A TENANT FINISH EXPANSION FOR:

HAMITIA BINISIBY

3568 SW MARKET ST., LEE'S SUMMIT, MO 64082

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 OWNER.
- 2. DEFINITIONS:
- REMOVE AND DISCARD: DETACH ITEMS FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF THEM OFF-SITE. REMOVE AND SALVAGE: DETACH ITEMS FROM EXISTING CONSTRUCTION
- AND TURN OVER TO OWNER UNDAMAGED.
- 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 SUPPLEMENT WITH MATERIALS, AND INCIDENTALS NECESSARY TO

EXECUTE A COMPLETE WORKMANLIKE JOB. IF CONTRACTOR CHOOSES

OTHERWISE, ALL WORK DESCRIBED IN THESE DOCUMENTS IS TO BE

- O 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
- TO NOT REUSE ITEM, LEGALLY DISPOSE OF ITEM OFF-SITE AND REPLACE MITH 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

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.
- 4. 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.
- 5. 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
- 6. 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.

- 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
- CLEAN-UP OF RUBBISH AND DEBRIS RESULTING FROM DEMOLITION AND NEW WORK SHALL BE COLLECTED REGULARLY FROM PROJECT SITE AND LEGALLY DISPOSED
- 12. ALL WEATHER EXPOSED SURFACES SHALL HAVE A WEATHER RESISTIVE BARRIER TO PROTECT THE INTERIOR WALL COVERING AND EXTERIOR OPENINGS SHALL BE FLASHED IN SUCH A MANNER AS TO MAKE THEM **MEATHERPROOF**
- BUILDING ADDRESS NUMBERS TO BE PROVIDED ON THE FRONT AND STREET SIDE OF THE BUILDING. SAID NUMBERS SHALL BE A MIN. OF 7" HIGH WITH 1" WIDE STROKES CONTRASTING WITH THEIR BACKGROUND
- 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, STATIC, AND FEDERAL REGULATIONS
- 16. THE TENANT OR THE TENANT'S DESIGNATED REPRESENTATIVE WILL PROVIDE SERVICES IN CONNECTION WITH ADMINISTRATION OF THE CONTRACT
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS OF THE GOVERNING AGENCIES

HAVING JURISDICTION

- 8. 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
- 9. 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 MORK 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.

A. TENANT FINISH

CODE NOTES

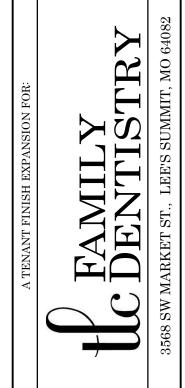
- B. ALL CONSTRUCTION FOR THIS PROJECT SHALL CONFORM TO THE FOLLOWING BUILDING CODES AND REQUIREMENTS ADOPTED AND AS
- AMENDED BY THE CITY OF LEE'S SUMMIT, MISSOURI; B.1. 2018 International Building Code
- B.2. 2018 International Plumbing Code
- B.3. 2018 International Mechanical Code B.4. 2018 International Fuel Gas Code
- B.5. 2018 International Residential Code B.6. 2018 International Fire Code
- B.7. 2017 National Electrical Code B.8. ICC/ANSI A117.1-2009, Accessible and Usable Buildings and Facilities
- C. OCCUPANCY GROUP: B
- D. CONSTRUCTION TYPE: IIB
- E. FULLY SPRINKLED BUILDING (NFPA 13)

FIRE ALARM TO BE PROVIDED

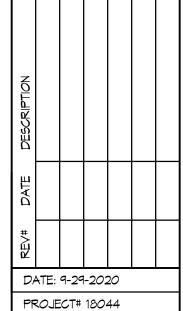
- F. SQUARE FOOTAGE TENANT INFILL = 3,526 SF
- G. OCCUPANT LOAD = 3,526 / 150 = 23.50 ≈ 24 OCC

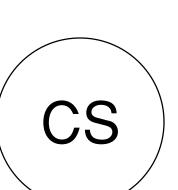


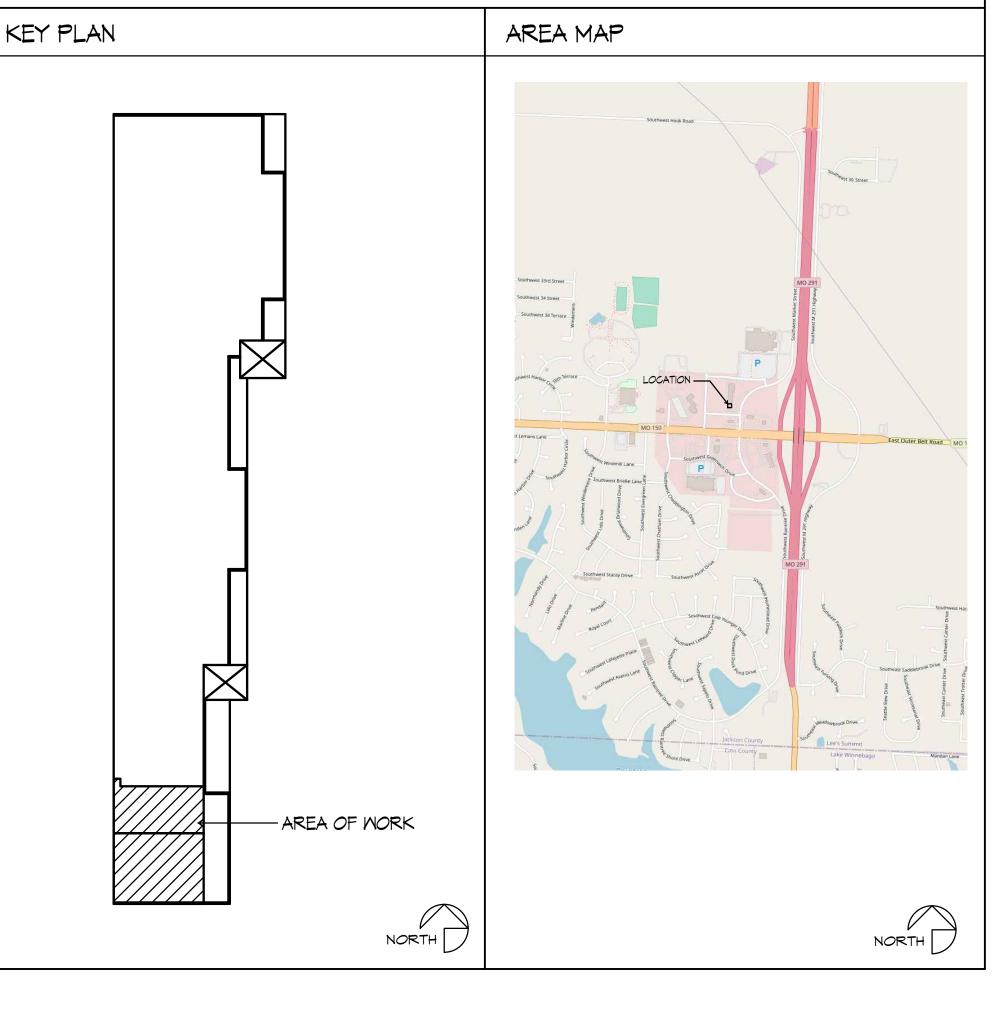












DIVISION 1 - GENERAL REQUIREMENTS

- 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 windows.

CUTTING AND PATCHING

- 1. 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 Work.
- 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 grademark of an approved inspection agency or association. Wood 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. Interior insulation shall be unfaced acoustical batt insulation in thickness to fill entire cavity.

3. Insulation Schedule

- 3.1. Exterior Walls: batts of fiberglass with foil skrim kraft (FSK) vapor barrier in thickness to match cavity depth
- 3.2. 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.
- 3.3. Interior non-loadbearing walls: Unfaced Fiberglass Batts Certainteed CertaPRO AcoustaTherm Batts

SEALANTS

- Mildew-Resistant Silicone Rubber Sealant: Silicone rubber-based, one part elastomeric sealant, complying with FS TT-S-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 arouth
- 2. Silicone Sealant: One-part nonacid-curing silicone sealant complying with ASTM C920; Type S, 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

STEEL FRAMES AND DOORS 08110

- 1. Drywall frames shall be manufactured from cold-rolled 16 gauge steel conforming to ASTM A366 or A620 & A568. Frames shall be knock-down, double return back bend (to prevent cutting into wall) flush hairline miter at the corner of the head and jamb, and the corner reinforced with a concealed clip. Each jamb is to have one compression anchor to securely hold the frame between the studs and maintain proper alignment.
- 2. Welded Frames are to be fabricated of either cold-rolled steel conforming to ASTM ASTM A366 or A620 & A568 at interior locations or hot-dipped galvanized steel conforming to ASTM A924 and A653 at exterior locations both of 16 gauge material. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints. Provide welded frames with temporary spreader bars.
- 3. All Frames and Doors are to be thoroughly degreased and cleaned of all imperfections and provided with one coat of oven-cured neutral color primer paint. Primer coat shall conform with ANSI A250.10. The primer coat is to be a preparatory base for necessary finish painting.
- 4. Frame Hardware Provisions: Frames are to be mortised, reinforced and drilled and tapped for all mortise finish hardware. Frames are to be reinforced only for surface mounted hardware, with drilling and tapping to be done in the field by the installation contractor. Steel plates and mortising boxes are to be welded to all hinge and lock reinforcement. Frames are handed. Hinge jambs are to be mortised for hinges with 7 gage steel hinge reinforcement welded in place and drilled and tapped for fasteners in accordance with ANSI A156.7. The strike jamb is to be prepared for 4-7/8" universal strike in accordance with ANSI A 115.1&2. Additional hardware reinforcement (e.g. closer/holder as indicated by hardware schedule) is to be 12 gage minimum steel welded in place. Three door mutes are to be provided per strike jamb and two for double swing heads.
- 5. Door Hardware Provisions: Hinge preparations are handed. Hinge edges are to be mortised for hinges with 7 gage steel hinge reinforcements welded inside the door edge and drilled and tapped for fasteners in accordance with ANSI A156.7. The lock edge is to have a standard bevel (1:16) and be prepared for locks in accordance with hardware schedule. Additional hardware reinforcement (e.g. closer/pulls as indicated by hardware schedule) is to be 12 gage steel channel.

MOOD DOORS

1. Single swing interior doors shall be solid core premium grade veneer with matching edges. Species, stain, finish, sSize and thickness as shown on the Door Schedule on drawings. Comply with requirements of ANSI/NWMA I.S. 1 and Section 1400 of AWI "Architectural Woodwork Quality Standards" except as otherwise indicated. Coordinate stain color with interior designer.

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 Mallboard ASTM C36
- b. Nails ASTM C380
- c. Metal Accessories ASA A97.1
- d. Water Resistant Gypsum Backing Board ASTM C1278 (paragraph 6.1)
- Use gypsum board fasteners that are recommended by gypsum board manufacturer except as otherwise indicated.
- 3. Furnish and install all trim accessories, adhesives and joint treatments per manufacturer's recommendations.
- 4. All gypsum board to be finished to Level 4 unless noted otherwise.
- 5. Schedule: (basis of design)
- 5.1. Interior side of exterior walls: $\frac{1}{2}$ " Gold Bond XP Gypsum Board.
- 5.2. Interior partitions general: $\frac{5}{8}$ Gold Bond Gypsum Board.
- 5.3. Interior ceilings and soffits: $\frac{5}{6}$ " Gold Bond Gypsum board.
- 5.4. Interior partitions in wet areas/toilet rooms: $\frac{5}{8}$ " Gold Bond XP Gypsum Board. 5.5. Interiar partitions to recieve wall tile: $\frac{5}{8}$ " Gold Bond eXP Tile Backer

FLOORING GENERAL

- 1. 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. Changes in finished floor height/materials: Where finished floor hieght of tile flooring is higher then adjacent floor finish, raise adjacent flooring with trowelable leveling compound so finish heights are equal. Taper compound out at $\frac{1}{16}$ " per foot. Provide Schluter Schien at edges of tile flooring. At all other locations rubber tranistion strips shall be used. Strips shall be as manufactured by Johnsonite or approved equal. (Verify color with designer.) Transitions strips are to occur under doors unless noted otherwise.

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 and1.2. 2 cts. ProMar 200 Int. Latex Eq-Shel
- 2. Paint all new and exisitng interior gypsum board walls in wet areas (Toilet and Janitor Rooms):
- 2.1. 1 ct. PrepRite 200 Latex Primer and2.2. 2 cts. Waterbased Catalyzed Epoxy
- 3. Interior gypsum board ceilings and soffits (unless noted otherwise):
- 3.1. 1 ct. PrepRite 200 Latex Primer3.2. 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 Primer4.3. 2 cts. Sprayed Promar 200 Int. Alkyd Eq-Shel Enamel
- 5. All wood to receive a transparent finish (unless noted otherwise): 5.1. 1 ct. General Finishes Pre-Stain Wood Conditioner
- 5.2. Up to 2 cts (to obtain dark color) General Finishes Dye Concentrates
- 5.3. 1 ct General Finishes Oil Base Wood Stain5.4. 1 ct. General Finishes EF High Performance Polyurethane Top Coat-Satin
- 5.5. Sand between coats using 180 or finer grit sandpaper.
- 5.6. 1 ct. General Finishes EF High Performance Polyurethane Top Coat-Satin

DIVISION 10 - SPECIALTIES

FIRE EXTINGUISHER

1. 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, Door Glazing - Clear Safety Glass, with Die Cut Letters - Vertical Red Reverse.

DIVISION 11 - EQUIPMENT

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

DIVISION 12 - FURNISHINGS

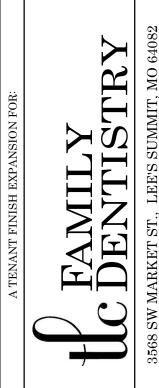
CASEMORK

- The General Contractor or his Subcontractor shall provide all necessary work to provide plastic laminate casework at locations indicated on these documents. Work under the contract shall include all labor, materials, and incidentals necessary to execute a complete workmanlike job in accordance with the requirements of all applicable codes and ordinances including the Americans with Disabilities Act Guidelines. The General Contractor or his Subcontractor to review shop drawings with Owner to verify casework layout and dimensions.
- 2. Casework shell units are to be constructed with 3/4" particle board sides and 1/2" particle board backs with plastic laminate or wood veneers on all exterior exposed vertical faces and also on the bottom face of upper wall units. Exposed edges to be .020 polyvinyl chloride impact/chip/mar-resistant edges. All interior surfaces on units with doors/drawers to be 85 gram melamine. For open units refer to interior elevations for interior surface and edges. Base cabinets are to be nominal 24" deep. Upper cabinets are to 14" deep O.A. from back of cabinet at wall to face of doors. Full height cabinets are to be 26" deep unless noted otherwise. Full height cabinets are to be constructed with solid center shelf with doors above and below.
- 3. Countertops: Outside corners of all countertops to have $1\frac{1}{2}$ " radius.
- 3.1. Plastic Laminate countertops are to be $1\frac{1}{4}$ " thick with plastic laminate faces and 3mm ($\frac{1}{6}$ ") flexible PVC edges. Backsplashes are to be provided as indicated on the interior elevations, and are to have matching plastic laminate on all exposed faces.
- 3.2. Solid Surface countertops shall be as indicated on Finish Legend. Surfaces of material are to be adhesively joined with inconspicuous seams.
- 3.3. Quartz Surfacing shall be as indicated on Finish Legend. Surfaces of material are to be epoxy joined with inconspicuous seams.
- 4. Mood Door Drawer and False Front Panels to have solid oak Stile and rail oak panels to match existing dimensions and profiles of existing to remain optical display casework. Stain and finish per painting specifications.
- 5. Plastic Laminate Door, Drawer, and False Front Panels to have plastic laminate faces, 85 gram melamine backs, and 3mm (1/8") high impact resistant PVC edges.
- 6. Shelving to be 1" particle board fully adjustable on 1-1/4" centers. Edge to be .020 polyvinyl chloride impact/chip/mar-resistant edge. Shelving inside units with doors to have 85 gram melamine on top and bottom. Shelving of open units are to have plastic laminate to match the exterior.
- 7. Hardware shall be heavy-duty satin chrome. Hinges shall be European concealed heavy duty hinges. All doors over 36" tall to have three hinges. All pulls are to be 4" bent wire pulls, unless otherwise noted. Finish to be 26D. Removable panels are to be secured with Hafele Keku push fit fastners.
- 8. Drawer boxes to be Blum Meta-Box system or Grass UniDrawer (Unless noted otherwise). Slides to have 100 pound load rate. Drawer box depth is to be within 2" of drawer face panel height. Drawers indicated on drawings as FILE are to have white melamine box with KV 8505 slides and Hafele letter width file frame kit.
- 9. Provide one 2" dia standard plastic grommet with hole liner and slotted cover for every three linear feet of countertop that has knee space below. If knee space is less than three feet wide provide two grommets. Also provide one 2" dia standard plastic grommet at each location with power and/or data installed in cabinet. Color as selected by interior designer. Exact locations of grommets to be established and be confirmed by owner prior to installation.
- 10. All particle board is to be of 45-pound density particle board. All plastic laminate is to be General Purpose Type 107 HGS laminate as manufactured by Wilsonart or approved equal.
- 11. Provide fillers to match casework at sides of all casework abutting adjecent vertical surfaces. Also provide filler panels above upper cabinets where distance between upper cabinet and ceiling above is
- 12. Metal Counter Supports: All support brackets are to be as manufactured by Rakks Counter Support Brackets (www.rakks.com). Material to be 6063-T6 extruded aluminum. Construction to be TIG welded along both 45° mitered sides and across the back. All sharp edges ground and deburred. Provide one support bracket for every three lineal feet of unsupported countertop.



