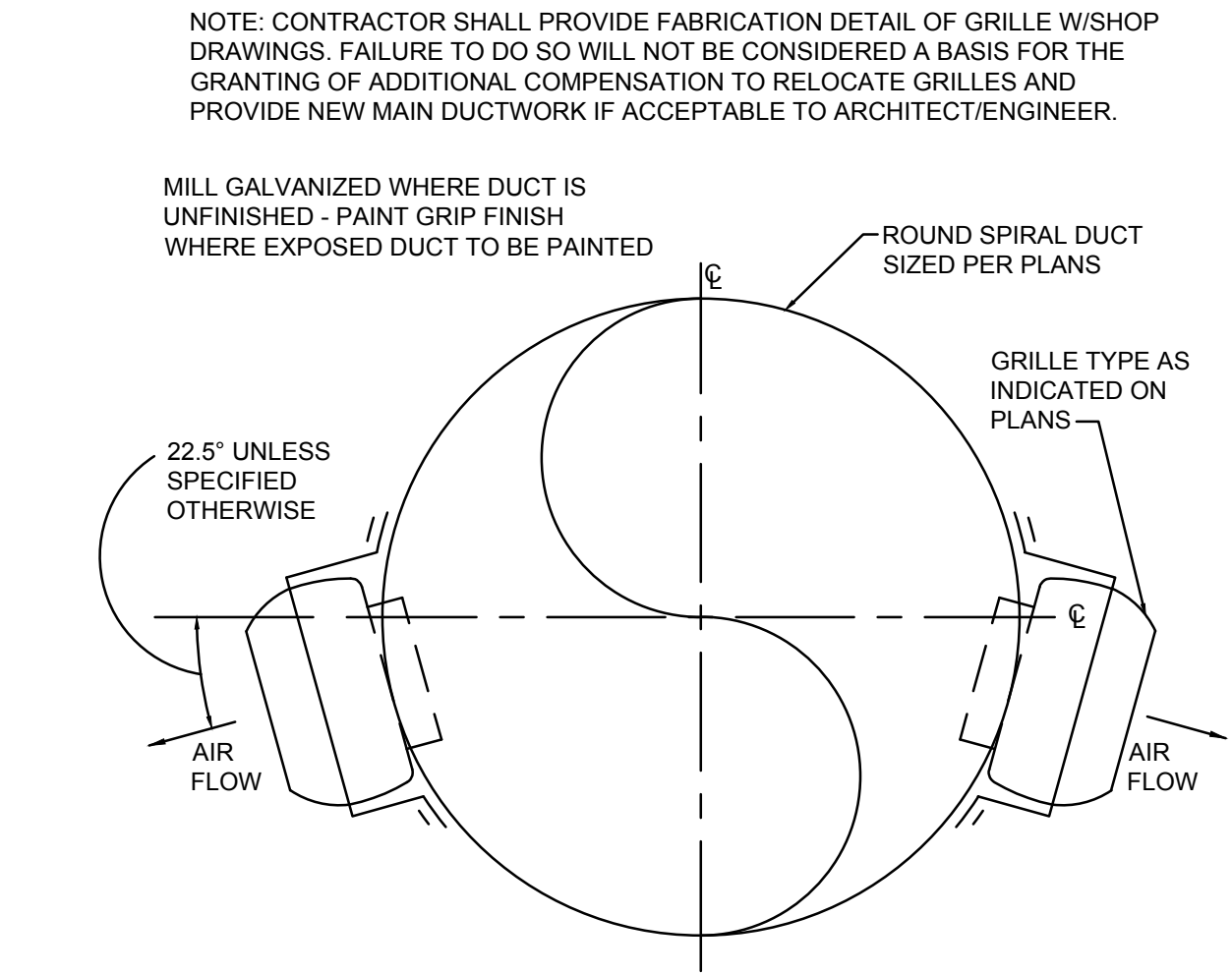
+ associates

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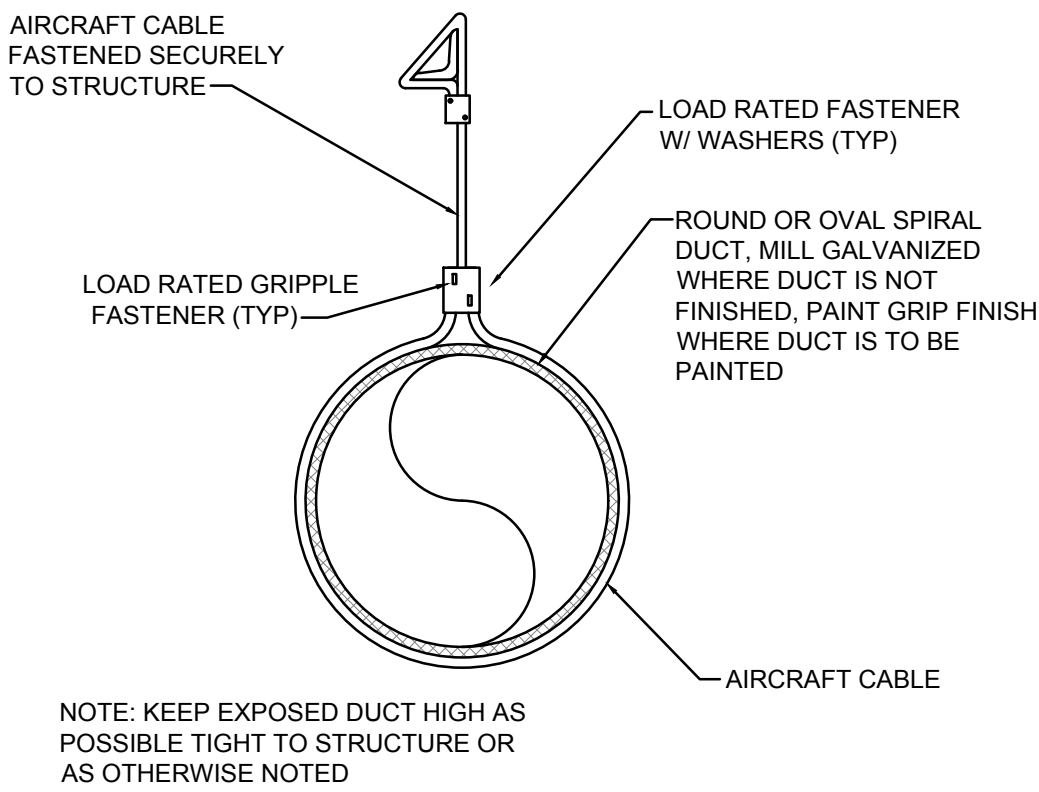
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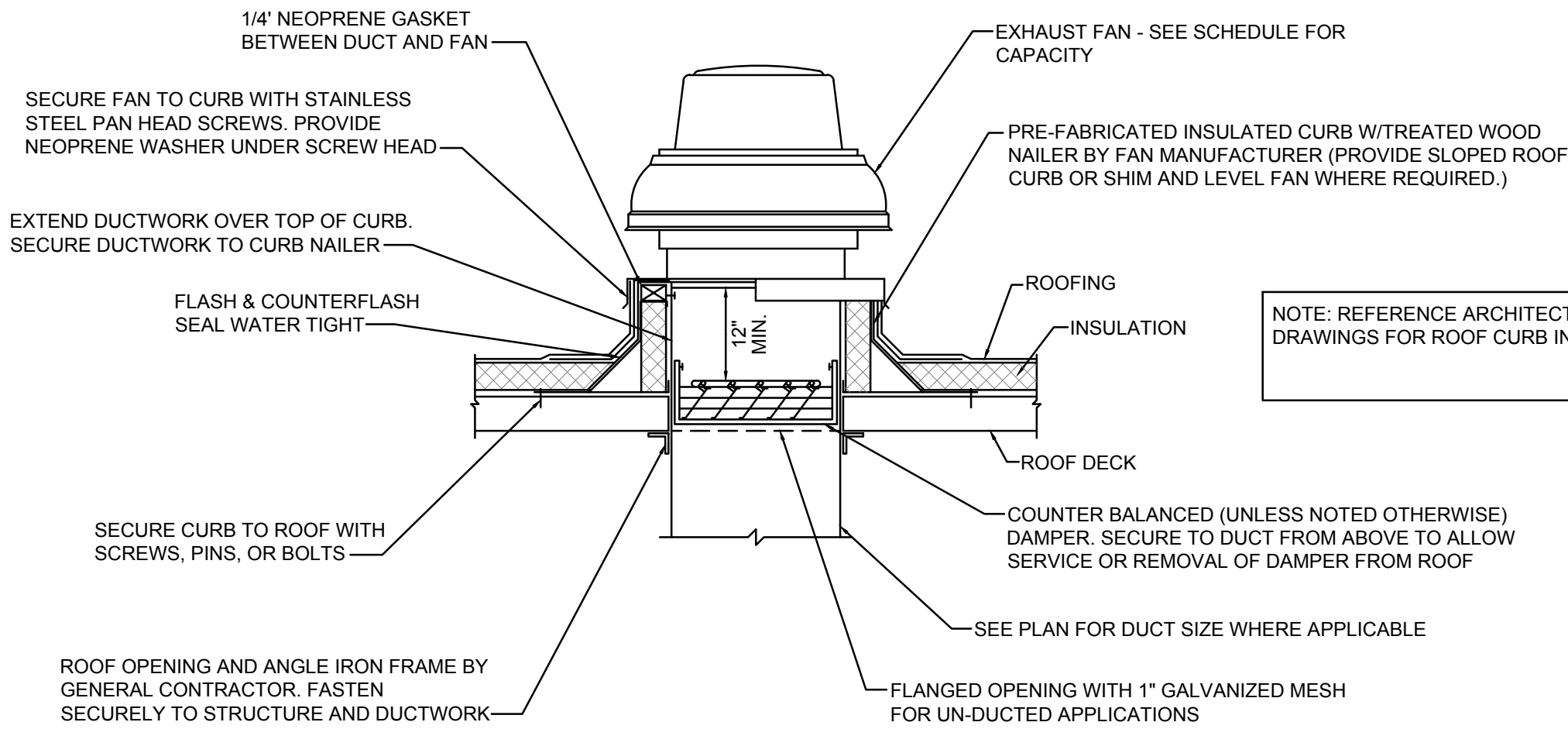
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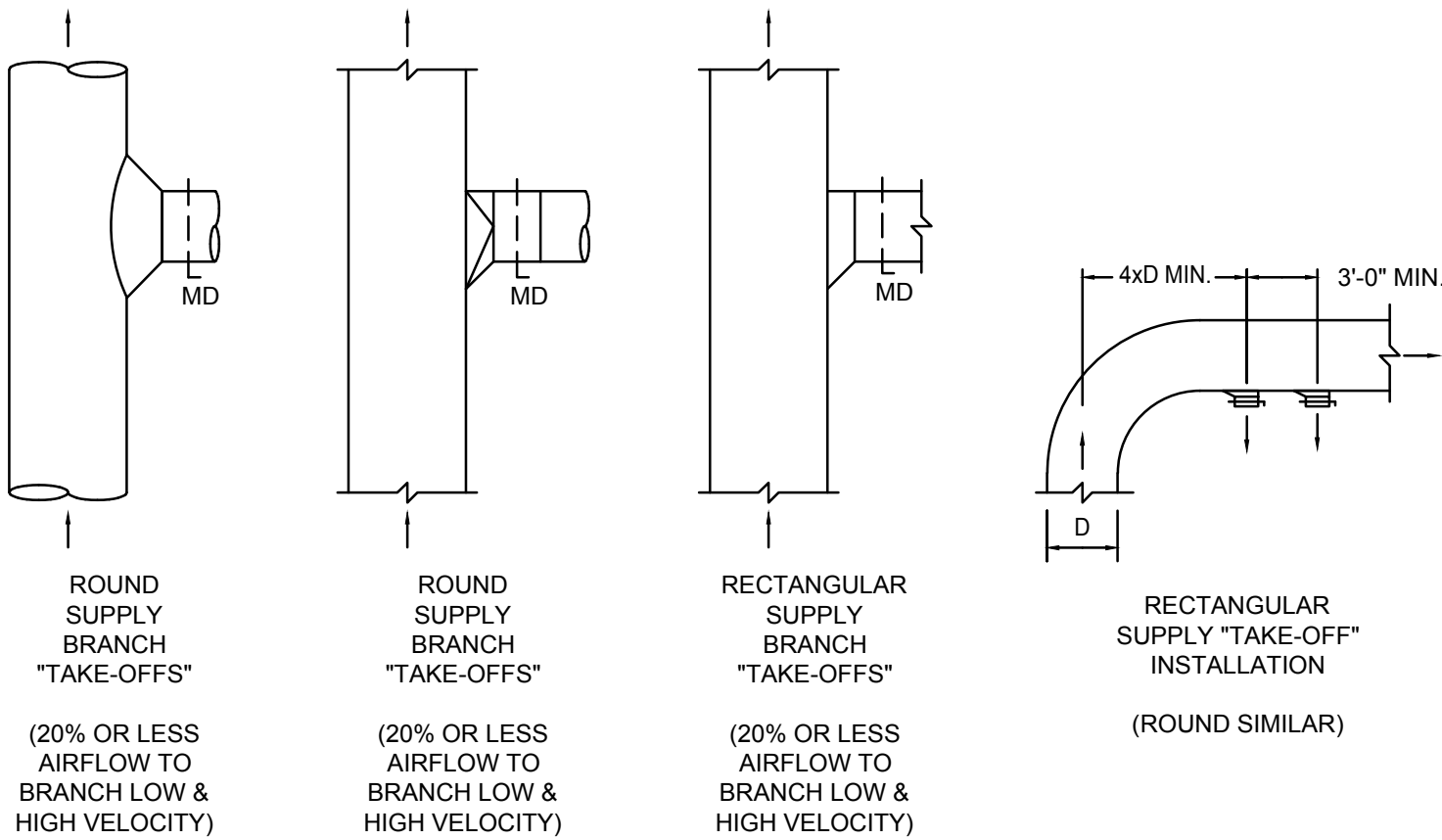
SPIRAL DUCT SUPPLY DIFFUSER DETAIL
NO SCALE



