

MECHANICAL & PLUMBING SPECIFICATIONS

1. GENERAL PROVISIONS:

- A. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL SYSTEMS OUTLINED.
- B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATIONS OF COMPLIANCE OR APPROVAL AS REQUIRED BY 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 ACCEPTANCE.
- F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
- G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECT FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
- H. INSPECTION OF THE SITE: THE CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE MEP DRAWINGS, SPECIFICATIONS, DETAIL, AND THE SITE. THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SPECIAL OR UNUSUAL PROBLEMS, CONFLICTS, OR OBSTRUCTIONS THAT AFFECT HIS BID.
- I. FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE MECHANICAL AND PLUMBING DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS AND FITTINGS REQUIRED FOR INSTALLATION. DO NOT SCALE DRAWINGS. THE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DATA AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION SECTIONS WHERE MECHANICAL WORK INTERFACES WITH OTHER TRADES.
- J. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS OR WITH CODE REQUIREMENTS, THE NOTE OR CODE WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR HIGHER STANDARD SHALL PREVAIL.
- K. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK. COORDINATE WITH WORK OF OTHER SECTIONS. COMPLY WITH APPLICABLE REGULATIONS AND CODE REQUIREMENTS. PROVIDE PROPER CLEARANCES FOR SERVICING.
- L. INCLUDE ALL BASIC MATERIALS AND CONSTRUCTION METHODS INCLUDING PIPES, PIPE FITTINGS, AND SPECIALTIES AND SUPPORTING DEVICES, VALVES, PIPE AND VALVE IDENTIFICATION, PUMPS, VIBRATION ISOLATION, ETC.
- M. FURNISH ADEQUATE ACCESS PANELS AND DOORS TO ALLOW FOR FUTURE PIPING ALTERATIONS, REPLACEMENT, AND MAINTENANCE OF PIPING. PROPERLY IDENTIFY ALL ACCESS PANELS AND DOORS.

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 OPERATING 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 AND CONTRACTORS.

3. MANUFACTURERS:

- A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN.
- B. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL REQUIREMENTS OF THE EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT OTHER THAN THE SPECIFIED EQUIPMENT BEING FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

4. MOTORS:

- A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.

5. PLUMBING:

- A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.
- B. ALL EXPOSED PIPE IN FINISHED AREAS SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.
- C. PROVIDE CLEANOUTS AT EACH CHANGE IN DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS.
- D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.
- E. CLEANOUTS:
- VINYL TILE FLOOR (FCO):JR SMITH #4140, OR EQUAL.
 - QUARRY TILE FLOOR (FCO):JR SMITH #4200, OR EQUAL.
 - CARPETED FLOOR (FCO):JR SMITH #4020-Y, OR EQUAL.
 - UNFINISHED FLOOR (FCO):JR SMITH #4020, OR EQUAL.
 - WALL (WCO):JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.
 - GRADE (GCO):JR SMITH #4256, OR EQUAL, WITH HEAVY DUTY CAST IRON BODY AND COVER.
- F. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES:
- INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.
 - INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL.
 - CONDENSATE DRAIN SHALL BE INSTALLED AT 1/8" PER FOOT FALL.
- G. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTION 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 JOINTS.
- H. ALL SEWER PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES:
- INSTALL 4" AND SMALLER PIPE AT A MINIMUM OF 2% SLOPE.
 - INSTALL 6" AND LARGER PIPE AT A MINIMUM OF 1% SLOPE.

5. PIPING

- A. DOMESTIC COLD AND HOT WATER (ABOVEGROUND).
- TYPE L HARD DRAWN COPPER TUBING, ASTM B-88 WITH WROUGHT BRONZE SOLDERED FITTINGS.
 - GATE VALVE: CRANE #428 OR EQUAL.
 - GLOBE VALVE: CRANE #7 OR EQUAL.
 - BALL VALVE: CRANE #332 OR EQUAL.
 - PEX, HIGH DENSITY CROSS-LINKED POLYETHYLENE TUBING IS PERMITTED FOR USE. TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F876 AND MEET THE STANDARD GRADE HYDROSTATIC PRESSURE RATING FROM THE PLASTIC PIPE INSTITUTE IN ACCORDANCE WITH TR-4/03. PEX MECHANICAL, CRIMP/INSERT FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PIPE SIZE SHOW ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZES. INCREASE PEX PIPING SIZE AS REQUIRED TO EQUAL OR EXCEED COPPER PIPE SIZE INSIDE DIAMETER.
- B. SANITARY SEWER AND VENTS (UNDERGROUND, INTERIOR TO BUILDING).
- POLYVINYL CHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT (WHERE APPROVED BY LOCAL CODES).
 - SEWER LINES SHALL BE LOCATED IN GENERAL AS SHOWN ON THE DRAWINGS. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN SUCH A MANNER AS TO MAINTAIN PROPER CLEARANCES AND SUFFICIENT SLOPE TO ENSURE DRAINAGE.
 - VENT STACKS SHALL BE EXTENDED FULL SIZE THROUGH THE ROOF AND FLASHED WITH 4 POUND LEAD SHEETS TURNED DOWN INTO THE STACK AT LEAST 2" AND EXTENDED 12" IN ALL DIRECTIONS FROM THE PIPE AT THE ROOF LINE. VENTS THROUGH ROOF SHALL NOT BE LESS THAN 3". PVC PIPING SHALL NOT BE USED FOR VENT PIPING THROUGH THE ROOF, WHERE APPLICABLE FOR ROOFING SYSTEM USED, PROVIDE FLASHING VIA PLEATED EPDM CONE IN LIEU OF LEAD. ALL VENT STACKS IN OR AT OUTSIDE WALLS SHALL BE OFFSET 1"-6" MINIMUM FROM OUTSIDE WALLS BEFORE GOING THROUGH THE ROOF, TO FACILITATE FLASHING.
- C. NATURAL GAS PIPING:
- SCHEDULE 40 BLACK STEEL PIPING: 2" AND SMALLER WITH SCREWED JOINTS AND 150 LB. MALLEABLE IRON SCREWED FITTINGS. PIPE 2-1/2" AND LARGER SHALL USE STANDARD WEIGHT BLACK STEEL WELDING FITTINGS WITH WELDED JOINTS.
 - GAS VALVES SHALL BE ROCKWELL 142/143, PLUG VALVE.
 - SUPPORT PIPING AT INTERVALS NOT TO EXCEED THOSE LISTED IN TABLE 415.1 OF THE I.F.G.C.
 - PROVIDE A.G.A. APPROVED SHUT OFF VALVES AND DIRT LEGS AT CONNECTIONS TO ALL EQUIPMENT.

- D. REFRIGERANT
- ASTM B 280, TYPE ACR, HARD DRAWN STRAIGHT LENGTHS, AND SOFT-ANNEALED COILS, SEAMLESS COPPER TUBING.
 - WROUGHT COPPER, ANSI B16.22, STREAMLINED PATTERN, FITTINGS. BRAZED JOINTS, AWS A 5.8 CLASSIFICATION BAG-1 (SILVER).
 - TUBING TO BE FACTORY CLEANED, READY FOR INSTALLATION, AND HAVE ENDS CAPPED TO PROTECT CLEANLINESS OF PIPE INTERIORS PRIOR TO SHIPPING.
 - SIZE AND INSTALLATION OF PIPING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- E. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR ANVIL. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.
- F. SLEEVES
- 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.
 - INTERIOR PARTITIONS: 16 GAUGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
 - 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.
 - PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN THE EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.
- G. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.

6. 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 DEVELOPMENT RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.
- B. PIPE INSULATION (ABOVE GRADE):
- THE PIPE INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 BTU PER IN/HR*SQ-FT*F OR LESS.
 - FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOULDED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - 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.
 - FOR NON CIRCULATING SYSTEMS THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.
 - INSULATION SCHEDULE:
 - DOMESTIC COLD WATER: 1/2"
 - DOMESTIC HOT WATER: 1"
 - HOT WATER RECIRCULATING: 1"
 - CONDENSATE DRAIN (INSIDE): 1/2"
 - REFRIGERANT SUCTION: 1-1/2" FOR PIPING UP TO 1-1/2", 2" FOR PIPING 1-1/2" AND LARGER.
- C. DUCTWORK INSULATION:
- DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING. THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. DUCT COVERING SHALL BE MINIMUM R-6.
 - ROUND SUPPLY DUCT: 2"
 - RECTANGULAR SUPPLY DUCT: 2"
 - RETURN AIR DUCT: 2"
 - OUTDOOR AIR / MAKEUP AIR DUCT: 2"

7. TESTING, BALANCING AND CLEANING:

- A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
- B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.
- C. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 60 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
- D. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH THE 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 FROM THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH.
- E. NATURAL GAS SYSTEMS SHALL BE TESTED WITH COMPRESSED AIR AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE , BUT NOT LESS THAN 50 PSIG FOR A PERIOD OF 2 HOURS WITH NO LEAKS.
- F. THE INSPECTION AUTHORITY HAVING JURISDICTION SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO PERFORMANCE OF ALL TESTS SO THAT THEY TESTS MAY BE WITNESSED IF DEEMED NECESSARY.
- G. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE FAMILIAR WITH TESTING AND BALANCING PROCEDURES OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
- H. BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
- I. 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 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 LABELLED OR MAY BE AN ELECTRONIC PDF SUBMITTAL.