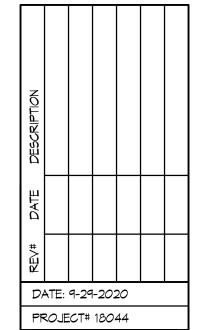
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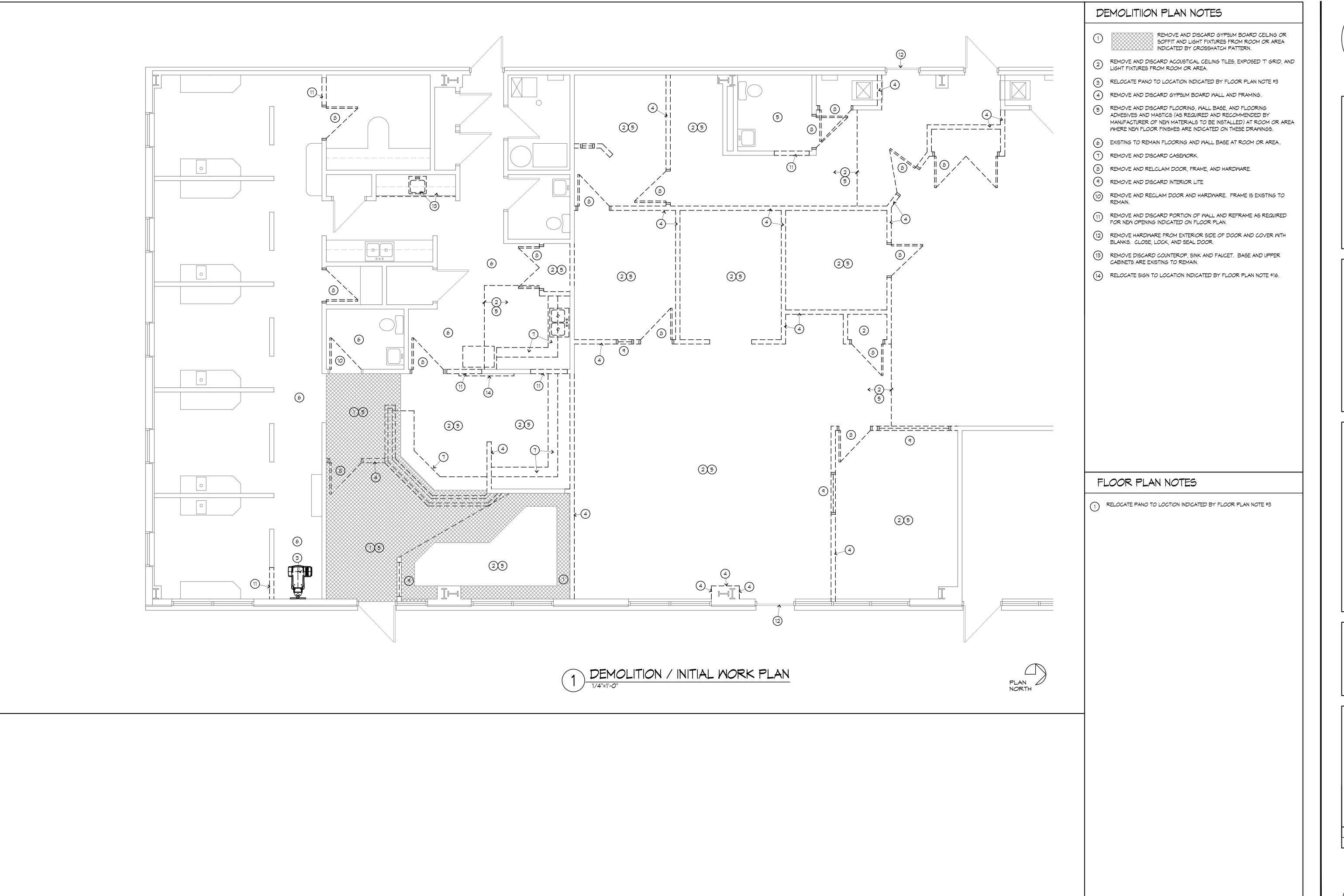


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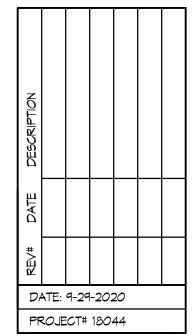


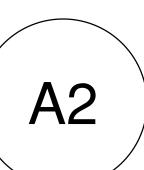
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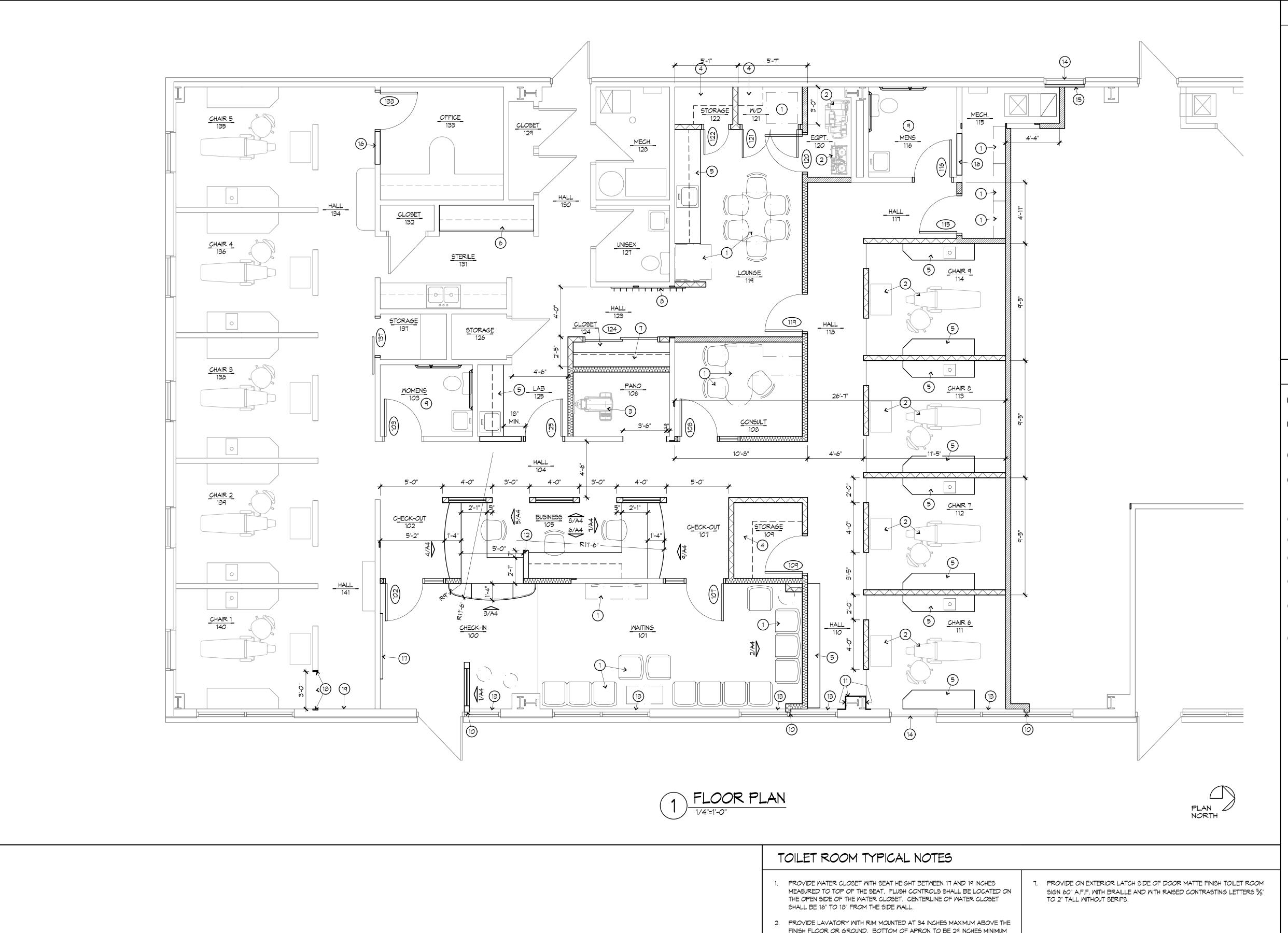












WALL TYPES

- FURR-OUT AROUND THE STRUCTURAL COLUMNS AND MECHANICAL CHASES AS REQUIRED. MINIMIZE DEPTH OF FURRING.
- PROVIDE SOLID BLOCKING FOR DOORS, WINDOWS, TOILET PARTITION, ACCESSORIES, HANDRAILS, LAVATORY BRACES, CASEWORK, SHELVING ETC. AS REQUIRED BY MANUFACTURER AND ALL WORK DONE BY CARPENTRY AND MILLMORK TRADES. ALL MOOD REQUIRED BY BUILDING CODES SHALL MEET ALL REQUIREMENTS TO THE CODE OF UNDERWRITERS LABORATORIES, INC. VERIFY THE DEPTH OF WALLS PRIOR TO INSTALLING RECESSED FIXTURES.
- 3. ALL EXPOSED EDGES AND / OR CORNER ON ALL GYPSUM WALL BOARD CONSTRUCTION SHALL HAVE A METAL CORNER TRIM, TAPED AND
- 4. ALL NEW GYPSUM BOARD PARTITIONS TO BE PROPERLY PREPARED, PATCHED, SPACKLED AND SANDED, ETC., TO PROVIDE A SMOOTH FINISH AND AS REQUIRED TO RECEIVE NEW FINISHES.
- 5. ALL OPENINGS IN GYPSUM BOARD PARTITIONS SHALL BE DOUBLE STUDDED.

35/8" 25 GAUGE MTL. STUDS @ 16" O.C. WITH 5/8" GYPSUM BOARD EACH SIDE. EXTEND ALL TO 3" ABOVE DROPPED CEILINGS. PROVIDE 45° STUD KICKERS UP TO STRUCTURE AT 4'-0" O.C.

3½" 25 GAUGE MTL. STUDS @ 16" O.C. WITH ½" GYPSUM BOARD EACH SIDE AND 31/2" R-11 UNFACED ACOUSTICAL BATTS. EXTEND ALL TO 3" ABOVE DROPPED CEILINGS. PROVIDE 45° STUD KICKERS UP TO STRUCTURE AT 4'-0" O.C.

> $3\frac{\pi}{8}$ 25 GAUGE MTL. STUDS @ 16" O.C. WITH $\frac{\pi}{8}$ " GYPSUM BOARD EACH SIDE AND 31/2" R-11 UNFACED ACOUSTICAL BATTS. EXTEND ALL TO UNDERSIDE OF ROOF DECK. PROVIDE DEEP LEG DEFLECTION TRACK AT TOP OF WALL INSTALLED PER MANUFACTURER'S INSTRUCTIONS. PROVIDE ACOUSTICAL SEALANT AT ALL PERIMETERS AND THRU WALL PENETRATIONS.

FLOOR PLAN NOTES

AT 30" MAX O.C.

- OWNER PROVIDED FURNITURE NOT IN CONTRACT IS INDICATED THUS —
- DENTAL FURNITURE SUPPLIED BY OTHERS IS INDICATED
 THUS COORDINATE REQUIREMENTS WITH COORDINATE REQUIREMENTS WITH DENTAL EQUIPMENT SUPPLIER.
- 3 INSTALL PANO INDICATED TO BE RELOCATED BY DEMOLITION PLAN NOTE
 #3. CORDINATE REQUIREMENTS WITH DENTAL EQUIPMENT GUEST CORDINATE REQUIREMENTS WITH DENTAL EQUIPMENTS GUEST CORDINATE REQUIREMENTS WITH DENTAL EQUIPMENTS. #3. COORDINATE REQUIREMENTS WITH DENTAL EQUIPMENT SUPPLIER.
- FIVE HIGH 1" THK. X 18" DP WHITE 85 GRAM MELAMINE SHELVING W/ .020 PVC EDGE. PROVIDE KV 82 SERIES WH 78" LONG STANDARDS W/ 182

SERIES WH BRACKETS TYP. PROVIDE A BRACKET 6" FROM EACH END AND

- 5 PLASTIC LAMINATE CASEMORK TO BE DESIGN BUILT BY CONTRACTOR REFER TO SPECIFICATIONS.
- (6) PROVIDE NEW PLASTIC LAMINATE COUNTER WITH 4" BACKSPLASH.
- PROVIDE PLASTIC LAMINATE SHELF AND BRACKETS, AND HEAVY DUTY CLOTHES ROD.
- 8) PROVIDE PLASTIC LAMINATE CLAD PLYWOOD BOARD FOR OWNER
- SUPPLIED COAT HOOKS. 6"H \times 6'-0"LONG \times 3 4"THK.
- 9 FIELD VERIFY EXISTING TOILET ROOM TO CONFORM THE REQUIREMENTS OF TYPICAL TOILET ROOM NOTES THIS SHEET. ITEMS FOUND NOT IN CONFORMANCE ARE TO BE CORRECTED AS PART OF THE WORK.
- FINISH END OF WALL WITH 36" GYPSUM BOARD INSTALLED WITH 1/4" GAP BETWEEN GYPSUM BOARD AND VERTICAL WINDOW MULLION. AFTER FINISHING AND PAINTING END OF WALL FILL GAP WITH BACKER ROD AND SEALANT BOTH SIDES OF VERTICAL MULLION
- PROVIDE GYPSUM BOARD AND FRAMING. REFRAME COULUM ENCLOSURE SO BACK OF GYPSUM BOARD IS FLUSH WITH FACE OF COLUMN.
- PARTIAL HEIGHT GYPSUM BOARD WALL OF $\frac{7}{8}$ " GYPSUM BOARD ON $3\frac{7}{8}$ " METAL STUD FRAMING. CAP TOP OF WALL WITH GYPSUM BOARD AT 7'-6"
- PROVIDE WDS' AS INDICATED IN THE FINISH LEGEND.
- REMOVE HARDWARE FROM EXTERIOR SIDE OF DOOR AND COVER WITH BLANKS. CLOSE, LOCK, AND SEAL DOOR.
- 15) INFILL OPENING WITH LAYER OF 1/8" BYPSUM BOARD ON 11/8" METAL STUDS FLUSH WITH EXISTING WALL SURFACE.
- INFILL OPENING WITH $\frac{1}{8}$ " BYPSUM BOARD ON BOTH SIDES OF METAL STUDS FLUSH WITH EXISTING WALL SURFACES ON BOTH SIDES OF WALL.
- 17 INSTALL SIGN INDICATED TO BE RELOCATED BY DEMOLITION PLAN NOTE
- PROVIDE GYPSUM BOARD AT JAMBS, FINISH AND PAINT. PATCH AND REPAAIR FLOORING TO MATCH EXISTING.
- (19) PATCH AND REPAIR WALL AT DEMOLISHED ELECTRICAL WORK.

