## Snappy Clean

### LAUNDRYLLC

SOUTHSIDE PLAZA 404 Southwest Nichols Street Lees Summit Missouri, 64063

### CODE NOTES

A. ALL CONSTRUCTION FOR THIS PROJECT SHALL BE PERFORMED UNDER THE PROVISIONS OF FOLLOWING LIST OF CODES, AS AMENDED BY THE CITY OF LEES SUMMIT

2018 INTERNATIONAL BUILDING CODE

2018 INTERNATIONAL PLUMBING CODE

2018 INTERNATIONAL MECHANICAL CODE 2018 INTERNATIONAL FUEL GAS CODE

2018 INTERNATIONAL RESIDENTIAL CODE

2018 INTERNATIONAL FIRE CODE 2017 NATIONAL ELECTRICAL CODE

ICC/ANSI A117.1-2017, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

B. USE, OCCUPANCY CLASSIFICATION. AND TYPE OF

B.1. TENANT USE: SELF SERVICE LAUNDROMAT

B.2. TENANT OCCUPANCY CLASSIFICATION: B - BUSINESS B.3. BUILDING TYPE OF CONSTRUCTION: VB

C. TENANT SQUARE FOOT CALCULATIONS

GROSS TENANT AREA = 2,803 SF C.2. OCCUPIED AREA = INSIDE FACE OF WALLS = 2,634 SF

D. FIRE PROTECTION SYSTEMS:

D.1. AUTOMATIC SPRINKLER SYSTEMS: NONE PROVIDED D.2. FIRE ALARM AND DETECTION SYSTEMS: NONE

E. TENANT OCCUPANT LOAD (TABLE 1003.2.2.2):

E.1. 2634 SF ÷ 150SF/P = 17.56 = 18 OCCUPANTS

GENERAL NOTES

- MAINTAIN ACCESS TO EXISTING WALKWAYS, CORRIDORS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT WALKWAYS, CORRIDORS, OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM TENANT.
- REMOVE AND DISCARD: DETACH ITEMS FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF THEM OFF-SITE. REMOVE AND SALVAGE: DETACH ITEMS FROM EXISTING CONSTRUCTION
- RELOCATE: DETACH ITEMS FROM EXISTING CONSTRUCTION, MOVE ITEMS NTACT AND UNDAMAGED, AND REINSTALL THEM WHERE INDICATED. EXISTING TO REMAIN: EXISTING ITEMS OF CONSTRUCTION THAT ARE NOT

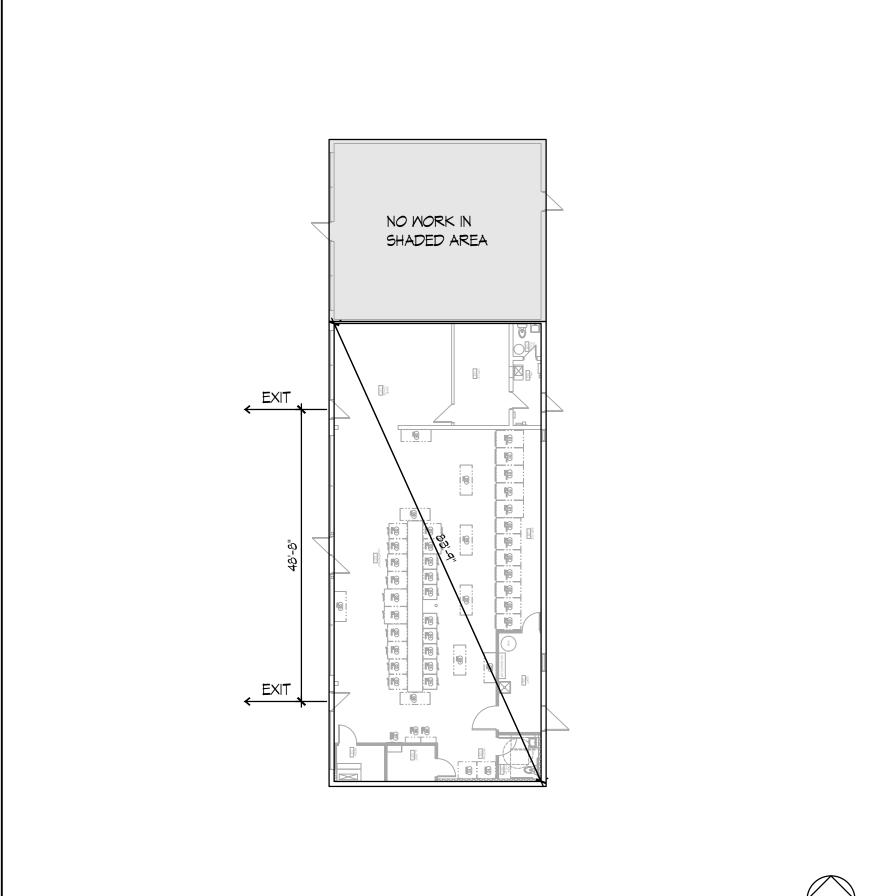
AND TURN OVER TO TENANT UNDAMAGED.

- BE REMOVED, BUT ARE TO REMAIN IN PLACE AND BE UNDAMAGED. REMOVE AND RECLAIM: DETACH ITEMS FROM EXISTING CONSTRUCTION. AT CONTRACTORS OPTION ITEM MAY BE REUSED AS PART OF NEW WORK. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INVENTORY ITEMS TO DETERMINE IF ITEMS WILL FUNCTION AND APPEAR LIKE THE NEW ITEMS SPECIFIED AND CALLED OUT ON THESE DOCUMENTS. IF ITEMS ARE REUSED, CONTRACTOR IS TO CLEAN, REPAIR, OR OTHERWISE BRING ITEMS TO LIKE NEW CONDITION. MODIFY REUSED ITEMS AS REQUIRED AND SUPPLEMENT WITH MATERIALS, AND INCIDENTALS NECESSARY TO EXECUTE A COMPLETE WORKMANLIKE JOB. IF CONTRACTOR CHOOSES TO NOT REUSE ITEM, LEGALLY DISPOSE OF ITEM OFF-SITE AND REPLACE WITH NEW TO MATCH EXISTING.
- PROVIDE: THE MEANING OF THE WORD "PROVIDED" INCLUDES, BUT IS NOT LIMITED TO, FURNISHED, DELIVERED, INSTALLED, FINISHED, MADE FULLY OPERABLE AND COMPLETE. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL WORK DESCRIBED IN THESE DOCUMENTS IS TO BE PROVIDED BY THE CONTRACTOR.
- CONTRACTOR IS TO INCLUDE AS PART OF HIS SCOPE ALL CUTTING AND PATCHING REQUIRED THROUGH CAREFUL EVALUATION OF THE EXISTING SITE AND THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL COORDINATE THE CUTTING AND PATCHING OF EXISTING CONSTRUCTION NECESSARY TO PERMIT INSTALLATION OR PERFORMANCE OF THE WORK INDICATED IN THESE CONSTRUCTION DOCUMENTS. SAW-CUT CONC. SLAB AS REQUIRED FOR UTILITIES, FOR EQUIPMENT AND SINKS. VERIFY ROUTE AND TRENCH DEPTH IN FIELD. PATCH BACK WITH MATCHING SLAB THICKNESS OVER SAME MATERIAL, COMPACT UNDERLYING MATERIALS TO MEET BEST PRACTICES. DOWEL NEW TO EXISTING WITH #4 REBAR AT 30" OC.
- WHERE WALLS, CASEMORK, FINISHES, EQUIPMENT OR OTHER ITEMS AND CONSTRUCTIONS HAVE BEEN REMOVED EXPOSING UNDERLYING WALL AND/OR FLOOR SURFACES, SUCH SURFACES ARE TO BE PATCHED AND REPAIRED AS REQUIRED TO ACCEPT NEW FINISHES. ALL HOLES, DAMAGES, DEFECTS, ETC. IN EXISTING SURFACES ARE TO BE PATCHED TO MATCH EXISTING CONDITIONS.
- EXISTING CONDITIONS SHOWN ON THESE DRAWINGS ARE BASED UPON BASE BUILDING OR OTHER CONSTRUCTION DOCUMENTS MADE AVAILABLE TO THE DESIGNER BY THE BUILDING MANAGEMENT. ALL AS-BUILT ARCHITECTURAL CONDITIONS HAVE NOT BEEN FIELD VERIFIED AND MAY VARY FROM THOSE
- PRIOR TO BID: FIELD VERIFY ALL EXISTING CONSTRUCTION TO REMAIN AND INCLUDE COSTS FOR REPAIR AND RECONDITION OF ALL EXISTING CONSTRUCTION TO REMAIN SO THAT IT MEETS THE AESTHETIC AND FUNCTIONAL STANDARD OF QUALITY FOR NEW CONSTRUCTION. BLEND AND MATCH EXISTING CONSTRUCTION WITH NEW CONSTRUCTION PRIOR TO BID, ADVISE TENANT OF ANY CONDITIONS WHICH CANNOT BE REPAIRED OR RECONDITIONED, BLENDED AND MATCHED. NOTE CONTRACT DOCUMENT REQUIREMENTS FOR EXISTING CONSTRUCTION AND INCLUDE COSTS FOR THIS WORK IN BID PROPOSAL.

- THE GENERAL CONTRACTOR SHALL, IN THE BIDDING PROCESS, REQUIRE THAT MECHANICAL AND ELECTRICAL SUBCONTRACTORS MAKE A THOROUGH FIELD INSPECTION OF AS-BUILT CONDITIONS OF EXISTING SYSTEMS. AFTER SUCH FIELD VERIFICATION HAS BEEN COMPLETED, THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL PROVIDE IN THEIR BIDS, ANY MODIFICATIONS TO THE EXISTING SYSTEMS WHICH MAY BE REQUIRED TO ACCOMMODATE THE PROPOSED REQUIREMENTS FOR THIS TENANT. IF A DETERMINATION OF SUCH MODIFICATIONS CANNOT BE MADE, THE GENERAL CONTRACTOR SHALL NOTIFY THE TENANT, AND AT THE DIRECTION OF THE TENANT, PROVIDE AN AGREED UPON ALLOWANCE TO COVER SUCH WORK.
- 8. COMMENCING WORK BY A CONTRACTOR OR SUBCONTRACTOR CONSTITUTES ACCEPTANCE OF THE UNDERLYING CONDITIONS AND SURFACES. PRIOR TO PROCEEDING WITH THE WORK, PREPARE EXISTING AND NEW UNDERLYING CONDITIONS AND SUBSTRATE TO COMPLY WITH THE CONTRACT DOCUMENTS, INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATION.
- FIELD VERIFY ALL ROUGH OPENINGS AND WALL WIDTHS PRIOR TO ORDERING OR FABRICATION OF MATERIALS.
- 10. DIMENSIONS ARE NOMINAL AND TO THE FACE OF PARTITIONS
- 11. CLEAN-UP OF RUBBISH AND DEBRIS RESULTING FROM DEMOLITION AND NEW WORK SHALL BE COLLECTED REGULARLY FROM PROJECT SITE AND LEGALLY DISPOSED
- 12. ALL MEATHER EXPOSED SURFACES SHALL HAVE A MEATHER RESISTIVE BARRIER TO PROTECT THE INTERIOR WALL COVERING AND EXTERIOR OPENINGS SHALL BE FLASHED IN SUCH A MANNER AS TO MAKE THEM **MEATHERPROOF**
- 13. BUILDING ADDRESS NUMBERS SHALL BE PROVIDED AND PLACED IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. IN MULTI-TENANT COMMERCIAL BUILDING WHERE TENANTS HAVE MULTIPLE ENTRANCES LOCATED ON DIFFERENT SIDES OF THE BUILDING EACH DOOR SHALL BE ADDRESSED. ADDRESS NUMBERS SHALL BE ARABIC NUMERALS OR ALPHABET LETTERS. NUMBERS SHALL BE A MINIMUM OF 4 INCHES (102 MM) HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH (12.7 MM).
- 14. CONTRACTORS ARE RESPONSIBLE FOR ALL MATERIALS AND QUANTITIES SHOWN IN THESE DRAWINGS GRAPHICALLY AS WELL AS THOSE CALLED FOR
- 15. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE THE PROPOSED WORK AND SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS
- 16. THE TENANT OR THE TENANT'S DESIGNATED REPRESENTATIVE WILL PROVIDE SERVICES IN CONNECTION WITH ADMINISTRATION OF THE CONTRACT
- 17. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS OF THE GOVERNING AGENCIES HAVING JURISDICTION
- 18. THE CONTRACTOR MUST TAKE ADEQUATE CARE TO PROTECT ALL AREAS OF THE BUILDING WHERE THE WORK OF THIS PROJECT IS LOCATED AS WELL AS THE AREAS ADJACENT TO THE AREA OF THE WORK OF THIS PROJECT SO AS TO PREVENT DAMAGE TO LIFE OR PROPERTY AS A RESULT OF THIS CONSTRUCTION PROJECT
- 19. ONLY MATERIALS THAT ARE NEW, UNUSED, FREE FROM DEFECTS, AND THE BEST OF THEIR RESPECTIVE KINDS SHALL BE USED. THE BASIS OF QUALITY

SHALL BE THE LATEST STANDARDS OF ASTM, ASA OR ASHRA

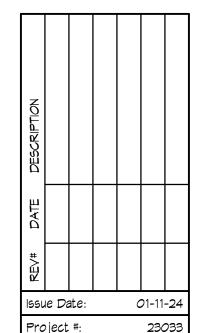
- 20. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES INCLUDING THOSE OF THE TENANT WHO MAY BE ENGAGED UNDER A SEPARATE
- 21. INSTALL ALL WORK IN SUCH A MANNER AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND/OR REPAIRS
- 22. ALL WORK AND EQUIPMENT SHALL BE CLEANED TO THE SATISFACTION OF THE TENANT BEFORE BEING TURNED OVER FOR USE
- 23. A COPY OF THE LATEST SET OF CONSTRUCTION DOCUMENTS SHALL BE KEPT AT THE JOB SITE AT ALL TIMES
- 24. THE CONTRACTOR AND EACH SUBCONTRACTOR SHALL KEEP ACCURATE RECORDS OF ANY MODIFICATION OR DEVIATIONS FROM THE CONTRACT
- 25. PROJECT CLOSE OUT DOCUMENTS SHALL BE PROVIDED TO THE TENANT. INCLUDE AS-BUILT DRAWINGS, WARRANTY/MAINTENANCE MANUALS AND TESTING AND SUPERVISION AS REQUIRED. PRESERVE ALL PRINTED INSTRUCTIONS AND WARRANTIES THAT ARE PROVIDED WITH EQUIPMENT OR MATERIALS USED, AND DELIVER SAID PRINTED MATTER TO THE TENANT AT THE TIME OF SUBSTANTIAL COMPLETION. IF REQUESTED BY THE TENANT, INSTRUCT THE MANAGEMENT IN THE PROPER USE AND MAINTENANCE OF ALL ITEMS OF WORK PROVIDED.
- 26. PROVIDE WORK IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATION, EXCEPT IN THE CASE WHERE THE CONTRACT DOCUMENTS ARE MORE STRINGENT. PROVIDE ANY MISCELLANEOUS ITEMS OR MATERIALS NOT SPECIFICALLY NOTED, BUT REQUIRED FOR PROPER INSTALLATION OF THE
- 27. ALL WORK SHALL BE WARRANTED BY THE CONTRACTOR TO BE SATISFACTORY, IN MATERIALS AND MORKMANSHIP, FOR A MINIMUM PERIOD OF ON (1) YEAR, OR FOR THE PERIOD OF WARRANTY CUSTOMARY, SPECIFIED FOR, THE TRADE, CRAFT OR PRODUCT, WHICHEVER IS LONGER.
- 28. SUBMIT REQUESTS FOR SUBSTITUTIONS OF SPECIFIED ITEMS IN WRITING, ACCOMPANIED BY THE ALTERNATIVE PRODUCT INFORMATION, TO THE TENANT. SUBSTITUTIONS MAY BE CONSIDERED ONLY IF THEY DO NOT SACRIFICE QUALITY, APPEARANCE AND FUNCTION. ACCEPTANCE OF SUBSTITUTIONS IS AT THE SOLE DISCRETION OF THE TENANT.



BUILDING KEY PLAN

# AREA MAP **LPROJECT**





**COVER SHEET** 

### DIVISION 1 - GENERAL REQUIREMENTS

- 1. GENERAL REQUIREMENTS 01000
- 2. The General Conditions of the Contract for Construction of A.I.A. Document A201, latest edition, forms part of this contract as if herein bound.
- 3. Satisfy all applicable local codes and ordinances. Reference the cover sheet for list of codes.
- 4. Contractor to pay for Construction Permit Fees, Excise Tax, Tap Fees, Ect. as applicable to the local Municipalities and Utility Companies.
- 5. Contractor is to meet all Building Owner Standards and Instructions for work.

### PRODUCTS 01600

- 1. Where a specific manufacturer's product is named including make or model number or other designation, it has been selected to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics of the product. Unless otherwise indicated, provided the named product or a product that is equal to or exceeds the specified product.
- 2. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- 3. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
- 4. All products, and materials used in conjuction with, are to be installed in strict conformance with manufacturers instruction.

### SPECIAL CONDITIONS 01700

- General Contractor shall provide all water, light, and power necessary during construction until the completion of the building. All extensions, controls, and equipment beyond the points of temporary service shall be provided under the work of the respective Division requiring the same.
- 2. The General Contractor shall do all final cleaning of the building construction areas and wash

### CUTTING AND PATCHING

- Contractor is to include as part of his scope all cutting and patching required through careful evaluation of the existing site and the construction documents. All holes, damages, defects, ect. in existing surfaces are to be patched to match existing conditions. Contractor shall coordinate the cutting of existing construction necessary to permit installation or performance of other Mork.
- 2. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations. Patch with durable seams that are as invisible as possible. Use materials identical to existing materials. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible. Before patching, verify compatibility with and suitability of substrates, including compatibility with existing and new finishes or primers.
- 3. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use. Provide temporary support of Work to be cut. Cut concrete using a cutting machine, such as an abrasive saw or a diamond-core drill.

### DIVISION 2 - SITE WORK

NO WORK THIS SECTION

### DIVISION 3 - CONCRETE

REFER TO CUTTING AND PATCHING

### DIVISION 4 - MASONRY

NO WORK THIS SECTION

### DIVISION 5 - METALS

### METAL STUD FRAMING

- 1. Metal Studs and Runners: shall be as manufactured by Dietrich, Inryco/Milcor, USC, or approved equal. Studs shall be sized as indicated on the drawings and of gauge recommended by the manufacturers literature. Double studs at door jambs shall be 20 gauge minimum. Standard stud spacing at no more than 16" O.C. unless otherwise noted on drawings.
- 2. At all walls indicated to extend to underside of decking provide Dietrich SLP-TRK slotted deflection track. Install and finish per manufacturer's recommendations.