8. DUCTWORK:

- A. ALL DUCTWORK UNLESS OTHERWISE INDICATED SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G60 ZINC COATING IN ACCORDANCE WITH ASTM A 525, AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.
- B. DUCTWORK METAL GAUGES, REINFORCING, ETC SHALL BE CONSTRUCTED IN ACCORDANCE WITH "SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2" WATER GAUGE STATIC PRESSURE.
- C. ALL FITTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION.
- D. RECTANGULAR DUCT:
- ELBOWS, UNLESS INDICATED OTHERWISE, SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOWS WITH DOUBLE WALL STREAMLINE ELBOWS.
 - TAKE-OFF FITTINGS: BRANCH DUCT TAKE-OFF FITTINGS FOR SUPPLY AND EXHAUST DIFFUSER/REGISTERS SHALL INCLUDE AN INTEGRAL MANUAL VOLUME DAMPER WITH LOCKING QUADRANT, DAMPER NOT REQUIRED ON RETURN AIR. FOR RECTANGULAR TO ROUND TAKE-OFFS, UTILIZE A "BUCKLEY" MODEL 3300 & 3300D OR EQUAL.
 - RETURN AIR ACOUSTIC ELBOWS AND SOUND BOOTHS SHALL BE A SQUARE ELBOW WITH NO TURNING VANES.
 - SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE A MINIMUM 1 TO 3.
- E. ROUND AND OVAL SPIRAL SEAM DUCT:
- 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 ARE INDICATED PROVIDE CONICAL TYPE TEES.
 - SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
 - ROUND LONGITUDINAL SEAM DUCT: USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS.
- F. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASED CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BELOW:
- | | | | |
|----------------------------------|---------------------|---------|---------|
| (1) UNCONDITIONED SPACES: | CLASS B | CLASS C | CLASS B |
| (2) CONDITIONED SPACES (PLENUM): | CLASS B | CLASS C | CLASS C |
| | SUPPLY 2"Wc OR LESS | EXHAUST | RETURN |

- G. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEET METAL SIZES. INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
- H. WHETHER SHOWN ON PLANS OR NOT, PROVIDE MANUAL VOLUME DAMPERS IN EACH RUNOUT TO EACH SUPPLY DIFFUSER OR REGISTER. PROVIDE ACCESS PANELS TO DAMPERS LOCATED ABOVE HARD CEILINGS.
- I. PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK.
- J. WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE FIRESTOPPING BETWEEN DUCT AND WALL.
- K. 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 GAUGE AS DUCT. OVERLAP OPENING ON 4 SIDES BY AT LEAST 1-1/2". FASTEN TO DUCT AND WALL.

9. FLEXIBLE DUCT:

- A. ATCO #086 (R-6), OR EQUAL.
- B. FACTORY APPLIED INSULATION AND VAPOR BARRIER, 1-1/2" THICK.
- C. MAXIMUM LENGTH OF 6'-0".

10. FLUES AND ACCESSORIES:

- A. FLUE FOR GAS FIRED CONDENSING WATER HEATER OR FURNACE SHALL BE AS RECOMMENDED BY THE GAS APPLIANCE MANUFACTURER. FLUES SHALL BE SCHEDULE 40 PVC OR CPVC PER THE MANUFACTURE'S INSTALLATION REQUIREMENTS.
- B. PROVIDE MANUFACTURERS STANDARD ACCESSORY ITEMS INCLUDING BIRD PROOF TOP, STORM COLLAR, ROOF THIMBLE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. ROOF THIMBLES THROUGH THE BUILDING ROOF SHALL BE SUITABLE FOR USE WITH THE ROOF PROVIDED.

11. 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.

12. FURNACE AND CONDENSING UNIT:

- A. CONDENSING FURNACES:
- GAS FIRED FURNACE SHALL BE FACTORY ASSEMBLED, PRE-WIRED UNIT CONSISTING OF SHEETMETAL CASING, SUPPLY FAN, GAS FIRED HEAT EXCHANGER, AND CONTROLS. CAPACITY SHALL BE AS SCHEDULED.
 - THE PRIMARY HEAT EXCHANGER SHALL BE ALUMINIZED STEEL CONSTRUCTION WITH A STAINLESS STEEL SECONDARY HEAT EXCHANGER.
 - THE FURNACE SHALL BE OF THE CONDENSING TYPE, UTILIZING A SEALED COMBUSTION CHAMBER. UNIT SHALL INCLUDE FINNED CAST IRON HEAT EXCHANGER, ALUMINIZED STEEL EXHAUST DECOUPLED SECTION AND FINNED STAINLESS STEEL TUBE CONDENSER SECTION.
 - THE UNIT SHALL BE EQUIPPED WITH THE MANUFACTURER'S STANDARD CONTROLS INCLUDING 24V CONTROL TRANSFORMER, AUTOMATIC SPARK IGNITION, AUTOMATIC GAS VALVE TRAIN, HIGH TEMPERATURE LIMIT SWITCH, AND FAN TIMED DELAY RELAY.
 - RETURN AIR INLET ON UNIT SHALL BE PROVIDED WITH 1" THROWAWAY TYPE FILTER AND SLIDE IN FRAME, MOUNTED ON THE UNIT.
 - FAN SHALL BE A DIRECT DRIVE VARIABLE-SPEED BLOWER, RESILIENTLY MOUNTED IN THE CASING. MOTOR SHALL BE PROVIDED WITH AUTOMATIC THERMAL OVERLOAD PROTECTION.
 - FURNACE SHALL BE AGA APPROVED.
- B. CONDENSING UNIT SHALL BE FACTORY ASSEMBLED AND TESTED AIR-COOLED CONDENSING UNIT CONSISTING OF COMPRESSOR, CONDENSER COIL, FAN, MOTOR, REFRIGERANT RESERVOIR, OPERATING CONTROLS, ETC. CAPACITY AND ELECTRICAL CHARACTERISTICS SHALL BE AS SCHEDULED.
- COMPRESSOR: HERMETICALLY SEALED WITH BUILT-IN OVERLOADS AND VIBRATION ISOLATION. COMPRESSOR MOTOR SHALL HAVE THERMAL AND CURRENT SENSITIVE OVERLOAD DEVICES. INTERNAL HIGH PRESSURE PROTECTION, HIGH AND LOW PRESSURE CUTOUT SWITCHES, START CAPACITOR AND RELAY, 2-POLE CONTACTOR, CRANKCASE HEATER, AND TEMPERATURE ACTUATED SWITCH AND TIMER TO PREVENT COMPRESSOR RAPID CYCLE.
 - COIL SHALL BE COPPER TUBING WITH ALUMINUM FINS: COMPLETE WITH LIQUID ACCUMULATOR AND LIQUID SUBCOOLER. UNIT SHALL INCLUDE FILTER DRYER, SIGHT GLASS, COMPRESSOR SERVICE VALVE, LIQUID LINE SERVICE VALVE, AND REFRIGERANT PIPING EXTENDED TO EXTERIOR OF CASING.

13. REMODELING WORK:

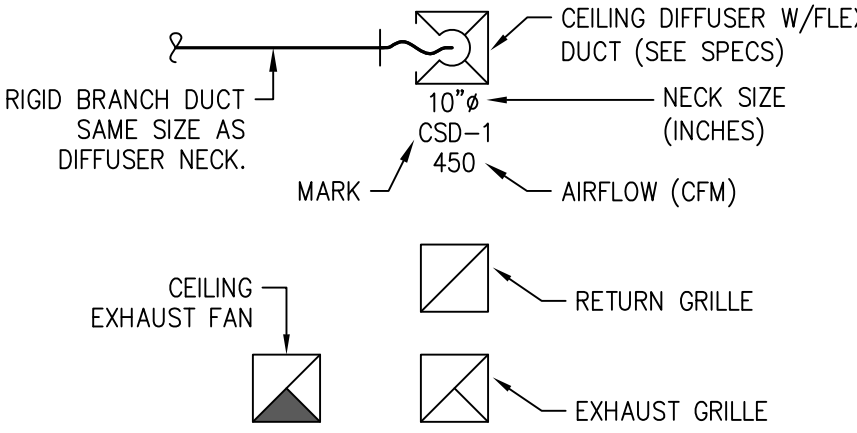
- A. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERRABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS.
- B. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS.
- C. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MECHANICAL AND PLUMBING MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
- D. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.
- E. 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.
- F. REMOVE ALL PIPING TO BE DEMOLISHED BACK TO PIPE MAIN OR EDGE OF PROJECT AREA AND CAP PIPE
- G. PIPING AND DUCTS EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. PIPING AND DUCTS TO REMAIN SHALL BE APPROVED BY THE ARCHITECT. REMOVE MATERIALS ABOVE ACCESSIBLE CEILINGS. DRAIN AND CAP PIPING AND DUCTS ALLOWED TO REMAIN ABOVE CEILING OR BELOW FLOOR, CONCEALED FROM VIEW, EXCEPT AS OTHERWISE NOTED. PATCH FLOOR TO MATCH EXISTING.
- H. PIPE AND DUCT SHALL BE CONCEALED WITH NEW OR EXISTING CONSTRUCTION WHENEVER POSSIBLE, UNLESS INDICATED OTHERWISE.

M&P SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ETC, ARE NECESSARILY USED ON THE DRAWINGS.

HVAC EQUIPMENT & DUCTWORK

- SPIN-IN FITTING WITH MANUAL VOLUME DAMPER
- BRANCH DUCT WITH 45° RECTANGLE-ROUND BRANCH FITTING AND MANUAL VOLUME DAMPER
- ELBOW WITH TURNING VANES
- RETURN, EXHAUST, OR OUTSIDE AIR DUCT UP
- RETURN, EXHAUST, OR OUTSIDE AIR DUCT DOWN
- SUPPLY AIR DUCT UP
- SUPPLY AIR DUCT DOWN
- EQUIPMENT WITH FLEXIBLE DUCT CONNECTION
- MANUAL VOLUME DAMPER
- SQUARE TO ROUND TRANSITION
- DUCT TRANSITION
- THERMOSTAT
- DUCT MOUNTED SMOKE DETECTOR



HVAC EQUIPMENT & DUCTWORK

SYMBOL	DESCRIPTION
SS	SANITARY SEWER (ABOVE GRADE)
SS	SANITARY SEWER (BELOW GRADE)
CD	CONDENSATE DRAIN
V	VENT PIPING
G	G = GAS PIPING LESS THAN 2 PSI
MPG	MPG = GAS PIPING 2 PSI
CW	COLD WATER PIPING
HW	HOT WATER PIPING
HWR	RECIRCULATING HOT WATER
CA	COMPRESSED AIR
	PIPE ELBOW DOWN
	PIPE ELBOW UP
	GATE VALVE
	BACKFLOW PREVENTER
	BALL VALVE
	PLUG VALVE
	FLOOR CLEANOUT (FCO)
	WALL CLEANOUT (WCO)
	FLOOR DRAIN
	FLOOR SINK
	HOSE BIB