SPIRAL DUCT SUPPORT DETAIL
NO SCALE



ROOF MOUNTED EXHAUST FAN DETAIL
NO SCALE



DUCT STANDARDS
NO SCALE

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STATE OF MISSOURI

GREGORY J. FENDLER

NUMBER
PE-2006037230

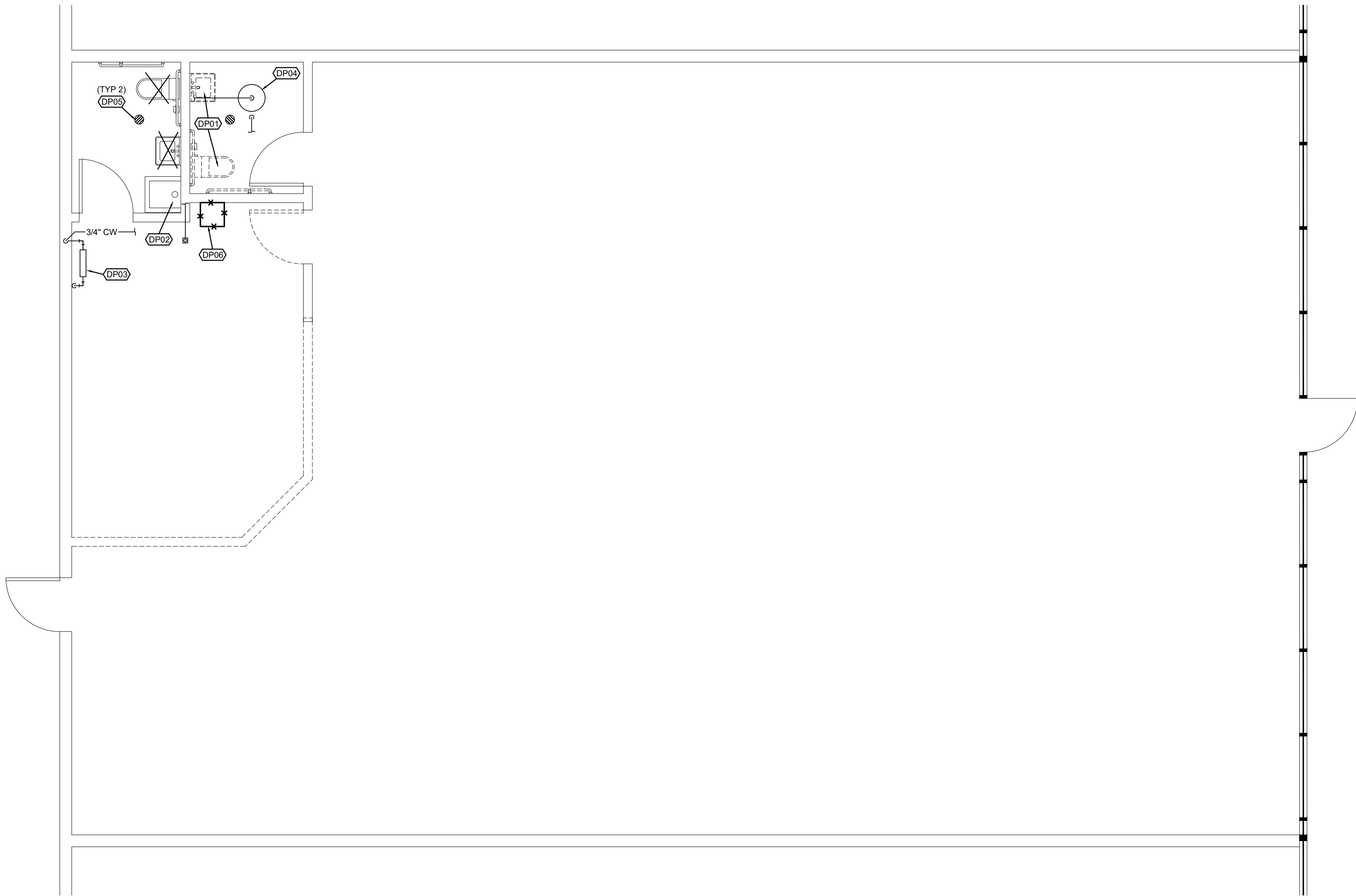
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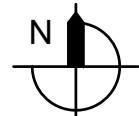
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MECHANICAL
DETAILS AND
SCHEDULES

sheet number

M21



FLOOR PLAN-PLUMBING DEMOLITION
SCALE: 1/4" = 1'-0" 

DP## FLOOR PLAN NOTES

1. REMOVE EXISTING PLUMBING FIXTURES AND TRIM. CLEAN AND PREPARE REMAINING PIPING FOR RECONNECTION, RE: NEW WORK.
2. EXISTING JANITOR'S SINK, TRIM, AND ASSOCIATED PIPING TO REMAIN.
3. EXISTING 3/4" COLD WATER SERVICE AND BACKFLOW PREVENTER TO REMAIN.
4. EXISTING WATER HEATER, ACCESSORIES, AND ASSOCIATED PIPING TO REMAIN.
5. EXISTING FLOOR DRAINS AND ASSOCIATED PIPING TO REMAIN.
6. REMOVE EXISTING DRINKING FOUNTAIN AND TRIM. CLEAN AND PREPARE REMAINING PIPING FOR RECONNECTION, RE: NEW WORK.