### DIVISION 6 - WOODS AND PLASTIC

### CARPENTRY

Each piece of framing lumber shall be identified by the trademark of an approved inspection agency or association. Mood framing and all rough carpentry items shall be installed in accordance with UBC and/or FHA requirements whichever is most restrictive.

### DIVISION 7 - THERMAL AND MOISTURE PROTECTION

### INSULATION

- 1. Where insulating materials listed below will not be covered with gypsum board substitute specified insulation w/ product of same thickness and R-value and similar facing, but such shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less when tested in accordance with ASTM E84 unless more stringent requirements are listed for a specific product.
- 2.1. Exterior Malls: batts of fiberglass with foil skrim kraft (FSK) vapor barrier in thickness to match cavity depth
- Gaps and voids around door and window areas and in built up wood lintels: Minimal expanding foam insulation shall be Dow Chemical Great Stuff. It is to be Tack free in 20 minutes and with full cure in 8 hours at room temperature and 50% relative humidity. It is to be paintable and stainable.
- 2.3. Interior non-loadbearing walls: Unfaced Fiberglass Batts Certainteed CertaPRO AcoustaTherm Batts in thickness to fill entire cavity.

### SEALANTS

- Mildew-Resistant Silicone Rubber Sealant: Silicone rubber-based, one part elastomeric sealant. complying with F5 TT-5-0021543, Class A; compounded specifically for mildew resistance and recommended by manufacturer for interior joints in wet areas; passing ANSI A136.1 test for mold
- 2. Silicone Sealant: One-part nonacid-curing silicone sealant complying with ASTM C920; Type 5, Grade NS, Class 25, paintable, for uses at casings, window casings and hollow metal to drywall and masonry.
- 3. Joints and spaces to be caulked shall be clean, dry and free of dust, loose mortar or other foreign materials. After joints have been filled, they shall be neatly tooled to eliminate air pockets or voids and to provide a smooth, neat appearing surface.
- 4. Non-Elastomeric Sealants and Caulking Compounds: 1-component acrylic sealant: FS-TT-S-00230, Class B, Type 11, solvent based solids 95% acrylic for uses at exterior window and door frame perimeters and flashing

### DIVISION 8 - DOORS AND WINDOWS

### FLUSH WOOD VENEER CLAD DOORS

 Single swing interior doors shall be solid core premium grade red oak veneer with matching edges. Comply with requirements of ANSI/NMMA I.S. 1 and Section 1400 of AWI "Architectural Moodwork

### FINISH HARDWARE

1. Provide finish hardware for all doors in project. The Contractor shall verify all keying requirements with owner prior to installation. Finish to be 26d. Hardware mounting heights by the door and hardware institute "Recommended Locations for Builders Hardware". Comply with all ADA requirements for hardware.

### DIVISION 9 - FINISHES

### GYPSUM DRYWALL

- 1. Materials shall meet the following standards:
  - a. Gypsum Wallboard ASTM C36
  - b. Nails ASTM C380
  - c. Metal Accessories ASA A97.1
  - d. Water Resistant Gypsum Backing Board ASTM C1278 (paragraph 6.1)
- 2. Use gupsum board fasteners that are recommended by gupsum board manufacturer except as otherwise indicated.
- 3. Furnish and install all trim accessories, adhesives and joint treatments per manufacturer's
- 4. All aupsum board to be finished to Level 4 unless noted otherwise.
- 5. Schedule: (basis of design)
- 5.1. Interior side of exterior walls:  $\frac{5}{6}$ " Gold Bond XP Gypsum Board. Gypsum Board is to be installed from floor to underside of deck above.
- Interior partitions, ceilings and soffits general: 5/8" Gold Bond Gypsum Board.
- Interior partitions in wet areas/toilet rooms: 5/8" Gold Bond XP Gypsum Board. 5.4. Interior partitions to receive wall tile: 5/8" Gold Bond exp Tile Backer
- 5.5. Where called out to receive sound board:  $\frac{5}{8}$ " Gold Bond Sound Break aupsum board. When multiple layers are indicated all joints are to be staggered.

### FLOORING GENERAL

- Patch, level and prepare all floors as recommended by flooring manufacturer for each type of flooring to be placed. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates. Trowelable Leveling and Patching Compounds shall be of Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by floor covering manufacturer for applications indicated.
- 2. Transitions between floor finishes: Floor finishes are to be tightly butted together (unless edge protection is specified or is required by the manufacturer.) At all transitions where finished floor height of a flooring is higher then adjacent floor finish, raise adjacent flooring with ROPPE SUBLEVELER TS-1 so finish heights are equal. Where flooring is to be tightly butted against ceramic or porcelain tile in addition to subleveler installation beneath the thinner floor material, edge protection is to be provided on tile as indicated in the finish legend.

### PAINTING GENERAL

1. Paint shall be as manufactured by Sherwin Williams Paints or approved equal.

### SURFACE PREPARATION FOR PAINT

- 1. General: Protect adjacent and underlying surfaces. Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces of finishing. Correct defects and clean surfaces capable of affecting work of this section. Seal marks that may bleed through surface finishes with compatible sealer.
- 2. Galvanized Steel: Remove surface contamination and oils and wash with solvent.
- 3. Uncoated Ferrous Metals: Remove grease, mill scale weld splatter, dirt and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting: wash with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts and nuts are similarly cleaned. Spot Prime paint after repairs.
- 4. Shop primed ferrous Metals: Sand and scrape to remove loose primer and rust. Feather edges to make patches inconspicuous. Clean with solvent. Prime bare steel surfaces.
- 5. Other existing Surfaces: Remove loose, flaking, powdery, and peeling paints. Light sand painted surfaces. Fill holes, cracks, depressions and other imperfections with compatible patching compound; sand flush with surface. Remove oil, grease, and wax by scraping; solvent wash and thoroughly rinse. Remove rust by wire brushing to expose base metal.

### PAINTING SCHEDULE

- 1. Paint all new interior gypsum board walls:
- 1.1. 1 ct. PrepRite 200 Latex Primer and 1.2. 2 cts. Promar 200 Int. Latex Eg-Shel
- 2. Paint all new and existing interior gypsum board walls in wet areas (Toilet and Janitor Rooms):
- 2.1. 1 ct. PrepRite 200 Latex Primer and
- 2.2. 2 cts. Waterbased Catalyzed Epoxy
- 3. Interior gypsum board ceilings and soffits (unless noted otherwise):
- 3.1. 1 ct. PrepRite 200 Latex Primer 3.2. 2 cts. Promar 200 Int. Latex Flat
- 4. Interior and Exterior Ferrous metal (metal frames, exposed steel structure, misc. metal):
- 4.1. Touch up factory prime coat with compatible Metal Primer or
- 4.2. 1 ct. Sprayed All Surface Enamel oil Primer
- 4.3. 2 cts. Sprayed Promar 200 Int. Alkyd Eg-Shel Enamel

### DIVISION 10 - SPECIALTIES

### FIRE EXTINGUISHER

Provide fire extinguishers as indicated per plan. Fire extinguisher shall be Cosmic 5E (2A,10B,C) by J.L Industries or approved equal. Cabinets to be Ambassador by J.L Industries or approved equal, Not Fire-Rated, Tub - 10 1/2 x 24 x 5 1/2 inches. Trim Material - Steel, white epoxy primer finish, Trim Style Semi recessed 3" rolled edge. Door Style - Vertical Duo Panel with pull handle and Saf-T-Lok. Door Glazing - Clear Safety Glass, with Die Cut Letters - Vertical Red Reverse.

### DIVISION 11 - EQUIPMENT

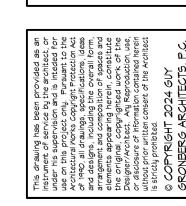
COORDINATE EQUIPMENT INSTALLATION WITH OWNER AND OWNER'S EQUIPMENT SUPPLIER.

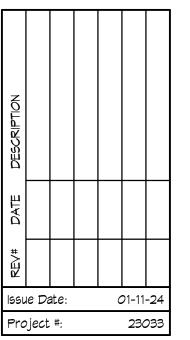


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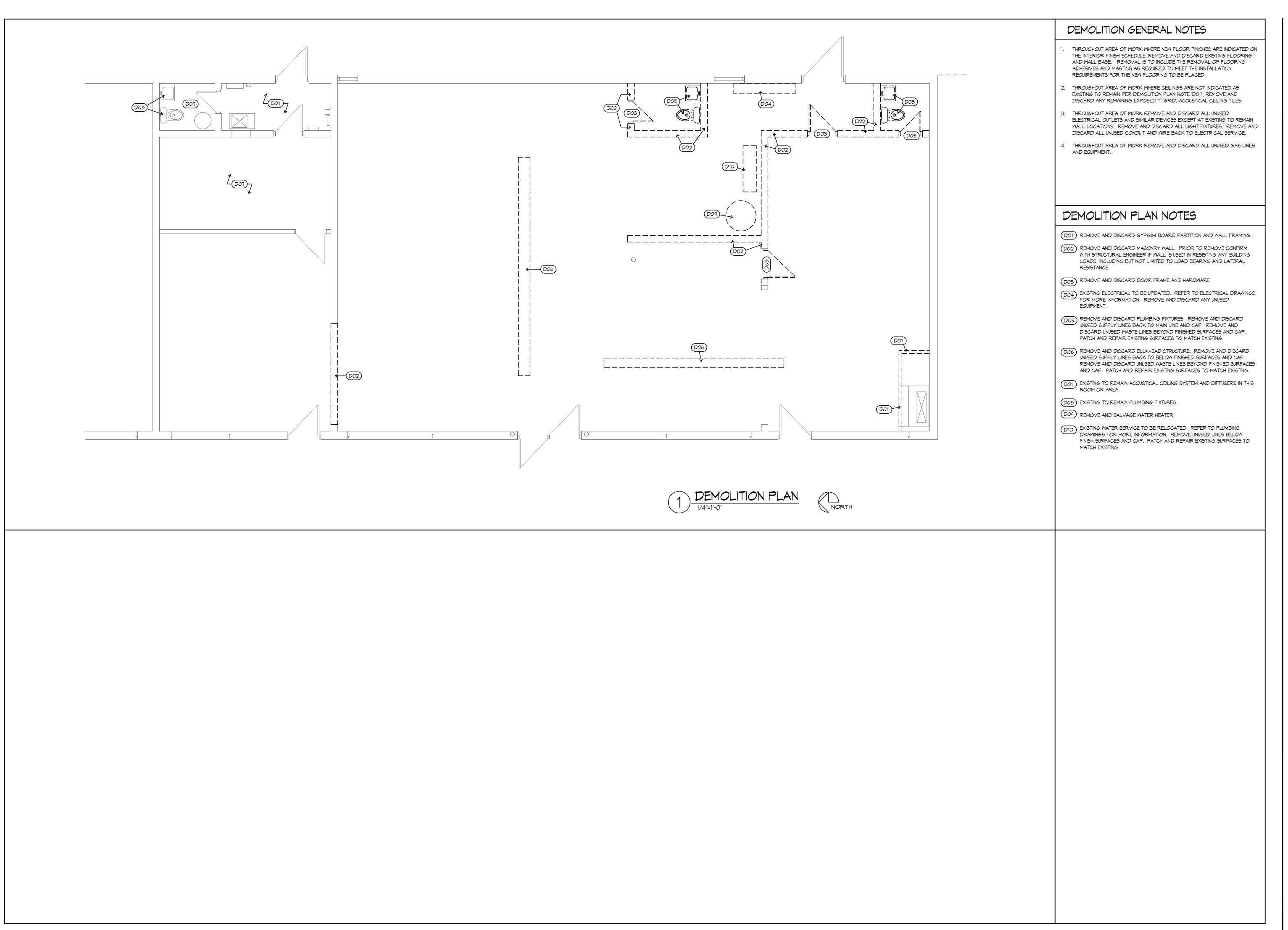


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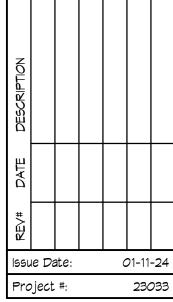
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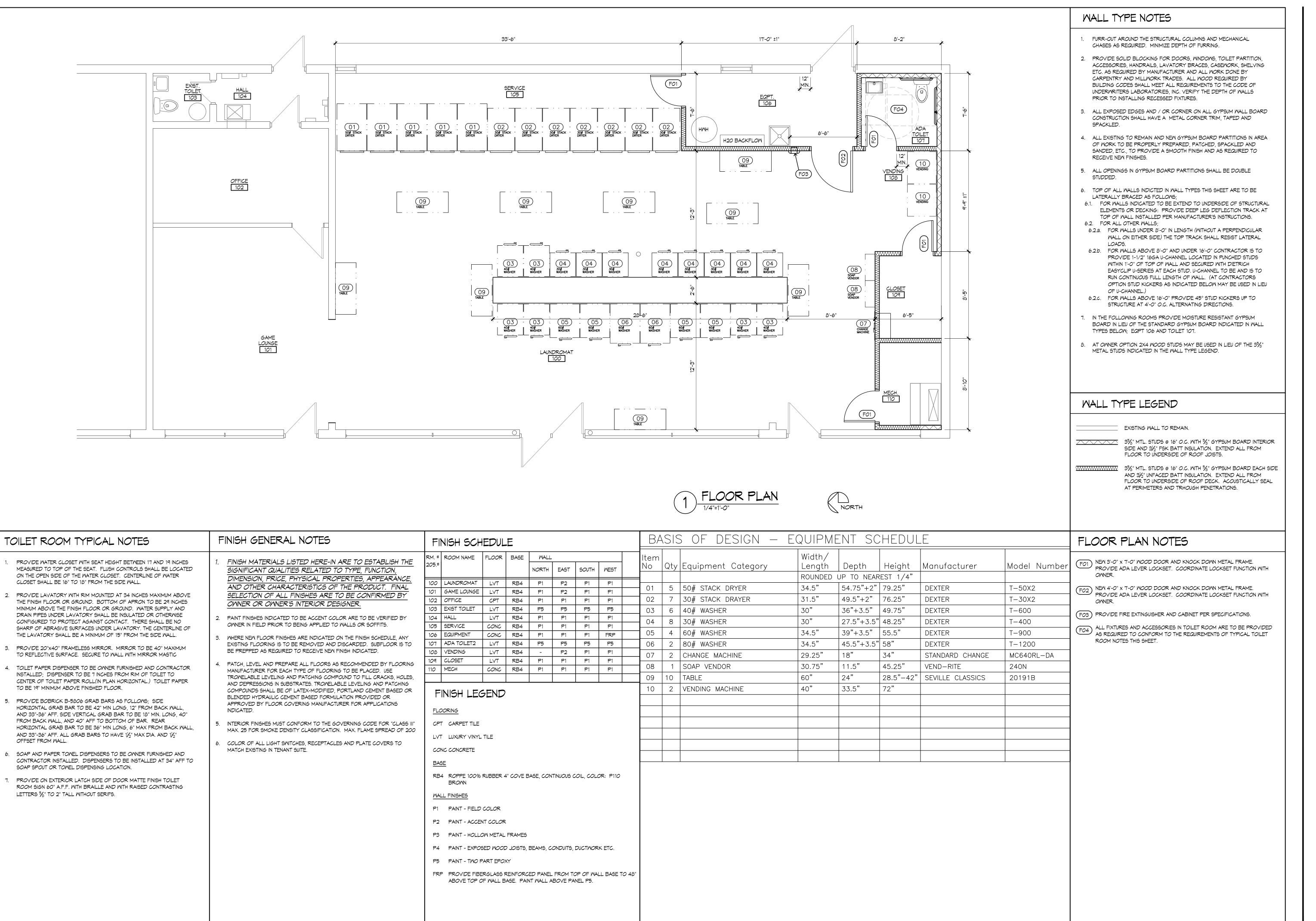
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DEMOLITION PLAN







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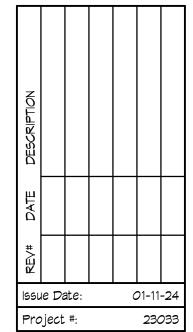


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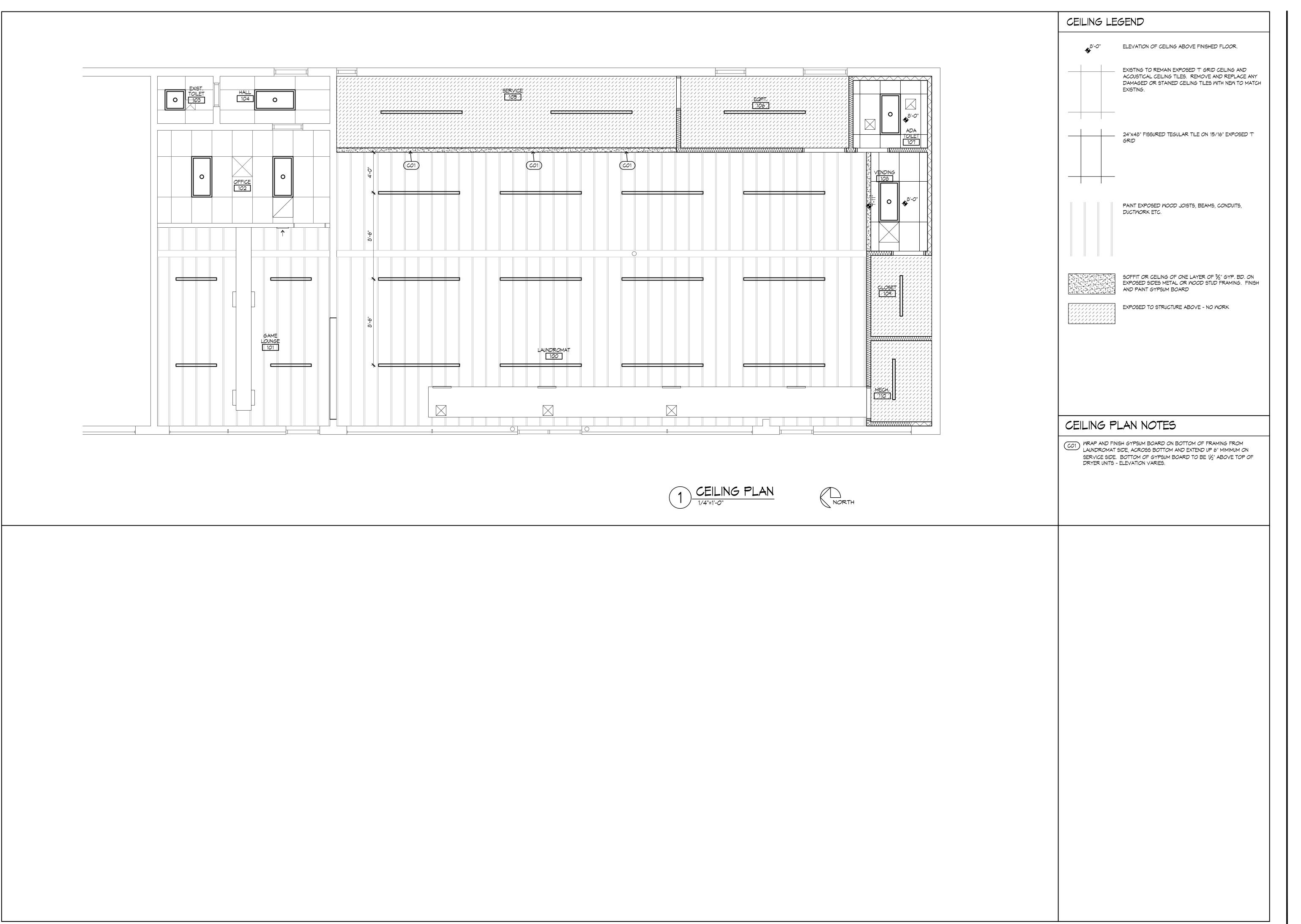
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FLOOR PLAN