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MC	MECHANICAL CONTRACTOR
BAS	BUILDING AUTOMATION SYSTEM	NC	MINIMUM
BD	BACKDRAFT	NO	NOISE CRITERIA
CFM	CUBIC FEET PER MINUTE	OA	OUTSIDE AIR
DDC	DIRECT DIGITAL CONTROL	RA	RETURN AIR
DX	DIRECT EXPANSION	SA	SUPPLY AIR
EA	EXHAUST AIR	SD	SMOKE DUCT DETECTOR
FFA	FROM FLOOR ABOVE	TFA	TO FLOOR ABOVE
FFB	FROM FLOOR BELOW	TFB	TO FLOOR BELOW
GPM	GALLONS PER MINUTE	TYP	TYPICAL
IN WC	INCHES OF WATER COLUMN	UNO	UNLESS NOTED OTHERWISE
MAX	MAXIMUM	W/O	WITH
MBH	1000 BTU PER HOUR	W/O	WITHOUT

ANNOTATION

- # PLAN WORK NOTE
- RTU 1 MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
- PLUMBING FIXTURE DESIGNATION
- CONNECTION POINT OF NEW WORK TO EXISTING
- A 11 DETAIL REFERENCE UPPER NUMBER INDICATED DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER

Proposed New Ceiling Layout

Salon DeCrist

905 E. Langsford Rd.

Lee's Summit, MO

date
08.14.2020

drawn by
JRS

checked by
JRS

project number
20-160

revisions



sheet number

MP1

RCH designs 816.803.0412

GAS FURNACE SCHEDULE																			
GENERAL DATA						HEATING				FAN DATA				ELECTRICAL					
TAG	BASIS OF DESIGN MFR/MODEL	FLOW DIRECTION	WEIGHT (LBS)	DIMENSIONS (WxDxH)	OUTSIDE AIR (CFM)	INPUT (BTUH)	OUTPUT (BTUH)	AFUE	VENT	TYPE	HP	CFM	ESP (IN WG)	VOLT	PHASE	HZ	MOCP	MCA	NOTES
F-1	LENNOX / EL296UH090KV36C	UPFLOW	152	21x29.25x33	200	88,000	84,000	96	CONCENTRIC	VARIABLE	1/2	1200	0.5	120	1	60	15	7.7	A,B,C,D
NOTES: A. EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING B. PROVIDE UNIT WITH 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER MULTISTAGE THERMOSTAT W/HUMIDITY SENSOR. C. PROVIDE MANUFACTURER'S CONCENTRIC VENT KIT. SIZE AND INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS WHILE ADHERING TO LENGTH AND FITTING LIMITATIONS. D. PROVIDE SIDE RETURN FILTER KIT.																			

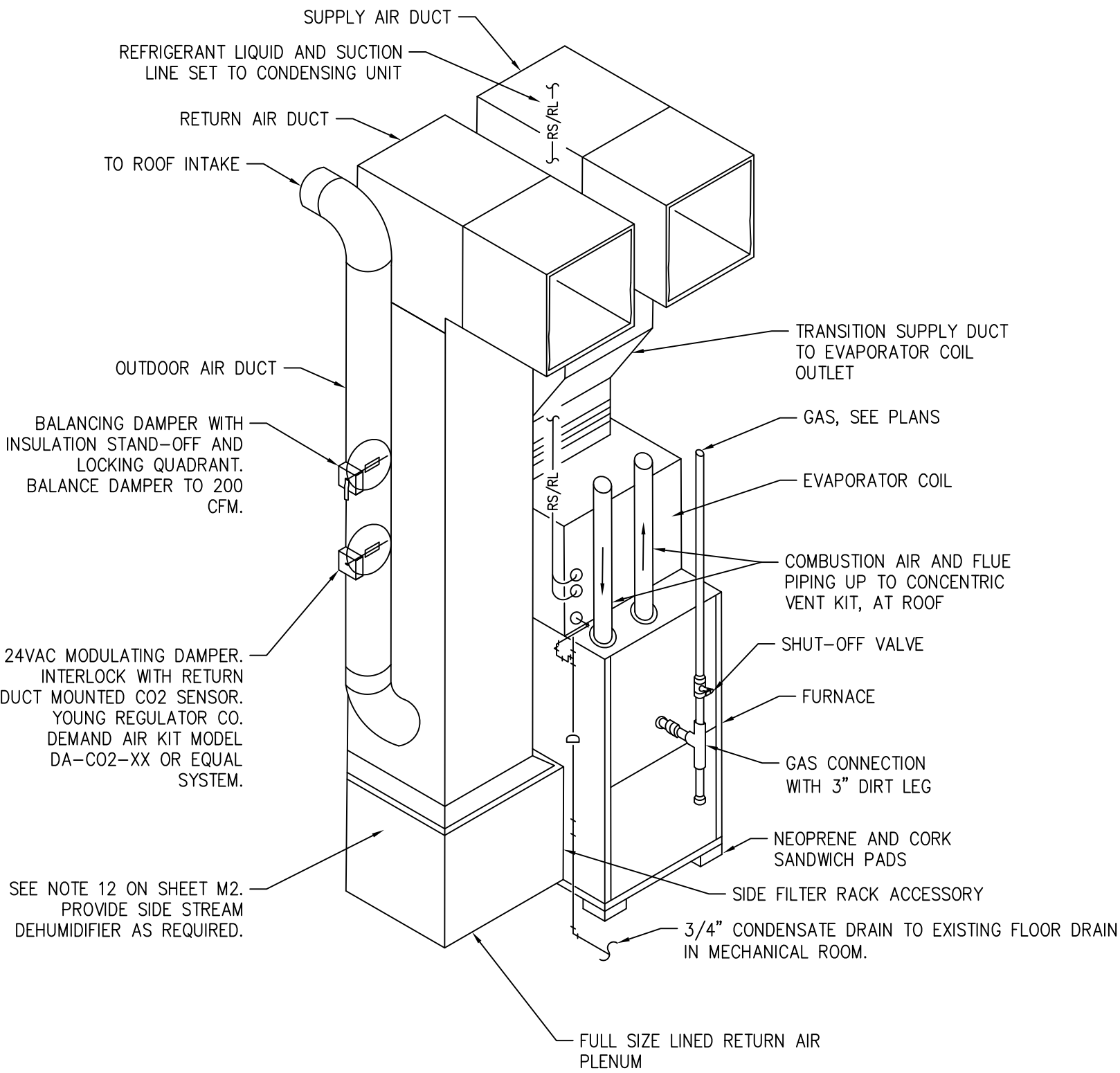
CONDENSING UNIT SCHEDULE														
GENERAL DATA						ELECTRICAL					COOLING COIL & MISC.		NOTES	
TAG	BASIS OF DESIGN MFR/MODEL	LOCATION	WEIGHT (LBS)	DIMENSIONS (WxDxH) (IN.)	NOMINAL CAP. (MBH)	VOLT	PHASE	HZ	MOCP	MCA	REFR.	EVAP COIL MODEL #		
CU-1	LENNOX / XC20-036-230A05	GRADE	267	35.5x39.5x45	36	208	1	60	30	20.6	R410A	CX35-36C-6F		
NOTES: A. PROVIDE TIME DELAY ON COMPRESSOR RE-START KIT, CRANKCASE HEATER, AND COMPRESSOR LOCK-OUT WITH AMBIENT BELOW 35F. B. MECHANICAL CONTRACTOR SHALL COORDINATE ALL UNIT MOCP'S OF ACTUAL INSTALLED EQUIPMENT WITH ELECTRICAL CONTRACTOR. C. PROVIDE MIN. 4" TALL PRE-MANUFACTURED POLYOLEFIN PAD.														

EXHAUST FAN SCHEDULE												
MARK	AREA SERVED	MANUFACTURER	MODEL	MOUNTING / TYPE	CFM	ESP (IN)	DRIVE	WATTS	ELECTRICAL		WEIGHT	NOTES
EF-1	RESTROOM 009	PANASONIC	FV-0511VQ1	CEILING / VENTILATOR	80	0.1	DIRECT	5.9	120	1	11	A,B
EF-2	RESTROOM 010	PANASONIC	FV-0511VQ1	CEILING / VENTILATOR	80	0.1	DIRECT	5.9	120	1	11	A,B
EF-3	RESTROOM 105	PANASONIC	FV-0511VQ1	CEILING / VENTILATOR	80	0.1	DIRECT	5.9	120	1	11	A,B
EF-4	RESTROOM 106	PANASONIC	FV-0511VQ1	CEILING / VENTILATOR	80	0.1	DIRECT	5.9	120	1	11	A,B
NOTES: A. INSTALL EXHAUST FAN PER MANUFACTURER'S WRITTEN INSTRUCTIONS. B. INTERLOCK OPERATION WITH LIGHT SWITCH.												

DIFFUSER, REGISTER AND GRILLE SCHEDULE							
MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING TYPE	FACE SIZE (IN.)	MAX NC	NOTES
SUPPLY							
CSD-1	TITUS	OMNI	PLAQUE FACE	LAY-IN	24x24	25	A,B,C
CSD-2	TITUS	TDC	LOUVERED	SURFACE	15.5x15.5	25	A,B,C
WSG-1	TITUS	301FL	PARALLEL LONG BLADES	SURFACE	NECK + 1.75"	25	A,B,C
RETURN							
CRG-1	TITUS	50F	EGGCRATE	LAY-IN	12x24	25	A,B,C,D
CRG-2	TITUS	50F	EGGCRATE	LAY-IN	24x24	25	A,B,C,D
FRG-1	AIR MATE	32S	BAR STYLE	FLOOR SURFACE	SEE PLANS	25	E
NOTES: A. NECK SIZE SHOWN ON DRAWINGS. B. BAKED ENAMEL FINISH, WHITE C. FRAME TYPE TO MATCH CEILING CONSTRUCTION, COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN. D. PAINT THE INSIDE OF CANS FLAT BLACK. E. BAKED ENAMEL FINISH, COLOR BY OWNER.							

FIXTURE BRANCH CONNECTION SCHEDULE				
FIXTURE	COLD WATER	HOT WATER	WASTE	VENT
LAV/SINK	1/2"	1/2"	1 1/2"	1 1/2"
WASHER BOX	3/4"	3/4"	2"	1 1/2"
WATER CLOSET (FLUSH TANK)	1/2"	-	3"	2"
NOTE: PIPE SIZES SHOWN ARE MINIMUM. MINIMUM SANITARY SIZE UNDERGROUND IS 2".				