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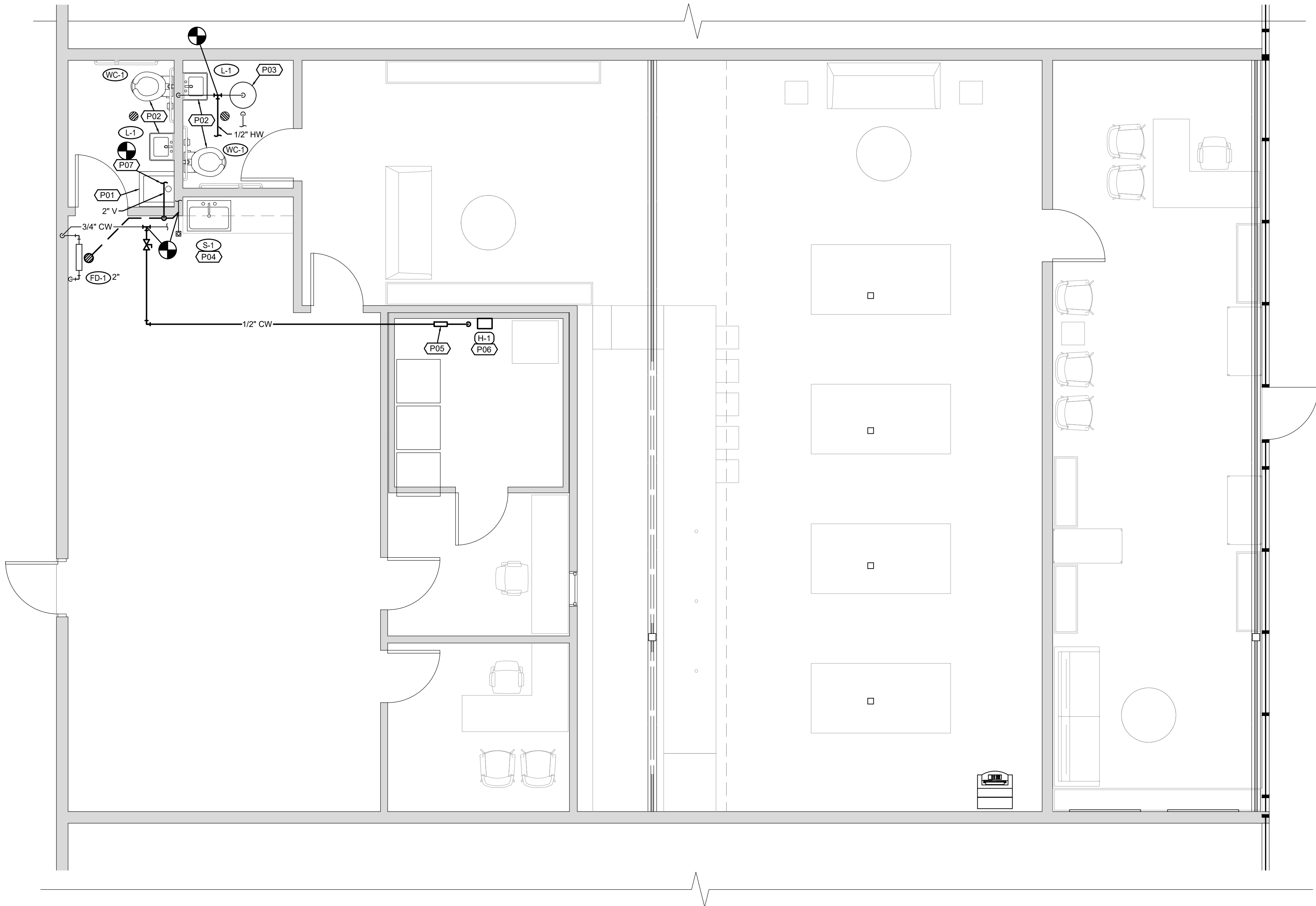
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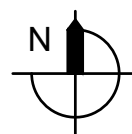
FLOOR PLAN
PLUMBING
DEMOLITION

sheet number

P01



FLOOR PLAN-PLUMBING NEW WORK
SCALE: 1/4" = 1'-0"



FLOOR PLAN NOTES

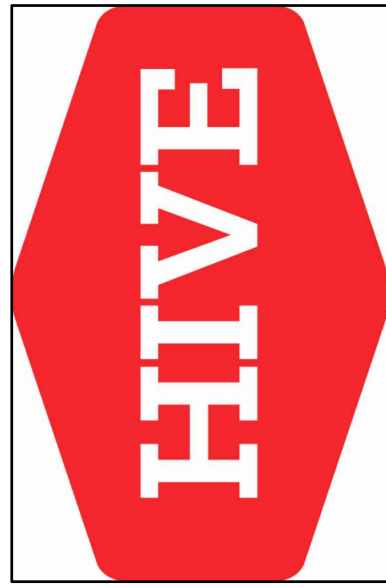
- EXISTING JANITOR'S SINK, TRIM, AND ASSOCIATED PIPING TO REMAIN.
- INSTALL NEW FIXTURES AT EXISTING STUB-OUT LOCATIONS. RECONFIGURE EXISTING WATER, WASTE, AND VENT PIPING TO ACCOMMODATE NEW FIXTURES.
- EXISTING WATER HEATER AND ASSOCIATED PIPING TO REMAIN.
- RECONFIGURE EXISTING WASTE, VENT, AND COLD WATER PIPING TO ACCOMMODATE NEW SINK. ROUTE NEW 1/2" HOT WATER FROM NEAREST EXISTING HOT WATER PIPING DOWN IN WALL.
- PROVIDE DOUBLE CHECK BFP IN SUPPLY LINE TO HUMIDIFIER.
- CONNECT 1/2" COLD WATER TO HUMIDIFIER PER MANUFACTURER'S RECOMMENDATIONS.
- CONNECT TO NEAREST EXISTING VENT PIPING OF EQUAL OR GREATER SIZE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, ELEVATION, AND LOCATION OF EXISTING PIPING.

GENERAL NOTES (TYPICAL ALL SHEETS)

- PLUMBING CONTRACTOR IS RESPONSIBLE TO SEE THAT WORK MEETS AND IS IN ACCORDANCE WITH ALL REQUIREMENTS OF FEDERAL, STATE, AND LOCAL LAWS AND CODES AND/OR REQUIREMENTS, INCLUDING HEALTH CODES AND BUILDING OWNER.
- ALL EXISTING PIPING SHOWN ON DRAWINGS IS SCHEMATIC AND IS BASED ON EXISTING RECORD DRAWINGS PROVIDED BY THE OWNER AND DO NOT REFLECT EXACT EXISTING CONDITIONS. CONTRACTOR TO FIELD VERIFY EXACT DEPTH AND/OR LOCATIONS ON JOB SITE. CONTRACTOR SHALL REROUTE NEW WORK TO ACCOMMODATE EXACT LOCATIONS OF EXISTING UTILITIES, STUBOUTS AND/OR CONNECTIONS.
- CUTTING AND PATCHING OF FLOORS, WALLS, CEILING, ETC., REQUIRED IN STRICT ACCORDANCE WITH THE RULES AND REGULATIONS OF THE ARCHITECT'S AND/OR BUILDING OWNER REQUIREMENTS.
- COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION TO AVOID ROUTING CONFLICTS.
- ANY MATERIAL REMOVED THAT OWNER DOES NOT WISH TO RETAIN SHALL BE REMOVED FROM PROJECT SITE AND DISPOSED OF BY CONTRACTOR.
- INSTALL ELASTOMERIC JOINT SEALER AROUND ALL PIPES PASSING THRU INTERIOR NON-RATED CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS. FOR FIRE RATED INTERIOR CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS SEAL ALL PIPES. INSTALL FIRESTOP MATERIALS IN ALL GAPS PRIOR TO SEALANT APPLICATION. INSTALL SEALER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
- PLUMBING CONTRACTOR SHALL MAKE FINAL CONNECTION TO ALL EQUIPMENT BY OTHERS. VERIFY CONNECTIONS SIZES AND REQUIREMENTS.
- PIPING ROUTED BELOW COUNTER IN CABINETS SHALL BE ROUTED AS NOTED. NOT TO INTERFERE WITH DRAWERS, SHELVES, EQUIPMENT, ETC., AND SUPPORT FROM BACK WALL OF CABINET.
- PLUMBING CONTRACTOR SHALL SCAN FLOOR UTILIZING GROUND PENETRATING RADAR PRIOR TO ANY CORE DRILLING OR SAW CUTTING OF SLAB AND SHALL VERIFY PLACEMENT WITH BUILDING OWNER'S REPRESENTATIVE PRIOR TO DRILLING.
- PLUMBING CONTRACTOR SHALL PROVIDE PRO-SET SYSTEMS 'TRAP GUARD' IN ALL FLOOR DRAIN TRAPS WITHIN PROJECT SCOPE OF WORK.
- UPON REQUEST FOR ELECTRONIC FILES, CONTRACTOR SHALL FILL OUT, SIGN AND RETURN ELECTRONIC MEDIA RELEASE FORM FROM ENGINEER AND PROVIDE PAYMENT FOR FEES STIPULATED ON ELECTRONIC MEDIA RELEASE FORM. UPON RECEIPT OF COMPLETED RELEASE FORM AND PAYMENT, ELECTRONIC FILES WILL BE RELEASED.
- ALL CABLE TIES FOR LOW VOLTAGE SYSTEMS LOCATED IN PLENUMS UTILIZED FOR AIR MOVEMENT THAT ARE NOT INSTALLED IN CONDUIT SHALL BE 25/50 FLAME AND SMOKE RATED, HELLERMANN TYTON T50 R2C2UL OR EQUIVALENT.