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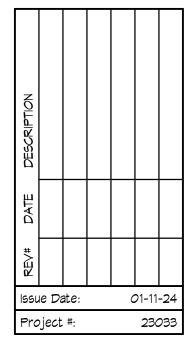
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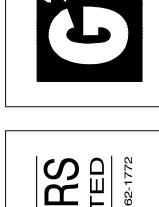
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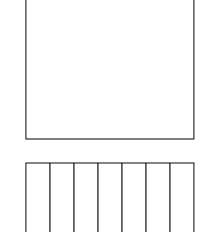


CEILING PLAN

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MECHANICAL & PLUMBING SPECIFICATIONS

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MECHANICAL SPECIFICATIONS (CONTINUED) 16. REMODELING WORK: A. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MECHANICAL MATERIALS AND EQUIPMENT A. ALL DUCTWORK, UNLESS OTHERWISE INDICATED, SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. COMPLYING WITH ASTM A 653, LOCKFORMING QUALITY, WITH G 90 ZINC COATING IN ACCORDANCE WITH ASTM A 924: AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS B. EQUIPMENT TO BE SALVAGED: B. WHERE DUCTWORK IS INDICATED TO BE EXPOSED TO VIEW IN OCCUPIED SPACES, PROVIDE MATERIALS 1) DISCONNECT AND REMOVE. EXISTING MECHANICAL EQUIPMENT INDICATED TO BE REMOVED AND WHICH ARE FREE FROM VISUAL IMPERFECTIONS INCLUDING PITTING. SEAM MARKS, ROLLER MARKS. SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE STAINS AND DISCOLORATIONS, AND OTHER IMPERFECTIONS, INCLUDING THOSE WHICH WOULD IMPAIR 2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO C. DUCTWORK, METAL GAUGES, REINFORCING, ETC. SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR "HVAC DUCT CONSTRUCTION STANDARDS." LATEST EDITION FOR A 2 INCH WATER GAUGE STATIC REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT. C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND a) ELBOWS, UNLESS INDICATED OTHERWISE SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF EQUIPMENT NOT INDICATED TO BE SALVAGED. NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOW WITH DOUBLE WALL STREAMLINE VANES. D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE b) RETURN AIR ACOUSTICAL ELBOWS AND SOUND BOOTS SHALL BE A SQUARE ELBOW WITH NO BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE. c) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3. F LOCATE IDENTIFY AND PROTECT MECHANICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHERE MECHANICAL SERVICES ARE LOCATED IN A WALL, ETC. TO BE a) PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEMOLISHED, REROUTE PIPING TO NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF THE DEGREE CHANGE OF DIRECTION PER SECTION. UNLESS SPECIFICALLY DETAILED OTHERWISE, SYSTEM. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS. USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEGREE BRANCHES F. REMOVE ALL PIPING TO BE DEMOLISHED BACK TO PIPE MAIN OR EDGE OF PROJECT AREA, AND CAP G. PIPING AND DUCTS EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. PIPING AND DUCTS TO REMAIN SHALL BE APPROVED BY THE ARCHITECT REMOVE MATERIALS ABOVE ACCESSIBLE CEILINGS DRAIN AND CAP PIPING AND DUCTS ALLOWED TO REMAIN ABOVE CEILING OR BELOW FLOOR, CONCEALED FROM VIEW, EXCEPT AS OTHERWISE NOTED. PATCH FLOOR TO MATCH EXISTING. H. PIPE AND DUCT SHALL BE CONCEALED WITH NEW OR EXISTING CONSTRUCTION WHENEVER POSSIBLE, UNLESS INDICATED OTHERWISE. (2) DIVIDED FLOW FITTINGS: 90 DEGREE TEES, CONSTRUCTED WITH SADDLE TAP SPOT d) ROUND LONGITUDINAL SEAM DUCT. USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT.

b) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3. c) AS AN OPTION, PROVIDE FACTORY-FABRICATED DUCT AND FITTINGS, IN LIEU OF SHOP-(1) ELBOWS: ONE PIECE CONSTRUCTION FOR 90 DEGREES AND 45 DEGREE ELBOW 14" AND SMALLER. PROVIDE MULTIPLE GORE CONSTRUCTION FOR LARGER DIAMETERS WITH STANDING SEAM CIRCUMFERENTIAL JOINT.

IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS, UNLESS OTHERWISE D. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEETMETAL SIZES, ALLOWANCE FOR DUCT LINER HAS BEEN

MADE WHERE APPLICABLE. E. INSTALLATION OF METAL DUCTWORK:

1) GENERAL: ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES WHICH WILL ACHIEVE AIR-TIGHT SYSTEMS (MAXIMUM 5% LEAKAGE). WITH NO OBJECTIONABLE NOISE, AND CAPABLE OF PERFORMING INDICATED SERVICE. INSTALL EACH RUN WITH MINIMUM NUMBER OF JOINTS. ALIGN DUCTWORK ACCURATELY WITH INTERNAL SURFACES SMOOTH. SUPPORT DUCTS RIGIDLY WITH SUITABLE STRAPS, BRACES, HANGERS AND ANCHORS IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" LATEST EDITION DUCT HANGERS SHALL BE OF THE TYPE WHICH WILL HOLD DUCTS TRUE-TO-SHAPE AND TO PREVENT

BUCKLING. SUPPORT VERTICAL DUCTS AT EVERY FLOOR. 2) AUXILIARY STEEL: PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK. 3) ROUTING: LOCATE DUCTWORK RUNS, EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY AND AVOID DIAGONAL RUNS WHEREVER POSSIBLE. LOCATE RUNS AS INDICATED BY DIAGRAMS, DETAILS AND NOTATIONS OR, IF NOT OTHERWISE INDICATED, RUN DUCTWORK IN SHORTEST ROUTE WHICH DOES NOT OBSTRUCT USABLE SPACE OR BLOCK ACCESS FOR SERVICING BUILDING AND ITS EQUIPMENT. HOLD DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION. COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING. WHEREVER POSSIBLE IN FINISHED AND OCCUPIED SPACES, CONCEAL DUCTWORK FROM VIEW, BY LOCATING IN MECHANICAL SHAFTS, HOLLOW WALL CONSTRUCTION OR ABOVE SUSPENDED CEILINGS. DO NOT ENCASE HORIZONTAL RUNS IN SOLID PARTITIONS, EXCEPT AS SPECIFICALLY SHOWN. COORDINATE LAYOUT WITH SUSPENDED CEILING AND LIGHTING LAYOUTS AND SIMILAR FINISHED WORK.

4) DO NOT ROUTE DUCTWORK THROUGH ELECTRICAL EQUIPMENT SPACES AND ENCLOSURES, UNLESS INDICATED OTHERWISE. 5) PENETRATIONS:

a) WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS OR EXTERIOR WALLS, AND ARE EXPOSED TO VIEW, CONCEAL SPACE BETWEEN OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME GAGE AS DUCT. OVERLAP OPENING ON 4 SIDES BY AT LEAST 1-1/2". FASTEN TO DUCT AND WALL. b) WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE

FIRESTOPPING BETWEEN DUCT AND WALL. 6) COORDINATION: COORDINATE DUCT INSTALLATIONS WITH INSTALLATION OF ACCESSORIES, DAMPERS, COIL FRAMES, EQUIPMENT, CONTROLS, AND OTHER ASSOCIATED WORK OF THE DUCTWORK

7) INSTALLATION: INSTALL METAL DUCTWORK IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION. F. EQUIPMENT CONNECTIONS:

1) CONNECT METAL DUCTWORK TO EQUIPMENT AS INDICATED, PROVIDE FLEXIBLE CONNECTION FOR EACH DUCTWORK CONNECTION TO EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, AND/OR EQUIPMENT CONTAINING ROTATING MACHINERY. PROVIDE ACCESS DOORS AS REQUIRED

G. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASE CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BELOW 1) UNCONDITIONED SPACES CLASS B CLASS A CLASS C CLASS B

2) CONDITIONED SPACES (PLENUM) CLASS C CLASS B CLASS B CLASS C SUPPLY ≤ 2" W.C. SUPPLY > 2" W.C. EXHAUST/DRYER RETURN

11. FLEXIBLE DUCT: A. ATCO #076 (R-6), OR EQUAL.

B. FACTORY APPLIED INSULATION AND VAPOR BARRIER C. MAXIMUM LENGTH OF 5'-0".

12. FLUES AND ACCESSORIES:

A. FLUE FOR GAS FIRED CONDENSING WATER HEATER OR FURNACE SHALL BE AS RECOMMENDED BY THE GAS APPLIANCE MANUFACTURER. FLUES SHALL BE SCHEDULE 40, PVC OR CPVC PIPE PER THE MANUFACTURERS INSTALLATION REQUIREMENTS. B. PROVIDE MANUFACTURER'S STANDARD ACCESSORY ITEMS INCLUDING BIRD PROOF TOP, STORM COLLAR,

ROOF THIMBLE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. ROOF THIMBLES THROUGH THE BUILDING ROOF SHALL BE SUITABLE FOR USE WITH THE ROOF PROVIDED. 13. EXHAUST FANS:

A. CENTRIFUGAL CEILING EXHAUSTERS SHALL BE ELECTRICALLY POWERED CENTRIFUGAL TYPE FAN SUITABLE FOR MOUNTING IN THE CEILING WITH A PERFORATED OFF-WHITE METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EASY ACCESS TO FAN HOUSING, LINIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACOUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED, WITH THERMAL OVERLOAD PROTECTION. PROVIDE DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.

14. SMOKE DETECTORS: A. UNITS MOUNTED IN THE DUCTWORK SHALL BE A DUCT MOUNTED UL LISTED PHOTO-ELECTRIC SELF-CONTAINED SMOKE DETECTOR WITH HOUSING. UNITS SHALL BE EQUAL TO SIMPLEX #4098-9687. THE SAMPLING TUBE SHALL BE #2098-9804, LENGTH AS REQUIRED FOR DUCT

B. DUCT DETECTOR REMOTE TEST STATION SHALL BE SIMPLEX #4098-9842 WITH REMOTE ALARM INDICATOR, POWER-ON INDICATOR, TONE-ALERT, TONE-ALERT SILENCE SWITCH, AND TEST/RESET SWITCH. 1) DEVICES SHALL BE MOUNTED IN APPROVED LOCATION AS INDICATED ON THE FLOOR PLANS OR AS DIRECTED BY LOCAL AUTHORITY HAVING JURISDICTION.

C. PROVIDE AND INSTALL A PHOTO-ELECTRIC SMOKE DETECTOR IN THE RETURN AIR DUCT FOR EACH HVAC UNIT AS INDICATED ON THE FLOOR PLANS. DETECTORS ARE TO BE PROVIDED WITH A SUB-BASE CONTAINING AUXILIARY RELAY CONTACTS. RELAY CONTACTS SHALL BE WIRED INTO UNIT CONTROL WIRING, SO AS TO SHUT UNIT DOWN IN THE CASE OF SMOKE DETECTION. PROVIDE ALL CONTROL WIRING. ELECTRICAL CONTRACTOR SHALL PROVIDE 120 VOLT POWER TO EACH DETECTOR.

D. SMOKE DETECTORS SHALL BE INTERLOCKED. IN ALARM CONDITION OF A SINGLE DETECTOR ALL UNITS SHALL SHUT DOWN. 15. CONTROL WIRING:

A FLECTRICAL WIRING AND WIRING CONNECTIONS REQUIRED FOR THE INSTALLATION OF THE TEMPERATURE CONTROL SYSTEM. SHALL BE PROVIDED BY THIS CONTRACTOR, UNLESS SPECIFICALLY SHOWN ON THE ELECTRICAL DRAWINGS OR SPECIFICATIONS. B. INSTALL CONTROL WIRING, WITHOUT SPLICES BETWEEN TERMINAL POINTS, COLOR CODED. INSTALL IN NEAT WORKMANLIKE MANNER, SECURELY FASTENED. INSTALL IN ACCORDANCE WITH NATIONAL

ELECTRICAL CODE AND THE ELECTRICAL SPECIFICATIONS. 1) INSTALL CIRCUITS OVER 25 VOLT WITH COLOR CODED NUMBER 12 WIRE. 2) INSTALL CIRCUITS UNDER 25 VOLT WITH COLOR CODED NUMBER 18 WIRE WITH 0.031 INCH HIGH TEMPERATURE 105 DEGREES F PLASTIC INSULATION ON EACH CONDUCTOR AND PLASTIC SHEATH OVER

3) INSTALL ELECTRONIC CIRCUITS WITH COLOR CODED NUMBER 22 WIRE WITH 0.023 INCH POLYETHYLENE INSULATION ON EACH CONDUCTOR WITH PLASTIC JACKETED COPPER SHIELD OVER

4) INSTALL LOW VOLTAGE CIRCUITS, LOCATED IN CONCRETE SLABS AND MASONRY WALLS, OR EXPOSED

IN OCCUPIED AREAS, IN ELECTRIC CONDUIT 5) ALL WIRING IN AREAS USED AS AIR PLENUMS SHALL BE IN ELECTRIC CONDUIT EXCEPT THAT LOW VOLTAGE WIRING MAY BE TEFLON COATED, ALUMINUM SHEATHED CABLE OR OTHER WIRE SPECIFICALLY APPROVED FOR INSTALLATION IN AIR PLENUMS, WHERE ACCEPTABLE BY LOCAL

6) ALL WIRING IN AREAS NOT USED FOR AIR MOVEMENT SHALL BE IN ELECTRIC METALLIC TUBING EXCEPT LOW VOLTAGE WIRING MAY BE IN APPROVED SIGNAL CABLE WHERE ACCEPTED BY LOCAL

C. THERMOSTATIC CONTROLS TO HAVE A 5°F DEADBAND AND SETPOINT OVERLAP RESTRICTIONS. 1) TEMPERATURE CONTROLS SETBACK TO BE 55°F (HEAT) AND 85° (COOL), 2-HOUR OCCUPANT OVERRIDE,

BE ACCEPTABLE. SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN. UNLESS NOTED OTHERWISE 4. MOTORS: A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.

1. GENERAL PROVISIONS:

FROM FINAL ACCEPTANCE.

CONTRACTORS, ETC.

3. MANUFACTURERS:

2. OPERATION AND MAINTENANCE MANUALS:

PLUMBING AND MECHANICAL SYSTEMS OUTLINED.

APPROVAL AS REQUIRED BY THE AUTHORITIES

OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.

ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.

IN THE OPERATION AND MAINTENANCE MANUALS.

5. TESTING, BALANCING, AND CLEANING: A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE

C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS

E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED,

F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS. FLOORS, CEILINGS, AND ROOFS AS

OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED

TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL

NECESSARY, PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING

G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR

WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE

A DURING THE COURSE OF CONSTRUCTION COLLECT AND COMPILE OPERATING INSTRUCTIONS WIRING

B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION

C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A

A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE

INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS

LIMITING COMPETITION ARTICLES FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL

3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER,

DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS,

B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR

D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK

B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS. C. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2

TIMES THE OPERATING PRESSURE BUT NOT LESS THAN 60 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS D. NATURAL GAS PIPING SHALL BE PNEUMATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 50 PSI, FOR A PERIOD OF NOT LESS THAN 2

HOURS, WITH NO LEAKS. E. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED INDEPENDENT BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE CERTIFIED BY THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).

1) BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION OF PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.

2) WITH IN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS; ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELED OR MAY BE AN ELECTRONIC PDF SUBMITTAL. F. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION

SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH HEALTH DEPARTMENT REGULATIONS. THE SYSTEMS SHALL BE THOROUGHLY FLUSHED OF ALL DIRT AND FOREIGN MATTER. THEN FILLED WITH WATER TREATED WITH 50 PPM OF CHLORINE. DURING THE FILLING PROCESS, VALVES AND FAUCETS SHALL BE OPENED SEVERAL TIMES TO ASSURE TREATMENT OF THE ENTIRE SYSTEM. THE TREATED WATER SHALL BE LEFT IN THE SYSTEM FOR 24 HOURS AFTER WHICH TIME THE SYSTEM SHALL BE FLUSHED; IF THE RESIDUAL CHLORINE IS NOT LESS THAN 10 PPM, THE FLUSHING SHALL BE REPEATED. AFTER STERILIZATION, SAMPLES OF WATER IN THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH.

A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.

B. ALL EXPOSED WASTE PIPE SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE. C. PROVIDE CLEANOUTS AT EACH CHANGE OF DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS. D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.

E. CLEANOUTS: 1) VINYL TILE FLOOR: JR SMITH #4140, OR EQUAL. 2) QUARRY TILE FLOOR: JR SMITH #4200, OR EQUAL

3) CARPETED FLOOR: JR SMITH #4020-Y, OR FOLIAL

4) UNFINISHED FLOOR: JR SMITH #4020, OR EQUAL.

5) WALL: JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR. F. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTIONS TO MATCH THE PIPE SYSTEM WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION TANKS.

G. WATER HEATERS: 1) EVERY WATER HEATER SHALL HAVE AN APPROVED MEANS INSTALLED ON THE COLD WATER SUPPLY LINE ABOVE THE EQUIPMENT TO PREVENT SIPHONING OF A STORAGE WATER HEATER OR TANK.