PLUMBING FIXTURE SCHEDULE	
LAV	WALL-MOUNT LAVATORY: KOHLER K-1997-1-0, SINGLE-HOLE, 14.375"x12.3125" ELLIPTICAL BOWL, MOUNT AT ADA HEIGHT, VITREOUS CHINA, WITH SINGLE LEVER LAVATORY FAUCET (KOHLER K-10215-4). PROVIDE FLEXIBLE SS RISERS WITH CHROME PLATED STOP VALVES, P-TRAP WITH CLEANOUT AND ESCUTCHEONS. INSULATE WITH "HANDI-LAV-GLUARD" MODEL 102, OR EQUAL.
SINK1	DROP-IN SINK: KOHLER K-3349-3, 15"x15"x7" RECTANGULAR BOWL, SELF RIMMING, 19 GAUGE SS, WITH KITCHEN FAUCET (KOHLER K-R21415-CP). PROVIDE FLEXIBLE SS RISERS WITH CHROME PLATED STOP VALVES, P-TRAP WITH CLEANOUT AND ESCUTCHEONS.
SINK2	DROP-IN SINK: KOHLER K-3349-3, 15"x15"x7" RECTANGULAR BOWL, SELF RIMMING, 19 GAUGE SS, WITH KITCHEN FAUCET (KOHLER K-R21415-CP). PROVIDE FLEXIBLE SS RISERS WITH CHROME PLATED STOP VALVES, P-TRAP WITH CLEANOUT AND ESCUTCHEONS. PROVIDE GARBAGE DISPOSAL 1/2 HP BADGER 5.
WB	WASHER BOX: GUY GRAY MODEL WB200, GALVANIZED, 1/2" NTP VALVES WITH 3/4" HOSE CONNECTION. PROVIDE WATER HAMMER ARRESTORS.
WC	FLOOR-MOUNTED ADA WATER CLOSET: KOHLER K-3519-TR, HANDICAP ACCESSIBLE, VIREOUS CHINA, 1.28 GPF, ELONGATED BOWL, FLOOR MOUNTED W/ 17.125" SEAT HEIGHT, WHITE, VITREOUS CHINA TANK AND COVER CONTAINING FLUSHOMETER/TANK WITH BUILT-IN PRESSURE REGULATOR AND BACKFLOW PREVENTER, WHITE OPEN-FRONT SEAT, CHROME STOPS, C.P. FLEXIBLE RISER TUBE, BOLT CAPS, AND ESCUTCHEON.

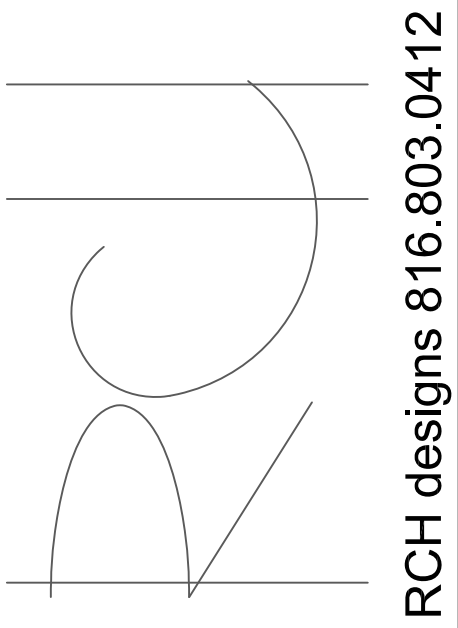


NOTE TO CONTRACTOR:
1. ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST AS REQUIRED TO SUIT ACTUAL INSTALLATION CONDITIONS.

FURNACE INSTALLATION DETAIL

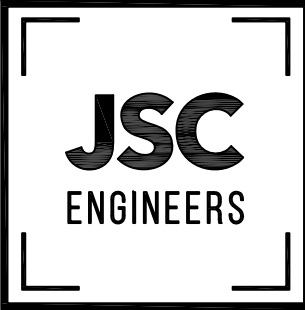
SCALE : NO SCALE

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RCH designs 816.803.0412

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Proposed New Ceiling Layout

Salon DeCrist

905 E. Langsford Rd.
Lee's Summit, MO

date
08.14.2020

drawn by
JRS

checked by
JRS

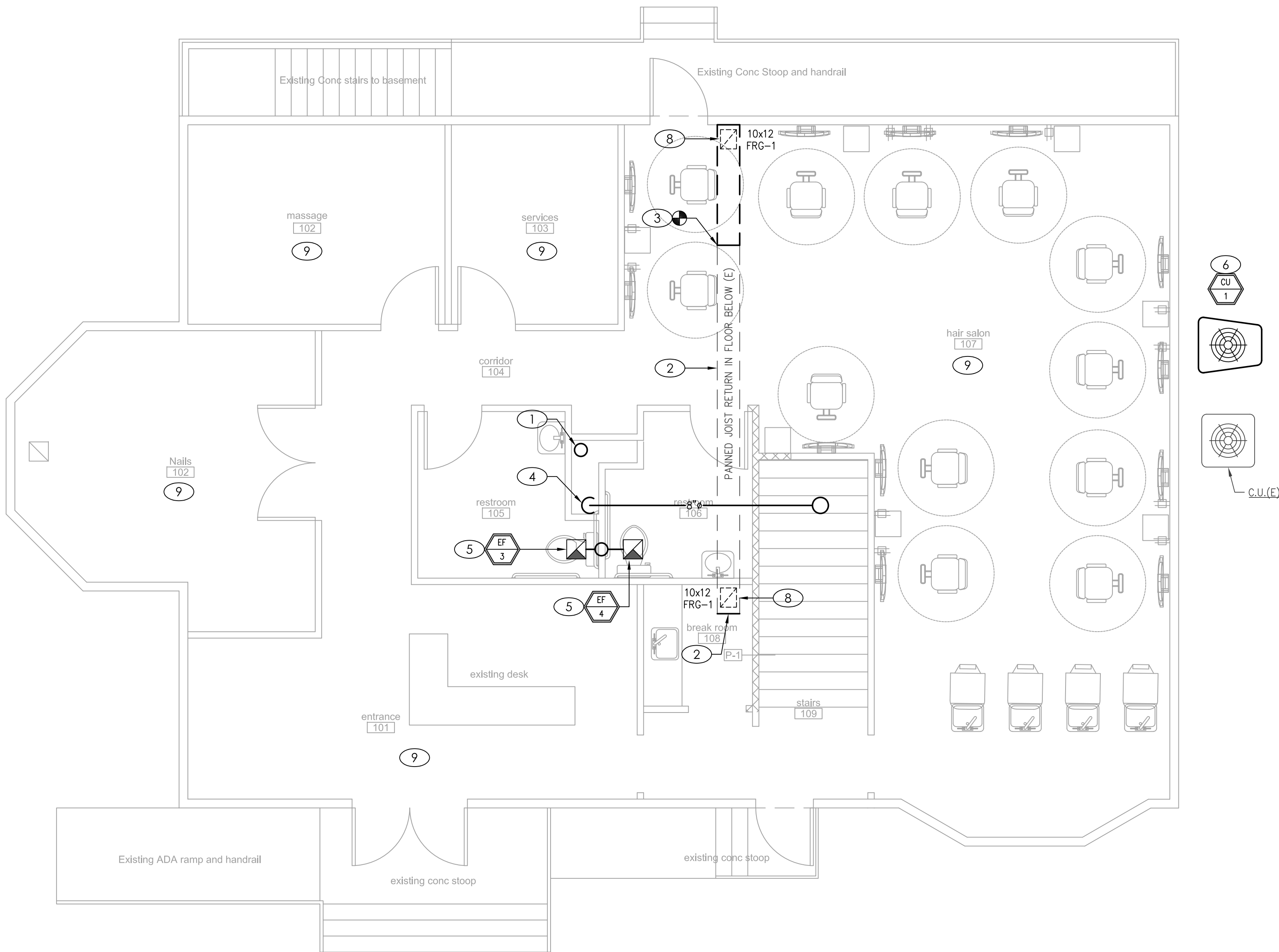
project number
20-160

revisions



sheet number

MP2



FIRST FLOOR MECHANICAL PLAN

SCALE : 1/4" = 1'-0"

1

NORTH

GENERAL NOTES

- A. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
- B. COORDINATE INSTALLATION OF MECHANICAL AND PLUMBING SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION AND AVOID CONFLICTS. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. VERIFY DUCT SPACE AVAILABLE ABOVE ALL CEILINGS PRIOR TO ANY FABRICATION OF INSTALLATION.
- C. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AROUND EQUIPMENT.
- D. BRANCH DUCTWORK SHALL BE THE SAME SIZE AS NECK SIZE SHOWN UNLESS OTHERWISE NOTED.
- E. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.

KEYED PLAN NOTES

1. 8"Ø EXHAUST DUCT FROM BASEMENT UP TO ROOF. DUCT OUTLET A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE. SEAL ROOF PENETRATION WEATHER TIGHT.
2. EXISTING PANNED JOIST AIR RETURN BELOW FLOOR.
3. EXTEND EXISTING PANNED JOIST AIR RETURN TO FACILIATE LOCATION OF NEW FLOOR RETURN GRILLE.
4. 8"Ø OUTSIDE AIR DUCT FROM BASEMENT UP TO ROOF. OFFSET OUTDOOR AIR DUCT AND LOCATE A MINIMUM 10'-0" FROM EXISTING FLUE VENT, EXHAUST TERMINATION OR ANY PLUMBING VENT. FIELD VERIFY LOCATION. AT TERMINATION PROVIDE INTAKE CAP WITH INSECT SCREEN.
5. PROVIDE NEW EXHAUST FAN. PROVIDE 5"Ø DUCT FROM EACH FAN. COMBING TWO DUCTS INTO 8"Ø DUCT AND ROUTE DISCHARGE THROUGH ROOF TO WEATHER CAP. INSTALL OUTLET A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE. SEAL ROOF PENETRATION WEATHER TIGHT.
6. NEW CONDENSING UNIT LEVEL AT GRADE ON PREMANUFACTURED PAD. INSTALL PER MANUFACTURER'S INSTRUCTIONS MAINTAINING RECOMMENDED SERVICE CLEARANCES. ROUTE REFRIGERANT LINES THOUGH WALL 18" AFG. WEATHER SEAL REFRIGERANT LINE PENETRATIONS OF BUILDING. PROVIDE ALL RECOMMENDED VALVES, FILTERS, FITTINGS, ETC. AND MAKE ALL NECESSARY CONNECTIONS TO COIL.
7. DEMO ALL RETURN DUCT NORTH OF THIS POINT. CAP DUCT HERE.
8. PROVIDE NEW FLOOR RETURN GRILLE.
9. EXISTING HVAC SERVING ROOM TO REMAIN UNLESS NOTED OTHERWISE.