- FINISH FLOOR OR GROUND. BOTTOM OF APRON TO BE 29 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND. WATER SUPPLY AND DRAIN PIPES UNDER LAVATORY SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OF ABRASIVE SURFACES UNDER LAVATORY. THE CENTERLINE OF THE LAVATORY SHALL BE A MINIMUM OF 15" FROM THE SIDE WALL.
- 3. MIRROR TO BE 40" MAXIMUM TO REFLECTIVE SURFACE.
- 4. TOILET PAPER DISPENSER TO BE 7 INCHES FROM RIM OF TOILET TO CENTER OF TOILET PAPER ROLL(IN PLAN HORIZONTAL.) TOILET PAPER TO BE 19" MINIMUM ABOVE FINISHED FLOOR.
- 5. SIDE HORIZONTAL GRAB BAR TO BE 42" MIN LONG, 12" FROM BACK WALL, AND 33"-36" AFF. SIDE VERTICAL GRAB BAR TO BE 18" MIN. LONG, 40" FROM BACK WALL, AND 40" AFF TO BOTTOM OF BAR. REAR HORIZONTAL GRAB BAR TO BE 36" MIN LONG, 6" MAX FROM BACK WALL, AND 33"-36" AFF. ALL GRAB BARS TO HAVE $1\!V_2$ " MAX DIA. AND $1\!V_2$ " OFFSET FROM WALL.
- 6. SOAP AND PAPER TOWEL DISPENSERS (IF PROVIDED) TO BE INSTALLED AT 34" AFF TO SOAP SPOUT OR TOWEL DISPENSING LOCATION.

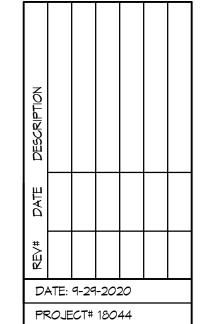


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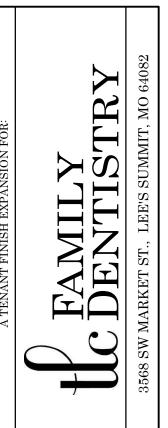




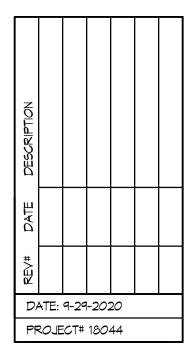


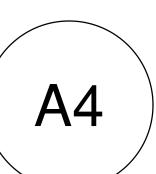
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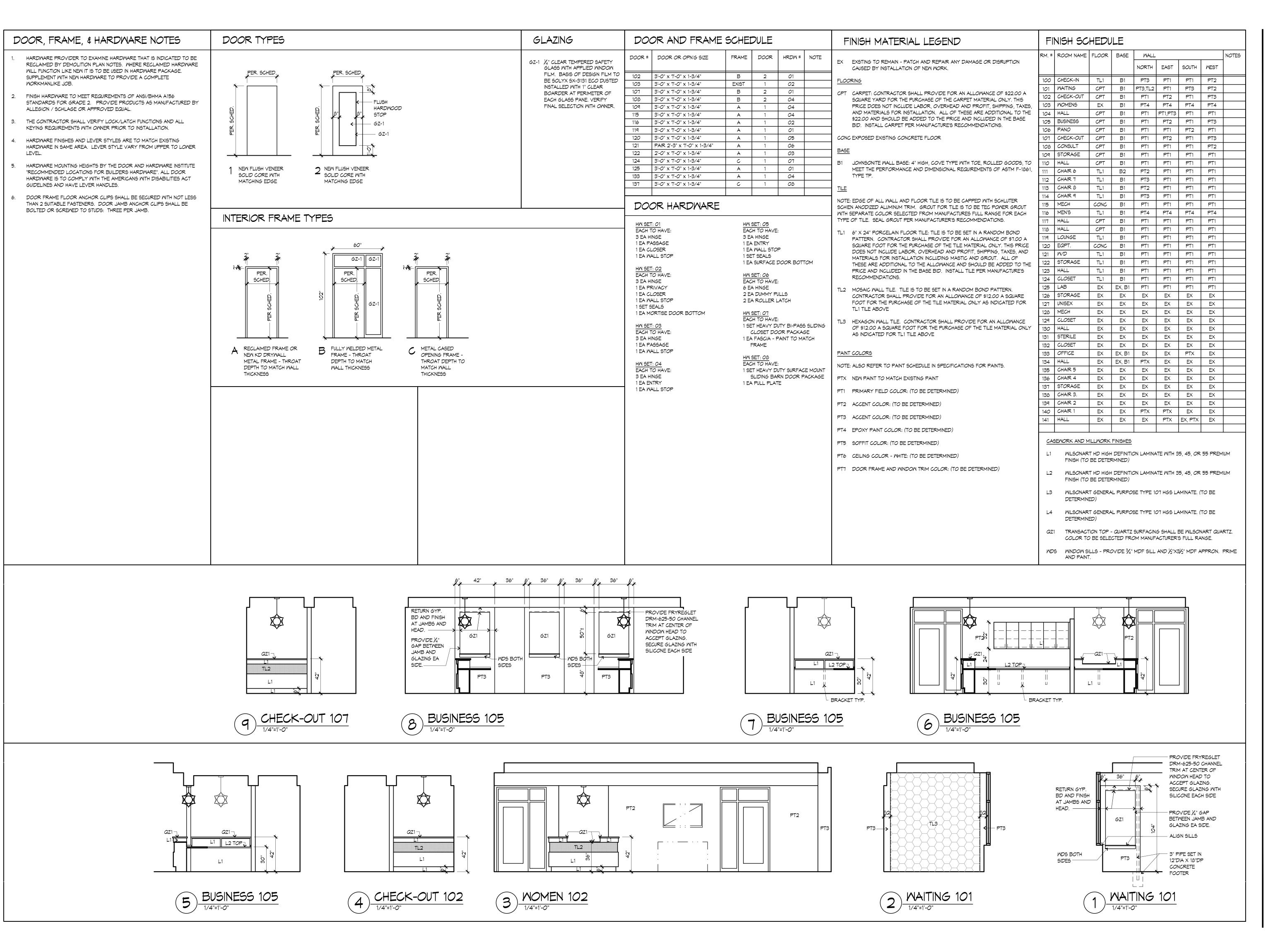












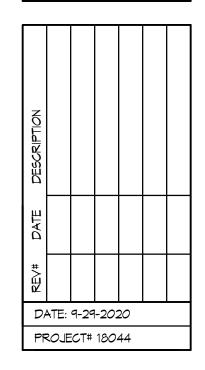


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BENTISTRY
3568 SW MARKET ST., LEE'S SUMMIT, MO 64082





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MECHANICAL SPECIFICATIONS

1. GENERAL PROVISIONS:

- A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL 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 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, PIPE, DUCT, 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
- 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
- G. CONTRACTOR SHALL GUARANTEE ALL MORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.

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 BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER,
- D. SUBMIT MEDICAL GAS CERTIFICATION REPORT TO OWNER.

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

4. MOTORS:

- A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.
- 5. TESTING, BALANCING, AND CLEANING:
- A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR
- B. SEMER 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. FIRE PROTECTION PIPING SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA.
- D. 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
- 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
- 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 DISTRIBUTIO 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.

6. PLUMBING

- 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.

ASME B16.51.

- 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 EQUAL 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 IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING
- CONNECTIONS TO HOT WATER HEATERS AND EXPANSION TANKS. G. ALL SEMER 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. (MUST BE INSTALLED PER THE MANUFACTURERS REQUIREMENTS FOR PLENUM USE)
- 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 MATER 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. UL842, C5A 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) 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.
- 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) PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, UTILIZED IN THE WATER SUPPLY SYSTEM SHALL NOT HAVE MORE THAN 8% LEAD CONTENT.
- 2) PIPE, PIPE FITTINGS, JOINTS, VALVES, FAUCETS, AND FIXTURE FITINGS UTILIZED TO SUPPLY MATER FOR DRINKING OR COOKING PURPOSES SHALL COMPLY WITH NSF 372 AND SHALL HAVE A WEIGHTED AVERAGE LEAD CONTENT OF 0.25% OR LESS.

MECHANICAL SPECIFICATIONS (CONTINUED)

D. SANITARY SEMER AND VENTS. (UNDERGROUND, INTERIOR TO THE BUILDING).

- ABS SCHEDULE 40 CELLULAR CORE (FOAM CORE) PIPE AND DWY FITTING SYSTEM: PIPE AND FITTINGS SHALL BE MANUFACTURED FROM ABS COMPOUND WITH A CELL CLASS OF 42222 FOR PIPE AND 32222 FOR FITTINGS AS PER ASTM D 3965 AND CONFORM WITH NATIONAL SANITATION FOUNDATION (NSF) STANDARD 14. PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM F 628 FITTINGS SHALL CONFORM TO ASTM D 2661. SOLVENT CEMENTS SHALL CONFORM TO ASTM D 2235.
- PVC SCHEDULE 40 CELLULAR CORE (FOAM CORE) PIPE AND DWV FITTING SYSTEM: PIPE AND FITTINGS SHALL BE MANUFACTURED FROM PVC COMPOUND WITH A CELL CLASS OF 11432 PER ASTM D 4396 FOR PIPE AND 12454 PER ASTM D 1784 FOR FITTINGS AND CONFORM WITH NATIONAL SANITATION FOUNDATION (NSF) STANDARD 14. PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM F 891. INJECTION MOLDED FITTINGS SHALL CONFORM TO ASTM D 2665. FABRICATED FITTINGS SHALL CONFORM TO ASTM F 1866. SOLVENT CEMENTS SHALL CONFORM TO ASTM D 2564.
- PVC SCHEDULE 40 SOLID WALL PIPE AND DWV FITTING SYSTEM: PIPE AND FITTINGS SHALL BE MANUFACTURED FROM PVC COMPOUND WITH A CELL CLASS OF 12454 PER ASTM D 1784 AND CONFORM WITH NATIONAL SANITATION FOUNDATION (NSF) STANDARD 14. PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1785 AND ASTM D 2665. INJECTION MOLDED FITTINGS SHALL CONFORM TO ASTM D 2665. FABRICATED FITTINGS SHALL CONFORM TO ASTM F 1866, SOLVENT CEMENTS SHALL CONFORM TO ASTM D 2564.
- 4) HUBLESS CAST IRON SOIL PIPE AND FITTINGS: HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310 AND BE CERTIFIED BY NSF® INTERNATIONAL.
- 5) 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 SHALL CONFORM TO ASTM A 74.

E. SANITARY SEMER AND VENTS. (ABOVE GROUND, INTERIOR TO THE BUILDING).

- ABS SCHEDULE 40 CELLULAR CORE (FOAM CORE) PIPE AND DWY FITTING SYSTEM: PIPE AND FITTINGS SHALL BE MANUFACTURED FROM ABS COMPOUND WITH A CELL CLASS OF 42222 FOR PIPE AND 32222 FOR FITTINGS AS PER ASTM D 3965 AND CONFORM WITH NATIONAL SANITATION FOUNDATION (NSF) STANDARD 14. PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM F 628 FITTINGS SHALL CONFORM TO ASTM D 2661. SOLVENT CEMENTS SHALL CONFORM TO ASTM D 2235
- (NOT FOR USE IN A RETURN AIR PLENUM) PVC SCHEDULE 40 CELLULAR CORE (FOAM CORE) PIPE AND DMV FITTING SYSTEM: PIPE AND FITTINGS SHALL BE MANUFACTURED FROM PVC COMPOUND WITH A CELL CLASS OF 11432 PER ASTM D 4396 FOR PIPE AND 12454 PER ASTM D 1784 FOR FITTINGS AND CONFORM WITH NATIONAL SANITATION FOUNDATION (NSF) STANDARD 14. PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM F 891. INJECTION MOLDED FITTINGS SHALL CONFORM TO ASTM D 2665. FABRICATED FITTINGS SHALL CONFORM TO ASTM F 1866. SOLVENT CEMENTS SHALL CONFORM TO ASTM D 2564. (NOT FOR USE IN A RETURN AIR PLENUM)
- PVC SCHEDULE 40 SOLID WALL PIPE AND DWV FITTING SYSTEM: PIPE AND FITTINGS SHALL BE MANUFACTURED FROM PVC COMPOUND WITH A CELL CLASS OF 12454 PER ASTM D 1784 AND CONFORM WITH NATIONAL SANITATION FOUNDATION (NSF) STANDARD 14. PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1785 AND ASTM D 2665. INJECTION MOLDED FITTINGS SHALL CONFORM TO ASTM D 2665. FABRICATED FITTINGS SHALL CONFORM TO ASTM F 1866. SOLVENT CEMENTS SHALL CONFORM TO ASTM D 2564. (WHERE APPROVED BY LOCAL JURISDICTIONS) (NOT FOR USE IN A RETURN AIR PLENUM)
- 4) HUBLESS CAST IRON SOIL PIPE AND FITTINGS: HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310 AND BE CERTIFIED BY NSF® INTERNATIONAL.
- 5) 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 SHALL CONFORM TO ASTM A 74.

F. CONDENSATE DRAINS & INDIRECT WASTE (ABOVEGROUND).

1) DMV, WROUGHT COPPER, ANSI B-16.29 (CONDENSATE INSIDE BUILDING) 3) POLYVINYLCHLORIDE (PVC) DMV PIPE, SCHEDULE 40, SOLVENT JOINT (INDIRECT WASTE).

G. DENTAL COMPRESSED AIR.

- TYPE L HARD DRAWN COPPER TUBING, ASTM B-819.
- JOINTS: AMS A5.8, BCUP SILVER BRAZE (15% SILVER SOLDER). 4) PIPING SHALL BE CLEANED AND INSTALLED IN ACCORDANCE WITH INSTALLATION OF MEDICAL
- GAS PIPING SECTION OF THIS SPECIFICATION
- H. DENTAL VACUUM.
- TYPE L HARD DRAWN COPPER TUBING, ASTM B-819.
- WROUGHT BRONZE SOLDERED FITTINGS JOINTS: AWS A5.8, BCUP SILVER BRAZE (15% SILVER SOLDER).
- PIPING SHALL BE CLEANED AND INSTALLED IN ACCORDANCE WITH INSTALLATION OF MEDICAL GAS PIPING SECTION OF THIS SPECIFICATION. 5) PVC PLASTIC PIPE SHALL BE SCHEDULE 40 OR SCHEDULE 80. COMPLYING WITH ASTM D 1785.
- STANDARD SPECIFICATION FOR POLY (VINYL CHLORIDE) (PVC) PLASTIC PIPE, SCHEDULES 40, 80, 6) PVC PLASTIC FITTINGS SHALL BE SCHEDULE 40 OR SCHEDULE 80 TO MATCH THE PIPE, COMPLYING WITH
- ASTM D 2466, STANDARD SPECIFICATION FOR POLY (VINYL CHLORIDE) (PVC) PLASTIC PIPE FITTINGS, SCHEDULE 40, OR ASTM D 2467, STANDARD SPECIFICATION POLY (VINYL CHLORIDE) (PVC) PLASTIC PIPE FITTINGS, SCHEDULE 80. 7) JOINTS IN PVC PLASTIC PIPING SHALL BE SOLVENT-CEMENTED IN ACCORDANCE WITH ASTM D 2672,

8. DENTAL AIR AND VACUUM PIPING INSTALLATION:

A. INSTALL AIR AND VACUUM PIPING SYSTEMS IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS

STANDARD SPECIFICATION FOR JOINTS FOR IPS PVC PIPE USING SOLVENT CEMENT.