2) BOTTOM FED WATER HEATERS AND TANKS CONNECT TO WATER HEATERS SHALL HAVE A VACCUM RELIEF VALVE INSTALLED. ANSI Z21.22. 3) STORAGE HEATERS OPERATING ABOVE ATMOSPHERIC PRESSURE SHALL HAVE AN APPROVED PRESSURE RELIEF VALVE AND/OR TEMPERATURE RELIEF VALVE.

H. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES. 1) INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL

A. DOMESTIC COLD, HOT, AND HOT WATER RECIRCULATING (ABOVEGROUND).

2) INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL

1) TYPE L HARD DRAWN COPPER TUBING, ASTM B-88. a) WROUGHT COPPER SOLDERED FITTINGS, ASTM B75 ALLOY C12200. ANSI B16.22. MSS SP-104. b) MECHANICAL PRESS COPPER FITTINGS FOR USE IN PLUMBING OR MECHANICAL APPLICATIONS. ASME B16.22,

ASME B16.51, or ASME B16.18. MECHANICAL PRESS COPPER FITTINGS SHALL CONFORM TO IAPMO PS-117 OR 2) PEX, HIGH-DENSITY CROSS-LINKED POLYETHYLENE TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F876 AND MEET THE STANDARD GRADE HYDROSTATIC PRESSURE RATINGS FROM PLASTIC PIPE INSTITUTE IN ACCORDANCE WITH TR-4/03.

a) PEX-A AND PEX-B MEETING ANSI/NSF61 AND ANSI/NSF372 STANDARDS FOR POTABLE WATER SAFETY AND LEAD-FREE STANDARDS AND MUST BE MARKED WITH "PW-G", "NSF-61-G" OR OTHER NSF-APPROVED MARKING. ASTM F2023 FOR USE WITH CHLORINATED WATER. (MUST BE INSTALLED PER THE MANUFACTURERS REQUIREMENTS FOR PLENUM USE)

b) PEX MECHANICAL, CRIMP/INSERT OR EXPANSION FITTINGS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE, INCREASE PEX PIPING SIZE TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER FOR SUPPLY MAINS.

(MUST BE INSTALLED PER THE MANUFACTURERS REQUIREMENTS FOR PLENUM USE) a) TO BE INSTALLED ON THE FIXTURE SUPPLY TO EACH PLUMBING FIXTURE. b) TO BE INSTALLED ON THE WATER SUPPLY SIDE TO EACH APPLIANCE OR MECHANICAL EQUIPMENT.

1. GATE VALVE: JOMAR T/S-301G OR EQUAL. LEAD-FREE NSF 61, ANSI B1.20.1. 2. GLOBE VALVE: JOMAR TGG OR EQUAL 3. BALL VALVE: JOMAR JP100PxP OR EQUAL COMPACT LEAD FREE BRASS BALL VALVE.

(MUST BE INSTALLED PER THE MANUFACTURERS REQUIREMENTS FOR PLENUM USE)

UL842, CSA 3371-12 & 3371-92, FM, CALIFORNIA CODE AB1953, NSF61 ANNEX G APPROVED. 4. BALL VALVE: JOMAR T-100NE OR EQUAL. UL842, FM, CSA, NSF 61-8, MSS SP-110 B. DOMESTIC COLD, AND HOT WATER (UNDERGROUND).

a) WROUGHT COPPER SOLDERED FITTINGS, ASTM B75 ALLOY C12200. ANSI B16.22. MSS SP-104. b) MECHANICAL PRESS COPPER FITTINGS FOR USE IN PLUMBING OR MECHANICAL APPLICATIONS. ASME B16.22, ASME B16.51, or ASME B16.18. MECHANICAL PRESS COPPER FITTINGS SHALL CONFORM TO IAPMO PS-117 OR ASMF B16 51

2) PEX, HIGH-DENSITY CROSS-LINKED POLYETHYLENE TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F876 AND MEET THE STANDARD GRADE HYDROSTATIC PRESSURE RATINGS FROM PLASTIC PIPE INSTITUTE IN ACCORDANCE WITH TR-4/03.

a) PEX-A AND PEX-B MEETING ANSI/NSF61 AND ANSI/NSF372 STANDARDS FOR POTABLE WATER SAFETY AND I FAD-FREE STANDARDS AND MUST BE MARKED WITH "PW-G". "NSF-61-G" OR OTHER NSF-APPROVED MARKING, ASTM F2023 FOR USE WITH CHLORINATED WATER

b) PEX MECHANICAL, CRIMP/INSERT OR EXPANSION FITTINGS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE, INCREASE PEX PIPING SIZE TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER FOR SUPPLY MAINS. c) HDPE, PIGMENTED BLUE THROUGHOUT, CTS SIZES 1"-2" AWWA C901 4710 DR9 PC250

IPS SIZES 2"-3", AWWA C901 4710 DR11 PC200. C. LEAD CONTENT OF WATER SUPPLY PIPE AND FITTINGS:

1) TYPE L HARD DRAWN COPPER TUBING, ASTM B-88.

1) PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, UTILIZED IN THE WATER SUPPLY SYSTEM SHALL NOT HAVE MORE THAN 8% LEAD 2) PIPE, PIPE FITTINGS, JOINTS, VALVES, FAUCETS, AND FIXTURE FITINGS UTILIZED TO SUPPLY WATER FOR DRINKING OR COOKING PURPOSES

SHALL COMPLY WITH NSF 372 AND SHALL HAVE A WEIGHTED AVERAGE LEAD CONTENT OF 0.25% OR LESS. D. SANITARY SEWER, AND VENTS. (UNDERGROUND, INTERIOR TO THE BUILDING).

ABS PIPE AND FITTINGS: ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS, INCLUDE MARKING WITH "NSE-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSE-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL ABS PIPE: ASTM D 2661, SCHEDULE 40. ABS SOCKET FITTINGS: ASTM D 2661, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS SOLVENT CEMENT: ASTM D 2235.

PVC PIPE AND FITTINGS: PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE: ASTM D 2665, DRAIN, WASTE, AND VENT. PVC SOCKET FITTINGS: ASTM D 2665, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER: ASTM F 656. SOLVENT CEMENT: ASTM D 2564.

10. DUCTWORK

PRESSURE

1) RECTANGULAR DUCT

TURNING VANES.

2) ROUND AND OVAL SPIRAL SEAM DUCT:

ARE INDICATED PROVIDE CONICAL TYPE TEES

WELDED AND BONDED TO DUCT FITTING BODY

a) ALL BLACK STEEL GAS PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE PRIMED AND PAINTED TO EITHER MATCH ADJACENT EXTERIOR WHERE LOCATED ON OR NEAR EXTERIOR WALL AND PAINTED SAFETY YELLOW WHERE

MECHANICAL SPECIFICATIONS (CONTINUED)

ABS PIPE AND FITTINGS: ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC

SOLID-WALLARS PIPE: ASTM D 2661, SCHEDULE 40, CELLULAR-CORE ABS PIPE: ASTM F 628, SCHEDULE 40, ABS SOCKET FITTINGS: ASTM D 2661, MADE TO ASTM

PIPING COMPONENTS, INCLUDE MARKING WITH "NSE-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSE-SEWER" FOR PLASTIC SEWER PIPING

PVC PIPE AND FITTINGS: PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR

TO ASTM A 888 AND CISPI STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310 AND BE CERTIFIED BY NSF® INTERNATIONAL.

PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER

PIPING SOLID-WALL PVC PIPE ASTM D 2665 DRAIN CELLULAR-CORE PVC PIPE ASTM E 891 SCHEDULE 40 WASTE AND VENT PVC SOCKET FITTINGS ASTM D

2665, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER: ASTM F 656. SOLVENT CEMENT: ASTM D 2564.

HUBLESS CAST IRON SOIL PIPE AND FITTINGS: HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM

HUB AND SPIGOT CAST IRON SOIL PIPE AND FITTINGS: HUB AND SPIGOT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND

H. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR ELCEN. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.

1) PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION

D 3311, DRAIN, WASTE, AND VENT PATTERNS. SOLVENT CEMENT: ASTM D 2235.

1) POLYVINYLCHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT (INDIRECT WASTE).

b) PIPE 4" AND SMALLER; VIEGA MEGAPRESS G FOR WATER AND GAS. CSA LC4, TSSA/ASME B31

e) BALL VALVE: JOMAR T-100NE. APPROVALS- UL842, FM, CSA, NSF 61-8, MSS SP-110

E. SANITARY SEWER, AND VENTS.

(ABOVE GROUND, INTERIOR TO THE BUILDING)

NOT FOR USE IN A RETURN AIR PLENUM)

(NOT FOR USE IN A RETURN AIR PLENUM)

2) DWV, WROUGHT COPPER, ANSI B-16.29 (WATER HEATER T&P).

FOR USE WITH ASTM A53 SCHEDULE 40 BLACK IRON PIPE.

d) PLUG VALVE: ROCKWELL NORDSTROM FIGURE NO. 142 OR 143.

a) PIPE 3" AND SMALLER; 150 LB. MALLEABLE IRON. THREADED FITTINGS.

SHALL CONFORM TO ASTM A 74.

1) BLACK STEEL PIPE, SCHEDULE 40, ASTM A53.

c) PIPE 2-1/2" AND LARGER, WELDED

GAS PIPING PAINTING

F. INDIRECT WASTE (ABOVEGROUND).

G. NATURAL GAS.

2) INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT 3) ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.

4) PROTECTION AGAINST CONTACT: METALLIC PIPING, EXCEPT FOR CAST IRON, DUCTILE IRON AND GALVANIZED STEEL SHALL NOT BE PLACED IN DIRECT CONTACT WITH STEEL FRAMING MEMBERS, CONCRETE, OR CINDER WALLS AND FLOORS OR OTHER MASONRY. METALLIC PIPING SHALL NOT BE PLACED IN DIRECT CONTACT WITH CORROSIVE SOIL. SHEATHING USED TO PREVENT DIRECT CONTACT SHALL HAVE A THICKNESS OF GREATER THAN .008: AND THE SHEATHING SHALL BE MADE OF PLASTIC. ANY PIPE THAT PASSES THROUGH A FOUNDATION WALL OR FOOTING SHALL BE PROVIDED WITH A RELIEVING ARCH, OR A PIPE SLEEVE SHALL BE BUILT INTO THE FOUNDATION WALL. THE SLEEVE SHALL BE TWO SIZES GREATER THAN THE PIPE PASSING THOUGH THE WALL OR FOOTING.

5) PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.

J. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS 8. WATER HEATERS A. COMMERCIAL, HIGH EFFICIENCY, DIRECT-VENT, GAS-FIRED, STORAGE, DOMESTIC-WATER

d. INSULATION: COMPLY WITH ASHRAE/IES 90.1

1. STANDARD: ANSI Z21.10.3/CSA4.3. 2 DESCRIPTION: MANUFACTURER'S PROPRIETARY DESIGN TO PROVIDE AT LEAST 95 PERCENT

COMBUSTION EFFICIENCY AT OPTIMUM OPERATING CONDITIONS.STORAGE-TANK CONSTRUCTION: a. PRESSURE RATING: 150 PSIG. b. INTERIOR FINISH: COMPLY WITH NSF 61 AND NSF 372 BARRIER MATERIALS FOR POTABLE-WATER TANK LININGS, INCLUDING EXTENDING LINING MATERIAL INTO TAPPINGS.

FACTORY-INSTALLED STORAGE-TANK APPURTENANCES: a. ANODE ROD: REPLACEABLE MAGNESIUM. b. DIP TUBE: REQUIRED UNLESS COLD-WATER INLET IS NEAR BOTTOM OF TANK. c. DRAIN VALVE: CORROSION-RESISTANT METAL WITH HOSE-END CONNECTION.

e. JACKET: STEEL WITH ENAMELED FINISH. f. HEAT-TRAP FITTINGS: INLET TYPE IN COLD-WATER INLET AND OUTLET TYPE IN HOT-WATER

g. BURNER: FOR USE WITH DIRECT-VENT, GAS-FIRED, DOMESTIC-WATER HEATERS AND NATURAL-GAS FUEL h. IGNITION: STANDING PILOT OR ANSI Z21.20/CSA C22.2 NO. 60730-2-5, ELECTRIC, AUTOMATIC. GAS-IGNITION SYSTEM

. TEMPERATURE CONTROL: ADJUSTABLE THERMOSTAT. . COMBINATION TEMPERATURE-AND-PRESSURE RELIEF VALVE: ANSI RELIEVING CAPACITY AT LEAST AS GREAT AS HEAT INPUT, AND INCLUDE PRESSURE SETTING LESS THAN WORKING-PRESSURE RATING OF DOMESTIC-WATER HEATER. SELECT

RELIFE VALVE WITH SENSING FLEMENT THAT EXTENDS INTO STORAGE TANK 4 DIRECT-VENT SYSTEM: THROUGH- ROOF OR WALL COAXIAL- OR DOUBLE-CHANNEL VENT ASSEMBLY WITH DOMESTIC-WATER HEATER MANUFACTURERS' OUTSIDE INTAKE/EXHAUST

1. DESCRIPTION: STEEL, PRESSURE-RATED TANK CONSTRUCTED WITH WELDED JOINTS AND FACTORY-INSTALLED, BUTYL-RUBBER DIAPHRAGM. INCLUDE AIR PRECHARGE TO MINIMUM SYSTEM-OPERATING PRESSURE AT TANK. 2. CONSTRUCTION:

a. TAPPINGS: FACTORY-FABRICATED STEEL, WELDED TO TANK BEFORE TESTING AND LABELING. INCLUDE ASME B1.20.1 PIPE THREAD b. INTERIOR FINISH: COMPLY WITH NSF 61 AND NSF 372 BARRIER MATERIALS FOR POTABLE-WATER TANK LININGS, INCLUDING EXTENDING FINISH INTO AND THROUGH TANK FITTINGS AND OUTLETS.

c. AIR-CHARGING VALVE: FACTORY INSTALLED. 3. CAPACITY AND CHARACTERISTICS: a. WORKING-PRESSURE RATING: 150 PSIG .

B. DOMESTIC-WATER EXPANSION TANKS:

9. INSULATION AND DUCT LINING: A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPED RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.

B. PIPE INSULATION - ABOVE GRADE 1) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 Btu PER in/hr\*sqft\*F° OR LESS. 2) FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOLDED PVC FITTING

COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. 3) FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP

4) FOR NON CIRCULATING SYSTEMS, THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND THE HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED. 5) FOR CIRCULATING SYSTEMS, ALL HOT WATER PIPING IN THE CIRCULATION LOOP MUST BE INSULATED AS SPECIFIED BELOW.

6) INSULATION SCHEDULE: a) DOMESTIC COLD WATER 1" FOR PIPING UP TO 1-1/4"Ø, & 1-1/2" FOR PIPING 1-1/2"Ø AND LARGER b) DOMESTIC HOT WATER c) HOT WATER RECIRCULATING

C. PIPE INSULATION - BELOW GRADE: 1) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 Btu PER in/hr\*sqft\*F° OR LESS. 2) FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO KFLEX INSUL-TUBE OR EQUAL RATED FOR UNDERGROUND INSTALLATION ABOVE THE WATER TABLE

OVER PIPING WITH A CLEAN FILL SUCH AS SAND (3"-5" LAYER) TO PROTECT INSULATION FROM COMPACTION. 3) PRE-INSULATED PIPE SYSTEMS WITH CLOSED CELL PEX-FOAM INSULATION AND COVERED BY A WATERPROOF CORRUGATED HDPE JACKET. UPONOR ECOFLEX OR EQUAL. ASTM F876, F877, CSA B137.5

4) INSULATION SCHEDULE a) DOMESTIC HOT WATER

1) FLEXIBLE FIBERGLASS: GLASS FIBER INSULATION, ASTM C 553, TYPE 1, CLASS B-4, SEMI-RIGID BOARD, WITH FACTORY LAMINATED KRAFT ALUMINUM FOIL (ALL SERVICE JACKET), VAPOR BARRIER, OWENS/CORNING PIPE AND TANK INSULATION. E. DUCTWORK: ACOUSTICAL INSULATION

1) DUCT LINING: 2 LB/CF, THICKNESS AS SCHEDULED, AIR STREAM SIDE COATED, INSTALL PER SMACNA STANDARDS. a) DUCT LINING SCHEDULE: (1) RECTANGULAR SUPPLY DUCT 1/2" : THROUGHOUT THE FIRST 10 FEET OF DUCT. (2) RETURN AIR DUCT 1/2" : THROUGHOUT THE FIRST 10 FEET OF DUCT.