PLUMBING SYMBOLS

- | | |
|-----------|-----------------------------------|
| — | EXISTING TO REMAIN |
| — x x x — | EXISTING TO BE REMOVED |
| — | NEW PIPING |
| —>— | FLOW ARROW |
| —CW— | COLD WATER |
| —HW— | HOT WATER |
| —V— | SANITARY VENT ABOVE GROUND/FLOOR |
| —W— | SANITARY WASTE BELOW GROUND/FLOOR |
| —X— | SHUT OFF VALVE |
| ■ OR ● | FLOOR DRAIN OR EQMT FLOOR DRAIN |
| —○— | PIPE DROP/PIPE RISE |
| —○— | BOTTOM OUTLET TEE |
| —○— | TOP OUTLET TEE |
| ■ FFCO | FINISHED FLOOR CLEANOUT |
| ○ | PLUMBING FIXTURE DESIGNATION |
| ○ ETR | EXISTING TO REMAIN |
| ● | CONNECT TO EXISTING |



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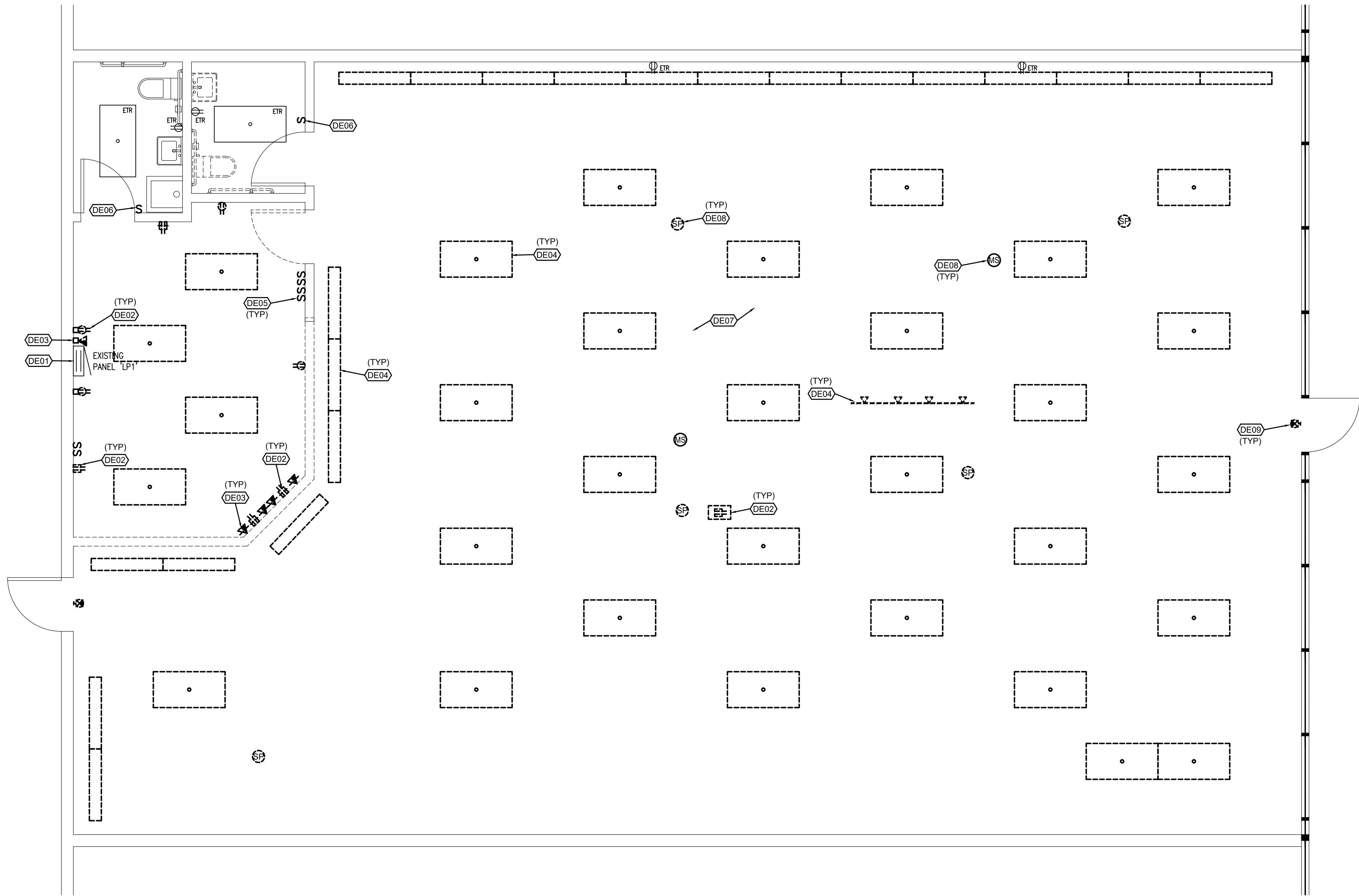
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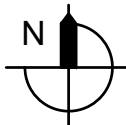
FLOOR PLAN
PLUMBING
NEW WORK

sheet number

P10



FLOOR PLAN-ELECTRICAL DEMOLITION
SCALE: 1/4" = 1'-0"



FLOOR PLAN NOTES

- EXISTING PANELBOARDS TO REMAIN.
- EXISTING RECEPTACLE TO BE REMOVED. REMOVE ALL ASSOCIATED WIRING AND CONDUIT BACK TO NEAREST DEVICE TO REMAIN.
- EXISTING DATA DEVICE TO BE REMOVED. REMOVE ALL ASSOCIATED WIRING AND CONDUIT BACK TO NEAREST DEVICE TO REMAIN.
- EXISTING LIGHT FIXTURE TO BE REMOVED. REMOVE ALL ASSOCIATED WIRING AND CONDUIT BACK TO NEAREST DEVICE TO REMAIN.
- EXISTING LIGHT SWITCH TO BE REMOVED. REMOVE ALL ASSOCIATED WIRING AND CONDUIT BACK TO NEAREST DEVICE TO REMAIN.
- EXISTING LIGHT SWITCH TO BE REPLACED. REMOVE DEVICE AND PREP FOR NEW DEVICE AND CONNECTION TO NEW LIGHTING AS INDICATED ON NEW WORK PLAN.
- REMOVE ALL ABANDONED WIRING, INCLUDING LOW VOLTAGE AND LINE VOLTAGE WIRING, IN AREAS WITH OPEN-TO-STRUCTURE CEILING SCHEME - RE: ARCHITECTURAL PLAN FOR THESE AREAS.
- EXISTING CEILING DEVICE TO BE REMOVED. REMOVE ALL ASSOCIATED WIRING AND CONDUIT BACK TO NEAREST DEVICE TO REMAIN.
- EXISTING EMERGENCY EXIT SIGN TO BE REMOVED. REMOVE ALL ASSOCIATED WIRING AND CONDUIT BACK TO NEAREST DEVICE TO REMAIN.