Proposed New Ceiling Layout

Salon DeCrist

905 E. Langsford Rd.

Lee's Summit, MO

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checked by	JRS
project number	20-160
revisions	△

sheet number

M1

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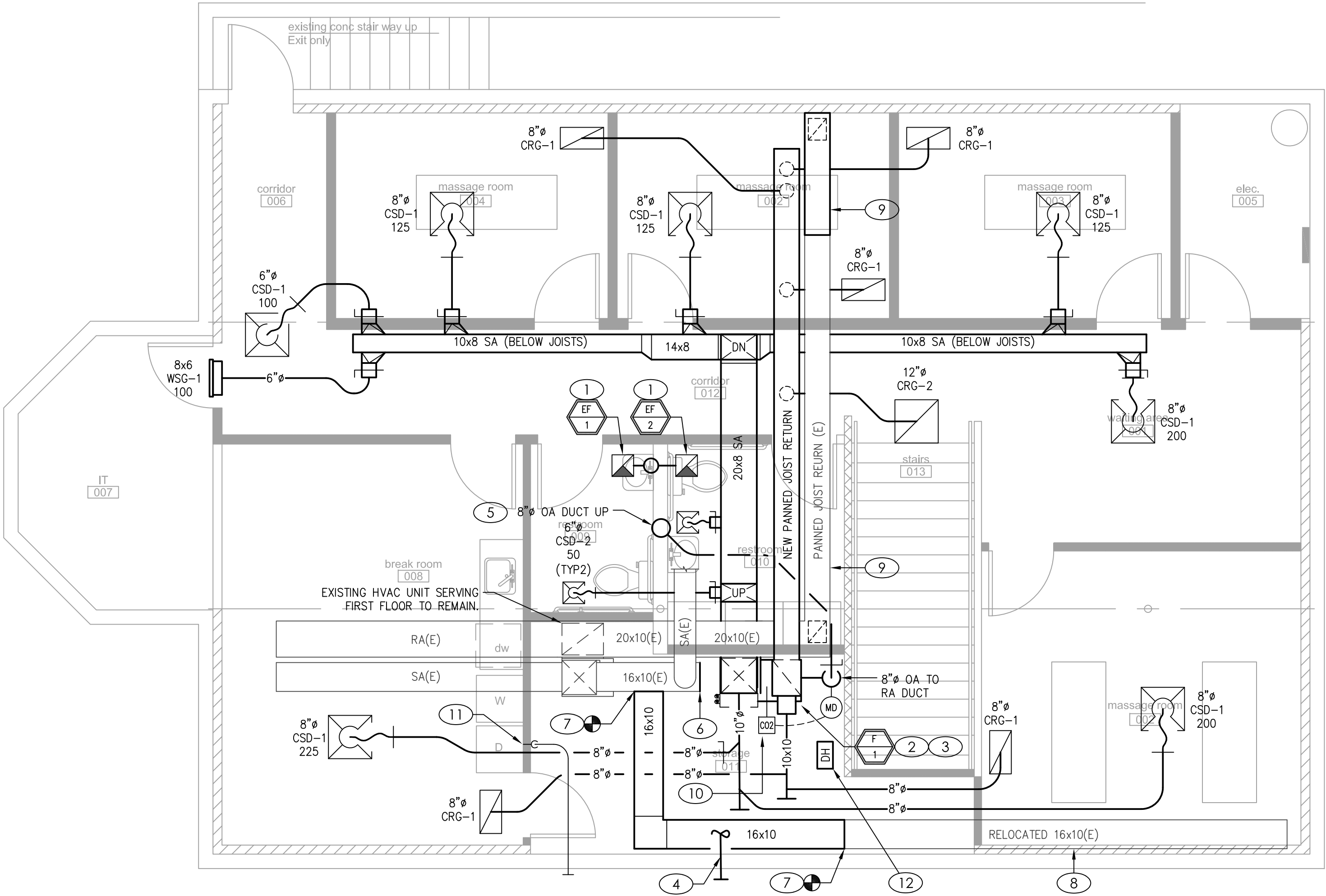
RCH designs 816.803.0412

GENERAL NOTES - POWER

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- B. COORDINATE INSTALLATION OF MECHANICAL AND PLUMBING SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION AND AVOID CONFLICTS. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. VERIFY DUCT SPACE AVAILABLE ABOVE ALL CEILINGS PRIOR TO ANY FABRICATION OF INSTALLATION.
- C. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AROUND EQUIPMENT.
- D. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF.
- E. BRANCH DUCTWORK SHALL BE THE SAME SIZE AS NECK SIZE SHOWN UNLESS OTHERWISE NOTED.
- F. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.
- G. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED HVAC EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL REQUIREMENTS OF THE HVAC EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT OTHER THAN THE SPECIFIED EQUIPMENT BEING FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

KEYED PLAN NOTES

1. NEW CEILING MOUNT EXHAUST FAN. COMBINE 6"Ø DUCTS FROM EXHAUST FANS INTO 8"Ø DUCT AND ROUTE UP TO ROOF. SEE FIRST FLOOR PLAN FOR CONTINUATION.
2. TRANSITION FULL SIZE SUPPLY DUCT FROM COIL TO 20x8 DUCT BELOW EXISTING RETURN DUCT. TURN DUCT UP AFTER PASSING BELOW BEAM AND CONTINUE AS SHOWN AS HIGH AS POSSIBLE OVER TO HALLWAY. SEE DETAIL ON SHEET MP001 FOR MORE INSTALLATION INFORMATION.
3. RETURN AIR DUCTWORK DOWN TO SIDE OF FURNACE. TRANSITION DUCTWORK TO UNIT RETURN AS REQUIRED TO ACCOMMODATE 20"x25"x1" FILTER.
4. PROVIDE CONCENTRIC VENT FOR FURNACE TO NORTH WALL. PROVIDE MANUFACTURER APPROVED CONCENTRIC VENT TERMINATION KIT. COORDINATE LOCATION WITH BUILDING OWNER. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS ADHERING TO SIZE AND LENGTH LIMITATIONS.
5. 8"Ø OUTDOOR AIR DUCT UP TO ROOF. SEE FIRST FLOOR PLAN FOR CONTINUATION.
6. EXISTING SUPPLY DUCT PAST THIS POINT TO BE REMOVED. RELOCATE AND REUSE SECTION SPECIFIED. CAP DUCT AT THIS POINT.
7. CONNECT NEW 16x10 DUCT TO EXISTING DUCT. PROVIDE OFFSET AS SHOWN AND CONNECT TO RELOCATED SECTION.
8. SEE FIRST FLOOR PLAN FOR WORK ASSOCIATED WITH RETURN AIR DUCT SERVING FIRST FLOOR.
10. AT UNIT, IN RETURN DUCT, PROVIDE 24VAC DUCT MOUNTED CO2 SENSOR TO CONTROL MODULATING DAMPER. MANUFACTURED BY YOUNG REGULATOR CO. DEMAND AIR KIT MODEL DA-CO2-XX OR EQUAL SYSTEM. THE DAMPER SHALL BEGIN TO OPEN AT 800PPM AND SHALL BE FULL OPEN BY 1200PPM.
11. CONNECT 4"Ø FLEXIBLE DRYER VENT WITH CLAMP TO DRYER VENT CONNECTION. RUN 4"Ø RIGID DUCT UP TO CEILING THEN TO NORTH EXTERIOR WALL. TERMINATE WITH LOUVERED WALL VENT WITH BACKDRAFT DAMPER. PROVIDE WALL VENT TO MATCH THE BUILDING. THE RIGID DUCT SHALL BE GALVANIZED STEEL MINIMUM 0.013" 930 GA) THICKNESS. INSTALL VENT PER MANUFACTURER'S INSTRUCTIONS ADHERING TO LENGTH AND ELBOW LIMITATIONS.
12. PROVIDE OWNER SEPARATE COST TO INSTALL SIDE STREAM DEHUMIDIFIER, LENNOX MODEL HCHWD-3-070. INSTALL ON RETURN SIDE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.



BASEMENT MECHANICAL PLAN

SCALE : 1/4" = 1'-0"