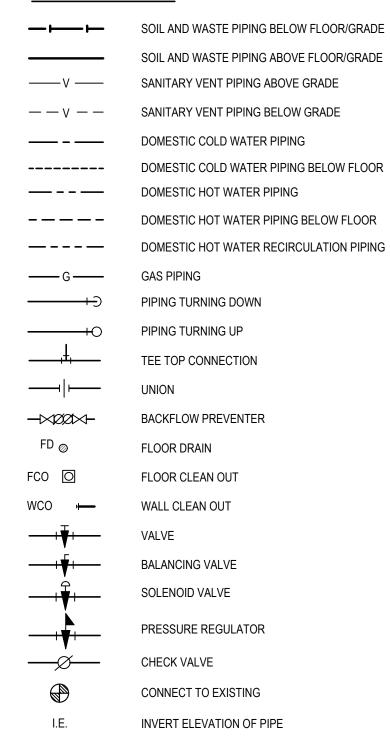
F. DUCTWORK: THERMAL INSULATION. 1) DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING, THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

a) DUCT COVERING SCHEDULE: MINIMUM R-6 (1) ROUND SUPPLY DUCT 2" (WHERE CONCEALED BY CEILING) (2) RECTANGULAR SUPPLY DUCT 2" (WHERE CONCEALED BY CEILING) (3) OUTDOOR AIR

### PLUMBING GENERAL NOTES:

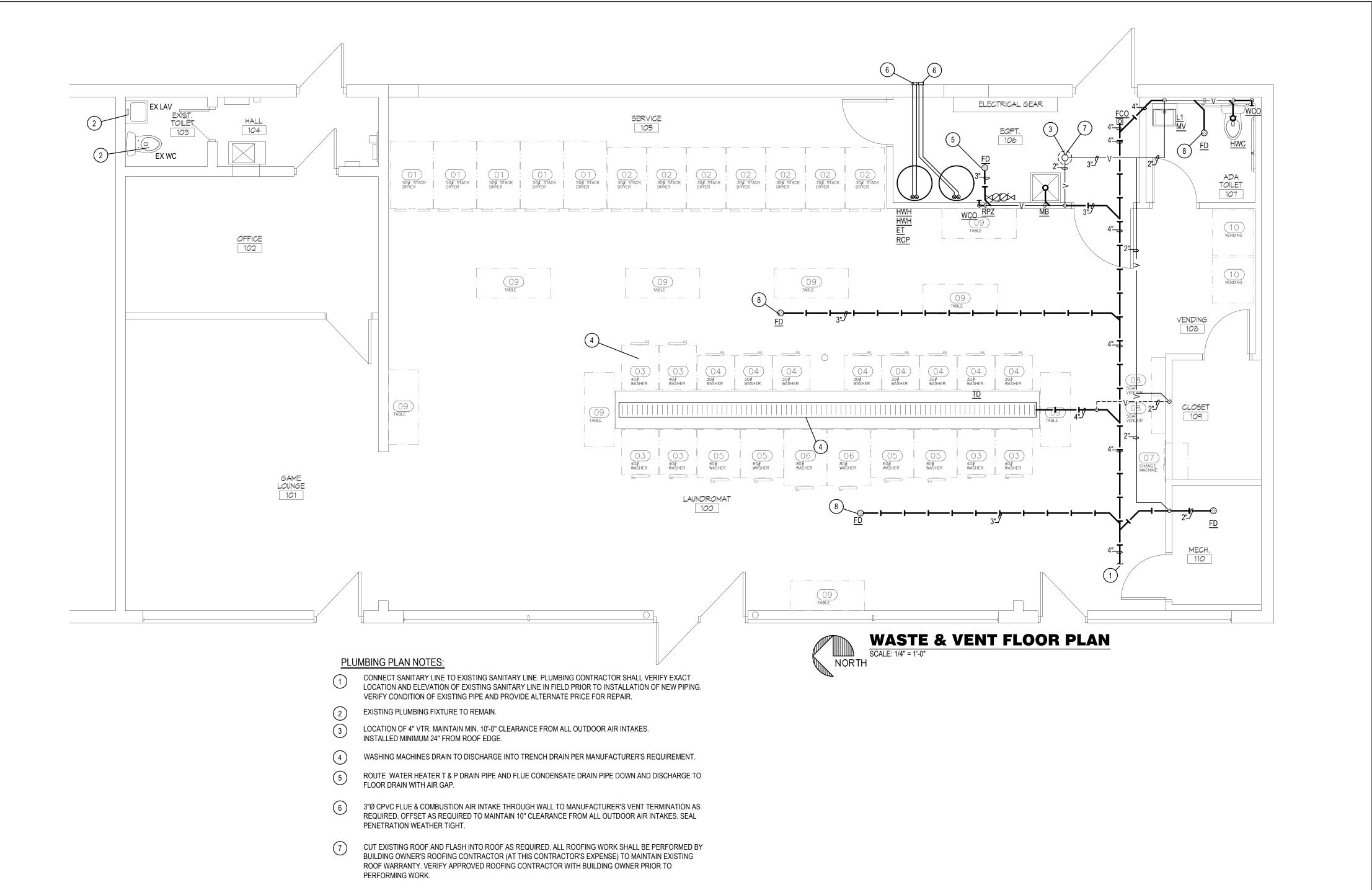
- 1. INSTALL ALL PIPE, ETC. AS HIGH AS POSSIBLE.
- 2. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- 3. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING PIPING, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
- 4. SAWCUT EXISTING FLOOR AS REQUIRED FOR INSTALLATION OF UNDERFLOOR PIPING. PATCH FLOOR TO MATCH EXISTING.
- 5. NO PIPING SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- 6. ALL MATERIALS WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
- 7. CONTRACTOR TO TEST WATER PRESSURE ON SITE AND PROVIDE PRESSURE REDUCING VALVE ON WATER SERVICE IF PRESSURE IS OVER 80 PSI.

### PLUMBING SYMBOLS



MATCH MARKS ON PLUMBING RISER

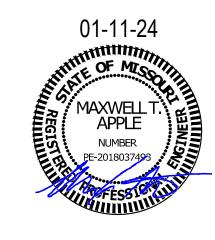
DIAGRAM



PROVIDE TRAP SEAL ON FLOOR DRAINS SUSCEPTIBLE TO DRYING OUT.

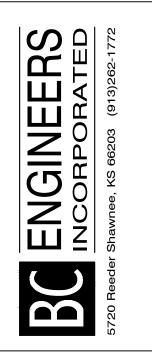
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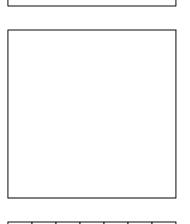


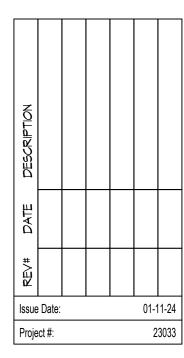




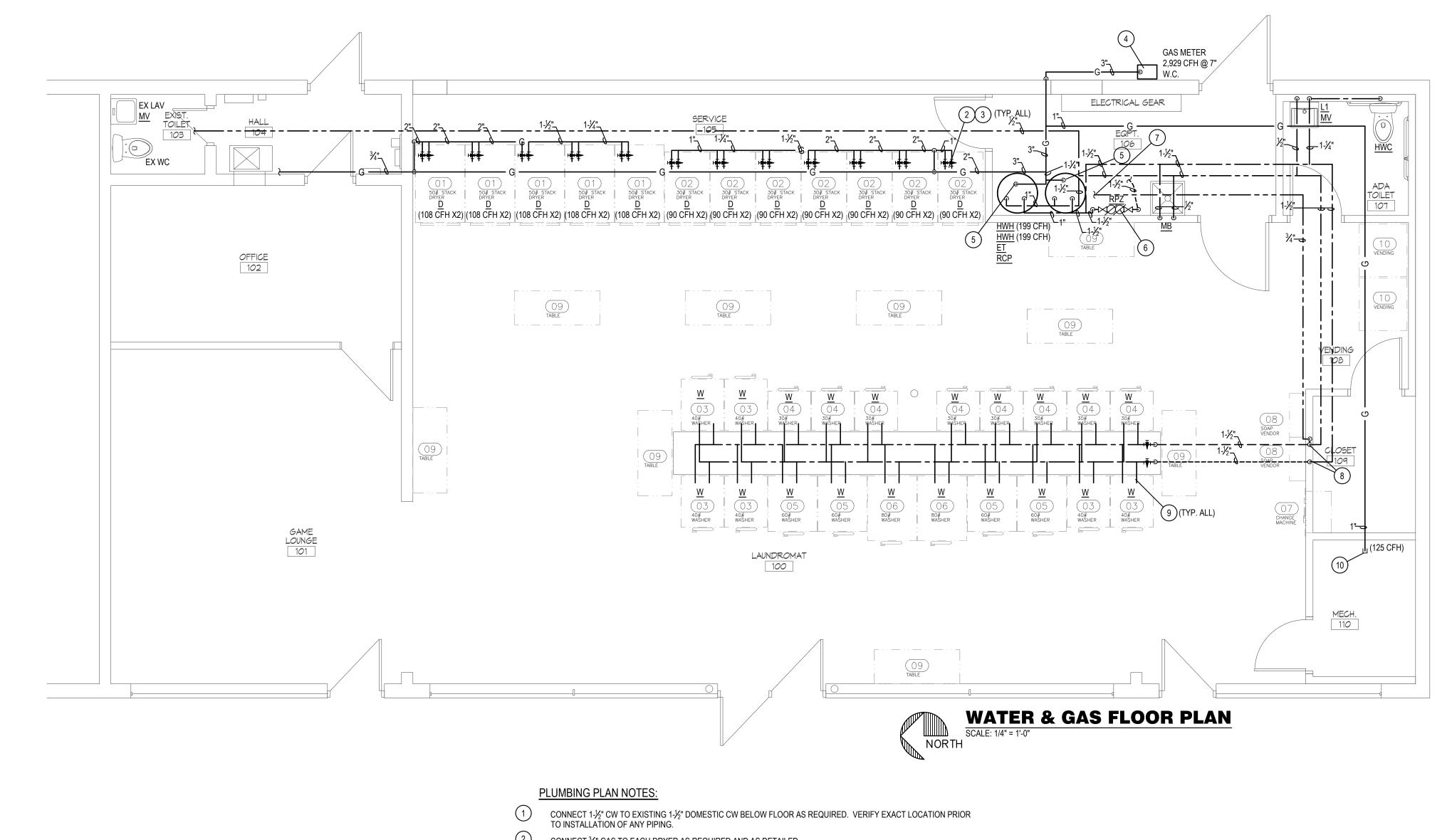
PLAZA 404 Southwest Nichols Street Lees Summit Missouri, 64063

Clean





WASTE & VENT FLOOR PLAN



- 2 CONNECT 3/4" GAS TO EACH DRYER AS REQUIRED AND AS DETAILED.
- 3 ALL APPLIANCE CONNECTIONS SHALL BE MADE WITH UL LISTED FLEXIBLE APPLIANCE CONNECTOR. FLEX CONNECTORS SHALL BE PROVIDED BY TENANT. CONTRACTOR SHALL PROVIDE SAFETY LOCK AND CHAIN AT ALL GAS APPLIANCES ON WHEELS. PROVIDE
- PIPING REDUCERS AND INCREASERS AS REQUIRED TO MATE HARD PIPING WITH FLEX CONNECTORS.
- COORDINATE WITH GAS COMPANY FOR EXISTING METER TO HAVE CAPACITY FOR 2,929 CFH @ 7" W.C.
- CONNECT 1" GAS PIPE TO WATER HEATER AS REQUIRED AND AS DETAILED.
  - PROVIDE 1-½" RPZ BACKFLOW PREVENTER AND INSTALL 24" A.F.F. & 6" FROM WALL. ROUTE DRAIN FROM RPZ BFP TO FLOOR DRAIN WITH AN AIR GAP.
- 7 CONNECT HOT WATER RECIRC. PIPING BACK TO WATER HEATER AS REQUIRED. REFER TO RISER DIAGRAM FOR DETAILS.
  - DETAILS.
- 8 1-1/2" HOT AND COLD WATER ROUTED DOWN TO UNDER FLOOR WITH SHUT OFF VALVES.
  - CONNECT  $\frac{3}{4}$ " CW & HW TO WASHERS AS REQUIRED BY MANUFACTURER. REFER TO DOMESTIC WATER RISER DIAGRAM FOR MORE INFORMATION.
- (10) CAP GAS PIPE FOR FUTURE CONNECTION BY TENANT AS REQUIRED.

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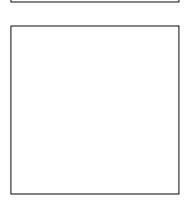


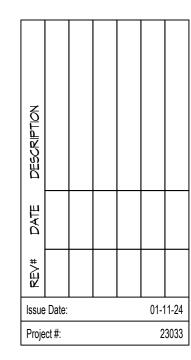




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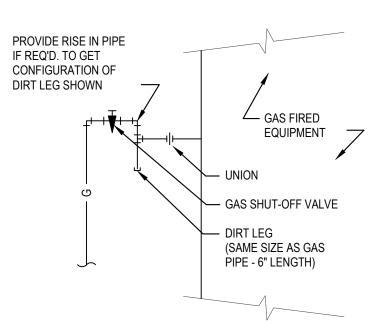
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WATER & GAS FLOOR PLAN

P2



**GAS CONNECTION DETAIL** SCALE: NONE

### PEX PIPING REQUIREMENTS

PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE. IF PEX PIPING IS USED, INCREASE PEX PIPING ONE SIZE ABOVE LISTED SIZES AS REQUIRED TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER.

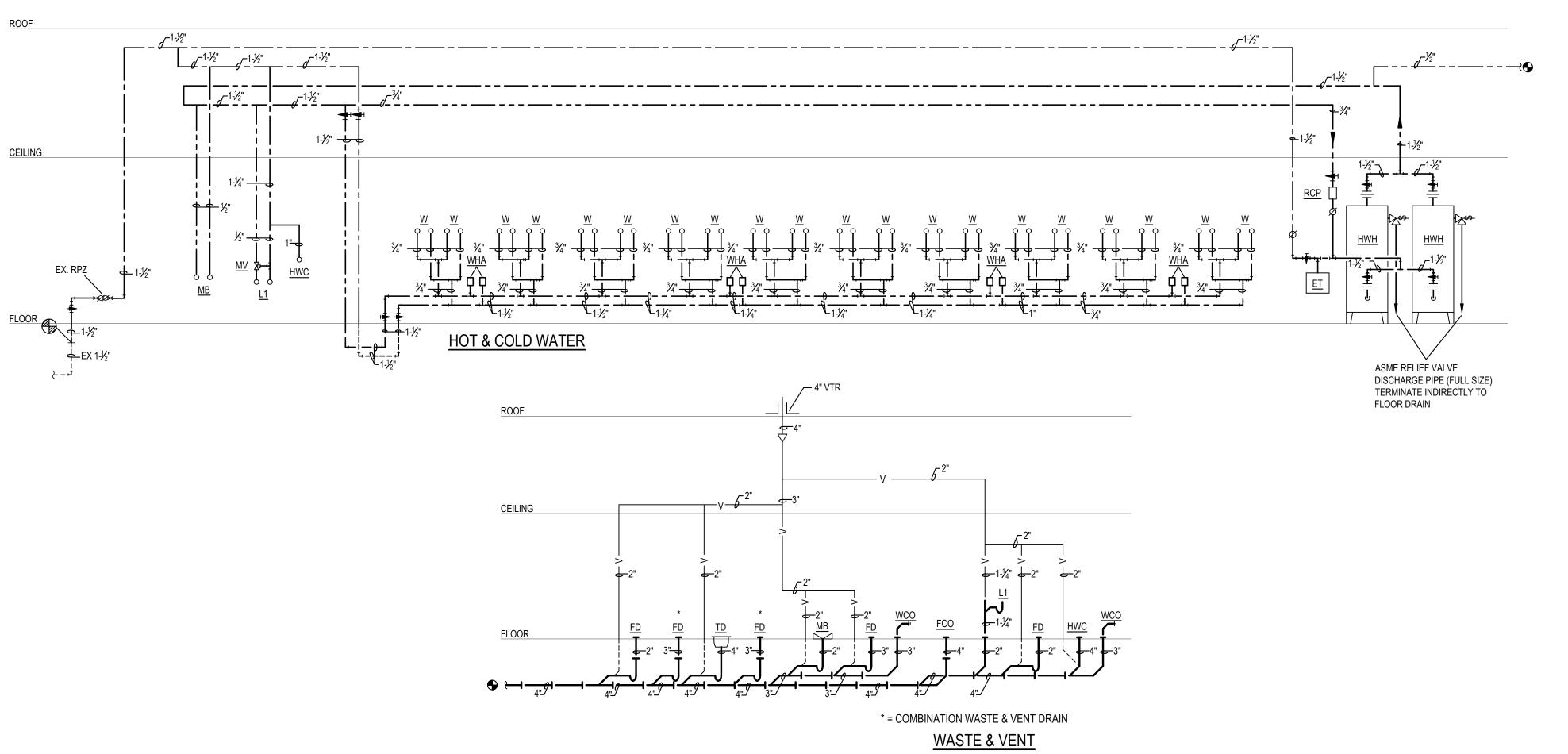
PLUMBING FIXTURE BRANCH PI	PING SO	CHEDUI	_E	
FIXTURE	WASTE	VENT	CW	HW
WATER CLOSET (FLUSH VALVE)	4"	2"	1"	-
LAVATORY	1-1/4"	1-1/4"	1/2"	1/2"
FLOOR DRAIN	2"/3"	2"		
MOP BASIN	2"	2"	1/2"	1/2"

NOTE: INDIVIDUAL VENTS FOR FIXTURES ON PLANS AND RISER DIAGRAMS HAVE BEEN INCREASED WHERE HORIZONTAL VENT LENGTH IS IN EXCESS OF THE MAXIMUM DISTANCE INDICATED BY THE CODE.

PIPE HANGER SCHEDULE									
PIPE MATERIAL	MAXIMUM HANGER SPACING	HANGER ROD DIAMETER							
ABS (All sizes)	4'	3/8"							
PVC (All Sizes)	4'	3/8"							
CPVC, 1 inch and smaller	<b>3</b> '	1/2"							
CPVC, 1-1/4 inches and larger	4'	1/2"							
Cast Iron (All Sizes)	5'	5/8"							
Cast Iron (All Sizes) with 10 foot length of pipe	10'	5/8"							
Copper Tube, 1-1/4 inches and smaller	6'	1/2"							
Copper Tube, 1-1/2 inches and larger	10'	1/2"							
Steel, 3 inches and smaller	12'	1/2"							
Steel, 4 inches and larger	12'	5/8"							
Pex, 1" and below without support channel	32"	3/8"							
Pex, 1-1/4" and above without support channel	48"	3/8"							
Pex ¾" and below with support channel	6'	3/8"							
Pex 1" and above with support channel	ව'	3/8"							

### PLUMBING FIXTURE SCHEDULE: (OR EQUAL)

- MOP BASIN: FIAT, #MSB-2424, MOLDED STONE MOP BASIN, 2" DRAIN, 24"x 24" BASIN, VINYL BUMPER GUARD, STERN WILLIAMS #T-10-VB FAUCET, SPRING CHECKS, VACUUM BREAKER, INTEGRAL STOPS, WALL BRACE & PAIL HOOK, WALL BRACKET WITH 30" HOSE.
- FLOOR DRAIN: SIOUX CHIEF, #842, PVC FLOOR DRAIN WITH ADJUSTABLE TOP AND CAST BRASS STRAINER.
- TRENCH DRAIN: ZURN #Z-886-CG-GL, HEAVY DUTY .75% PRE-SLOPED FIBERGLASS TRENCH DRAIN, 10 FOOT LENGTH, 12" WIDE.
- MIXING VALVE: WATTS, #LFMMV THERMOSTATIC CONTROLLED MIXING VALVE,LEAD FREE BRONZE BODY, LOCKED TEMPERATURE ADJUSTMENT CAP (VANDAL RESISTANT), SOLID WAX HYDRAULIC PRINCIPLE THERMOSTAT, INTEGRAL FILTER WASHERS AND CHECK VALVES ON HOT AND COLD INLETS.(SET TO 110°F) ASSE #1017,#1069,#1070
- HOT WATER HEATER: AO SMITH, #BTH-199, GAS FIRED, CONDENSING TYPE, 100 GALLON STORAGE, 199 MBTUH INPUT, 234 GPH RECOVERY AT 100 DEGREES F RISE, MAIN & PILOT AUTOMATIC GAS VALVES, 120 VOLT, TEMPERATURE AND PRESSURE RELIEF VALVE. SET TEMPERATURE TO 130°F.
- HOT WATER EXPANSION TANK: AMTROL, #ST-12, 4.4 GALLON EXPANSION TANK WITH DIAPHRAGM.
- HOT WATER RE-CIRCULATING PUMP: BELL & GOSSETT, #SERIES NBF-22, BRONZE FITTINGS, 5 GPM @ 10 FT. HEAD, 1/12 HP, 120 VOLT, 120 DEG. F TEMP, WITH HONEYWELL 16006C AQUASTAT AND TC-1 TIMER KIT, 3/4" PIPE, 120°-125°F.
- WATER HAMMER ARRESTOR: JR SMITH 'HYDROTROL' #5000 LEAD-FREE WATER HAMMER ARRESTOR, SIZED AS PER MANUFACTURER'S RECOMMENDATIONS.
- WASHER: PROVIDED BY OWNER, INSTALLED BY GC. PROVIDE VALVE, HOT WATER, COLD WATER AND WASTE PIPE FOR COMPLETE INSTALLATION.
- DRYER: PROVIDED BY OWNER, INSTALLED BY GC. PROVIDE VALVE & PIPING FOR COMPLETE INSTALLATION.
- VINYL TILE FLOOR: JR SMITH #4140, OR EQUAL. QUARRY TILE FLOOR: JR SMITH #4200, OR EQUAL. CARPETED
- FLOOR: JR SMITH #4020-Y, OR EQUAL. UNFINISHED FLOOR: JR SMITH #4020, OR EQUAL. WALL: JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.
- WATER CLOSET (HANDICAPPED): TOTO, #CT705ULNX, VITREOUS CHINA, FLOOR MOUNTED, FLOOR OUTLET, 17-1/2" HIGH ELONGATED BOWL, SIPHON JET ACTION, #TMT1LN32#CP FLUSH VALVE, 1.28 GAL/FLUSH, #SC534 WHITE OPEN FRONT ELONGATED SEAT WITH CHECK HINGE. HANDLE ON WIDE SIDE OF FIXTURE.
- HANDICAP LAVATORY, WALL HUNG: TOTO #LT307, 20"x 18", VITREOUS CHINA, FRONT OVERFLOW, DELTA #501 FAUCET WITH SINGLE METAL LEVER FAUCET, OFFSET GRID ELBOW DRAIN AND 1-1/4" TAILPIECE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT (MOUNTED PARALLEL WITH WALL), CHROME PLATED LOOSE KEY ANGLE STOPS AND RISERS, FLOOR MOUNTED CONCEALED ARM LAVATORY SUPPORT, INSULATE EXPOSED DRAIN, WATER SUPPLIES, AND VALVES WITH PROWRAP SEAMLESS MOLDED CLOSED CELL VINYL INSULATION.