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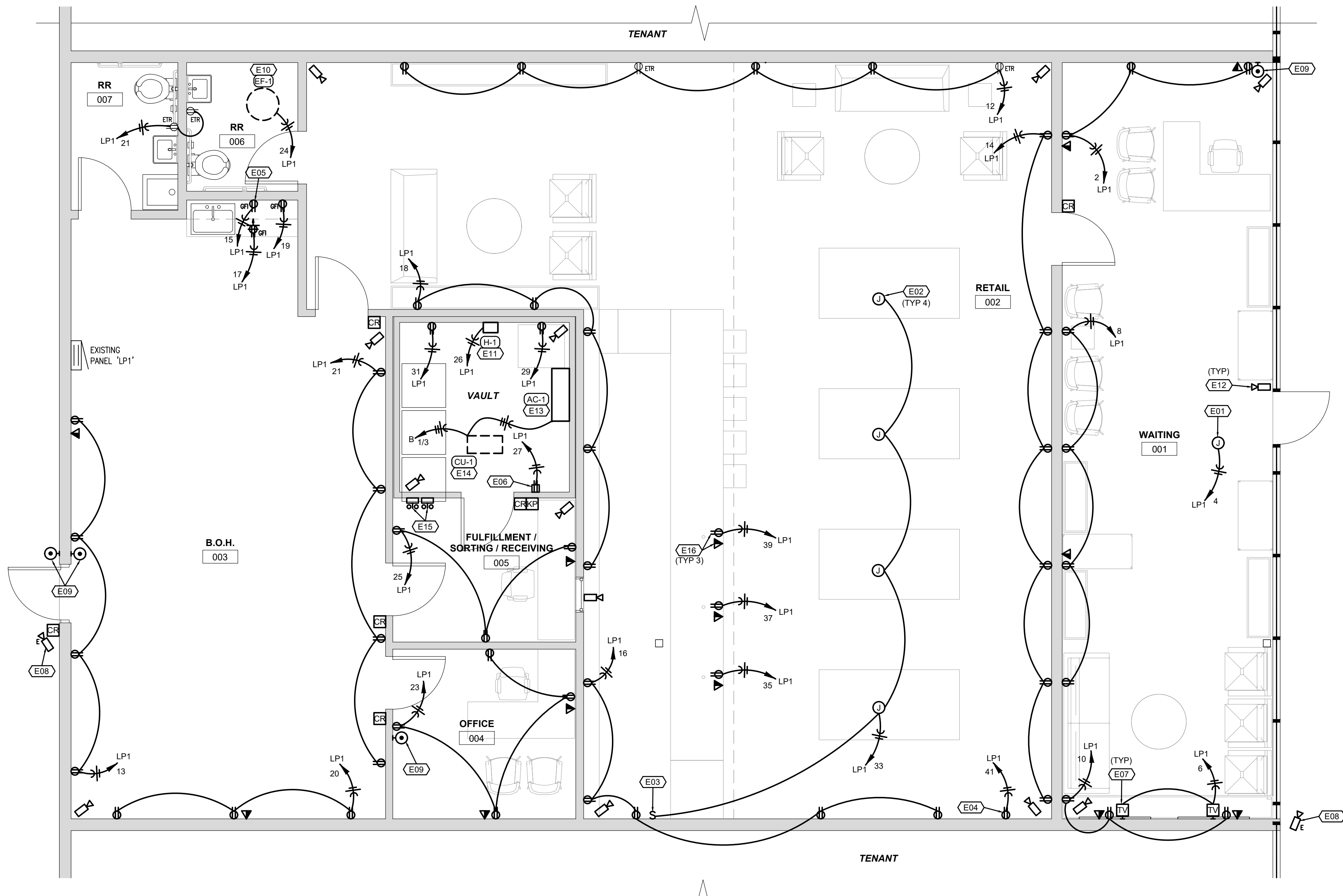
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FLOOR PLAN
ELECTRICAL
DEMOLITION

sheet number

E01



FLOOR PLAN-POWER/SYSTEMS
SCALE: 1/4" = 1'-0"

FLOOR PLAN NOTES

1. POWER CONNECTION TO ILLUMINATED SIGNAGE. CONFIRM LOCATION AND CONNECTION REQUIREMENTS WITH ARCHITECT.
2. JUNCTION BOX MOUNTED AT STRUCTURE ABOVE DISPLAY TABLES FOR FUTURE USE. ROUTE WIRING TO EACH BOX AND CAP FOR FUTURE USE, PROVIDE BLANK COVERPLATE.
3. INTERCONNECT JUNCTION BOXES WITH SWITCH. MOUNT SWITCH NEXT TO LIGHT SWITCHES, RE: LIGHTING PLAN.
4. RECEPTACLE FOR ATM. CONFIRM LOCATION OF DEVICE WITH ARCHITECT PRIOR TO ROUGH-IN.
5. RECEPTACLE FOR DISHWASHER. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH GC PRIOR TO ROUGH-IN.
6. RECEPTACLE FOR IT RACK. CONFIRM LOCATION WITH TENANT PRIOR TO ROUGH-IN.
7. TV MEDIA BOX. RE: DETAIL FOR ADDITIONAL INFORMATION.
8. EXTERIOR CAMERA LOCATION. E.C. TO PROVIDE CONDUIT PATHWAY BACK TO IT CABINET AND WET-RATED J-BOX FOR CAMERA. COORDINATE WITH SECURITY CONSULTANT.
9. PROVIDE ROUGH-IN FOR "A-I PHONE" STYLE INTERCOM. COORDINATE WITH SECURITY CONSULTANT.
10. MAKE POWER CONNECTION TO EXHAUST FAN WITH INTEGRAL DISCONNECT. INTERLOCK FAN WITH LIGHTING CONTROLS IN RESTROOM - ACTIVATION OF MOTION SENSOR IN EITHER RESTROOM SHALL TRIGGER EXHAUST FAN. RE: LIGHTING PLANS.
11. PROVIDE 120V/30A/1P DISCONNECT AT UNIT AND MAKE POWER CONNECTION TO HUMIDIFIER. SYSTEM IS SHIPPED AS MULTI-VOLT; CONNECT TO PROPER TERMINAL BLOCK FOR 120V OPERATION.
12. INTERIOR CAMERA LOCATION. E.C. TO PROVIDE CONDUIT PATHWAY BACK TO IT CABINET AND J-BOX FOR CAMERA.
13. PROVIDE 250V/20A/2P DISCONNECT AT UNIT AND MAKE POWER CONNECTION TO INDOOR SPLIT SYSTEM. WIRE TO INDOOR UNIT FROM OUTDOOR UNIT.
14. PROVIDE 250V/20A/2P/3R DISCONNECT AND MOUNT AT UNIT AND MAKE POWER CONNECTION TO OUTDOOR SPLIT SYSTEM MOUNTED TO ROOF. CONNECT TO INDOOR UNIT.
15. PROVIDE AUDIBLE ALARM AND REMOTE TEST SWITCH FOR DUCT DETECTORS MOUNTED IN (2) EXISTING RTUS. COORDINATE EXACT MAKE/MODEL WITH LANDLORD. MOUNTING HEIGHT PER ARCHITECT.
16. PROVIDE (1) ALUMINUM DUAL-SERVICE POLE FOR POWER AND DATA DROPS TO P.O.S. RECEPTACLES, WIREMOLD SERIES 25DTP OR EQUAL. ROUTE WIRING FOR ALL THREE LOCATIONS UP WITHIN THE SAME POLE. POLE LOCATION AND FINISH PER ARCHITECT. EXTEND POLE FROM OVERHEAD STRUCTURE DOWN THROUGH CASEWORK AND ANCHOR AT FLOOR. AT OVERHEAD TERMINATION POINT OF POLE, PROVIDE 1" LOW VOLTAGE CONDUIT BACK TO I.T. RACK.