1



Proposed New Ceiling Layout
Salon DeCrist
905 E. Langsford Rd.
Lee's Summit, MO

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drawn by
JRS

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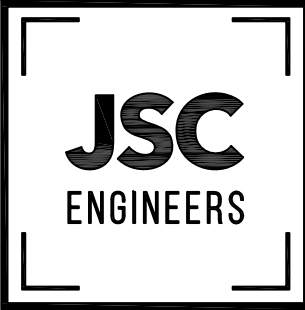
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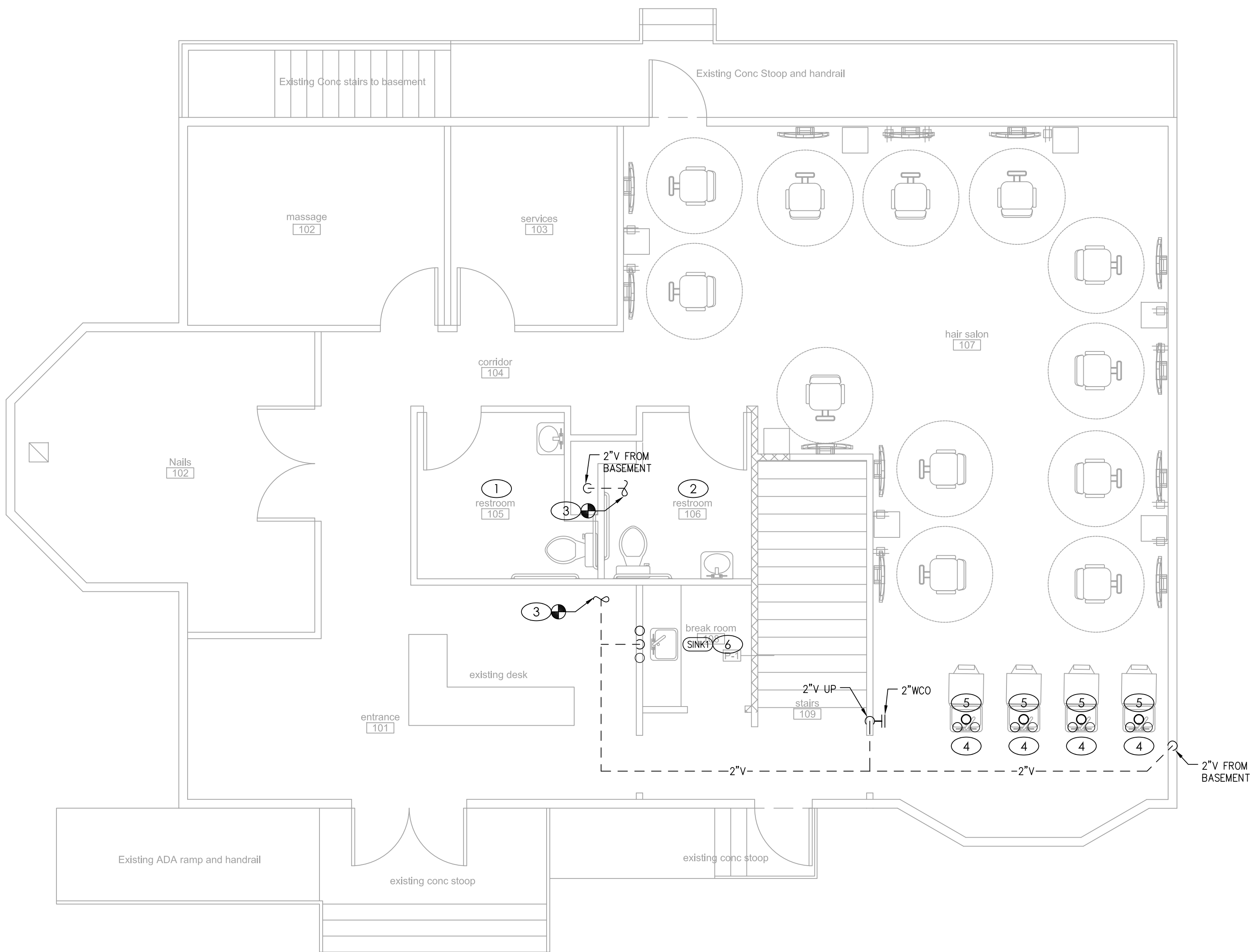
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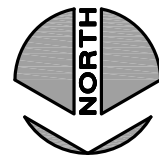
RCH designs 816.803.0412



FIRST FLOOR PLUMBING PLAN

SCALE : 1/4" = 1'-0"

1



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- B. COORDINATE INSTALLATION OF MECHANICAL AND PLUMBING SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION AND AVOID CONFLICTS. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. VERIFY DUCT SPACE AVAILABLE ABOVE ALL CEILINGS PRIOR TO ANY FABRICATION OF INSTALLATION.
- C. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AROUND EQUIPMENT.
- D. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF.
- E. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.
- F. PROVIDE THE GC WITH A COPY OF THE INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS.
- G. EXACT LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES SHALL BE VERIFIED PRIOR TO ANY INSTALLATION OR CONNECTIONS THEREOF. ALL CONNECTIONS TO EXISTING UTILITIES (IE: WATER, SEWER & GAS) SHALL BE MADE WITH APPROVAL OF THE ADMINISTRATIVE AUTHORITY AND THE RESPECTIVE UTILITY COMPANY.
- H. REFER TO PLUMBING FIXTURE SCHEDULE FOR MINIMUM BRANCH WASTE AND VENT PIPE SIZING.

KEYED PLAN NOTES

- EXISTING FIXTURES IN THIS RESTROOM SHALL REMAIN. NO WORK.
- RELOCATE EXISTING RESTROOM FIXTURES AS SHOWN. EXTEND EXISTING WATER, VENT, AND SANITARY PIPING AS REQUIRED.
- CONNECT NEW 2"V TO EXISTING VENT STACK SERVING RESTROOM GROUP.
- 1/2"HW AND 1/2"CW TO SHAMPOO BOWL. PROVIDE UPC CERTIFIED SALON SHAMPOO BOWL SPRAYER WITH VACUUM BREAKER MODEL SU-94A AS MANUFACTURED BY SALON CA. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- 1-1/2" WASTE UP TO SHAMPOO BOWL. PROVIDE HAIR TRAP.
- 1/2"HW, 1/2"CW, & 1-1/2"SS UP IN WALL TO SINK.

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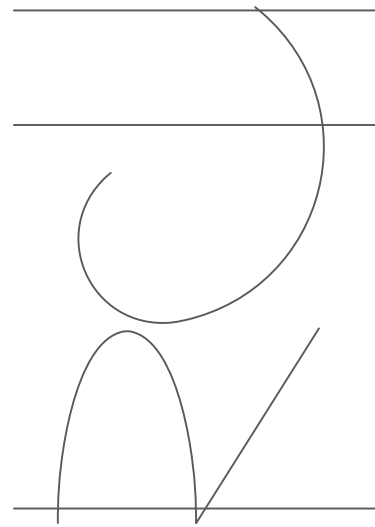
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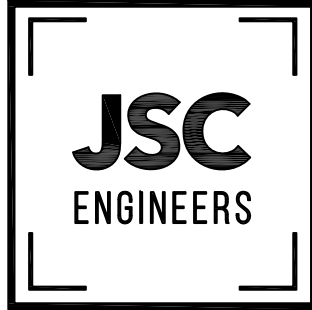
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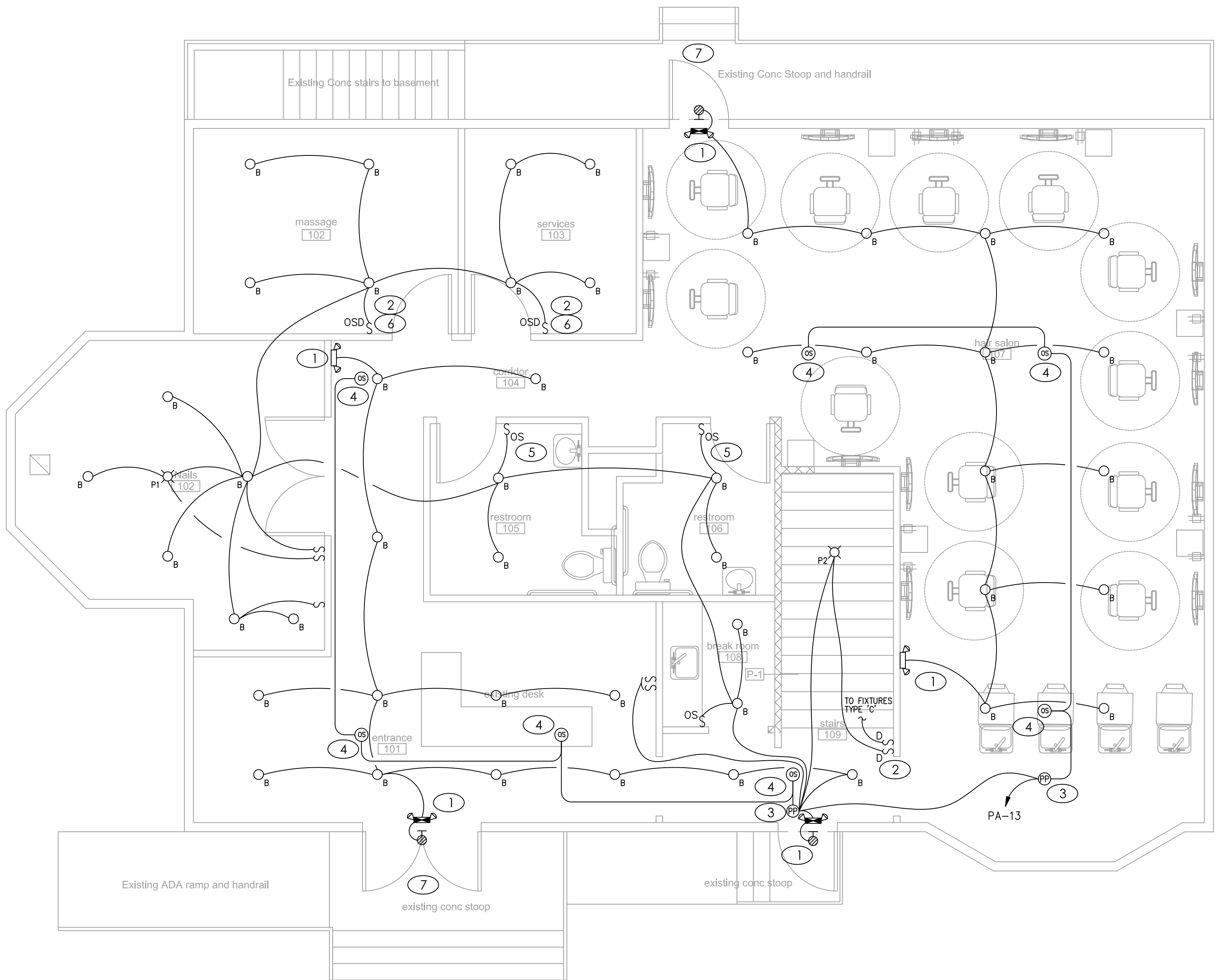
ELECTRICAL SPECIFICATIONS