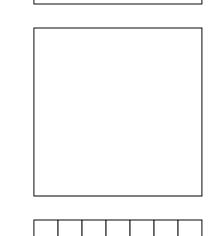
### **PLUMBING RISER DIAGRAMS**

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GUY GRONBER ARCHITECTS, P





DESCRIPTION				
DATE				
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Issue	Date:		01-1	1
Proje	ct #:		2	3

PLUMBING SCHEDULES & DETAILS

**P3** 

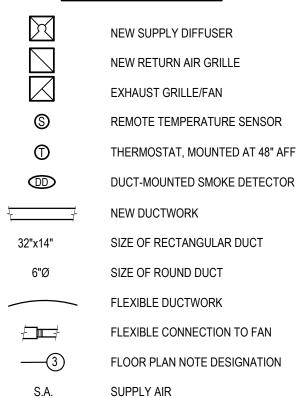
### MECHANICAL GENERAL NOTES:

- 1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES
- 2. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER
- 3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS.
- 4. INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.

INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.

- 5. DUCT SIZES SHOWN ARE ACTUAL SHEET METAL SIZES AND INCLUDE AN ALLOWANCE FOR DUCT LINER WHERE APPLICABLE.
- 6. PROVIDE FLEXIBLE CONNECTION BETWEEN DUCTWORK AND ROOFTOP UNITS, EXHAUST FANS, AND OTHER MOTORIZED EQUIPMENT.
- 7. NO DUCT SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- 8. ALL MATERIALS WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
- 9. ALL MECHANICAL SYSTEMS SHALL BE BALANCED BY A CERTIFIED BALANCING CONTRACTOR. REFER TO SPECIFICATIONS FOR DETAILS.

### MECHANICAL SYMBOLS



EXH. EXHAUST AIR

TRANSITION IN DUCT SIZE

ELBOW WITH TURNING VANES

MANUAL VOLUME DAMPER

MANUAL VOLUME DAMPER

RETURN AIR

SUPPLY AIR DUCT UP/DOWN

RETURN AIR DUCT UP/DOWN

EXHAUST AIR DUCT UP/DOWN

CHANGE IN ELEVATION UP (UP) DOWN (DN) IN DIRECTION OF FLOW

RTU-1 SCHEDULED MECHANICAL EQUIPMENT

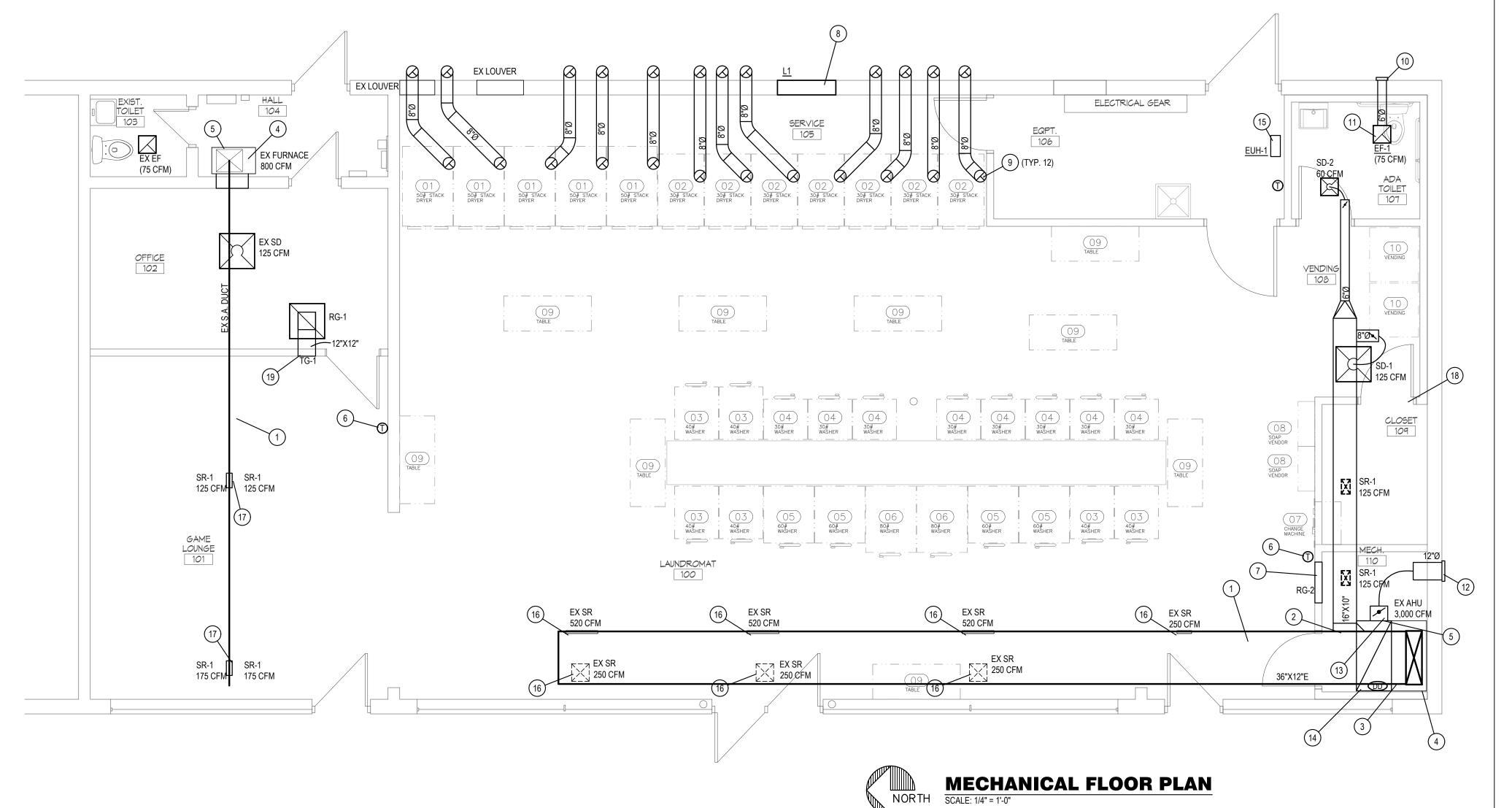
EXIST'G DUCT TO REMAIN

EXIST'G DUCT TO BE REMOVED

EXISTING FLEXIBLE DUCTWORK

32"x14"E SIZE OF EXISTING DUCT

EXISTING SUPPLY DIFFUSER



### MECHANICAL PLAN NOTES:

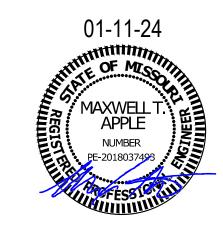
- EXISTING SUPPLY MAIN DUCTWORK TO REMAIN. FIELD VERIFY ALL EXISTING CONDITION PRIOR TO BEGINNING OF NEW
- 2 CONNECT SUPPLY DUCTWORK TO EXISTING MAIN SUPPLY DUCTWORK.
- CONNECT FULL SIZE RETURN DUCTWORK TO EXISTING AHU AS REQUIRED. FIELD VERIFY EXACT SIZE AND LOCATION PRIOR TO INSTALLATION OF DUCT WORK. TURN DUCTWORK UP TO 4'-0" AFF.
- EXISTING HVAC EQUIPMENT TO REMAIN AS IS. VERIFY PROPER WORKING ORDER. COORDINATE WITH OWNER TO PROVIDE PREVENTIVE MAINTENANCE.
- BALANCE OUTDOOR AIR TO VALUE LISTED IN OUTDOOR AIR CALCULATION ON SHEET M2.
- 6 RELOCATE & REINSTALL THERMOSTAT AT LOCATION SHOWN. MOUNT THERMOSTAT 48" ABOVE FINISHED FLOOR. PROVIDE NEW THERMOSTAT IF NONE ARE PRESENT.
- 7 INSTALL BOTTOM OF RETURN GRILLE AT 6'-0" AFF AS REQUIRED.
- (8) INSTALL TOP OF LOUVER AT 7'-0"A.F.F., COORDINATE MOUNTING WITH ARCH.
- 9 CONNECT DRYER DUCT AS REQUIRED BY THE MANUFACTURER. ROUTE DRYER DUCT THROUGH SIDEWALL AND TURN DOWN 90° AS REQUIRED. SEAL PENETRATION WEATHER TIGHT. MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES
- PROVIDE WALL VENT CAP WITH BACKDRAFT DAMPER FOR EXHAUST FAN. SEAL PENETRATIONS WEATHERTIGHT.
- SUPPORT FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- PROVIDE WALL VENT CAP FOR OUTDOOR INTAKE WITH BIRD SCREEN. SEAL PENETRATIONS WEATHERTIGHT.
- (13) CONNECT 12"Ø OUTDOOR AIR DUCT WITH BALANCING DAMPER TO RETURN AIR DUCT. REFER TO OUTDOOR AIR CALCULATIONS FOR MINIMUM OUTDOOR AIR VOLUME.
- LOCATION OF DUCT MOUNTED SMOKE DETECTOR. PROVIDE REMOTE ENUNCIATOR AUDIO/VISUAL. VERIFY LOCATION WITH FIRE MARSHAL PRIOR TO INSTALLATION. REFER TO SPEC SHEET MP0 FOR ADDITIONAL INFORMATION.
- SUPPORT UNIT FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- (16) EXISTING SUPPLY GRILLE TO REMAIN AS IS. CLEAN AND MAKE LIKE NEW. BALANCE TO AIRFLOW LISTED.
- install new supply grille on existing ductwork as required. Field verify exact location prior to installation of grille.
- (18) COORDINATE WITH G.C. TO UNDERCUT DOOR FOR PROPER TRANSFER AIR PATH.
- (19) INSTALL BOTTOM OF RETURN GRILLE AT 7'-6" AFF AS REQUIRED.

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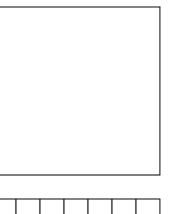
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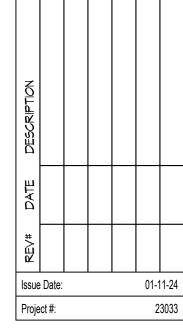


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MECHANICAL FLOOR PLAN

	AIR HANDLING UNIT SCHEDULE												
					CC	OLING			G (ELECTRIC)	ELECTRIC	AL	OUTSIDE	
MARK	MFGR	MODEL NO.	CFM	E.S.P. IN. WG.	TOTAL BTUH	AMB.	EVAP. EAT	`	ISTANCE)	VOLT/Ø/HZ	HP	AIR (CFM)	NOTES
				IIV. VVO.			DB/WB	KW	STAGES				
AHU-1	DAIKIN	DAX090	3,000	0.8	90,000	95	80/67	30	2	208/3/60	2	500	1

NOTES: 1. UNIT IS EXISTING TO REMAIN. VERIFY PROPER WORKING ORDER.

ALL EXISTING HVAC UNITS SHOULD HAVE A PREVENTATIVE MAINTENANCE CHECK-UP TO INCLUDE THE FOLLOWING CRITERIA

1. CHANGE ALL FILTERS.

CLEAN ALL CONDENSATE DRAIN PANS AND FLUSH ALL CONDENSATE DRAIN LINES.
 CLEAN ALL EVAPORATOR AND CONDENSER COILS WITH A NON-ACID CLEANER.

4. CHECK REFRIGERANT CHARGE (GUAGES OR RETURN/SUPPLY TEMPERATURE VARIANCE).

5. PROVIDE COMPLETE LUBRICATION OF ALL SHAFTS AND BEARINGS THAT HAVE LUBRICATION ZERKS.

6. THE REPLACEMENT OF ALL BELTS, HOSES AND FABRIC/RUBBER COATED ITEMS THAT ARE SUBJECT TO WEAR.7. CHECK AMPS OF THE INDOOR, OUTDOOR MOTORS, AND COMPRESSORS

8. TURN UNIT POWER OFF - TIGHTEN ALL ELECTRICAL CONNECTIONS, CONTACTORS, ETC.

9. EXAMINE AND REPAIR ALL ELECTRICAL WIRING, CONTROLS, STARTERS, RELAYS, CAPACITORS AND LIKE ITEMS THAT TEND TO DETERIORATE OVER TIME OR BECOME

NON-OPERATIONAL. THIS INCLUDES SMOKE DETECTORS.

10. GREASE ALL FITTINGS

11. CHECK DUCTWORK CONNECTIONS AND REPAIR AS NEEDED.

12. NOTIFY GENERAL CONTRACTOR OF ANY REQUIRED PARTS OR REPAIRS NOT INCLUDED IN THIS LIST. ALL UNITS SHALL BE FUNCTIONING AND COOLING PROPERLY AT

13. CHECK THE ECONOMIZER FOR PROPER FUNCTION AND CORRECT OPERATION OF THE SYSTEM WHEN A CALL FOR COOLING COMES FROM THE THERMOSTAT. REPAIR AND ADJUST AS NEEDED.

14. VERIFY ANY WORK REQUIRED BY THE LANDLORD PRIOR TO BID.

15. ALL FINDINGS AND VALUES TO BE NOTED AND PROVIDED TO TENANT'S CONSTRUCTION MANAGER & OR TENANT'S MAINTENANCE DIRECTOR.

					DIFFUSE	R SCHEDUL	E				
MARK	MF	GR	MODEL	BORDER TYPE	NECK SIZE	FACE SIZE	FIN	ISH	DAMPER	ACCESSORIES	NOTES
SD-1	TIT	US	TMS	3	8"Ø	24"x24"	WH	ITE	-		-
SD-2					6"Ø	12"x12"			-		-
			•								
SR-1			300FS		10"X6"	-			OB DAMPER		-
RG-1			PAR	<b>†</b>	12"X12"	24"x24"			-		-
RG-2			350FL	1	28"X28"	-			•		-
TG-1			350FL	•	12"X12"	-			-		-

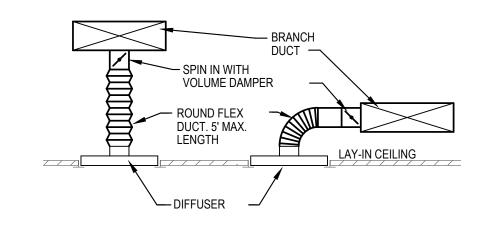
	EXHAUST FAN SCHEDULE									
				EXTERNAL		ELECTRICA	<b>AL</b>			
MARK	MFGR	MODEL	CFM	STATIC P. IN. WG.	RPM	VOLT/Ø/HZ	PWR	FAN TYPE	CONTROLS	NOTES
EF-1	COOK	GC-128	75	0.1	750	120/1/60	29 W	CEILING EXH.	SWITCH	1

NOTES: 1. PROVIDE CEILING GRILLE, INTEGRAL BACK DRAFT DAMPER, VARI-SPEED CONTROLLER (NEAR FAN AND ABOVE CEILING), FACTORY MEANS OF DISCONNECT AND WALL CAP.

	ELECTRIC UNIT HEATER SCHEDULE									
				ELECTRIC	CAL					
MARK	MFGR	MODEL NO.	BTUH	VOLT/Ø/HZ	WATTS	NOTES				
WH-1	RAYWALL	F2F5105N	17,060	208/3/60	5 KW	1,2				

NOTES: 1. SUPPORT UNIT FROM STRUCTURE.

2. PROVIDE INTEGRAL DISCONNECT & REMOTE THERMOSTAT FOR EACH UNIT.



DIFFUSER DETAIL
SCALE: NONE

OUTDOOR	AIR	CALCULATIONS

		0010001	/ (II	_/ (	10				
UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectivene ss (Ez)	Zone outdoor airflow (cfm)
EX AHU	1521	Commercial laundry	10	25	0		380	0.8	475
EX ANU	101	Storage rooms	0	0	0.12		12	0.8	15
								Total	490

### OUTDOOR AIR CALCULATIONS

UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectivene ss (Ez)	Zone outdoor airflow (cfm)
EX	1521	Commercial laundry	10	25	0		380	0.8	475
FURNACE	156	Office spaces	5	5	0.06		13	0.8	17
								Total	492

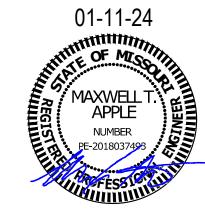
			E		
MAR	MFGR	MODEL	FRAME	SIZE	NOTES
L-1	RUSKIN	ELF6375DX	STD	40"X64"	1,2

### NOTES: 1. PROVIDE WITH BIRD SCREEN.

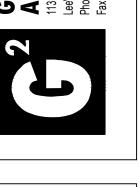
2. ARCHITECT TO SELECT COLOR. PRIMED FOR FIELD PAINT.