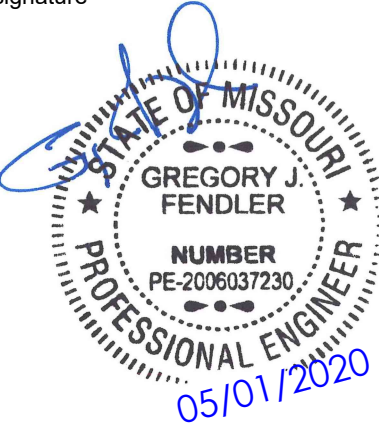
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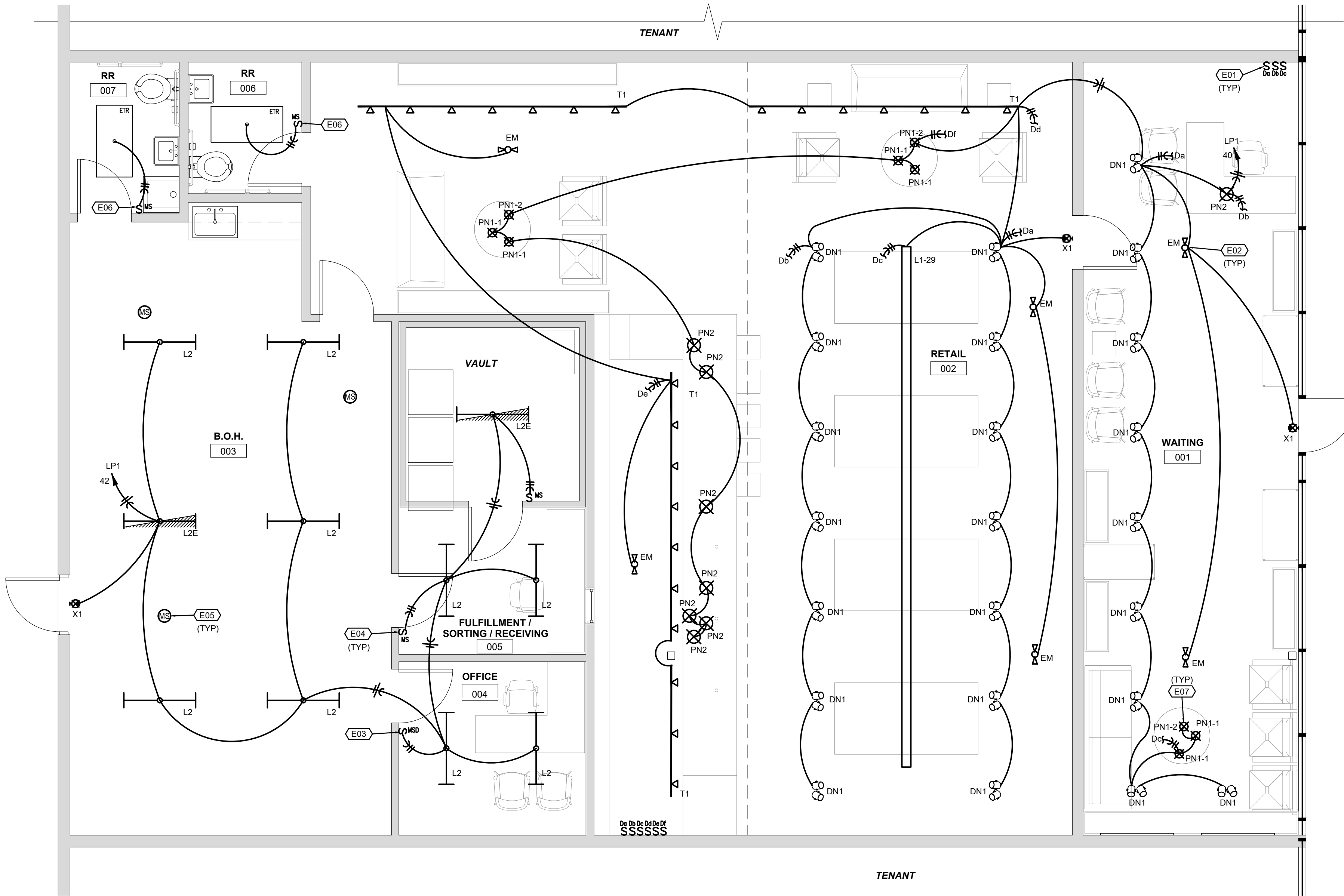
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FLOOR PLAN
POWER &
SYSTEMS

sheet number

E10



FLOOR PLAN-LIGHTING
SCALE: 1/4" = 1'-0"

FLOOR PLAN NOTES

1. DIMMER, LOWER CASE LETTER REPRESENTS ZONE CONTROLLED, RE: LIGHT FIXTURE SCHEDULE FOR DIMMER MAKE/MODEL FOR EACH FIXTURE TYPE CONTROLLED.
2. EMERGENCY BUGEYE UNIT MOUNTED UP IN STRUCTURE.
3. DUAL TECH WALLBOX OCCUPANCY SENSOR WITH INTEGRAL 0-10V DIMMER, WATTSTOPPER DW-311 OR EQUAL BY ACUITY, LUTRON, LEVITON.
4. DUAL TECH WALLBOX OCCUPANCY SENSOR WITH INTEGRAL ON/OFF SWITCH, WATTSTOPPER DW-100 OR EQUAL BY ACUITY, LUTRON, LEVITON.
5. RE: LIGHTING CONTROLS DETAILS FOR ADDITIONAL INFORMATION.
6. REPLACE EXISTING SWITCH WITH NEW AND RECONNECT TO EXISTING LIGHTING.
7. COORDINATE FINAL LOCATION OF PN1-1 (FINISH 1) VS PN1-2 (FINISH 2) FIXTURES AT EACH GROUPING OF THREE WITH ARCHITECT.

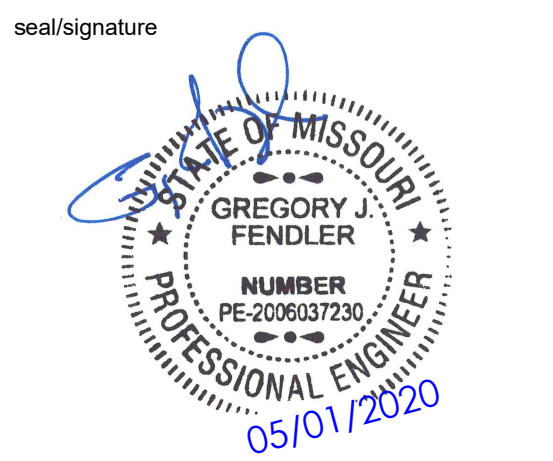


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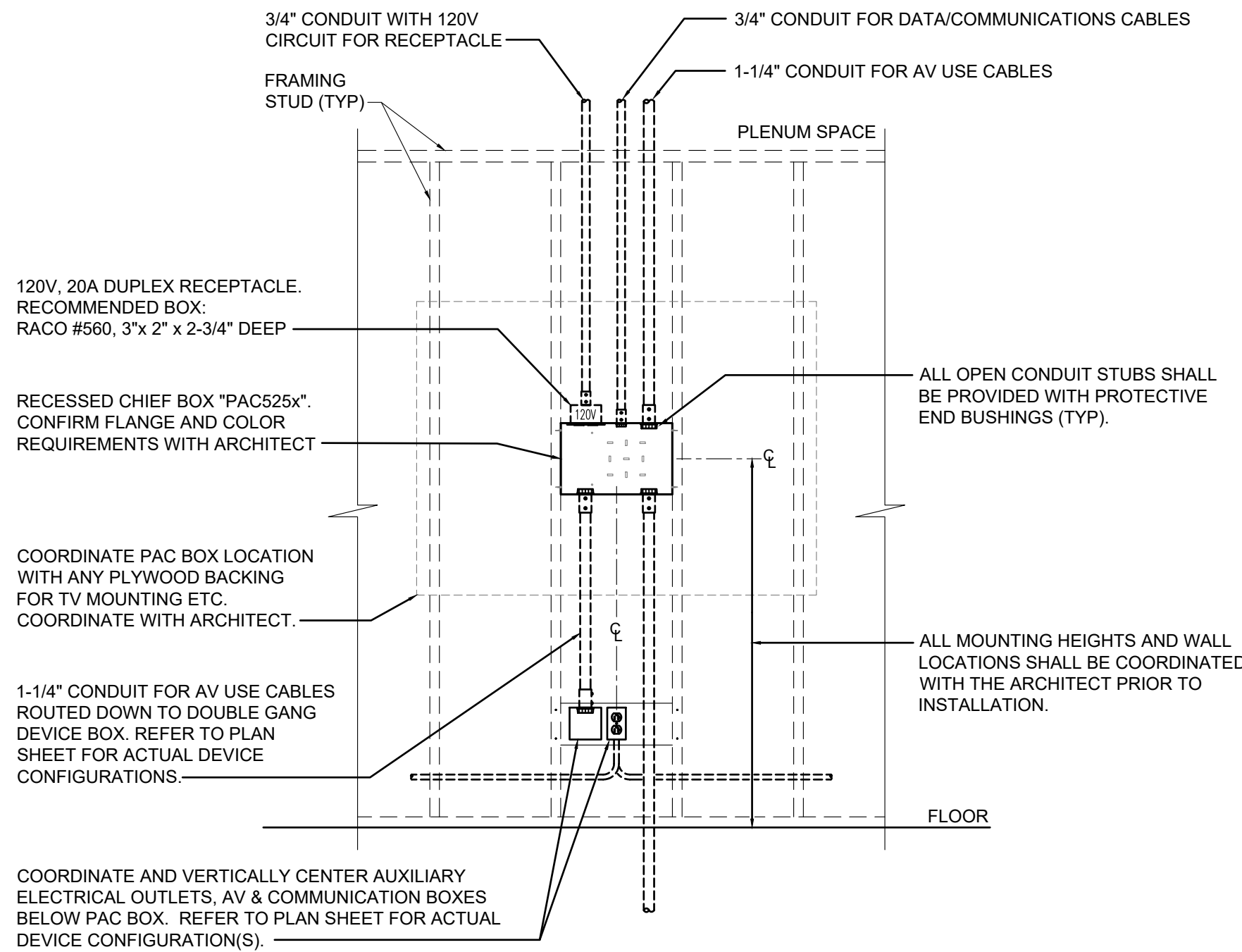
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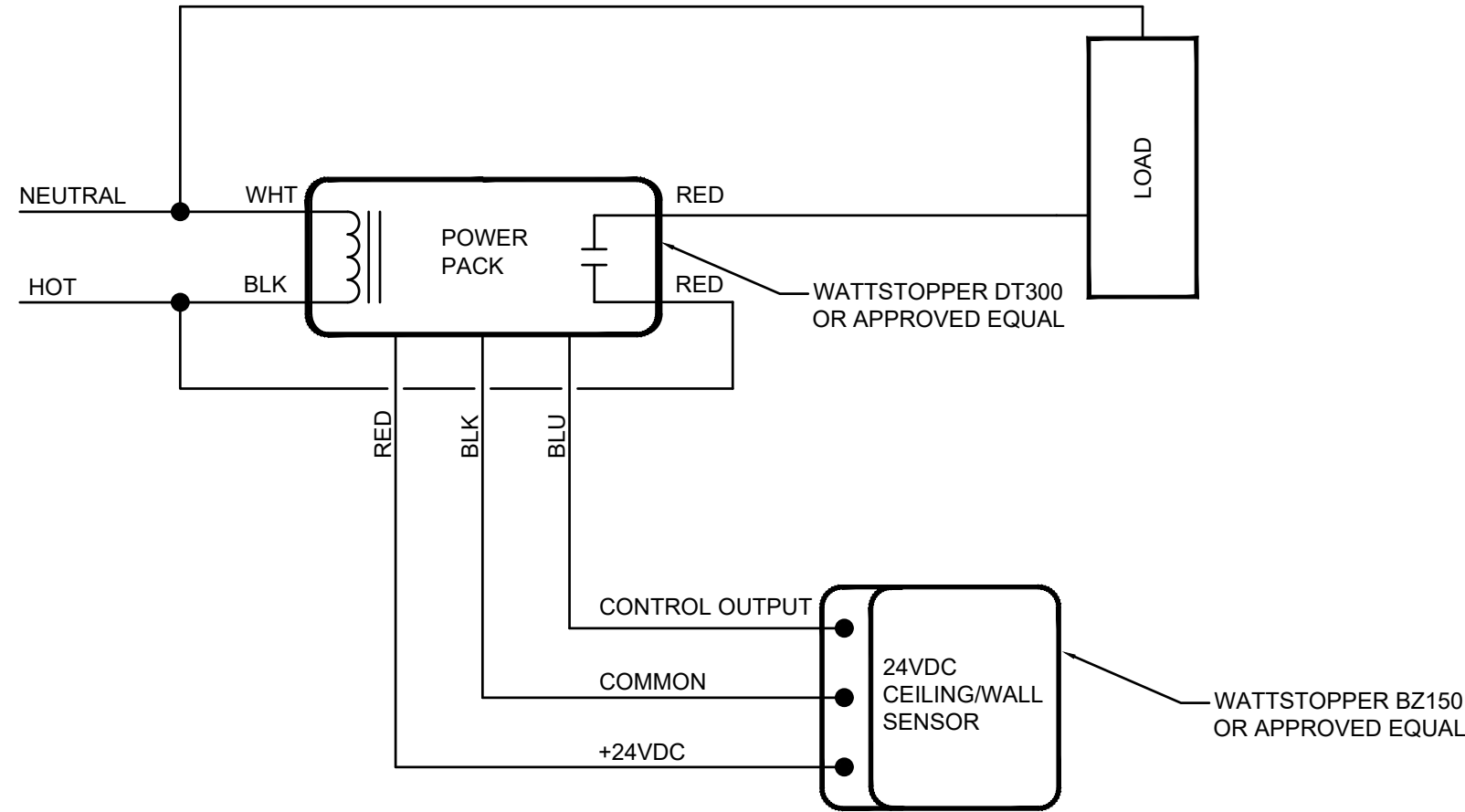