PART I – GENERAL			
A. CONDITIONS			
1.	FURNISH AND INSTALL A COMPLETELY WIRED AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO, THESE MAJOR ITEMS. A. LIGHTING FIXTURES AS INDICATED AND SPECIFIED ON THE PLANS. B. ELECTRICAL PANELS, SERVICE, CONDUIT, WIRING, ETC., FOR ALL OUTLETS AND EQUIPMENT. C. TELEPHONE, TELEVISION, AND FIRE ALARM, OUTLETS AND CONDUIT AS INDICATED.	2.	THE CONTRACTOR SHALL SUBMIT SEVEN (7) IDENTICAL BOUND SETS OF SHOP DRAWINGS ON THE FOLLOWING ITEMS: A. LIGHTING FIXTURE CUTS AND PERFORMANCE DATA. B. OUTLINE DRAWINGS AND DATA SHEETS OF EACH PANELBOARD, LOAD CENTERS, AND DISTRIBUTION PANELS. C. OUTLINE DRAWINGS OF ALL SWITCH GEAR COMPONENTS. D. WIRING DEVICES AND COVERPLATES. E. ALL CIRCUIT BREAKERS INSTALLED IN PANELBOARDS, LOAD CENTERS, AND DISTRIBUTION PANELS. SUBMIT ITEMS AT ONE TIME IN A NEAT AND ORDERLY MANNER WITHIN 15 DAYS OF AWARD OF CONTRACT. PARTIAL SUBMITTALS WILL NOT BE ACCEPTABLE.
2.	OBTAIN AND REVIEW ALL OTHER DRAWINGS INCLUDING REFLECTED CEILING PLAN, INTERIOR AND EXTERIOR ELEVATIONS, FURNITURE PLANS AND ALL MILL WORK DRAWINGS. COORDINATE INSTALLATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT PRIOR TO ROUGH-IN.	3.	C. SYSTEM GROUNDING 1. GROUNDING SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 250. ALL EXPOSED NONCURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, METALLIC CABLE ARMOR, GROUNDING CONDUCTOR OF NONMETALLIC SHEATHED CABLES, GROUNDING CONDUCTOR IN NONMETALLIC RACEWAYS, AND GROUNDING CONDUCTORS OF THE WIRING SYSTEM SHALL BE GROUNDED. 2. GROUNDING CONDUCTOR (NEUTRAL) OF THE WIRING SYSTEM SHALL BE CONNECTED TO THE SYSTEM GROUNDING CONDUCTOR AT A SINGLE PLACE IN EACH SYSTEM BY REMOVABLE BONDING JUMPERS, SIZED ACCORDING TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE. THE GROUNDING CONDUCTOR (NEUTRAL) TO THE GROUNDING CONDUCTOR CONNECTION SHALL BE LOCATED IN THE ENCLOSURE FOR THE SYSTEM'S OVERCURRENT PROTECTION OR WHERE OTHERWISE INDICATED ON THE PLANS OR SPECIFICATIONS. 3. A GROUND BUS SEPARATE FROM THE NEUTRAL BUS SHALL BE PROVIDED IN ALL DISTRIBUTION PANELS AND PANELBOARDS. PROPER TORQUE ON GROUND BUS SHALL BE VERIFIED, PER MANUFACTURER'S RECOMMENDATIONS, PRIOR TO ENERGIZING EQUIPMENT. 4. GROUND BUSES AND NEUTRAL BUSES IN ALL DISTRIBUTION PANELS, LOAD CENTERS, PANELBOARDS, AND THOSE PROVIDED IN ANY EQUIPMENT SHALL BE ISOLATED EXCEPT WHERE REQUIRED TO BE CONNECTED AS SPECIFIED ABOVE FOR THE SERVICE ENTRANCE. 5. WHEN INDICATED ON THE DRAWINGS, EQUIPMENT GROUNDING CONDUCTORS SHALL BE EXTENDED FROM THE GROUND BUS IN THE DISTRIBUTION EQUIPMENT TO THE RECEPTACLE, FIXTURE OR DEVICE LUGS WHERE THEY ARE PROVIDED. WHERE LUGS ARE NOT PROVIDED, EQUIPMENT GROUNDING CONDUCTORS SHALL BE CONNECTED TO EQUIPMENT ENCLOSURES. THE CONNECTIONS SHALL BE ARRANGED SUCH THAT REMOVAL OF THE RECEPTACLE, EQUIPMENT GROUND CONDUCTORS, OR GROUND JUMPERS FROM GROUND BUSING SHALL NOT AFFECT THE GROUND SYSTEM. 6. RACEWAYS MAY NOT BE USED AS A GROUNDING CONDUCTOR FOR POWER AND LIGHTING CIRCUITS. ALL CONDUIT SHALL HAVE SEPARATE CODE SIZED GREEN GROUND WIRE INSTALLED IN THE CONDUIT TO INSURE A CONTINUOUS GROUNDING PATH. 7. IN INACCESSIBLE LOCATIONS, MAKE CONNECTIONS BY EXOTHERMIC WELD PROCESS. 8. IN ACCESSIBLE LOCATIONS, CONNECTIONS SHALL BE MADE WITH BOLTED THROUGH, APPROVED SOLDERLESS BRONZE GROUNDING DEVICES.
3.	OBTAIN SUBMITTAL AND SHOP DRAWINGS FROM OTHER TRADES AND EQUIPMENT TO COORDINATE INSTALLATION ACCORDINGLY.	4.	D. WIRE 1. CONDUCTOR SIZES SHOWN ON THE DRAWINGS ARE BASED ON COPPER WIRE. UNLESS OTHERWISE SPECIFIED, ALL WIRE SHALL BE TYPE XHHW OR SE FOR FEEDERS OR BRANCH CIRCUITS LARGER THAN 4 AWG, TYPE THHN/THWN INSULATION FOR FEEDERS AND BRANCH CIRCUITS 4 AWG AND SMALLER. ALL BRANCH CIRCUIT WIRING SHALL BE COPPER. 2. ALUMINUM CONDUCTORS MAY BE UTILIZED FOR SERVICE ENTRANCE AND PANEL FEEDERS. CONDUCTORS SHALL BE ALUMINUM ALLOW AA-8000 SERIES. 3. THE WIRES SHALL BE MARKED WITH COLOR TO SIMPLIFY CIRCUIT IDENTIFICATION. UNLESS OTHERWISE REQUIRED BY LOCAL ORDINANCES GROUND WIRES SHALL BE GREEN, NEUTRAL WIRES SHALL BE 120V-WHITE, AND LIVE WIRES 208Y/120V AND 120/240 SHALL BE BLACK (PHASE A), RED (PHASE B), AND BLUE (PHASE C). CIRCUIT SHALL BE LABELED IN EACH J-BOX. 4. ALL CONDUCTORS SHALL BE RATED 600 VOLT. 5. SPLICES IN EXTERIOR PULL BOXES AND MANHOLES SHALL BE WEATHERPROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUAL. 6. PROVIDE SOLID CONDUCTOR FOR 12 AWG AND SMALLER. 7. ALL WIRING WITHIN RESIDENTIAL UNITS ONLY MAY BE TYPE NM CABLE. 8. NO WIRE SHALL BE INSTALLED IN THE CONDUIT SYSTEM UNTIL THE CONDUIT SYSTEM IS COMPLETE. USE MINERALAC NO. 100 OR EQUIVALENT AS A LUBRICANT TO FACILITATE THE INSTALLATION OF THE CONDUCTORS IN THE CONDUIT SYSTEM. 9. MC CABLE WITH COPPER CONDUCTORS AND GROUND WIRE MAY BE USED WHERE PERMITTED.
4.	INSTALLATION SHALL COMPLY WITH ALL CURRENT APPLICABLE CODES AND GOVERNING AGENCIES HAVING JURISDICTION.	5.	E. CONDUIT 1. ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC CONDUIT EXCEPT AS PERMITTED IN OTHER SECTIONS. RGS, WITH A 20 MIL PVC COATING WILL BE USED WHEN IN CONTACT WITH EARTH. IMC MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH THE EARTH. EMT MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH EARTH, NOT IN CONCRETE SLABS OR WALLS AND NOT SUBJECT TO DAMAGE. PVC MAY BE USED IN OR BELOW CONCRETE AND DIRECT BURIED IN EARTH. FLEXIBLE STEEL CONDUIT SHALL BE USED FOR INDOOR FINAL CONNECTIONS TO EQUIPMENT IN LENGTHS NOT TO EXCEED 72". LIQUID-TIGHT FLEXIBLE STEEL CONDUIT SHALL BE FOR OUTDOOR FINAL CONNECTIONS TO EQUIPMENT NOT TO EXCEED 48". 2. WHERE CONDUIT ENTERS OUTLET BOXES, FIXTURES OR CABINETS, FIRMLY FASTEN WITH STEEL SET SCREW, COMPRESSION CONNECTORS, OR DOUBLE LOCKNUTS FOR GRC. ALL CONNECTIONS SHALL HAVE BUSHINGS OR INSULATED THREAT CONDUIT CONNECTORS. FIRMLY FASTEN CONDUIT TO THE BUILDING CONSTRUCTION. RUN EXPOSED CONDUIT PARALLEL TO THE BUILDING LINES, SUPPORTED BY APPROPRIATE HANGERS (UNISTRUT, T & B OR APPLETON, OR EQUAL). 3. COVER METALLIC CONDUIT IN CONTACT WITH EARTH WITH POLYETHYLENE TAPED SPIRAL WRAPPED, 1/2 LAPPED TO PROVIDE 20 MIL THICKNESS. TAPE SHALL BE SCOTCH NO. 50 TAPE. CONDUIT AND DUCTS NOT UNDER BUILDINGS AND FEEDER DUCTS SHALL BE INSTALLED PER N.E.C. 300-5. MAKE JOINTS WITH COMPOUND TO BE WATERTIGHT. 4. SCHEDULE 40 PVA CONDUIT SHALL BE PERMITTED UNDERGROUND WITH PROPER FITTINGS, ALL UL APPROVED AND CEMENTED JOINTS. PENETRATIONS THROUGH FLOOR SLABS AND BENDS GREATER THAN 22" SHALL BE WRAPPED RIGID GALVANIZED STEEL ELBOWS. 5. FITTINGS AND CONDUIT BODIES SHALL BE STEEL. DIECAST FITTINGS ARE NOT ACCEPTABLE. 6. CONDUIT SIZES SHALL BE AS REQUIRED BY CODE AND AS INDICATED OR SPECIFIED. 7. ALL EMPTY CONDUIT SYSTEMS SHALL HAVE A 200 LB. TEST NYLON PULL STRING TO FACILITATE INSTALLATION OF FUTURE WIRE. 8. WIRING, CONDUITS, AND OUTLETS SHALL BE CONCEALED WITH THE BUILDING STRUCTURE, EXCEPT THAT CERTAIN MOTOR AND LIGHTING FEEDER CONDUITS MAY BE RUN EXPOSED IN CERTAIN AREAS AS INDICATED ON THE DRAWINGS. 9. CONDUIT PENETRATION THROUGH ROOF SHALL HAVE ROOF FLASHING WITH CAULK TYPE COUNTER FLASHING SLEEVE. INSTALLATION SHALL BE WATERTIGHT. 10. CONDUITS SHALL BE ROUTED PARALLEL AND PERPENDICULAR TO THE STRUCTURE.