- B. PRE-INSTALLATION CLEANING: DISASSEMBLE POSITIVE PRESSURE GAS SYSTEMS PIPE, FITTINGS, VALVES, AND COMPONENTS, EXCEPT THOSE SUPPLIED CLEANED AND PREPARED FOR INTENDED SERVICE, AND THOROUGHLY WASH IN HOT SOLUTION OF SODIUM CARBONATE OR TRISODIUM PHOSPHATE MIXED ONE POUND TO 3 GALLONS OF WATER. AFTER WASHING, RINSE WITH WATER, DRY AND CAP UNTIL
- C. BRAZE JOINTS IN PIPE AND TUBING. AVOID LEAVING EXCESS FLUX INSIDE OF PIPE AND FITTINGS. DURING BRAZING OF PIPE CONNECTIONS, PURGE INTERIOR OF PIPE CONTINUOUSLY WITH NITROGEN.
- EFFECT CHANGES IN SIZE WITH REDUCING FITTINGS. MAKE CHANGES IN DIRECTION OF REQUIRED TURNS OR OFFSETS MITH FITTINGS OR TUBING SHAPED BY BENDING TOOLS. BENDS SHALL BE FREE OF FLATTENING, BUCKLING OR THINNING OF TUBE WALL.
- E. GRADE PIPING DOWN IN DIRECTION OF FLOW.
- F. PROVIDE PIPE SLEEVES WHERE PIPES AND TUBING PASS THROUGH WALLS, FLOORS, ROOFS, AND PARTITIONS. FINISH FLUSH AT BOTH ENDS. EXTEND 2 INCHES (50MM) ABOVE FINISHED FLOORS. PACK SPACE BETWEEN PIPE OR TUBING AND SLEEVE, AND CALK.
- G. IDENTIFY PIPING IN ACCORDANCE WITH MIL-STD 101, WITH TAPE AND DECALS TO FSPPP-T-66. PROVIDE PIPING IDENTIFICATION CODE AND SCHEMATIC. LABELLING SHALL APPEAR ON PIPE AT INTERVALS OF NOT MORE THAN 20 FEET AND AT LEAST ONCE IN EACH ROOM AND EACH STORY
- H. SUPPORT GAS PIPING WITH PIPE HOOKS OR HANGERS SUITABLE FOR SIZE OF PIPE, SPACED:

1) 1/2 INCH PIPE OR TUBING: 72 INCHES.

- 2) 3/4 INCH OR ONE INCH PIPE OR TUBING: 96 INCHES. 3) 1-1/4 INCHES OR LARGER (HORIZONTAL): 120 INCHES
- 4) 1-1/4 INCHES OR LARGER (VERTICAL): EVERY FLOOR LEVEL

I. PIPING SYSTEMS CLEANING AND PRESSURE TESTING:

- 1) AFTER ERECTION OF PIPE AND TUBING BUT PRIOR TO INSTALLATION OF SERVICE OUTLET VALVES, BLOW SYSTEMS CLEAR OF FREE MOISTURE AND FOREIGN MATTER WITH NITROGEN GAS.
- 2) INSTALL SERVICE OUTLET VALVES, SUBJECT SYSTEM TO TEST PRESSURE OF 150 PSIG WITH NITROGEN OR DRY COMPRESSED AIR. CHECK WITH SOAPY WATER. PROVIDE 24-HOUR STANDING

J. CROSS-CONNECTION TESTS:

- 1) CROSS CONNECTION TESTING SHALL BE PERFORMED BY THE MEDICAL GAS EQUIPMENT SUPPLIER OR AN INDEPENDENT TESTING AGENCY. THE TESTING AGENCY SHALL BE CERTIFED TO PERFORM MEDICAL GAS TESTING PROCEDURES. THE TESTING AGENCY SHALL CERTIFY THAT SYSTEM IS COMPLETE. ZONE VALVES INSTALLED. ALARM SYSTEMS FUNCTIONAL. AND ALL TESTS REQUIRED. BY NFPA 99 WERE PERFORMED. DOCUMENT TESTS AND SUBMIT CERTIFICATE TO THE HOSPITAL.
- 2) REDUCE PRESSURE IN PIPING SYSTEMS OTHER THAN SYSTEM UNDER INVESTIGATION TO
- 3) TEST SYSTEM WITH DRY COMPRESSED AIR OR DRY NITROGEN WITH TEST PRESSURE IN PIPING
- 4) CHECK EACH STATION OUTLET OF EVERY PIPING SYSTEM TO DETERMINE TEST GAS IS DISPENSED ONLY FROM OUTLET OF SYSTEM UNDER INVESTIGATION. MEASURE PRESSURE WITH GAGE ATTACHED TO SPECIFIC ADAPTOR. DO NOT USE UNIVERSAL ADAPTORS.
- 5) DISCONNECT TEST GAS AND CONNECT PROPER GAS TO EACH SYSTEM. PURGE ENTIRE SYSTEM TO REMOVE TEST GAS. CHECK WITH ANALYZER SUITABLE FOR GAS INSTALLED.
- M. 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.

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
- 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 ERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER

SHALL BE TWO SIZES GREATER THAN THE PIPE PASSING THOUGH THE WALL OR FOOTING.

O. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS

MECHANICAL SPECIFICATIONS (CONTINUED)

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 FLOOR/GRADE:

- 1) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 Btu PER in/hr*5qft*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 ARMAFLEX OR ARMAFLEX 2000.
- 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 b) DOMESTIC HOT WATER C) HOT WATER RECIRCULATING

d) CONDENSATE DRAINS INSIDE BUILDING 1/2" C. PIPE INSULATION - BELOW FLOOR/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. COVER 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

- 4) INSULATION SCHEDULE: a) DOMESTIC HOT WATER
- b) HOT WATER RECIRCULATING 1-1/2" D. DUCTWORK: ACOUSTICAL INSULATION
- 1) DUCT LINING: 2 LB/CF, THICKNESS AS SCHEDULED, AIR STREAM SIDE COATED, INSTALL PER SMACNA STANDARDS.

CORRUGATED HDPE JACKET. UPONOR ECOFLEX OR EQUAL. ASTM F876, F877, CSA B137.5

- a) DUCT LINING SCHEDULE: (1) RECTANGULAR SUPPLY DUCT 1/2": THROUGHOUT THE FIRST 10 FEET OF DUCT.
- 1/2" : THROUGHOUT THE FIRST 10 FEET OF DUCT (2) RETURN AIR DUCT E. 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) RECTANGULAR SUPPLY DUCT (3) RETURN AIR DUCT

2) ROUND AND OVAL SPIRAL SEAM DUCT:

ARE INDICATED PROVIDE CONICAL TYPE TEES.

WELDED AND BONDED TO DUCT FITTING BODY.

10. DUCTMORK:

- A. ALL DUCTMORK, UNLESS OTHERMISE INDICATED, SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G 90 ZINC COATING IN ACCORDANCE WITH ASTM A 525; AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.
- B. WHERE DUCTWORK IS INDICATED TO BE EXPOSED TO VIEW IN OCCUPIED SPACES, PROVIDE MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS INCLUDING PITTING, SEAM MARKS, ROLLER MARKS, STAINS AND DISCOLORATIONS, AND OTHER IMPERFECTIONS, INCLUDING THOSE WHICH WOULD IMPAIR
- C. DUCTWORK, METAL GAUGES, REINFORCING, ETC. SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2 INCH WATER GAUGE STATIC PRESSURE.

1) RECTANGULAR DUCT:

- a) ELBOWS, UNLESS INDICATED OTHERWISE SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOW WITH DOUBLE WALL STREAMLINE VANES. b) RETURN AIR ACOUSTICAL ELBOMS AND SOUND BOOTS SHALL BE A SQUARE ELBOM WITH NO
- c) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
- a) PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEGREE CHANGE OF DIRECTION PER SECTION. UNLESS SPECIFICALLY DETAILED OTHERWISE USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEGREE BRANCHES
- 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-
- FABRICATED DUCT AND FITTINGS. (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. (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 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.

1/2". FASTEN TO DUCT AND WALL

- 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
- 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-
- 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

CLASS B

- F. EQUIPMENT CONNECTIONS: 1) CONNECT METAL DUCTWORK TO EQUIPMENT AS INDICATED, PROVIDE FLEXIBLE CONNECTION FOR EACH
- 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.

CLASS A CLASS C

CLASS B

CLASS C

CLASS B

DUCTWORK CONNECTION TO EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, AND/OR EQUIPMENT

11. FLEXIBLE DUCT:

1) UNCONDITIONED SPACES

A. ATCO #086 (R-6), OR EQUAL.

2) CONDITIONED SPACES (PLENUM) CLASS C

CONSTRUCTION STANDARDS", LATEST EDITION.

B. FACTORY APPLIED INSULATION AND VAPOR BARRIER, 1-1/2" THICK.

C. MAXIMUM LENGTH OF 5'-O'

MECHANICAL SPECIFICATIONS (CONTINUED)

12. 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. UNIT 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.

13. CONTROL WIRING:

- A. ELECTRICAL 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 MORKMANLIKE 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
- VOLTAGE WIRING MAY BE TEFLON COATED. ALUMINUM SHEATHED CABLE OR OTHER WIRE SPECIFICALLY APPROVED FOR INSTALLATION IN AIR PLENUMS, WHERE ACCEPTABLE BY LOCAL

5) ALL WIRING IN AREAS USED AS AIR PLENUMS SHALL BE IN ELECTRIC CONDUIT EXCEPT THAT LOW

6) ALL WIRING IN AREAS NOT USED FOR AIR MOVEMENT SHALL BE IN FLECTRIC 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,

- 14. REMODELING WORK A. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MECHANICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
- B. EQUIPMENT TO BE SALVAGED: 1) DISCONNECT AND REMOVE, EXISTING MECHANICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE
- 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

REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO

REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED

2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY

"LIKE NEM" CONDITION MITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR

- C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE
- PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE. E. 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

DEMOLISHED, REROUTE PIPING TO NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF THE

SYSTEM. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS

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

UNLESS INDICATED OTHERWISE

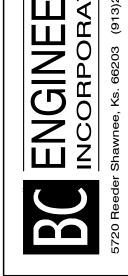
ALLOWED TO REMAIN ABOVE CEILING OR BELOW FLOOR, CONCEALED FROM VIEW, EXCEPT AS OTHERWISE NOTED. PATCH FLOOR TO MATCH EXISTING. H. PIPE AND DUCT SHALL BE CONCEALED WITH NEW OR EXISTING CONSTRUCTION WHENEVER POSSIBLE,

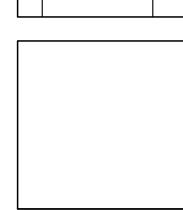
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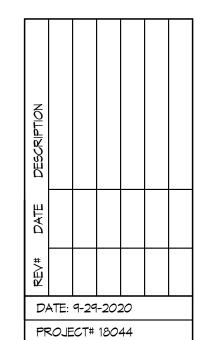
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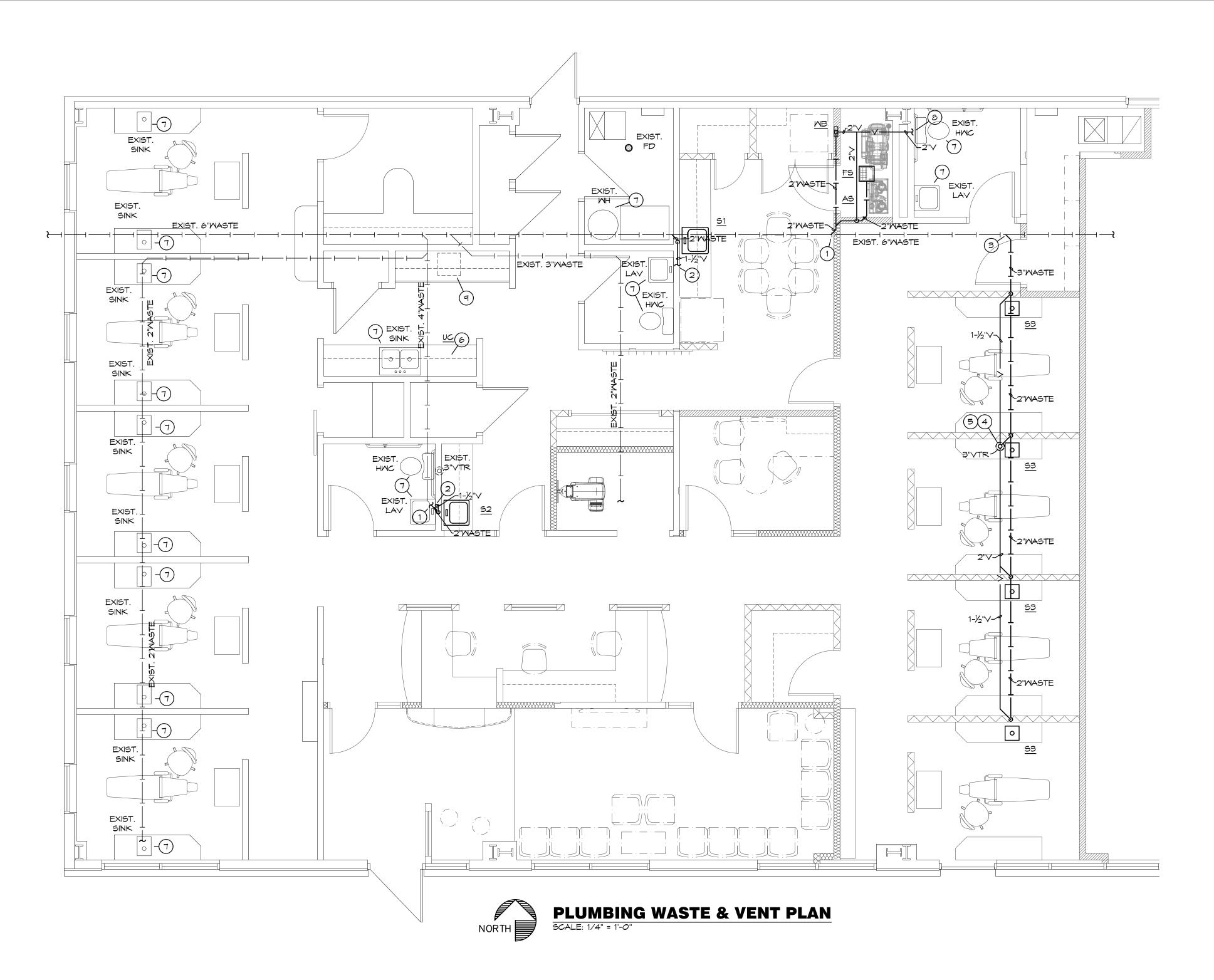
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PLUMBING GENERAL NOTES:

- 1. INSTALL ALL PIPE, ETC. AS HIGH AS POSSIBLE.
- 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 DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF FIXTURES.
- 4. 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.
- 5. SAMOUT EXISTING FLOOR AS REQUIRED FOR INSTALLATION OF UNDERFLOOR PIPING. PATCH FLOOR TO MATCH EXISTING.
- 6. NO PIPING SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- 7. CONTRACTOR TO TEST WATER PRESSURE ON SITE AND PROVIDE PRESSURE REDUCING VALVE ON WATER SERVICE IF PRESSURE IS OVER 80 PSI.