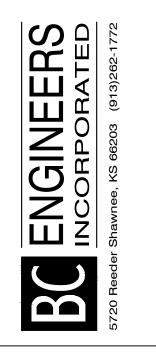
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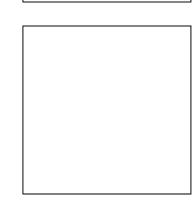


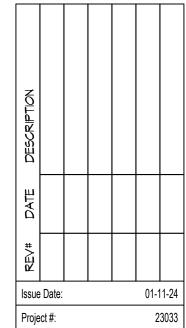




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MECHANICAL SCHEDULES & DETAILS

M2

### **ELECTRICAL SPECIFICATIONS**

- 1. GENERAL PROVISIONS:
- A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS OUTLINED.
- B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC), AND ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
- D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
- E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
- F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
- G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
- H. CONTRACTOR SHALL PROVIDE ACCESS PANELS WHERE NECESSARY FOR CONCEALED ELECTRIAL COMPONENTS.
- I. CONTRACTOR SHALL PROMPTLY CALL ENGINEERS ATTENTION TO ANY APPARENT CONTRADICTIONS AMBIGUITIES, ERRORS, DISCREPANCIES, OR OMISSIONS IN THE PLANS OR SPECIFICATIONS. 2. OPERATION AND MAINTENANCE MANUALS:
- A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS,
- ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION

IN THE OPERATION AND MAINTENANCE MANUALS.

- C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES. ETC. SHALL BE COLLATED AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC. CONTRACTORS, ETC. DOCUMENTS SHALL BE COMPILED AND BOUND IN DIGITAL FILE OR 3 RING BINDER.
- 3. MANUFACTURERS: A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL

### 4. TESTING, AND BALANCING:

UNLESS NOTED OTHERWISE.

A. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNECTING TO THE PROPER PHASE AS DESIGNED TO BALANCE THE LOADING BETWEEN PHASES.

BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN,

- B. POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD AND SHALL BE CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED.
- C. ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATION AND OPERATION.
- A CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL, WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.
- B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS.
- C. UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 264 PSI, OF 78 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLUSH SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL). CONDUIT AND FITTINGS SHALL BE PRODUCED BY THE SAME MANUFACTURER.
- D. FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".
- A. WIRES SHALL BE CONTINUOUS WITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRE SHALL BE INSTALLED IN CONDUIT, WIREWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES
- B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 A.W.G., 600 VOLT.
- C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.
- D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.
- E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS). STRANDED COPPER, UNLESS OTHERWISE INDICATED. F. ALUMINUM SERVICE WIRE MAY BE USED FOR SERVICE ENTRANCE CONDUCTORS AND/OR PANEL FEEDERS ONLY. ALL OTHER WIRING SHALL BE COPPER CONDUCTORS AS HEREINBEFORE SPECIFIED.
- G. ALUMINUM CONDUCTORS SHALL BE TYPE 'XHHW-2', ALCAN, "STABILOY" TYPE ALLOY CONDUCTORS UTILIZING "AA-8030" ALUMINUM ALLOY, CONDUCTORS SHALL BE UL LISTED.
- H. ALL ALUMINUM CONDUCTORS SHALL BE TERMINATED IN CONNECTIONS OR LUGS WHICH ARE DUAL RATED (AL7CU OR AL9CU) AND ARE LISTED BY UL FOR USE WITH ALUMINUM OR COPPER CONDUCTORS AND SHALL BE SIZED TO ACCEPT ALUMINUM CONDUCTORS OF THE AMPACITY SPECIFIED.

### 7. MC CABLE:

- A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THHN SOLID (#8 AWG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90°C FOR DRY LOCATIONS, WITH NYLON OR EQUIVALENT UL LISTED JACKET, PER UL STANDARD 83 THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OF ALUMINUM OR GALVANIZED
- B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1569 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.

### 8. WIRING DEVICES:

- A. WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES.
- 1) SINGLE POLE: HUBBELL #CS1221-X. OR EQUAL. 2) THREE WAY: HUBBELL #CS1223-X, OR EQUAL.
- B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL #CR5352-X, OR EQUAL
- C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL #GF20-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
- D. ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL #CR5352IG, ORANGE COLOR. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
- E. RECEPTACLES OUTSIDE BUILDING AND WHERE NOTED AS WEATHERPROOF, SHALL BE LISTED 'WEATHER-RESISTANT' HUBBEL #GFTR20-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC #WP1010MXD OR #WP1010HMXD DIECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.
- F. VERIFY DEVICES AND DEVICE COVERPLATES COLOR AND STYLE WITH ARCHITECT.
- 9. BOXES:
- A. HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION. B. ALL BOXES SHALL BE FLUSH MOUNTED. UNLESS INDICATED OTHERWISE.

11. PANELBOARDS:

A. FURNISH AND INSTALL CIRCUIT BREAKER PANELBOARDS AS SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE LISTED BY UL AND SO LABELED, AND SHALL BE FULLY RATED FOR THE VOLTAGE AND CURRENT CAPACITY INDICATED ON THE PANEL SCHEDULE. PANELBOARDS SHALL BE EQUAL TO SQUARE D TYPE NQ OR NF WITH BOLT IN TYPE BREAKERS. PANELBOARD LUGS SHALL BE RATED AT 75°C

ELECTRICAL SPECIFICATIONS (CONTINUED)

- 1) CIRCUIT BREAKER INTERRUPTING CAPACITIES SHALL MEET OR EXCEED THE AVAILABLE RMS SYMMETRICAL FAULT CURRENTS INDICATED AND AS REQUIRED TO MEET OR EXCEED THE AVAILABLE FAULT CURRENT FROM LOCAL UTILITY.
- B. CIRCUIT BREAKERS SHALL MEET APPLICABLE PORTIONS OF UL STANDARD 489 AND NEMA AB-L. CIRCUIT BREAKERS SHALL BE BOLT-ON, GROUP MOUNTED, AMBIENT MAGNETIC, WITH COMMON TRIP, UL RATED TO CARRY 80% OF NAMEPLATE RATING CONTINUOUSLY IN FREE AIR AT 40° C. CIRCUIT BREAKERS SHALL BE TRIP INDICATING AND FULLY INTERCHANGEABLE WITHOUT DISTURBING ADJACENT UNITS. WIRE TERMINALS SHALL BE RATED 75 DEGREES C. THE OPERATING MECHANISM SHALL BE TRIP-FREE SO THAT CONTACTS CANNOT BE HELD CLOSED AGAINST ANY ABNORMAL OVERCURRENT OR SHORT CIRCUIT
- a) BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.
- C. PANELBOARD BOXES SHALL BE GALVANIZED SHEET STEEL WITH AMPLE WIRING GUTTER SPACE IN ACCORDANCE WITH NEC. FRONTS SHALL BE OF SHEET STEEL PAINTED LIGHT GREY OVER A SUITABLE RUST INHIBITOR PRIMER. PANELBOARDS SHALL BE EQUIPPED WITH ONE PIECE DOOR, CYLINDER TUMBLER TYPE LOCK, DIRECTORY CARD-HOLDER AND QUARTER-TURN ADJUSTABLE TRIM CLAMPS.
- D. PANELBOARD INTERIORS SHALL CONSIST OF REINFORCED GALVANIZED SHEET STEEL FRAMES WITH ALUMINUM BUS BARS AND CIRCUIT BREAKERS, PROPERLY SUPPORTED TO PREVENT VIBRATIONS AND BREAKAGE IN HANDLING. BUS BARS SHALL BE SEQUENCE PHASED. PANELBOARD SHALL HAVE A FULL SIZED SOLID ALLIMINUM NEUTRAL AND GROUND BUS
- E. BUS BAR BRACING SHALL BE UL LISTED AS INDICATED ON DRAWINGS. ADDITIONAL BRACING SHALL BE PROVIDED AS REQUIRED TO MEET OR EXCEED INDICATED AVAILABLE FAULT
- F. DIRECTORY CARDS SHALL BE COMPLETELY FILLED IN BY TYPEWRITER, LISTING CIRCUIT NUMBERS AND LOAD SERVED, INCLUDING EXISTING CIRCUITS. CIRCUIT BREAKERS SHALL BE IDENTIFIED BY CIRCUIT NUMBER LABELS AS HEREINBEFORE SPECIFIED.
- A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES
- SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED. B. FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE

ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES

C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS.

### 13. SLEEVES:

- A. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.
- B. INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
- COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
- PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.

- INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
- 1) DISCONNECT AND REMOVE EXISTING ELECTRICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.
- REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.
- D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.
- 1) ABANDONED CONDUIT SHALL HAVE WIRE REMOVED AND SHALL BE CAPPED. ABANDONED OUTLETS IN WALLS OR PARTITIONS SHALL HAVE DEVICES AND WIRE REMOVED, AND SHALL BE COVERED.
- 2) WHERE EXISTING CONDUITS TERMINATE AT AN EXISTING OUTLET IN A WALL, CEILING, OR FLOOR TO BE REMOVED, DISCONNECT AND REMOVE DEVICE AND WIRE FROM CONDUIT. CONDUIT SHALL BE CUT BACK AND CAPPED (BELOW THE FLOOR OR ABOVE THE CEILING) SO NOT TO CREATE AN OBSTRUCTION. PATCH FLOOR TO MATCH EXISTING.
- 4) WHERE EXISTING OUTLETS IN A WALL, CEILING, OR FLOOR TO BE REMOVED ARE ESSENTIAL TO
- 5) WHERE LIGHTING FIXTURES ARE INDICATED TO BE DEMOLISHED, REMOVE ALL WIRE AND MODIFY THE
- 6) WHERE A TELEPHONE CIRCUIT EXTENDS BEYOND AN OUTLET IN AN EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, PROVIDE NECESSARY EMPTY CONDUIT AND NOTIFY THE OWNER WHO WILL
- CEILING OR FLOOR TO BE REMOVED, THEY SHALL BE REROUTED IN EITHER NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF CIRCUITS UNLESS OTHERWISE INDICATED.
- 8) CONDUIT SHALL BE CONCEALED WITHIN THE EXISTING BUILDING CONSTRUCTION WHEREVER POSSIBLE, EXCEPT WHERE OTHERWISE INDICATED.
- 9) EXISTING WIRE SHALL BE DISCONNECTED AND REMOVED WHEREVER EXISTING CIRCUITS ARE

### **ELECTRICAL SYMBOLS LIST** CIRCUITING & NOTES SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE OF DEVICE) GROUND FAULT CIRCUIT INTERRUPTER DEVICE WEATHERPROOF ENCLOSURE ON DEVICE ISOLATED GROUND DEVICE

### EMERGENCY BATTERY BACKUP PARTIAL HOMERUN. REFER TO PLANS FOR ADDITIONAL DEVICES CONNECTED TO THIS ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION

CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED #12 WIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION

GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR CONDUIT ROUTED UNDER FLOOR/GRADE <u>LIGHTING</u>

EMERGENCY TWIN HEAD LIGHT FIXTURE EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED STRIP FIXTURE WITH TYPE DESIGNATION RECESSED OR SURFACE MOUNTED FIXTURE WITH TYPE DESIGNATION

WALL MOUNTED FIXTURE WITH TYPE DESIGNATION

SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF

LOW VOLTAGE CEILING SENSORS SHALL BE PROVIDED WITH 6' SLACK CONDUCTOR COILED AT SENSOR.

WALL MOUNTED DUAL-TECHNOLOGY OCCUPANCY SENSOR, WATT STOPPER #DW-100, TOP OF

DUAL TECHNOLOGY CEILING MOUNT OCCUPANCY SENSORS, WATTSTOPPER DT-300

VOLTAGE WIRING TO OCCUPANCY SENSORS AND MOMENTARY SWITCHES

OCCUPANCY SENSOR POWER PACK, WATTSTOPPER BZ-150 OR EQUAL, PROVIDE LOW

DATA/TELEPHONE OUTLET WITH MINIMUM 3/4" CONDUIT STUBBED UP TO ABOVE ACCESSIBLE

CEILING, BOTTOM OF BOX AT 16", UNLESS NOTED OTHERWISE. PROVIDE WITH PULL STRING

DUAL TECHNOLOGY/ULTRASONIC CEILING SENSORS SHALL BE MOUNTED 6'

MOMENTARY SWITCH, TOP OF BOX AT 48" AFF

RECOMMENDATION

JUNCTION BOX

FLOOR BOX

FROM SUPPLY/EXHAUST AIR DIFFUSERS.

BOX AT 48" AFF

PANEL BOARD, TOP OF BOX 6'-0" AFF

NON-FUSED DISCONNECT SWITCH

FUSED DISCONNECT SWITCH

MOTOR WITH DESIGNATION

DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE

HEAVY DUTY OUTLET - NEMA CONFIGURATION SIZE PER EQUIPMENT MANUFACTURER'S

NIGHT LIGHT, CONNECT TO UNSWITCHED CIRCUIT C. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL. CEILING OR RECESSED FIXTURE WITH TYPE DESIGNATION

A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250, AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).

- A. DEMOLITION: DISCONNECT, DEMOLISH AND REMOVE ABANDONED ELECTRICAL MATERIALS AND EQUIPMENT
- 2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED.
- C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND
- BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE
- E. PROVIDE ALL ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF ALL EXISTING ELECTRICAL SYSTEMS, INTEGRATING THE NEW AND EXISTING AREAS. LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR
- 3) WHERE EXISTING CIRCUITS EXTEND BEYOND THE OUTLET IN THE EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED. FURNISH AND INSTALL NEW CONDUIT AND WIRE TO EITHER REROUTE THE CIRCUIT OR FEED THE REMAINING OUTLET(S) FROM ANOTHER ELECTRICAL SOURCE. BUT IN SUCH A MANNER AS NOT TO REVISE THE CIRCUIT. ALL REPOUTED CONDUIT SHALL BE APPROVED BY THE
- MAINTAIN OPERATION OF OTHER REMAINING OUTLETS, RELOCATE THE OUTLET TO A NEW CONVENIENT LOCATION. EXISTING WIRING DEVICES SHALL NOT BE REUSED, UNLESS OTHERWISE INDICATED.
- EXISTING CONDUIT (IF APPLICABLE) FOR THE NEW LIGHTING. ALL UNUSED CONDUIT SHALL BE
- REQUEST THE OWNER TO ARRANGE WITH THE TELEPHONE COMPANY FOR NEW WIRING TO OUTLETS THAT 7) WHERE EXISTING CONDUIT AND WIRE RUNS ARE LOCATED IN OR ATTACHED TO AN EXISTING WALL,

### **ELECTRICAL GENERAL NOTES:**

COMMUNICATIONS

POWER DEVICES

**CONTROLS** 

- COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- 2. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
- ELECTRICAL CONTRACTOR SHALL REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, FIXTURES, SYSTEMS, CONDUIT AND WIRE, ETC. NOT BEING REUSED. DO NOT JUST ABANDON.
- 4. ELECTRICAL CONTRACTOR TO COORDINATE MANUFACTURER ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT BEING FURNISHED WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. EQUIPMENT DISCONNECTS TO BE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE IN MECHANICAL
- 5. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
- 6. ALL BRANCH CIRCUITS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 3% VOLTAGE DROP. ALL FEEDERS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 2% VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL VERIFY WIRING INDICATED IS SUFFICIENT AND INCREASE CONDUCTOR SIZE AS REQUIRED BASED OFF ACTUAL INSTALLED LENGTH OF CONDUCTORS.