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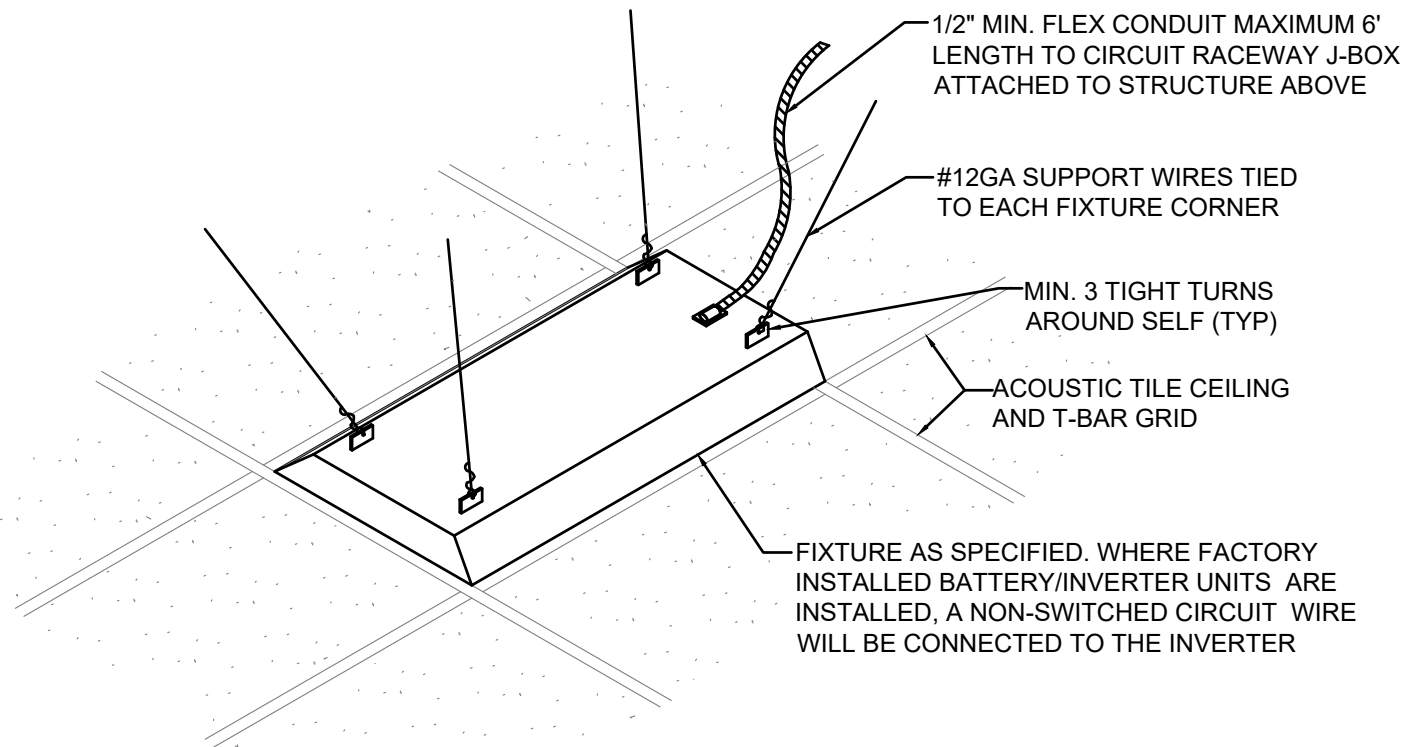
FLOOR PLAN
LIGHTING