PLUMBING PLAN NOTES:

- (1) EXTEND AND CONNECT 2" WASTE TO EXISTING 6" SANITARY SEMER MAIN AS REQUIRED. VERIFY EXACT LOCATION AND ELEVATION PRIOR TO INSTALLATION OF ANY PIPING.
- 2 EXTEND AND CONNECT 1-1/2" VENT TO EXISTING VENT PIPING ABOVE FLOOR AS REQUIRED. VERIFY EXACT LOCATION OF EXISTING VENT PIPE PRIOR TO INSTALLATION OF ANY PIPING.
- 3 EXTEND AND CONNECT 3" WASTE TO EXISTING 6" SANITARY SEWER MAIN AS REQUIRED. VERIFY EXACT LOCATION AND ELEVATION PRIOR TO INSTALLATION OF ANY PIPING
- 4) LOCATION OF 3" VTR. VERIFY 10' CLEARANCE FROM ALL OUTDOOR AIR INTAKES. SEAL PENETRATION WEATHERTIGHT.
- 5) CUT EXISTING ROOF AND FLASH INTO ROOF AS REQUIRED. ALL ROOFING WORK
 SHALL BE PERFORMED BY BUILDING OWNER'S ROOFING CONTRACTOR (AT THIS
 CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY
 APPROVED ROOFING CONTRACTOR WITH BUILDING OWNER PRIOR TO PERFORMING
- 6 CONNECT FLEXIBLE DRAIN LINE FROM ULTRASONIC CLEANER TO SINK TAILPIECE AS REQUIRED.
- EXISTING PLUMBING FIXTURE TO REMAIN, CLEAN TO 'LIKE NEW' CONDITION.
- EXTEND AND CONNECT 2" VENT TO EXISTING VENT PIPING ABOVE FLOOR AS REQUIRED. VERIFY EXACT LOCATION OF EXISTING VENT PIPE PRIOR TO INSTALLATION OF ANY PIPING.
- REMOVE EXISTING SINK. CAP WASTE AT FLOOR AND CAP VENT PIPING AT MAIN AS REQUIRED.

PLUMBING SYMBOLS

SOIL AND WASTE PIPING BELOW FLOOR/GRADE SOIL AND WASTE PIPING ABOVE FLOOR/GRADE SANITARY VENT PIPING ABOVE GRADE SANITARY VENT PIPING BELOW GRADE DOMESTIC COLD WATER PIPING DOMESTIC HOT WATER PIPING DOMESTIC HOT WATER RECIRCULATION PIPING GAS PIPING EQUIPMENT DRAIN LINE VACUUM PIPING BELOW FLOOR COMPRESSED AIR PIPING BELOW FLOOR PIPING TURNING DOWN PIPING TURNING UP TEE TOP CONNECTION \longrightarrow \mid \longleftarrow BACKFLOW PREVENTER FLOOR DRAIN FLOOR CLEAN OUT MALL CLEAN OUT VALVE BALANCING VALVE SOLENOID VALVE PRESSURE REGULATOR CHECK VALVE CONNECT TO EXISTING INVERT ELEVATION OF PIPE MATCH MARKS ON PLUMBING RISER

PLUMBING FIXTURE SCHEDULE (OR EQUAL):

DIAGRAM

- SINK (LOUNGE): ELKAY, #LR20223, 19-1/2"x22"x 7-5/8" DEEP BOWL, ADA COMPLIANT, SINGLE COMPARTMENT, SELF-RIMMING STAINLESS STEEL SINK WITH SATIN FINISH AND SOUND DAMPENING UNDERCOATING, DELTA #340-DST FAUCET W/ SPRAYER, SWING SPOUT, AERATOR, SINGLE LEVER HANDLE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, CHROME PLATED ANGLE STOPS AND RISERS, IN-SINK-ERATOR #BADGER 5 DISPOSAL, 1/2 HP, 120 VOLT.
- 52 SINK (LAB): ELKAY, #DLR202210, 16"x16"x10" DEEP BOWL, SINGLE COMPARTMENT, SELF-RIMMING STAINLESS STEEL SINK WITH SATIN FINISH AND SOUND DAMPENING UNDERCOATING, STRAINER, #LKGT1041 FAUCET W/ PULL-OUT SPRAYER, SWING SPOUT, AERATOR, SINGLE LEVER HANDLE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, CHROME PLATED ANGLE STOPS AND RISERS.
- SINK (DENTAL): BOWL AND FAUCET PROVIDED BY CONTRACTOR, MATCH EXISTING SINKS AND FAUCETS AT EXISTING CHAIRS 1-5. PROVIDE $1-\frac{1}{2}$ " TAILPIECE, WASTE PIPING, CHROME PLATED ANGLE STOPS AND RISERS.
- RCP HOT WATER RECIRCULATING PUMP: BELL & GOSSETT, #SERIES NBF-22, BRONZE FITTINGS, 5 GPM @ 10 FT. HEAD, 1/12 HP, 120 VOLT, WITH HONEYWELL 16006C AQUASTAT AND TC-1 TIMER KIT. SET TO 125°F.
- IB ICE BOX: GUY GRAY #AB-9700, ICE BOX WITH 1/2" CONNECTION AND 1/4-TURN SHUT
- UC ULTRASONIC CLEANER : FURNISHED AND INSTALLED BY OTHERS.
- FS FLOOR SINK: JR SMITH, #3161, CAST IRON RECEPTOR, A.R.E. INTERIOR, 12"X 12" NICKEL BRONZE STRAINER, SEDIMENT BUCKET.
- HB HOSE BIBB: MOODFORD, #24, 3/4" HOSE NOZZLE OUTLET, BRASS FINISH, HANDWHEEL OPERATED, INTEGRAL VACUUM BREAKER.
- AMALGAM SEPARATOR FURNISHED BY DENTAL EQUIPMENT PROVIDER
 (SOLMETEX NXT Hg5), 40CFR PART 441- ISO 11143:2008 COMPLIANT, INSTALLED
 BY PLUMBER. INSTALL ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
- MB WASHER BOX: GUY GRAY #B-150, WASHER BOX WITH 1-1/2" DRAIN OUTLET AND TAILPIECE, AND 1/2" HOSE BIBBS. PROVIDE WITH WATER HAMMER ARRESTORS.

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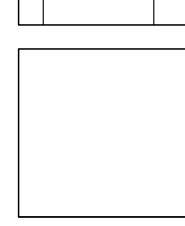


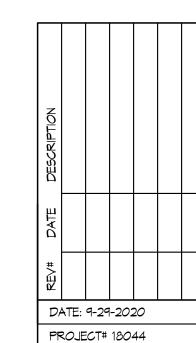
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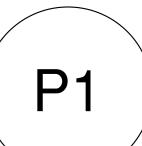


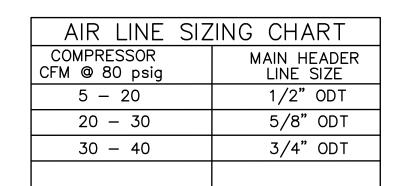












EXIST. 3/4"CM RCP EXIST. EXIST. EXIST. WH EXIST. WH

MATER HEATER CONNECTION DETAIL

PLUMBING PLAN NOTES:

- CENTRAL DENTAL VACUUM PUMP (DRY) SUPPLIED BY OTHERS AND INSTALLED BY PLUMBER. CONNECT VACUUM PIPING TO AMALGAM SEPARATOR PRIOR TO CONNECTION WITH VACUUM PUMP AS REQUIRED BY MANUFACTURER'S SPECIFICATIONS. AMALGAM SEPARATOR TO BE INSTALLED PER LOCAL REQUIREMENTS.
- 2) CONNECT 3/4" COMPRESSED AIR PIPE TO AIR COMPRESSOR (SUPPLIED BY OTHERS, INSTALLED BY PLUMBER) AS REQUIRED BY MANUFACTURER.
- DENTAL DELIVERY AT UTILITY CENTER.

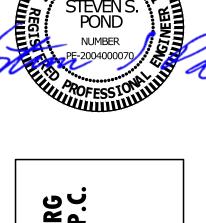
 AIR 1/2" AIR LINE NPT; TO EXTEND 1" OUT OF FINISHED FLOOR PROVIDE SHUTOFF VALVES

 MATER SELF CONTAINED

 VACUUM 5/8" O.D. VACUUM LINE PERPENDICULAR TO THE FLOOR SIMILAR TO WASTE CONNECTION

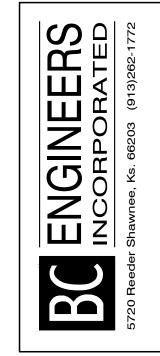
 COORDINATE WITH DENTAL EQUIPMENT SUPPLIER FOR EXACT LOCATION AND
-) INSTALL VACUUM PIPING WITH 45° LONG RADIUS ELBOWS, NO 90° ELBOWS ARE TO BE USED. VACUUM PIPING MUST SLOPE 1/4"/10' BACK TO VACUUM PUMP. COORDINATE WITH DENTAL EQUIPMENT DRAWINGS FOR EXACT SIZING AND SPECIFICATIONS.
- INSTALL AIR PIPING MAIN WITH A SLOPE OF 1/4" / 10' BACK TO COMPRESSOR.
 COORDINATE WITH DENTAL EQUIPMENT DRAWINGS FOR EXACT SPECIFICATIONS.
 TEST AIR LINES AT 150 PSI FOR 24 HOURS THERE SHALL BE NO LEAKS. PLUMBER TO TIE IN SYSTEM ON FINISH. SEE MANUFACTURERS SPECS FOR DETAILS.
- PROVIDE 2" OUTSIDE AIR INTAKE FROM AIR COMPRESSOR THROUGH ROOF TO MEATHERHEAD WITH BIRD SCREEN. VERIFY 10'-O" CLEARANCE FROM ALL EXHAUST OUTLETS AND PLUMBING VENTS, SEAL PENETRATION MEATHERTIGHT.
- ROUTE 2" SCHEDULE 40 CPVC VACUUM PUMP EXHAUST VENT UP THROUGH ROOF AND PROVIDE GOOSENECK PER THE MANUFACTURERS REQUIREMENTS. EXHAUST TO BE METAL IF VAC DOES NOT HAVE HEAT EXHAUST. COORDINATE EXACT ROUTING WITH G.C. PRIOR TO INSTALLATION. VERIFY 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES, SEAL PENETRATION WEATHERTIGHT.
- 8 ROUTE 1/2" AIR UP THRU FLOOR TO SHUT OFF VALVE AS REQUIRED. COORDINATE EXACT LOCATION WITH DENTAL EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
- (9) VACUUM VALVE FOR ULTRASONIC SUPPLIED BY DENTAL EQUIPMENT SUPPLIER 24" AFF.
 TO CENTER LINE OF VALVE. CONNECT TO MAIN VACUUM LINE. 3/8" X 3/8" IPS CHROME
 ANGLE VALVE REQUIRED. COORDINATE EXACT LOCATION WITH DENTAL EQUIPMENT
 SUPPLIER PRIOR TO INSTALLATION.
- (10) CONNECT $\frac{1}{2}$ " CM AND $\frac{1}{2}$ " HM TO EXISTING PIPING AS REQUIRED. EXTEND AND CONNECT $\frac{1}{2}$ " CM AND $\frac{1}{2}$ " HM TO SINK AS REQUIRED. VERIFY EXACT LOCATION OF EXISTING PIPES PRIOR TO INSTALLATION OF ANY PIPING.
- (1) EXTEND AND CONNECT ½" CM TO EXISTING CM PIPING AS REQUIRED, VERIFY EXACT LOCATION OF EXISTING PIPE PRIOR TO INSTALLATION OF ANY PIPING. EXTEND AND CONNECT ½" CM TO ICE BOX FOR REFRIGERATOR AS REQUIRED.
- (12) CONNECT 3/4" CM TO EXISTING CM MAIN AFTER EXISTING RPZ WITH WATER SOLENOID AS REQUIRED, COORDINATE WITH DENTAL EQUIPMENT SUPPLIER FOR EXACT REQUIREMENTS. ROUTE 3/4" CM DOWN TO BELOW FLOOR AND EXTEND AND CONNECT TO FIXTURES AS REQUIRED.
- (13) CONNECT $\frac{3}{4}$ " HM TO EXISTING HM MAIN AT WATER HEATER AS REQUIRED. ROUTE $\frac{3}{4}$ " HM DOWN TO BELOW FLOOR AND EXTEND AND CONNECT TO FIXTURES AS REQUIRED.
- (14) ROUTE ½" HWR PIPE UP FROM BELOW FLOOR AND CONNECT TO EXISTING WATER HEATER AS REQUIRED AND AS PER DETAIL. VERIFY INSTALLATION OF EXPANSION TANK AT EXISTING WATER HEATER, INSTALL NEW (AMTROL ST-8 OR EQUAL) AS PER DETAIL.
- (15) CUT EXISTING ROOF AND FLASH INTO ROOF AS REQUIRED. ALL ROOFING WORK SHALL BE PERFORMED BY BUILDING OWNER'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY APPROVED ROOFING CONTRACTOR WITH BUILDING OWNER PRIOR TO PERFORMING WORK.
- ROUTE $\frac{1}{2}$ " CM AND $\frac{1}{2}$ " HM UP FROM BELOW FLOOR AND CONNECT TO SINK AS REQUIRED.
- 17) ROUTE $\frac{1}{2}$ " CM DOWN AND $\frac{1}{2}$ " HM UP FROM BELOW FLOOR AND CONNECT TO WASHER BOX AS REQUIRED.
- (18) CONNECT $\frac{1}{2}$ " CM TO EXISTING CM PIPE AS REQUIRED AND EXTEND AND CONNECT TO HOSE BIBB AS REQUIRED.
- CONNECT 1/2" CM TO EXISTING CM PIPE AS REQUIRED AND ROUTE UP AND EXTEND TO
- 20) VERIFY EXISTING LAVATORY HAS MIXING VALVE INSTALLED AT SET TO 110°F. INSTALL
- NEW (WATTS #LFUSG-B OR EQUAL) IF NONE EXISTING.

 (21) REMOVE EXISTING SINK. CAP CM AND HW AT WALL OR FLOOR AS REQUIRED.