Control   Cont		BUS: 400A	MAIN:	400A	MLO	IC:	22	,000	RMS SYM A	IMPS					FEEDER: S	SEE RISER DIAGRAM	_
Mathematical Registration																	Т
	CKT	DESCRIPTION	AMPS	POLE	WIRE	ØA	ØB	ØC	ØA	ØB	ØC	WIRE	POLE	AMPS	DES	CRIPTION	4
	1	40LB WASHER	15	2	12	645			645			12	2	15	30LE	3 WASHER	
Part	3						645			645							4
1	5	40LB WASHER	15	2	12			645			645	12	2	15	30LE	3 WASHER	
Part	7					645			645								
Part	9	60LB WASHER	20	2	12		874			645		12	2	15	30LE	3 WASHER	
Part	11							874			645						
Part	13	60LB WASHER	20	2	12	874			645			12	2	15	30LE	3 WASHER	
Mathematical ma	15						874			645							
Part	17	80LB WASHER	20	2	12			874			645	12	2	15	30LE	3 WASHER	
Part	19					874			645								
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	21	80LB WASHER	20	2	12		874			645		12	2	15	30LE	3 WASHER	
Part	23							874			645						
1	25	60LB WASHER	20	2	12	874			645			12	2	15	30LE	3 WASHER	
14   15   15   16   16   16   17   18   18   18   18   18   18   18	27						874			645							
MILE NASHER   15   2   12   14   16   16   16   16   16   16   17   18   18   18   18   18   18   18	29	60LB WASHER	20	2	12			874			645	12	2	15	30LE	3 WASHER	
March   Marc	31					874			645								
38	33	40LB WASHER	15	2	12		645			645		12	2	15	40LE	3 WASHER	
Marter Meaters   Mart	35							645			645						
MATER MEATERS   20	37	40LB WASHER	15	2	12	645			645			12	2	15	40LE	3 WASHER	
STATE   STAT	39						645			645							
SILS DRYER STACK   30   1   10   2.430   3   3   4   10   2.430   3   4   4   960   3   12   1   20   30.05 BRYER STACK   46   50.15 BRYER STACK   30   1   10   3   2.400   3   3   4   3   3   3   3   3   3   3	41	WATER HEATERS	20	1	12			900			960	12	1	20	30LB D	RYER STACK	1
SILE DRYER STACK   10   1   10   2.400   2.400   360   12   1   20   33LB DRYER STACK   14   30   33LB DRYER STACK   15   30   31LB DRYER STACK   16   30   30   30   30   30   30   30   3				l	1			SEC	TION 2								
SUB DRYER STACK   30   1   10   2   2   400   980   12   1   20   30LB DRYER STACK   49   50LB DRYER STACK   30   1   10   2   400   980   980   12   1   20   30LB DRYER STACK   51   50LB DRYER STACK   30   1   10   2   400   980   980   12   1   20   30LB DRYER STACK   51   50LB DRYER STACK   30   1   12   10   2   400   150   980   12   1   20   30LB DRYER STACK   15   50LB DRYER STACK   30   1   12   12   10   20   30LB DRYER STACK   15   50LB DRYER STACK   12   1   20   30LB DRYER STACK   15   50LB DRYER STACK   12   10   20   30LB DRYER STACK   15   50LB DRYER STACK   12   10   20   30LB DRYER STACK   15   50LB DRYE	43	50LB DRYER STACK	30	1	10	2,400			960			12	1	20	30LB D	RYER STACK	
SULB DRYER STACK   30	45	50LB DRYER STACK	30	1	10		2,400			960		12	1	20	30LB D	RYER STACK	
1 SOLB DRYER STACK 0 0 1 0 10 0 2,400 0 10 0 10 0 0 0 0 0 0 0 10 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	47	50LB DRYER STACK	30	1	10			2,400			960	12	1	20	30LB D	RYER STACK	T
CHANGE MACHINE   20   1   12   150   150   160   12   1   20   30,B DRYER STACK   150   165	49	50LB DRYER STACK	30	1	10	2,400			960			12	1	20	30LB D	RYER STACK	T
SOAP VENDING MACHINE [GF] 20 1 1 12 150 1 120 1	51	50LB DRYER STACK	30	1	10		2,400			960		12	1	20	30LB D	RYER STACK	T
YENDING MACHINE [GF]   20	53	CHANGE MACHINE	20	1	12			150			960	12	1	20	30LB D	RYER STACK	
Second Record Color   Second Record	55	SOAP VENDING	20	1	12	150			540			12	1	20	DISPLAY W	INDOW RECEPTS	T
RECEPTACLES   20	57	VENDING MACHINE [GF]	20	1	12		1,200			1,250		12	1	20	VIDEOGA	ME MACHINES	T
Barrian	59	VENDING MACHINE [GF]	20	1	12			1,200			1,250	12	1	20	VIDEOGA	ME MACHINES	T
65 OFFICE/SERVICE LIGHTS 20 1 12 337 1.20 12 1 20 BUILDING SIGNAGE  67 SPARE 20 1 1	61	RECEPTACLES	20	1	12	1,260			1,250			12	1	20	VIDEOGA	ME MACHINES	T
67 SPARE 20 1	63	LAUNDROMAT LIGHTS	20	1	12		1,252			1,250		12	1	20	VIDEOGA	ME MACHINES	+
69 SPARE 20 1	65	OFFICE/SERVICE LIGHTS	20	1	12			337			1,200	12	1	20	BUILDI	NG SIGNAGE	+
71 SPARE 20 1	67	SPARE	20	1					1,667								+
Total Connected Load:   Tota	69	SPARE	20	1						1,667		12	3	20		EUH-1	r
Total Connected Load:   Tota	71	SPARE	20	1							1,667						
TOTAL CONNECTED LOAD:   TOTA	73	SPARE	20	1					3,250								+
79 EXISTING CONDENSING UNIT 40 3 8 3,250 10,000 3 3 3 100 EXISTING AHU  83 14,891 15,933 14,223 23,142 23,852 24,117  GGFJ-GFCI BRKR 5mA 38,033 39,785 38,340 TOTAL CONNECTED LOAD: 116,158	75	SPARE	20	1						3,250		8	3	40	EXISTING C	ONDENSING UNIT	
81 EXISTING CONDENSING UNIT 40 3 8 3,250 10,000 3 3 100 EXISTING AHU  83 VOTES:  14,891 15,933 14,223 23,142 23,852 24,117  GGFJ-GFCI BRKR 5mA 38,033 39,785 38,340 TOTAL CONNECTED LOAD: 116,158	77	EXISTING FURNACE	20	1	12			1,200			3,250						
83 3,250 10,000  NOTES: 14,891 15,933 14,223 23,142 23,852 24,117  GGFJ-GFCI BRKR 5mA 38,033 39,785 38,340 TOTAL CONNECTED LOAD: 116,158	79					3,250			10,000								+
NOTES: 14,891 15,933 14,223 23,142 23,852 24,117 [GF]-GFCI BRKR 5mA 38,033 39,785 38,340 TOTAL CONNECTED LOAD: 116,158	81	EXISTING CONDENSING UNIT	40	3	8		3,250			10,000		3	3	100	EXIS	STING AHU	
[GF]-GFCI BRKR 5mA 38,033 39,785 38,340 TOTAL CONNECTED LOAD: 116,158	83							3,250			10,000						
GF]-GFCI BRKR 5mA 38,033 39,785 38,340 TOTAL CONNECTED LOAD: 116,158	IOTES:			1	I	14,891	15,933	14,223	23,142	23,852	24,117				I		
	GF]-GFCI	BRKR 5mA				38,0	033	39	),785	38,3	340	1		TOTAL C	ONNECTED LOAD:	116,15	58 V
NI-C TI-MANITI CIATIFI WE CH	•									1		_			C DEMAND LOAD:	96,38	
												⊔⊏MANL	AMPS @	208	VOLT / 3Ø:	267.5	J۷

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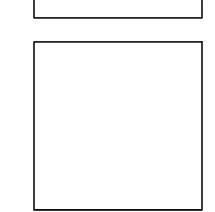
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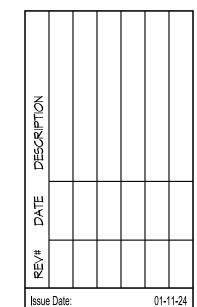


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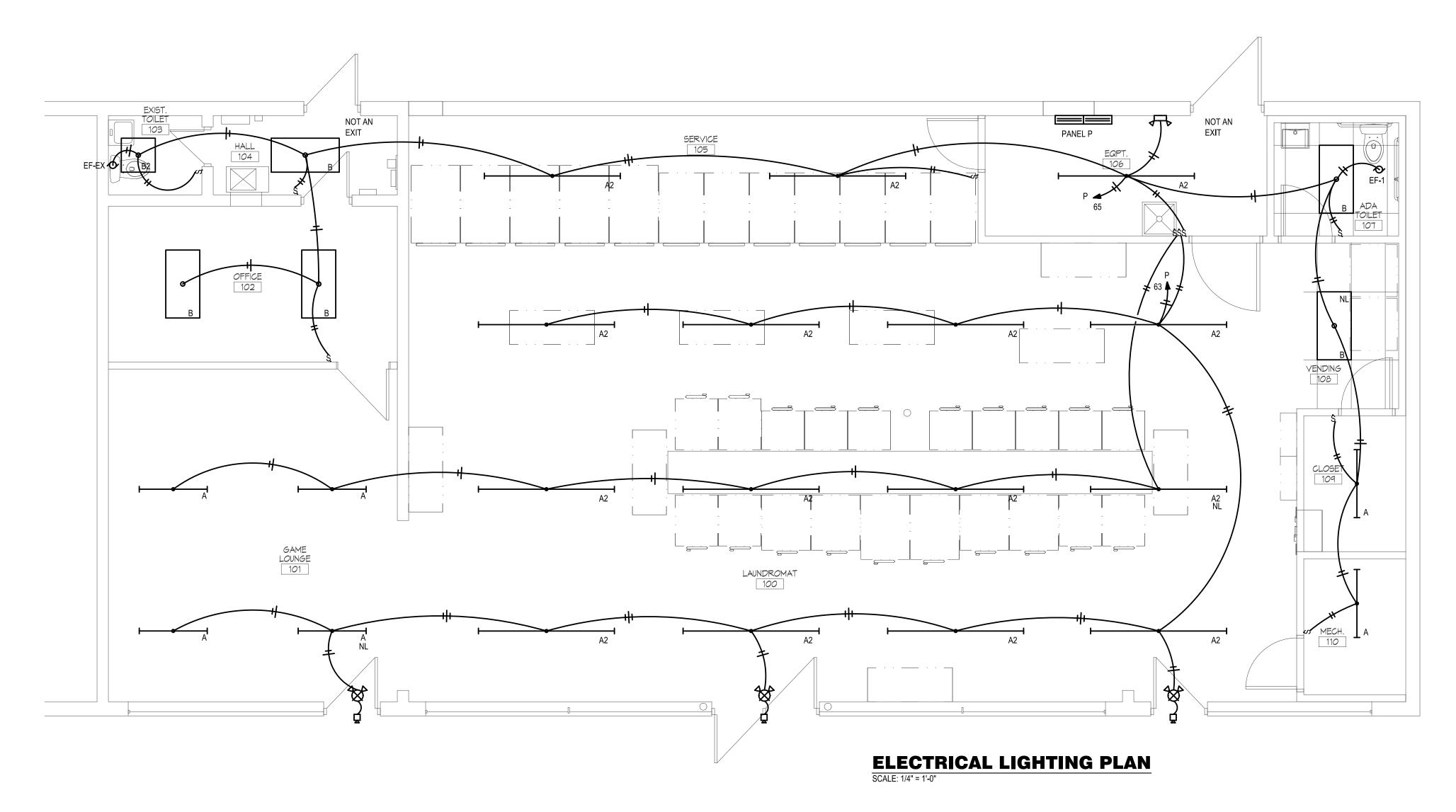








ELECTRICAL SPECIFICATIONS

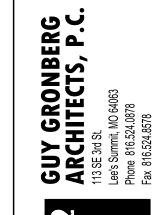


LIGHT FIXTURE SCHEDULE									
MARK N0.	MANUFACTURER & CATALOG NUMBER	VOLTS WATTS	LIGHT SOURCE	DESCRIPTION	EQUIVALENT MANUFACTURERS				
Α	LTHONIA CSS-L48-ALO3-MVOLT-SWW3- 80CRI	120 44	LED 5150LUM 4000K	4' LED STRIP LIGHT WITH FIELD SELECTABLE COLOR TEMPERATURE AND OUTPUT	WILLIAMS COLUMBIA OR EQUAL				
A2	LTHONIA CSS-L96-ALO4-MVOLT-SWW3- 80CRI	120 90	LED 10000LUM 4000K	8' LED STRIP LIGHT WITH FIELD SELECTABLE COLOR TEMPERATURE AND OUTPUT	WILLIAMS COLUMBIA OR EQUAL				
В	LITHONIA CPANL-2X4-ALO6- SWW7-M2	120 41	LED 6000LUM 4000K	2X4 LED FLAT PANEL WITH FIELD SELECTABLE COLOR TEMPERATURE AND OUTPUT	WILLIAMS COLUMBIA OR EQUAL				
B2	LITHONIA CPANL-2X2-ALO1- SWW7-M2	120 31	LED 3300LUM 4000K	2X2 LED FLAT PANEL WITH FIELD SELECTABLE COLOR TEMPERATURE AND OUTPUT	WILLIAMS COLUMBIA OR EQUAL				
↔	LITHONIA ELMLT-W-LP06VS-LTP	120 1	INCL	EMERGENCY LIGHT WITH TWIN ADJUSTABLE LED HEADS AND LITHIUM IRON PHOSPHASTE BATTERY, MOUNT AT 7'-6"±, TO CLEAR OBSTACLES. (PROVIDES 1 FC AVG. ON 54' CENTER FIXTURE SPACING), WHITE FINISH	SURE-LITES DUAL-LITE OR EQUAL				
<b>8</b>	LITHONIA LHQM-LED-R-HO-SD WITH ELA-TQWP-L0309	120 5	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN 6W EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, HIGH CAPACITY BATTERY BACKUP AND REMOTE TWIN HEAD OUTDOOR RATED FIXTURE	SURE-LITES LITHONIA OR EQUAL				

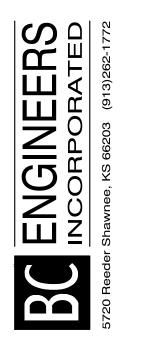
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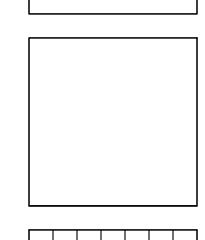


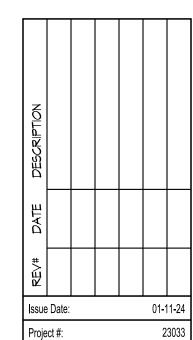




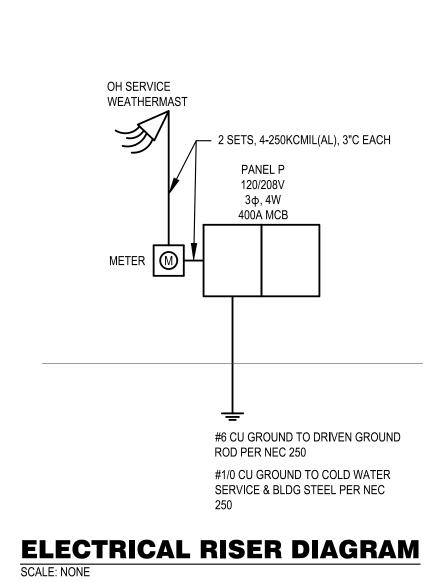
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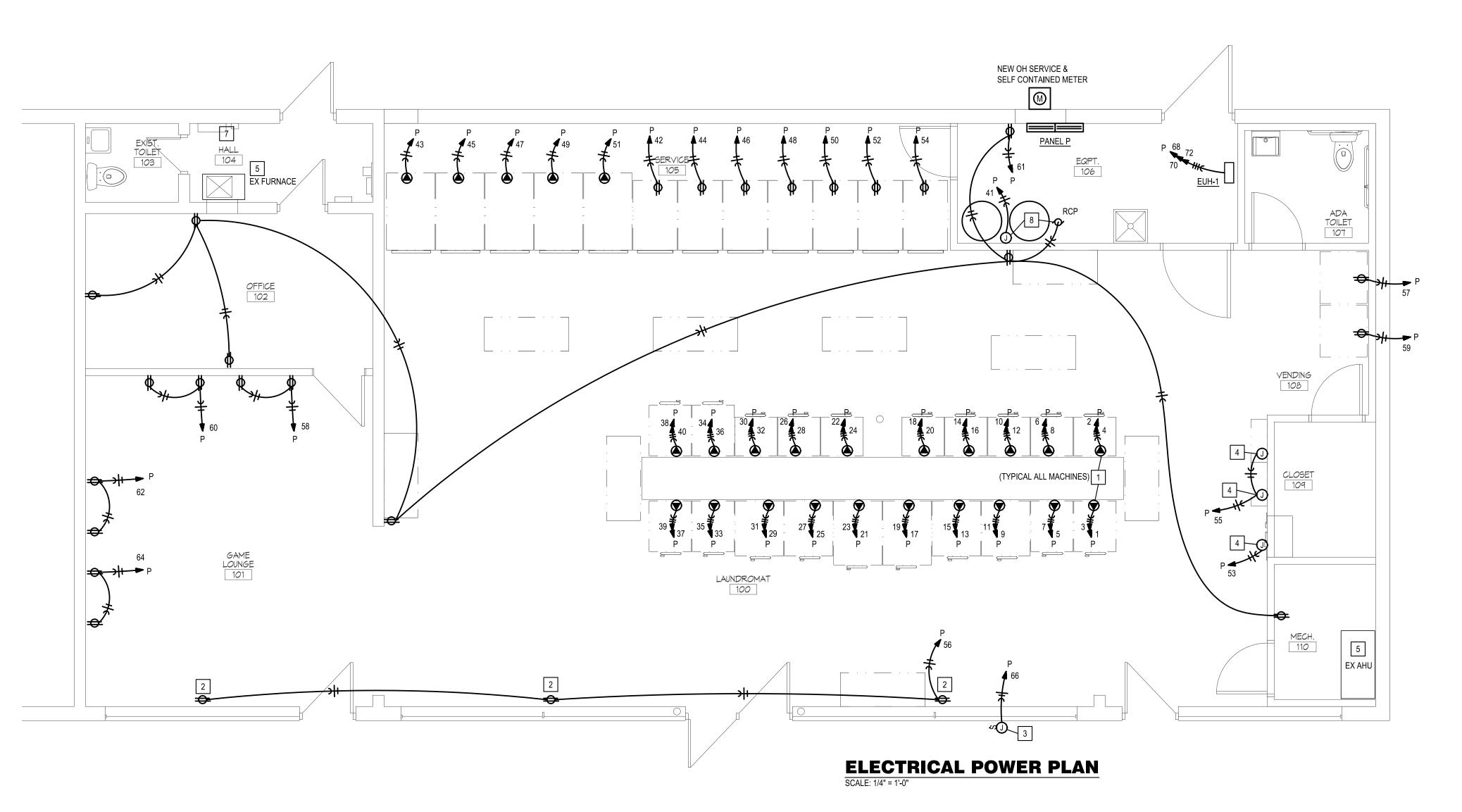
Clean





ELECTRICAL LIGHTING PLAN





### ELECTRICAL PLAN NOTES:

- 1 PROVIDE CORD & PLUG PER MANUFACTURER'S REQUIREMENTS AND CONNECT TO OWNER'S EQUIPMENT AS REQUIRED FOR PROPER OPERATION.
- DUPLEX RECEPTACLE MOUNTED ABOVE STOREFRONT GLASS FOR DISPLAY WINDOW SIGNAGE PER NEC.

TIMECLOCK LOCATED ADJACENT TO PANEL. PROGRAM TIMEECLOCK TO

- JUCTION BOX FOR CONNECTION TO BUILDING SIGNAGE. VERIFY EXACT LOCATION & REQUIREMENTS WITH SIGNAGE VENDOR. ROUTE CIRCUIT TO PANEL VIA EXTERIOR LIGHTING TIMECLOCK, INTERMATIC #ET2725C OR EQUAL
- AUTOMATICALLY CONTROL SIGNAGE AS DIRECTED BY OWNER. CONNECT TO CHANGE MACHINE & SOAP VENDING MACHINE PER MANUFACTURER'S INSTRUCTIONS. VERIFY EXACT LOCATION & REQUIREMENTS.
- 5 INTERCEPT EXISTING CIRCUIT AND RE-ROUTE TO NEW BREAKER IN PANEL P. REFER TO PANEL SCHEDULE.
- 6 CONNECT TO GAS WATER HEATERS AND RE-CIRC PUMP PER MANUFACTURER'S INSTRUCTIONS.
- 7 REMOVE EXISTING ELECTRICAL SERVICE

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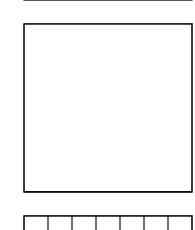


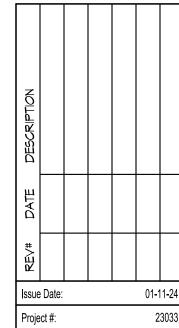
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ELECTRICAL POWER