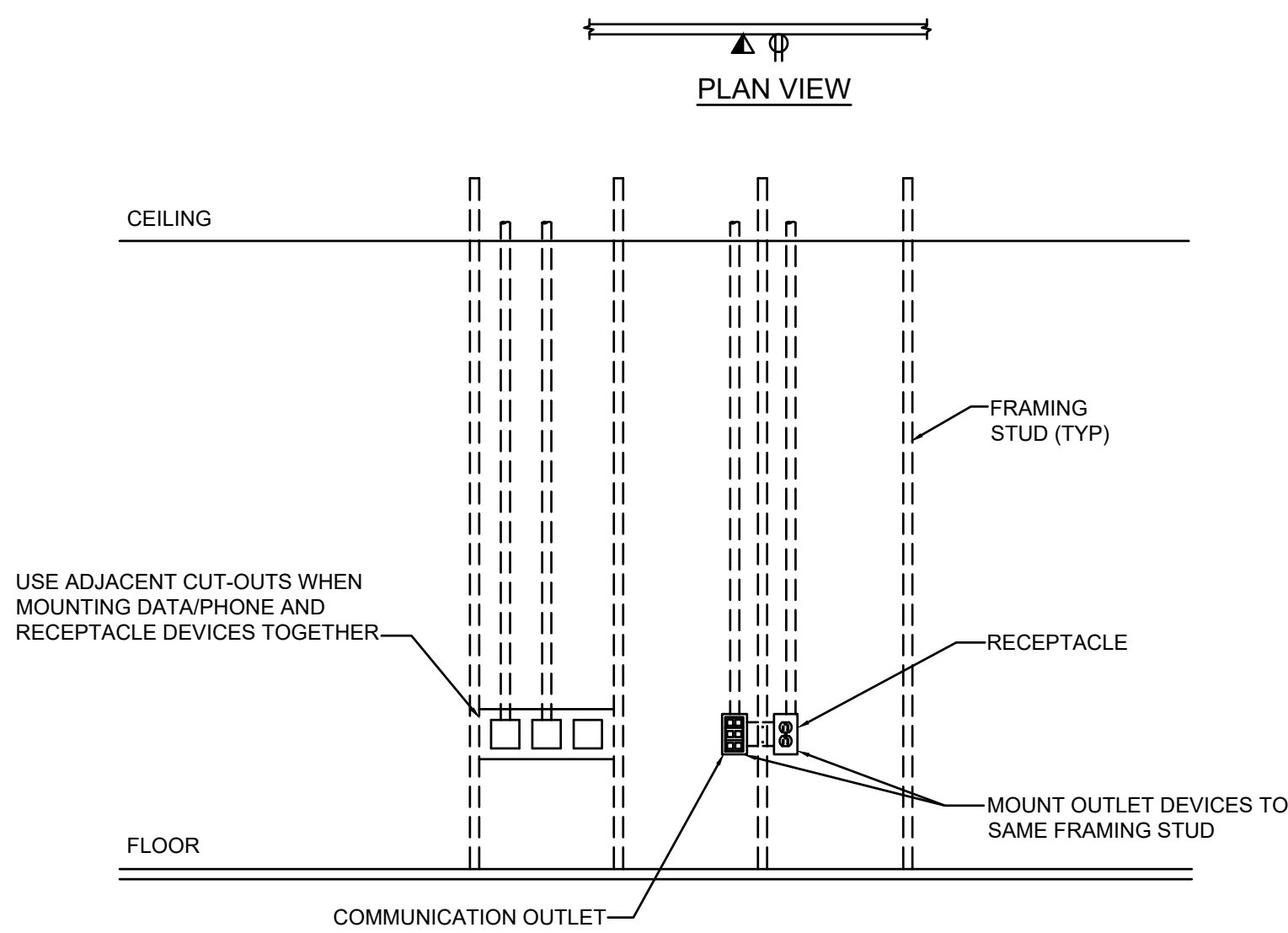
TYPICAL SELF-CONTAINED TV MOUNTING DETAIL
 NO SCALE



OCCUPANCY SENSOR MS1 DETAIL
 NO SCALE



LIGHT FIXTURE
 MOUNTING AND BRACING DETAIL
 NO SCALE

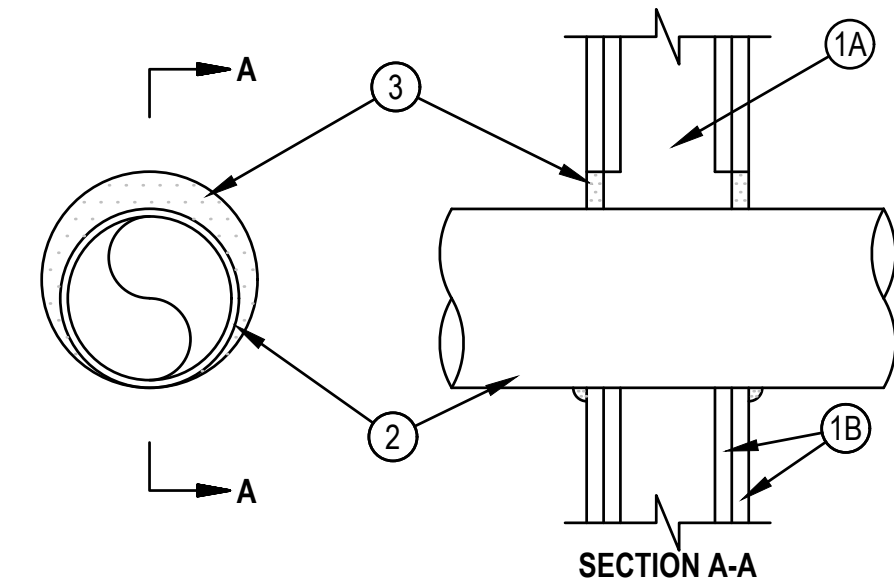


MOUNTING OUTLET DETAIL
 NO SCALE



System No. W-L-1054

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating at Ambient — Less Than 1 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Items 1 and 3)
L Rating at 400 F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 1 CFM/sq ft
	L Rating at 400 F — Less Than 1 CFM/sq ft



- Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
 - Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.
- The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.
- Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 - Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
 - Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) diam steel conduit.
 - Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.
- Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

GYPSUM/STUD WALL
 FIRE STOPPING DETAIL
 NO SCALE NON-INSULATED METALLIC PIPES

BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZING CHART*						
OVERCURRENT PROTECTION DEVICE RATING (AMPS)	REQUIRED CONDUCTOR SIZE	EQUIPMENT GROUNDING CONDUCTOR SIZE	SINGLE PHASE 2 WIRE + GND CONDUIT SIZE	SINGLE PHASE 3 WIRE + GND CONDUIT SIZE	THREE PHASE 3 WIRE + GND CONDUIT SIZE	THREE PHASE 4 WIRE + GND CONDUIT SIZE
15	12 AWG	12 AWG	3/4"	3/4"	3/4"	3/4"
20	12 AWG	12 AWG	3/4"	3/4"	3/4"	3/4"
25	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
30	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
35	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
40	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
45	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
50	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
60	4 AWG	10 AWG	1"	1"	1"	1-1/4"
70	4 AWG	8 AWG	1"	1"	1"	1-1/4"
80	3 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
90	2 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
100	1 AWG	8 AWG	1-1/4"	1-1/2"	1-1/2"	1-1/2"

- * = UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- * = UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL BRANCH CIRCUITS AND FEEDERS TO BE PROVIDED WITH A NEUTRAL WIRE.
- * = ALL CONDUCTORS SIZED ON THE POWER RISER DIAGRAM OR IN BRANCH CIRCUIT CONDUCTOR TABLE ARE BASED ON 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY OR CABLE. CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE NEC IF 4 OR MORE CONDUCTORS ARE PLACED IN A RACEWAY OR CABLE.



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ELECTRICAL
 DETAILS

sheet number

E30

EXISTING PANELBOARD LP1 SCHEDULE														RATING: EXISTING A.I.C. LOCATION: B.O.H.					
SERVICE: 208/120 VOLT, 3 - PHASE, 4 - WIRE AMP FRAME: 200 AMP MAINS: MCB / 200 AMP MAIN BREAKER														MOUNTING: SURFACE					
REV NO.	NOTE NO.	LOAD CRT#	DESCRIPTION	BRKR P	AMP	LOAD KVA				LOAD CRT#	DESCRIPTION	BRKR P	AMP	LOAD KVA				NOTE NO.	REV NO.
						A	B	C	3PH					A	B	C	3PH		
		1								2	REC: WAITING 001 NORTH	1	20	0.54				1	
E	3		RTU-A	3	30				9.3	4	REC: BUILDING SIGNAGE	1	20		1			1	
		5								6	REC: WAITING 001 TV'S	1	20			0.36		1	
		7								8	REC: WAITING 001 WEST	1	20	0.72				1	
E	9		RTU-B	3	30				9.3	10	REC: WAITING 001 SOUTH	1	20		0.54			1	
		11								12	REC: RETAIL 002 NORTH	1	20			1.08		1	
1	13		REC: B.O.H. GENERAL	1	20	0.72				14	REC: RETAIL 002 EAST	1	20	1.08				1	
1	15		REC: BREAK RM DISHWASHER	1	20		1			16	REC: RETAIL 002 SOUTH/SOUTHWEST	1	20		0.9			1	
1	17		REC: BREAK RM COUNTERTOP	1	20			0.18		18	REC: RETAIL 002 WEST	1	20			0.9		1	
1	19		REC: BREAK RM FRIDGE	1	20	0.8				20	REC: B.O.H. GENERAL	1	20	0.54				1	
1	21		REC: RR 006, 007	1	20		0.36			22	REC: B.O.H. GENERAL	1	20		0.72			1	
1	23		REC: OFFICE 004	1	20			0.54		24	EXHAUST FAN EF-1	1	20			0.53		1	
1	25		REC: FULFILLMENT 005	1	20	0.54				26	HUMIDIFIER HU-1	1	25	1.38				1	
1	27		REC: VAULT I.T. RACK	1	20		0.36			28	CU-1/AC-1	2	15		1			1	
1	29		REC: VAULT FRIDGE	1	20			0.8		30						1			
1	31		REC: VAULT GENERAL	1	20	0.18				32									
1	33		DISPLAY TABLE CEILING J-BOXES	1	20		1			34									
1	35		REC: RETAIL 002 P.O.S.	1	20			0.18		36									
1	37		REC: RETAIL 002 P.O.S.	1	20	0.18				38									
1	39		REC: RETAIL 002 P.O.S.	1	20			0.18		40	LTG: FRONT OF HOUSE	1	20		0.96				
1	41		REC: RETAIL 002 ATM	1	20			0.18		42	LTG: BACK OF HOUSE	1	20			0.37			
TOTAL: 2.42 2.9 1.88 18.6														TOTAL: 4.26 5.12 4.24 0.0 2.42 2.9 1.88 18.6 6.68 8.02 6.12 18.6 107.3 118.5 102.6					
NOTES: 1 PROVIDE NEW BREAKER WITHIN EXISTING PROVISION.														KVA / PHASE TOTAL: 6.68 8.02 6.12 18.6 AMP / PHASE TOTAL: 107.3 118.5 102.6					
														TOTAL CONNECTED LOAD: 39.42 KVA TOTAL CONNECTED CURRENT: 109.42 AMPS LIGHTS @ 125%: 1.66 KVA RECEPTACLES @ 100%: 10.00 KVA RECEPTACLES @ 50%: 1.79 KVA LARGEST MOTOR LOAD @ 125%: 0.00 KVA CONTINUOUS LOAD @ 125%: 1.25 KVA OTHER AND NON-CONTINUOUS LOADS @ 100%: 23.51 KVA TOTAL DEMAND LOAD: 38.21 KVA POWER FACTOR: 0.95 % PF TOTAL DEMAND CURRENT: 111.65 AMPS					
E = EXISTING BREAKER/INDEX/LOAD (ESTIMATED)																			
REV: GENERAL NOTE: CONDUCTOR & CONDUIT SIZING CHART FOR SIZING OF BRANCH CIRCUITS AND OR FEEDERS AT OR BELOW 100 AMPS																			