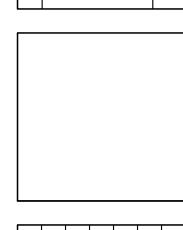


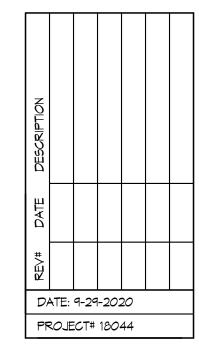
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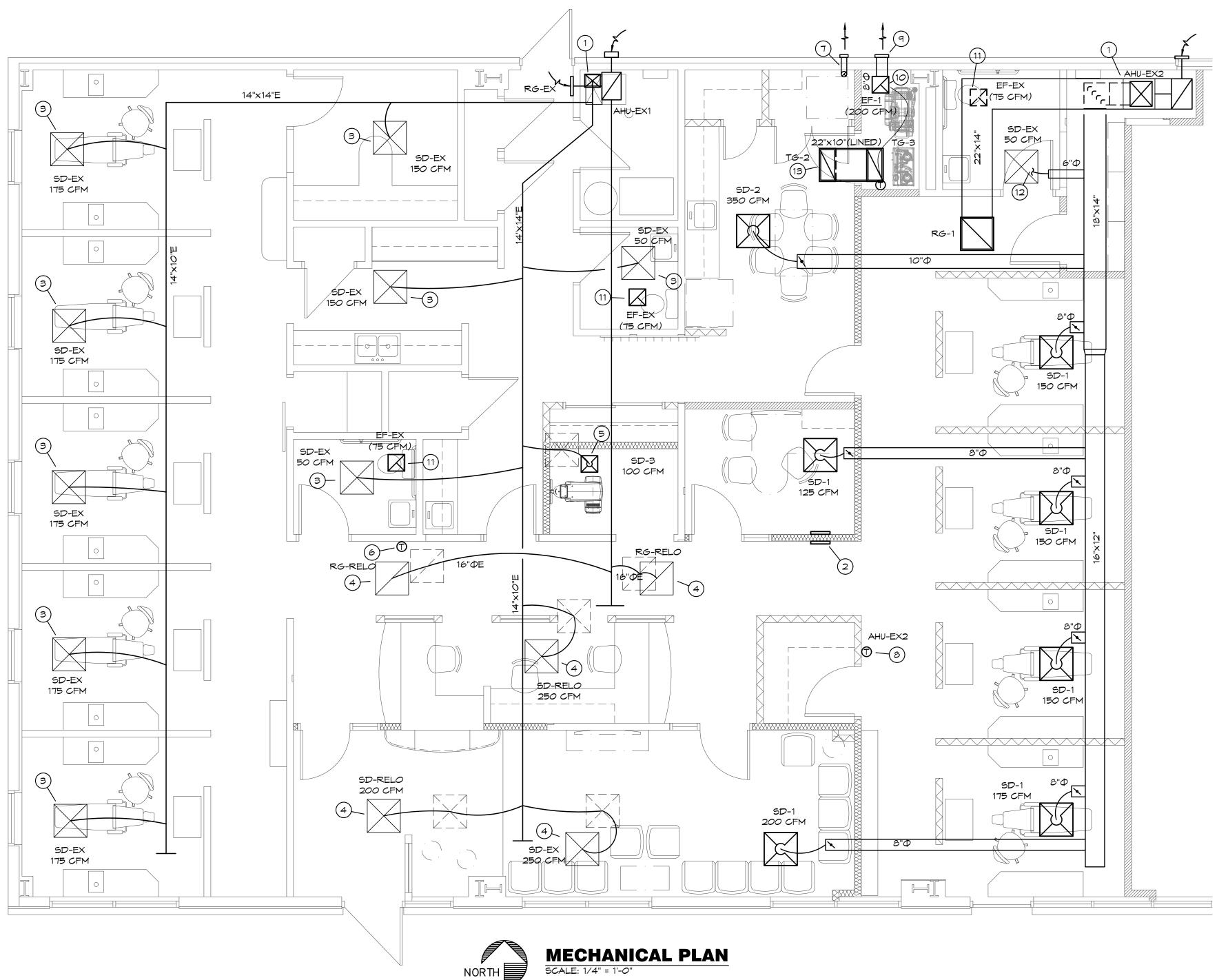


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PE COA #2009003629

MISSOURI



MECHANICAL PLAN NOTES:

- EXISTING AIR HANDLER TO REMAIN. VERIFY UNIT IS IN PROPER MORKING ORDER AND PROVIDES REQUIRED AIRFLOW, REPAIR AND/OR REPLACE AS REQUIRED. ADJUST OUTDOOR AIR DAMPER ON UNIT AS PER SCHEDULE.
- HIGH/LOW RETURN AIR GRILLES OFFICE SIDE GRILLE LOCATED AT 12" AFF. CENTRAL AREA SIDE LOCATED AT 8' AFF. TG-1, SEE DIFFUSER SCHEDULE.
- EXISTING DIFFUSER TO REMAIN. CLEAN TO 'LIKE NEW' CONDITION AND BALANCE TO AIRFLOW INDICATED.
- RELOCATE DIFFUSER/GRILLE IN CEILING WITH FLEX CONNECTION AS REQUIRED, VERIFY EXACT SIZE PRIOR TO INSTALLATION OF ANY DUCTWORK. COORDINATE LOCATION WITH LIGHTS, CLEAN TO 'LIKE NEM' CONDITION AND BALANCE TO AIRFLOW INDICATED.
- REPLACE EXISTING DIFFUSER IN CEILING AS REQUIRED. EXTEND AND CONNECT WITH FLEX CONNECTION AS REQUIRED.
- VERIFY EXISTING THERMOSTAT IS 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER, REPLACE AS REQUIRED.
- CONNECT 4" PLEX DUCT TO DRYER AS REQUIRED BY THE MANUFACTURER. ROUTE 4" PDRYER EXHAUST THRU WALL. PROVIDE WEATHERPROOF WALL JACK WITH BACKDRAFT DAMPER, INSTALL MINIMUM 18" ABOVE GRADE
- RELOCATE EXISTING THERMOSTAT. VERIFY EXISTING THERMOSTAT IS 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER, REPLACE AS REQUIRED.
- ROUTE 8" PEXHAUST THRU MALL TO MALL VENT CAP WITH BACKDRAFT DAMPER FOR EXHAUST FAN. SEAL PENETRATIONS WEATHERTIGHT.
- SUPPORT FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- EXISTING EXHAUST FAN TO REMAIN, VERIFY UNIT IS IN PROPER WORKING ORDER AND PROVIDES REQUIRED AIRFLOW, REPAIR AND/OR REPLACE AS REQUIRED.
- RECONNECT EXISTING DIFFUSER TO 6" DUCT AS REQUIRED. CLEAN DIFFUSER TO 'LIKE NEW' CONDITION AND BALANCE TO AIRFLOW INDICATED.
- CONNECT 22"X10" TRANSFER AIR DUCT WITH 1" LINER TO TRANSFER GRILLE IN BREAK ROOM AND ROUTE TO TRANSFER GRILLE LOCATED ON TOP OF DUCT IN EQUIPMENT ROOM WITH DUCT TURNED UP TO 14" BELOW STRUCTURE.

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 INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.
- 3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS.
- 4. INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.
- 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 AOR HANDLING UNITS, EXHAUST FANS, AND OTHER MOTORIZED EQUIPMENT.
- 7. NO DUCT SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- 8. ALL MECHANICAL SYSTEMS SHALL BE BALANCED BY A CERTIFIED BALANCING CONTRACTOR. REFER TO SPECIFICATIONS FOR DETAILS.

MECHANICAL SYMBOLS

NEW SUPPLY DIFFUSER NEW RETURN AIR GRILLE EXHAUST GRILLE/FAN

THERMOSTAT, MOUNTED AT 48" AFF

NEW DUCTMORK

SIZE OF RECTANGULAR DUCT SIZE OF ROUND DUCT

FLEXIBLE CONNECTION TO FAN

FLEXIBLE DUCTMORK

FLOOR PLAN NOTE DESIGNATION SUPPLY AIR

RETURN AIR

EXHAUST AIR TRANSITION IN DUCT SIZE

ELBOW WITH TURNING VANES

MANUAL VOLUME DAMPER

MANUAL VOLUME DAMPER

MOTORIZED CONTROL DAMPER

SPLITTER DAMPER WITH HORIZONTAL REGULATOR

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

SCHEDULED MECHANICAL EQUIPMENT

EXIST'G DUCT TO REMAIN

EXIST'G DUCT TO BE REMOVED EXISTING FLEXIBLE DUCTWORK

SIZE OF EXISTING DUCT 32"x14"E

EXISTING SUPPLY DIFFUSER

SUPPLY DIFFUSER TO BE REMOVED/RELOCATED

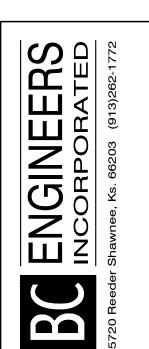
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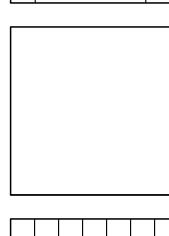


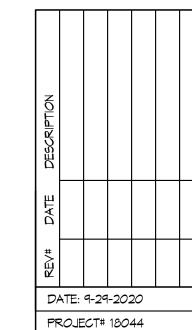
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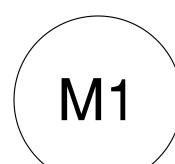


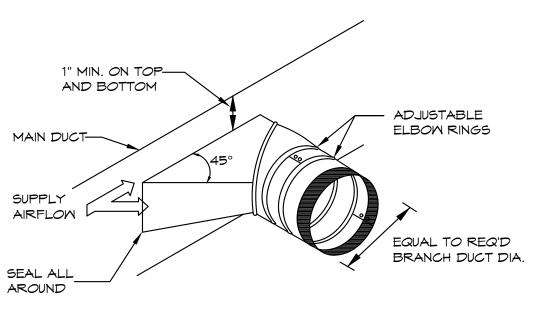












BRANCH DUCT TAKEOFF DETAIL SCALE: NONE

EXISTING HEAT PUMP AIR HANDLING UNIT SCHEDULE

60,000 95 80/67

NOTES: 1. UNIT IS EXISTING, LISTED FOR REFERENCE ONLY. REFER TO PREVENTATIVE MAINTENANCE CHECK-UP FOR ADDITIONAL INFORMATION.

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

9. EXAMINE AND REPAIR ALL ELECTRICAL WIRING, CONTROLS, STARTERS, RELAYS, CAPACITORS AND LIKE ITEMS THAT TEND TO

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

14 ALL FINDINGS AND VALUES TO BE NOTED AND PROVIDED TO TENANT'S CONSTRUCTION MANAGER & OR TENANT'S

E.S.P. IN. MG. TOTAL BTUH AMB. EVAP. EAT DB/MB

42,000

2. CLEAN ALL CONDENSATE DRAIN PANS AND FLUSH ALL CONDENSATE DRAIN LINES. 3. CLEAN ALL EVAPORATOR AND CONDENSER COILS WITH A NON-ACID CLEANER.

7. CHECK AMPS OF THE INDOOR, OUTDOOR MOTORS, AND COMPRESSORS

11. CHECK DUCTWORK CONNECTIONS AND REPAIR AS NEEDED.

13. VERIFY ANY WORK REQUIRED BY THE OWNER PRIOR TO BID.

FUNCTIONING AND COOLING PROPERLY AT COMPLETION OF JOB.

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

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

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

DETERIORATE OVER TIME OR BECOME NON-OPERATIONAL. THIS INCLUDES SMOKE DETECTORS.

6. THE REPLACEMENT OF ALL BELTS, HOSES AND FABRIC/RUBBER COATED ITEMS THAT ARE SUBJECT TO WEAR.

MARK

AHU-EX2

MFGR

MODEL NO. | CFM | E.S.P.

FA4ANF048 | 1,400 | | | |

2. ADJUST OUTDOOR AIR DAMPER ON UNIT AS PER SCHEDULE.

CARRIER FB4NCNP060 1,950

. CHANGE ALL FILTERS.

10. GREASE ALL FITTINGS

MAINTENANCE DIRECTOR.

HEATING (ELECTRIC)

(RESISTANCE)

KM STAGES

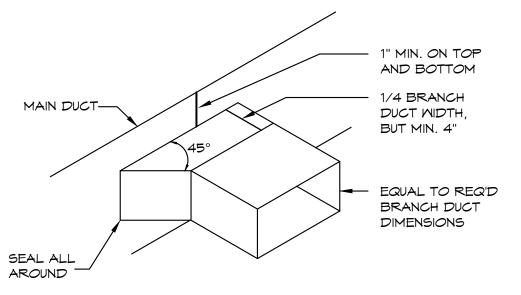
ELECTRICAL

VOLT/Ф/HZ HP AIR (CFM)

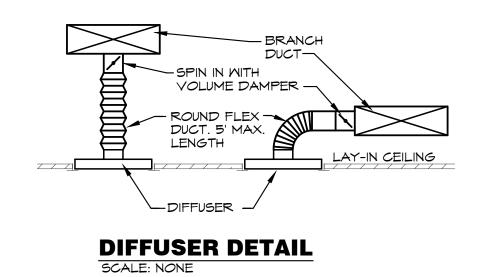
OUTSIDE

208/1/60 3/4 410 EXISTING

208/1/60 3/4 325 EXISTING



BRANCH DUCT TAKEOFF DETAIL



		I	DIFFUSER	R SCHED	PULE	
MARK	MFGR	MODEL	NECK SIZE	FACE SIZE	FINISH	NOTES
SD-1	TITUS	TM5/3	8"Ф	24"×24"	MHITE	-
SD-2			10"Ф	†		-
SD-3		†	6"Ф	12"×12"		-
RG-1		PAR/3	22"x22"	24"×24"		-
TG-1		350RL	12"x8"	-		-
TG-2		PAR/3	10"x22"	12"x24"		-
TG-3		350RL	10"x22"	-	†	-

			E	EXHAUS	T FAN	N SCHEE	DULE			
				EXTERNAL		ELECTRIC	AL			
MARK	MFGR	MODEL	CFM	STATIC P. IN. MG.	RPM	√ <i>0</i> LT/Ф/HZ	PWR	FAN TYPE	CONTROLS	N <i>O</i> TES
EF-1	COOK	GC-182	200	0.25	1,400	120/1/60	167 M	CEILING EXH.	THERMSOTAT	1,2

ARI-SPEED CONTROLLER (NEAR FAN AND ABOVE CEILING),

NTROL OF FAN. SET TO 80°F.

			T	People outdoor	Area outdoor	I	I	Zone air	I
UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	airflow rate in breathing zone, (Rp) cfm/person	airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	distribution effectivene	Zone outdoor airflow (cfm)
		Hospitals, nursing homes							
	900	Patient rooms	4 AC/HR	-	0		###	0.8	540
		Offices							
	250	Office spaces	5	5	0.06		21	0.8	27
	100	Reception areas	30	5	0.06		21	0.8	26
AHU-EX1	150	Break Room	25	5	0.06		28	0.8	35
AHU-EX2	340	Main entry lobbies	10	5	0.06		37	0.8	47
		Public spaces							
	600	Corridors	0	0	0.06		36	0.8	45
	150	Toilet rooms public	0	0	0	50/10	0	0.8	0
		Storage							
	180	Warehouses	0	0	0.06		11	0.8	14
								Total	733

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SD-2				ΙΟ"Φ		V		-
SD-3			l	6"Ф		12"x12"		-
RG-1		PAF	₹/3	22"x22	2"	24"×24"		-
TG-1		350	PRL	12"x8"	1	-		-
TG-2		PAF	₹/3	10"x22	2"	12"×24"		-
TG-3	1	350	PRL	10"x22	2"	-	†	-

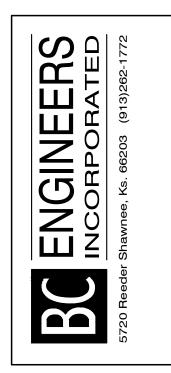
								l
<u>NOTE</u>	<u>:5:</u> 1.		: CEILING GRILI THER HEAD.	LE, INTEGR	RAL BACK D	RAFT DA	AMPER, VAR	`
	2.	PROVIDE	LINE VOLTAGE	E COOLING	5 ONLY THE	RM <i>O</i> STA	T FOR CON	Τ

		OUTDOOR A	AIR CALCUL	_ATION	1S				
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)
		Hospitals, nursing homes							
	900	Patient rooms	4 AC/HR	-	0		###	0.8	540
		Offices							
AHU-EX1 AHU-EX2	250	Office spaces	5	5	0.06		21	0.8	27
	100	Reception areas	30	5	0.06		21	0.8	26
	150	Break Room	25	5	0.06		28	0.8	35
	340	Main entry lobbies	10	5	0.06		37	0.8	47
		Public spaces							
	600	Corridors	0	0	0.06		36	0.8	45
	150	Toilet rooms public	0	0	0	50/10	0	0.8	0
		Storage							
	180	Warehouses	0	0	0.06		11	0.8	14
								Total	733

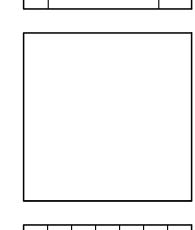
GUY GRONBERG ARCHITECTS, P.(113 SE 3rd St. Lee's Summit, MO 64063 Phone 316.524.0878 Fax 316.524.8578

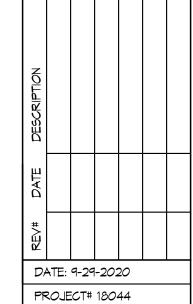
9/28/2020











ELECTRICAL SPECIFICATIONS

1. GENERAL PROVISIONS:

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

LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN,

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

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
- 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
- B. CONDUIT EXPOSED TO THE MEATHER, 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,

COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.

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.M.G., 600 VOLT.
- C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY
- D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THWN (MET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.
- E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHM-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED.

A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THHN SOLID (#8 AMG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90 $^\circ$ 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

AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.

- B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1569 FOR TYPE MC CABLE AND RATED
- MC CABLE INSTALLED IN PATIENT CARE AREAS SHALL BE "HCF" TYPE WITH GREEN INSULATED COPPER GROUNDING CONDUCTOR, BARE ALUMINUM GROUNDING/BONDING CONDUCTOR AND INTERLOCKED GREEN ALUMINUM ARMOR LISTED FOR USE AS AN EQUIPMENT GROUNDING CONDUCTOR IN CONJUCTION WITH THE BARE ALUMINUM BONDING CONDUCTOR.
- 1) CABLES SHALL MEET ALL NEC REQUIREMENTS FOR ARTICLE 517 AND SHALL BE UL LISTED FOR USE IN HEALTH CARE FACILITIES.
- 2) HCF CABLE SHALL NOT BE USED IN HAZARDOUS ANESTHETIZING AREAS.

8. WIRING DEVICES:

- A. WALL SMITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SMITCH, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES.
- 1) SINGLE POLE: HUBBELL #CS1221-X, OR EQUAL
- 2) THREE MAY: HUBBELL #CS1223-X, OR EQUAL. 3) AS SPECIFIED ON PLANS
- 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 MEATHERPROOF 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 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.
- 10. PANELBOARDS:
- A. PANELBOARDS ARE EXISTING AND SHALL BE REUSED. PROVIDE ADDITIONAL BREAKERS AS REQUIRED TO CONNECT CIRCUITS AS SHOWN ON THE DRAWINGS. ADDITIONAL BREAKERS SHALL BE THERMAL MAGNETIC, QUICK-BREAK BOLT ON CIRCUIT BREAKERS WITH ONE HANDLE FOR SINGLE OR MULTI-POLE RATINGS AND SHALL BE COMPATIBLE WITH EXISTING PANELS.
- B. COMPLETE EXISTING DIRECTORY AS REQUIRED TO IDENTIFY NEW CIRCUIT, LISTING LOAD SERVED AND OTHER PERTINENT DATA.

ELECTRICAL SPECIFICATIONS (CONTINUED)

- A. DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED.
- B. INDOOR SMITCHES SHALL BE NEMA I AND OUTDOOR SMITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.

- A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING U.L. CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 60 AMPERES.
- B. ALL OTHER FUSES SHALL BE U.L. CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINKS AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.

- A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. 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
- C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS.

- 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
- C. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.

- 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. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.
- B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).

16. REMODELING WORK:

B. EQUIPMENT TO BE SALVAGED:

- A. DEMOLITION: DISCONNECT, DEMOLISH AND REMOVE ABANDONED ELECTRICAL MATERIALS AND EQUIPMENT 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.
- 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 "LIKE NEM" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR 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
- EQUIPMENT NOT INDICATED TO BE SALVAGED. D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE
- PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE. E. PROVIDE ALL ALTERATIONS AND REMORK 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
- 1) ABANDONED CONDUIT SHALL HAVE WIRE REMOVED AND SHALL BE CAPPED. ABANDONED OUTLETS IN NALLS OR PARTITIONS SHALL HAVE DEVICES AND WIRE REMOVED, AND SHALL BE COVERED.

SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE

REMODELING LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR

- 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. 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 REROUTED CONDUIT SHALL BE APPROVED BY THE
- 4) WHERE EXISTING OUTLETS IN A WALL, CEILING, OR FLOOR TO BE REMOVED ARE ESSENTIAL TO MAINTAIN OPERATION OF OTHER REMAINING OUTLETS, RELOCATE THE OUTLET TO A NEW CONVENIENT LOCATION. EXISTING WIRING DEVICES SHALL NOT BE REUSED, UNLESS OTHERWISE INDICATED.
- 5) WHERE LIGHTING FIXTURES ARE INDICATED TO BE DEMOLISHED, REMOVE ALL WIRE AND MODIFY THE EXISTING CONDUIT (IF APPLICABLE) FOR THE NEW LIGHTING. ALL UNUSED CONDUIT SHALL BE
- 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 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, 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

17. BOXES IN FIRE RATED ASSEMBLIES:

- A. OUTLET BOXES THAT DO NOT EXCEED 16 SQUARE INCHES AND INSTALLED IN FIRE RATED WALLS SHALL NOT BE INSTALLED CLOSER THAN 24" HORIZONTAL INCHES TO OTHER OUTLET BOXES.
- B. IF BOXES MUST BE INSTALLED WITHIN 24" OF EACH OTHER THAN BOTH OUTLET BOXES SHALL BE PROTECTED WITH LISTED PUTTY PADS, 3M FIRE BARRIER MOLDABLE PUTTY + OR EQUAL.

18. FIRE ALARM SYSTEM

A. ELECTRICAL CONTRACTOR SHALL PROVIDE DESIGN BUILD ENERGINEERED SHOP DRAWINGS OF FIRE ALARM SYSTEM TO BE INSTALLED. PROVIDE DEVICES, CONDUIT, WIRES, CABLE, PROGRAMMING AND TESTING AS DIRECTED BY EQUIPMENT MANUFACTURER AND LOCAL FIRE DEPARTMENT FOR A CODE COMPLIANT FIRE ALARM/DETECTION SYSTEM. MATERIALS, EQUIPMENT, AND WORKMANSHIP SHALL MEET PREVAILING CODES. THE SYSTEM SHALL BE COMPLETE AND OPERABLE. SUBMIT ONE LINE DIAGRAM OF SYSTEM WITH SIZES AND BATTERY CALCULATIONS. EQUIPMENT TO BE NEW AND SHALL BE STAMPED, SIGNED, CALIBRATION AND TESTED BY FACTORY CERTIFIED TECHNICIAN. FIRE ALARM DEVICES ARE SHOWN FOR INTENT ONLY FOR PERMITTING PROCESS. CONTRACTOR IS RESPONSIBLE FOR INCLUDING IN BID/DESIGN ALL NECESSARY DEVICES (ANNUNCIATOR(S), NOTIFICATION APPLICANCES, INITIATING DEVICES, AND ADDITIONAL COMPONENTS).

ELECTRICAL SYMBOLS LIST

CIRCUITING & NOTES SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE GROUND FAULT CIRCUIT INTERRUPTER DEVICE WEATHERPROOF ENCLOSURE ON DEVICE | WEATHERPROOF RESISTANT DEVICE EMERGENCY BATTERY BACKUP TAMPER RESISTANT OUTLET ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED #12 MIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS OR GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION CONDUIT ROUTED UNDER FLOOR/GRADE

LIGHTING

₩	EMERGENCY TWIN HEAD LIGHT FIXTURE
1⊗1	EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED
A	STRIP FIXTURE WITH TYPE DESIGNATION
A •	RECESSED OR SURFACE MOUNTED FIXTURE WITH TYPE DESIGNATION
A NL	NIGHT LIGHT, CONNECT TO UNSMITCHED CIRCUIT
AΣ	CEILING OR RECESSED FIXTURE WITH TYPE DESIGNATION
Ā	WALL MOUNTED FIXTURE WITH TYPE DESIGNATION

^ Ö -	WALL MOUNTED FIXTURE WITH TYPE DESIGNATION
POWER DE	EVICES .
ф	DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
ф	FOURPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
♦ ▽	DEVICE MOUNTED ABOVE COUNTER AND/OR SPLASH GUARD
•	HEAVY DUTY OUTLET - NEMA CONFIGURATION SIZE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION
	PANEL BOARD, TOP OF BOX 6'-0" AFF
Q	JUNCTION BOX
ㅁ	NON-FUSED DISCONNECT SMITCH
D'	FUSED DISCONNECT SMITCH
O	MOTOR WITH DESIGNATION
0	FLOOR BOX
Υ	

CONTROLS

SD	DIMMER SMITCH, TOP OF BOX AT 48" AFF
Sm	MANUAL MOTOR STARTER WITH OVERLOADS
COMMUNICA	ATIONS
•	DATA/TELEPHONE OUTLET WITH 3/4" CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING, BOTTOM OF BOX AT 16", UNLESS NOTED OTHERWISE. PROVIDE WITH PULL STRING
Ф	LINE VOLTAGE THERMOSTAT PROVIDED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL WIRING

120 - 24 VOLT TRANSFORMER

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

ELECTRICAL 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. WHERE CONDUIT IS SHOWN UNDER FLOOR, SAW CUT EXISTING FLOOR SLAB AS REQUIRED FOR INSTALLATION OF UNDER FLOOR CONDUIT. NO STRUCTURAL ELEMENTS SHALL BE SAW CUT. WHEN SAW CUTTING, PATCH FLOOR TO MATCH EXISTING SURFACE AS REQUIRED.
- 3. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF
- 4. ALL EXPOSED RACEWAYS SHALL BE IN EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
- 5. ELECTRICAL CONTRACTOR SHALL REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, FIXTURES, SYSTEMS, CONDUIT AND WIRE, ETC. NOT BEING REUSED. DO NOT JUST ABANDON.
- 6. 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 SCHEDULES.
- 7. ALL ELECTRICAL DEVICES ARE EXISTING AND TO REMAIN UNLESS NOTED OTHERWISE OR CONFLICT WITH NEW CONSTRUCTION. MAINTAIN PROPER OPERATION OF ALL EXISTING ELECTRICAL.
- 8. 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.
- 9. EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.
- 10. 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.

HEALTH CARE FACILITY NOTES

INFORMATION.

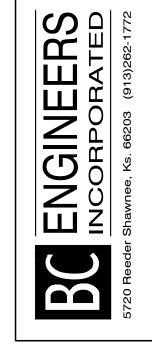
- 1. PATIENT AREAS (CHAIR 6-9, PANO) SHALL COMPLY WITH NEC ARTICLE 517 FOR HEALTH CARE FACILITIES.
- 2. ALL BRANCH CIRCUITS SUPPLYING PATIENT AREAS SHALL HAVE REDUNDANT GROUNDING PER NEC 517.13(a) & (b). ALL UNDER FLOOR CONDUITS FOR BRANCH CIRCUITS SHALL BE METALLIC.
- 3. ALL DEVICES IN PATIENT CARE AREAS SHALL BE HOSPITAL GRADE, GROUNDING, THREE WIRE TYPE, RATED FOR 20 AMPS, WITH COVER PLATES. HUBBELL #HBL8300-H, OR EQUAL. VERIFY COLOR WITH ARCHITECT.

4. REFER TO DENTAL EQUIPMENT SUPPLIER DRAWINGS FOR ADDITIONAL

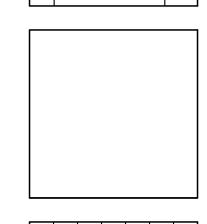
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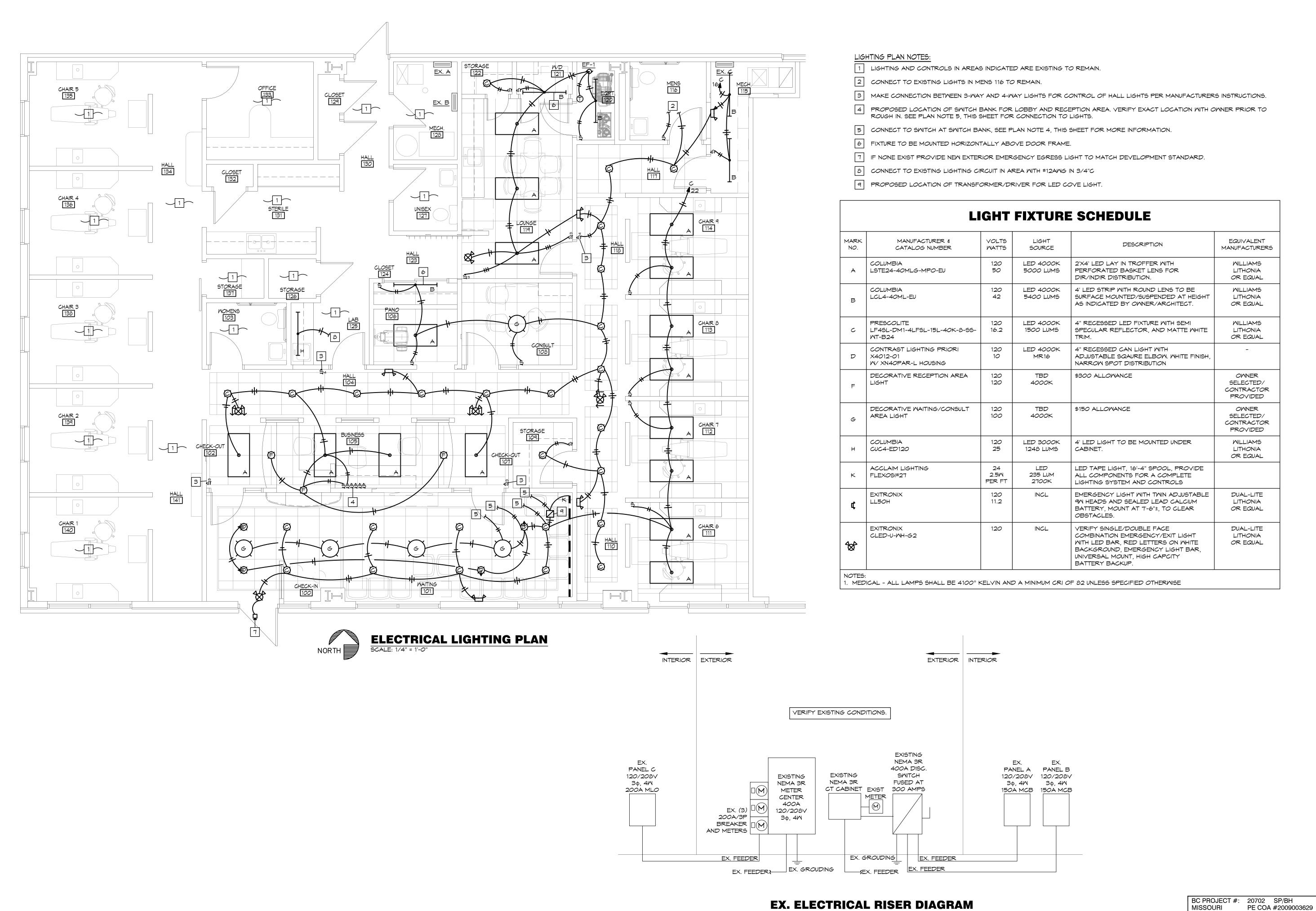
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NUMBER 2

9/28/2020

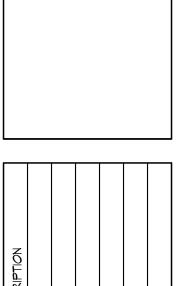
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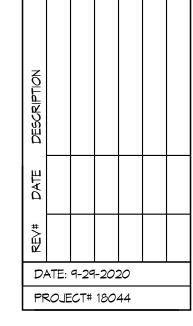
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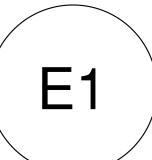


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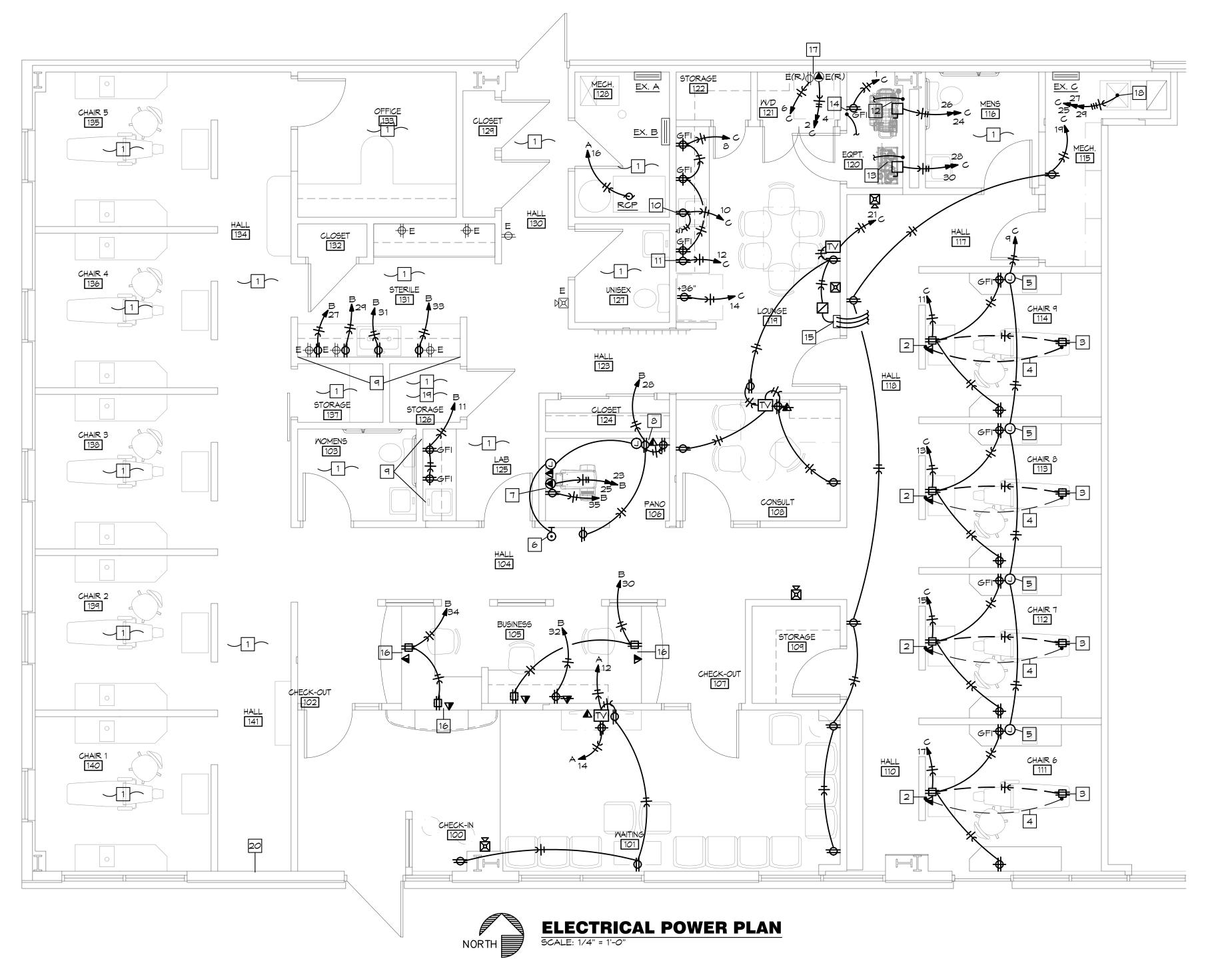






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DOMED DI	AN NOTES.

- POMER PLAN NOTES:

 1 POMER, LOW VOLTAGE, AND FIRE ALARM DEVICES IN AREAS INDICATED ARE EXISTING TO REMAIN.
- 2 UTILITY CENTER DEVICES IN 12 O'CLOCK CASEMORK. COORDINATE WITH DENTAL SUPPLIER.
- 3 QUAD RECEPTACLE MOUNTED ON FLOOR AT BASE OF CHAIR AND EMPTY CONDUIT FLUSH WITH FLOOR AS DIRECTED BY DENTAL SUPPLIER. VERIFY EXACT LOCATION AND REQUIREMENTS FOR STUB UP.
- 2" UNDERFLOOR CONDUIT WITH PULL STRING SMEEPING 90° BENDS BETMEEN DENTAL CHAIR UTILITY BOX(PLAN NOTE 3, THIS SHEET) AND 12 O'CLOCK CASEMORK(PLAN NOTE 2, THIS SHEET). VERIFY EXACT LOCATIONS.
- 5 PROVIDE POWER FOR WALL MOUNTED DENTAL OPERATING LIGHT. VERIFY EXACT LOCATION. COORDINATE WITH DENTAL SUPPLIER.
- 6 XRAY REMOTE EXPOSURE BUTTON VERIFY EXACT LOCATION PRIOR TO ROUGH IN. PROVIDE 3/4"C WITH PULL STRING TO PANO XRAY FOR WIRING BY OTHERS AS INDICATED.
- PROVIDE POWER/DATA TO PANO XRAY PER MANUFACTURERS INSTRUCTION.
 PROVIDE 3/4"C BETWEEN XRAY COMP(NOTE 8, THIS SHEET) AND REMOTE
 EXPOSURE BUTTON(NOTE 6, THIS SHEET) FOR WIRING BY OTHERS.
- PANO XRAY COMPUTER DEVICES MOUNTED INSIDE OF CASEMORK VERIFY EXACT LOCATION PRIOR TO ROUGH IN. PROVIDE 3/4"C WITH PULL STRING TO PANO XRAY FOR WIRING BY OTHERS AS INDICATED.
- 9 VERIFY EXACT LOCATION AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT IN LAB/STERILE PROVIDE DEDICATED CIRCUIT IF REQUIRED.
- SWITCHED DUPLEX RECEPTAGLE LOCATED IN CABINET BELOW SINK FOR CONNECTION TO DISPOSAL. VERIFY EXACT LOCATION.
- DUPLEX RECEPTACLE MOUNTED IN THE ENCLOSED CABINET LOCATED ABOVE OR BELOW THE MICROWAVE SHELF. VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.

POWER PLAN NOTES: (CONTINUED)

- POWER FOR VACUUM PUMP. PROVIDE CONTROL WIRING AS REQUIRED FROM EQUIPMENT TO MASTER CONTROL PANEL (SEE NOTE 15 ON THIS SHEET). REFER TO DENTAL EQUIPMENT DWGS. COORDINATE WITH DENTAL SUPPLIER.
- POWER FOR AIR COMPRESSOR. PROVIDE CONTROL WIRING AS REQUIRED FROM EQUIPMENT TO MASTER CONTROL PANEL (SEE NOTE 15 ON THIS SHEET). REFER TO DENTAL EQUIPMENT DWGS. COORDINATE WITH DENTAL SUPPLIER.
- POWER FOR WATER SOLENOID. PROVIDE CONTROL WIRING AS REQUIRED FROM EQUIPMENT TO MASTER CONTROL PANEL (SEE NOTE 15 ON THIS SHEET). REFER TO DENTAL EQUIPMENT DWGS. COORDINATE WITH DENTAL SUPPLIER.
- MASTER CONTROL PANEL WITH 3 SWITCHES. FURNISHED BY DENTAL EQUIPMENT SUPPLIER. PROVIDE LY XFMR(120/24V) ABOVE CEILING AND CONNECT TO CONTROL PANEL AS REQUIRED. PROVIDE 3 CONDUCTOR #18 AWG LOW VOLTAGE CABLES IN 3/4"C FROM MASTER CONTROL PANEL TO VACUUM PUMP (PLAN NOTE 12 ON THIS SHEET) AS REQUIRED. PROVIDE 3 CONDUCTOR #18 AWG LOW VOLTAGE CABLES IN 3/4"C FROM MASTER CONTROL PANEL TO AIR COMPRESSOR (PLAN NOTE 13 ON THIS SHEET) AS REQUIRED. PROVIDE 3 CONDUCTOR #18 AWG LOW VOLTAGE CABLES IN 3/4"C FROM MASTER CONTROL PANEL TO WATER SOLENOID (PLAN NOTE 14 ON THIS SHEET) AS REQUIRED. VERIFY ALL LOCATIONS AND REQUIREMENTS WITH DENTAL SUPPLIER PRIOR TO WORK.
- DEVICES MOUNTED IN CASEMORK. VERIFY EXACT LOCATION. ROUTE ALL MIRE/CONDUIT CONCEALED TO NEAREST FULL HEIGHT WALL.
- 17 RELOCATE EXISTING DEVICES FOR STACKED WASHER DRYER TO BE RELOCATED.
- EXISTING AHU IS CURRENTLY FED FROM DIFFERENT PANEL NOT IN SPACE. RE-FEED TO PANEL C ADJACENT.
- 19 EXISTING COMMUNICATION DEMARCATION IS IN ROOM INDICATED.
- 20 REMOVE JUNCTION BOXES AND WIRE BACK TO PANEL. DISCONNECT POWER.

EXIST	PANEL: A	VOLT	5 : 120/	208V	PH:	30	MIRE:	4M	LOCAT	ION:	MECH	128		MOUNTING:	FLUSH	
	BUS: 225A	MAIN:	150A	мсв										FEEDER:	SEE RISER DIAGR	ZAM
СКТ	DESCRIPTION	AMPS	POLE	MIRE	ФА	ΦB	ФС	ФА	ФВ	ФС	MIRE	POLE	AMPS	DES	CRIPTION	0
1					6,600			500			12	1	20	EX. E	XT LTS [EX]	
3	EX. AHU [EX]	60	3	6		6,600			1,500		12	1	20	EX.	LTS [EX]	
5							6,600			1,000	12	1	20	EX.	RECS [EX]	
7	EX. SPARE/LTS [TW] [EX]	20	1	12	1,500			1,500			12	1	20	EX, REC BELOW	VAUTOCLAVE [TM] [EX]	
9	EX. SPARE/LTS [TW] [EX]	20	1	12		1,500			1,500		12	1	20	EX. RECS.	RECS [TW] [EX]	1
11	EX. DENTAL UNIT [EX]	20	1	12			1,000			720	12	1	20	MAITIN	G RECS [EX]	
13	EX. DENTAL UNIT [EX]	20	1	12	1,000			1,000			12	1	20	MAITING	COFFEE [EX]	1
15	EX. DENTAL UNIT [EX]	20	1	12		1,000			250		12	1	20	R	CP [EX]	
17	EX. DENTAL CHAIR [EX]	20	1	12			1,000			1,500	12	1	20	EX.	LTS [EX]	
19	EX. DENTAL CHAIR [EX]	20	1	12	1,000			3,600								1
21	EX. DENTAL UNIT [EX]	20	1	12		1,000			3,600		12	3	35	EX	. CU [EX]	-
23	EX. DENTAL UNIT [EX]	20	1	12			1,000			3,600						2
NOTES	:	•	•	•	10,100	10,100	9,600	6,600	6,850	6,820						
EX]-EX	KISTING BRKR, [GF]-GFCI BRI	KR 5mA			16,	100	16,	950	16,4	420		TOTAL	CONNE	CTED LOAD:	50,070	V
TM]-TM	NN BRKR										,	N	EC DEN	IAND LOAD:	39,535	V
PROVI	DE ADDITIONAL COMPATIBLE	E BRKR	SASR	EQ'D						DEM	IAND A	MPS @	208	VOLT / 3Φ:	109.74	<u> </u>

EXIST	PANEL: B	VOLT	5 : 120,	/208V	PH:	30	MIRE:	4M	LOCAT	ION:	MECH	128		MOUNTING:	FLUSH	
	BUS: 225A	MAIN:	150A	мсв			1		1					FEEDER:	SEE RISER DIAGR	2
CKT	DESCRIPTION	AMPS	POLE	MIRE	ФА	ФВ	ФС	ФА	ФВ	ФС	MIRE	POLE	AMPS	DES	CRIPTION	
1	EX. LTS [EX]	20	1	12	1,500			2,250			10	2	30	EX. MATE	R HEATER [EX]	-
3	EX. REC5 [EX]	20	1	12		1,000			2,250							
5	EX. REC5 [EX]	20	1	12			1,000			1,000	12	1	20	EX. C	IRCUIT [EX]	
7	EX. XRAY [EX]	20	1	12	1,000			1,500			12	2	20	EX. AIF	R COMP [EX]	
9	EX. WATER SOLENOID [EX]	20	1	12		500			1,500							
11	LAB RECS [EX]	20	1	12			360			1,000	12	1	20	EX.	XRAY [EX]	-
13	EX CIRCUIT [EX]	20	1	12	1,000			1,000			12	1	20	EX. PHON	IE BOARD [EX]	
15	EX CIRCUIT [EX]	20	1	12		1,000			1,500		12	1	20	EX	LTS [EX]	
17	EX CIRCUIT [EX]	20	1	12			1,000			1,000	12	1	20	EXI	RECS [EX]	
19	EX CIRCUIT [EX]	20	1	12	1,000			1,000			12	1	20	EX. C	IRCUIT [EX]	
21	EX CIRCUIT [EX]	20	1	12		1,000			1,000		12	1	20	EX. C	IRCUIT [EX]	
23	PANO XRAY [EX]	20	2				1,500			1,500	12	2	20	EX. VAC	JUM PUMP [EX]	
25					1,500			1,500			1					
27	STERILE REC [GF]	20	1	12		1,500			540		12	1	20	XRAY	COMP RECS	
29	STERILE REC [GF]	20	1	12			1,500			720	12	1	20	BUSII	NESS RECS	
31	STERILE REC [GF]	20	1	12	1,500			1,000			12	1	20	BUSINE	55 PRINTER	
33	STERILE REC [GF]	20	1	12		1,500			729		12	1	20	BUSI	NESS RECS	
35	XRAY REC	20	1	12			1,500							BUSS	ED SPACE	
NOTES	Ď:		_	_	7,500	6,500	6,860	8,250	7,519	5,220						
[EX]-E	XISTING BRKR, [GF]-GFCI BRI	KR 5mA	•		15,	150	14,	019	12,	080	TOTAL CONNEC			CTED LOAD:	41,849	ĺ
											-	N	IEC DEN	MAND LOAD:	37,800	
PROV	IDE ADDITIONAL COMPATIBLE	EBRKR	25 A5 R	EQ'D						DEN	A DIAN	MPS @	208	VOLT / 3Φ:	104.92	2

EXIST	PANEL: C	VOLT5: 120/208V			Р Н: 3Ф		MIRE: 4M		LOCATION:		MECH 115			MOUNTING: SURFACE		
BUS: 225A		MAIN: 200A MLO												FEEDER:	SEE RISER DIAGR	ZAM
CKT	DESCRIPTION	AMPS	POLE	MIRE	ФА	ФВ	ФС	ФА	ФВ	ФС	MIRE	POLE	AMPS	DES	5CRIPTION	Ct N
1	WATER SOLENOID [EX]	20	1	12	500			2,500			10	2	30	CLOTHES DRYER		:
3						2,280			2,500							-
5	EX. CU [EX]	40	3	8			2,280			1,800	12	1	20	CLOTHE	S MASHER [GF]	(
7					2,280			540			12	1	20	KITHCEN CO	OUNTER RECS [EX]] [
9	CHAIR DENTAL LIGHTS [EX]	20	1	12		1,000			750		12	1	20	DISPOSAL [GF]		10
11	CHAIR 9 [EX]	20	1	12			1,200			1,800	12	1	20	MICRONAVE [GF]		1
13	CHAIR 8 [EX]	20	1	12	1,200			1,200			12	1	20	REFRIGERATOR [GF]		1
15	CHAIR 7 [EX]	20	1	12		1,200			1,526		12	1	20	LIGHTS [EX]		1
17	CHAIR 6 [EX]	20	1	12			1,200			1,500	12	2	20	EX. HOT MATER HEATER [EX]		1
19	GENEAL RECS [EX]	20	1	12	900			1,500								2
21	CONSULT/BREAK RECS [EX]	20	1	12		1,440			1,004		12	1	20	LIGHTS [EX]		2
23	SPARE [EX]	20	1							1,800	12	2	20	VACCUUM PUMP [EX]		2
25					6,600			1,800								2
27	EX. AHU	60	3	6		6,600			1,800		12	2	20	AIR C	OMPRESSOR	2
29	(NEW BREAKER)						6,600			1,800						3
OTES	o:				11,480	12,520	11,280	7,540	7,580	8,700						
[EX]-EXISTING BRKR, [GF]-GFCI BRKR 5MA					19,020		20,100		19,980		TOTAL CONNE			ECTED LOAD: 59,100		V
				1				_	N	EC DEI	MAND LOAD:	53,518	V			
PROV	IDE ADDITIONAL COMPATIBLE	BRKR	S AS P	FO'D						DEN	AAND A	MPS A	202	VOLT / 3Φ:	148.55	

BC PROJECT #: 20702 SP/BH MISSOURI PE COA #2009003629

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