5.	FIRE ALARM SYSTEM, IF REQUIRED PER IBC, SHALL BE DESIGN-BUILD BY OWNER'S/GC'S FIRE ALARM CONTRACTOR. DESIGN SHALL BE IN ACCORDANCE WITH NFPA 72 FIRE ALARM CONTRACTOR SHALL SUBMIT STAMPED DRAWINGS TO AHJ FOR REVIEW AND APPROVAL. FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR TESTING AND VERIFYING THAT THE AUDIBILITY OF THE FIRE ALARM SYSTEM MEETS A MINIMUM OF 15 DBA ABOVE AMBIENT NOISE LEVELS. ADD HORNS WHERE REQUIRED TO MAINTAIN MINIMUM LEVELS.	6.	F. OUTLET, PULL, AND JUNCTION BOXES 1. EACH SWITCH, LIGHT, RECEPTACLE OR OTHER OUTLET, INSTALLED IN RESIDENTIAL UNITS, SHALL BE PROVIDED WITH A CODE SIZED, PLASTIC OUTLET BOX. JUNCTION AND PULL BOXES SHALL BE CODE SIZED, PLASTIC OR METAL OUTLET BOX. ALL OTHER OUTLET BOXES SHALL BE STEEL. 2. BOXES INSTALLED IN POURED CEMENT FLOORS SHALL BE FLUSH TYPE CAST IRON OR STEEL WITH WATERTIGHT GASKETED COVERS. WHERE BOXES ARE INSTALLED IN FLOORS WITH TILE OR CARPET FLOOR COVERING, COVERS SHALL BE OF THE RECESSED TYPE TO ACCOMMODATE THE FLOOR COVERING. 3. BOXES INSTALLED FOR THE ALARM, COMPUTER, AND SECURITY SYSTEM SHALL BE PROVIDED WITH APPROPRIATE COVER PLATES. 4. BOXES FOR TELEPHONE, COMPUTER, T.V., FIRE ALARM, SECURITY, AND SIMILAR SYSTEMS SHALL BE MINIMUM 2-1/8" DEEP.
6.	PROVIDE FIRE STOP ON ALL PIPING THAT PENETRATES RATED WALLS. METHOD OF FIRE STOP SHALL MEET WALL RATING. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF FIRE RATED WALLS. THIS CONTRACTOR SHALL PROVIDE FIRE RATED ENCLOSURES AROUND ALL ROUGH-IN BOXES, PANELS, ETC. THAT ARE LOCATED IN FIRE RATED WALLS AND SHALL FIRE CAULK ALL OPENINGS IN RATED ASSEMBLIES.	7.	G. WIRING DEVICES 1. WALL SWITCHES SHALL BE SPECIFICATION GRADE AC SILENT TYPE SWITCHES, 20A 120/277 VOLT. 2. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX TYPE: NEMAS-20R, 20 AMPERE, 120VOLT GROUNDED TYPE. SPECIAL APPLICATION RECEPTACLES SHALL BE INDICATED ON PLANS. MOUNT WITH THE GROUND DOWN. 3. DEVICE PLATES SHALL BE EQUAL TO SIERRA SMOOTH-LINE PLASTIC WALL PLATES. COLOR SHALL BE WHITE, UNLESS OTHERWISE NOTED. 4. RECEPTACLES IN OUTDOOR AND WET LOCATIONS SHALL BE INSTALLED WITH A HINGED OUTLET COVER/ENCLOSURE CLEARLY MARKED AND U.L. LISTED SUITABLE FOR WET LOCATIONS WHILE IN USE, EQUAL TO TAYMAC SPECIFICATION GRADE.
B. RELATED WORK BY OTHERS			
1.	THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT, TRENCH, AND BACKFILL FOR ELECTRICAL SERVICE ENTRANCE FROM THE MAIN SERVICE TO UTILITY POINT OF ELECTRICAL SERVICE. ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE WITH SERVING UTILITY COMPANY.	2.	H. SERVICE ENTRANCE SYSTEM 1. THE SERVICE ENTRANCE EQUIPMENT SHALL BE AS INDICATED ON THE DRAWINGS. EQUIPMENT SHALL CARRY THE U.L. LABEL AND SHALL CONFORM TO THE POWER COMPANY REGULATIONS. 2. SERVICE ENTRANCE EQUIPMENT SHALL BE PROVIDED WITH A FULLY RATED COPPER OR ALUMINUM BUS. HORIZONTALLY TAPERED BUSSING SHALL NOT BE ALLOWED.
C. CODES, REGULATIONS, AND STANDARDS			
1.	THE INSTALLATION SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES AND ORDINANCES, WITH THE REGULATIONS OF THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE AND WITH THE REQUIREMENTS OF THE POWER, TELEPHONE, AND CATV COMPANIES FURNISHING SERVICES TO THIS INSTALLATION.	2.	I. DISTRIBUTION PANELS 1. DISTRIBUTION PANELS SHALL BE PROVIDED WITH FULLY RATED COPPER OR ALUMINUM BUS. HORIZONTAL TAPERED BUSSING SHALL NOT BE ALLOWED. 2. ACCEPTABLE MANUFACTURERS – CUTLER HAMMER, SIEMENS, SQUARE D OR GENERAL ELECTRIC 3. FACTORY ASSEMBLED DEAD FRONT, METAL ENCLOSED, AND SELF-SUPPORTING SWITCH BOARD ASSEMBLY CONFORMING T NEMA PB 2 AND UL 891, AND COMPLETE FROM INCOMING LINE TERMINALS TO LOAD SIDE TERMINATIONS. 4. LINE AND LOAD TERMINATIONS ACCESSIBLE FROM FRONT ONLY OF THE SWITCH BOARD. SUITABLE FOR CONDUCTOR MATERIALS AND NUMBER OF CONDUCTORS USED.
2.	THE LATEST EDITIONS OF THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS, AND CODES ARE MINIMUM REQUIREMENTS: A. THE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION STANDARDS. B. THE NATIONAL ELECTRICAL CODE, INCLUDING LOCAL AMENDMENTS. C. UNDERWRITER LABORATORIES INCORPORATED STANDARDS. D. AMERICAN NATIONAL STANDARDS INSTITUTE. E. INTERNATIONAL BUILDING CODE.	3.	J. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
D. INSPECTION OF SITE			
1.	PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACQUAINT HIMSELF WITH EXISTING UTILITIES, AND WORKING CONDITIONS TO BE ENCOUNTERED, ETC. ALLOWANCE WILL NOT BE MADE FOR NONCOMPLIANCE WITH THIS CONDITION AFTER BIDDING.	2.	K. LIGHTING CONTROL 1. FURNISH AND INSTALL TIME SWITCHES, PHOTOCELLS, CONTRACTORS AND FULL LIGHTING CONTROL SYSTEMS AS REQUIRED FOR LIGHTING CONTROLS INDICATED ON THE DRAWINGS. 2. TIME SWITCHES SHALL BE EQUAL TO PARAGON, GENERAL ELECTRIC, TORK, OR INTERMATIC AND SHALL HAVE SIZE AND NUMBER OF POLES AS REQUIRED. 3. PHOTOCELLS SHALL BE EQUAL TO TORK OR INTERMATIC WITH VOLTAGE AS INDICATED.
E. STORAGE AND HANDLING OF MATERIAL			
1.	DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS. PROTECT AGAINST MOISTURE, TAMPERING, OR DAMAGE FROM IMPROPER HANDLING OR STORAGE. CONTRACTOR SHALL PROTECT AND BE RESPONSIBLE FOR ANY DAMAGE TO WORK OR MATERIALS UNTIL FINAL ACCEPTANCE BY THE OWNER, AND SHALL MAKE GOOD WITHOUT COST TO THE OWNER, ANY DAMAGE, OR LOSS THAT MAY OCCUR DURING THIS PERIOD.	2.	L. GUARANTEE 1. GUARANTEE ALL MATERIAL FURNISHED AND ALL WORKMANSHIP PERFORMED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF WORK. ANY DEFECTS DEVELOPING WITHIN THIS PERIOD, TRACEABLE TO MATERIAL FURNISHED AS A PART OF THIS SECTION OR WORKMANSHIP PERFORMED HEREUNDER, SHALL BE MADE GOOD AT NO EXPENSE TO THE OWNER.
2.	ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOB SITE IN ORDER TO MINIMIZE THE LENGTH OF TIME BETWEEN DELIVERY AND INSTALLATION.	3.	P. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
F. CLEANUP			
1.	KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS, OR RUBBISH CAUSED BY EMPLOYEES OR WORK UNDER THIS DIVISION OF THE SPECIFICATIONS. AT THE COMPLETION OF THE WORK REMOVE ALL SURPLUS MATERIALS, TOOLS, ETC., AND LEAVE THE PREMISES BROOM-CLEAN.	2.	Q. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
G. EXCAVATION, CUTTING, AND FITTING			
1.	PERFORM ALL EXCAVATION AND BACK FILLING REQUIRED FOR WORK PERFORMED UNDER THIS DIVISION OF THE SPECIFICATIONS. USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OFF SITE MATERIALS ARE DETERMINED NECESSARY.	2.	R. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
H. DRAWINGS			
1.	THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE ELECTRICAL WORK DATA PRESENTED ON THESE DRAWINGS ARE AS ACCURATE AS PLANNING CAN DETERMINE, BUT FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC., TO SUIT FIELD CONDITIONS IS REQUIRED. REVIEW ALL ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF CONDITIONS SHOWN. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN DRAWINGS, AND SPECIFICATIONS, OR REGULATIONS, AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. IF DISCREPANCIES ARE NOT REPORTED, THE CONTRACTOR SHALL BID THE GREATER QUANTITY OR BETTER QUALITY, AND APPROPRIATE ADJUSTMENTS WILL BE MADE AFTER CONTRACT AWARD. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, RADIATION, ETC. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS, USE ACTUAL BUILDING DIMENSIONS.	2.	S. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
I. COOPERATION WITH OTHER CONTRACTORS			
1.	COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF THE ELECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED. CONDUIT, LIGHTING FIXTURES, AND OTHER EQUIPMENT LOCATIONS SHALL BE VERIFIED WITH OTHER TRADES TO AVOID CONFLICT WITH THE PIPING, DUCTWORK, STEEL, BEAMS, OR OTHER OBSTRUCTIONS.	2.	T. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
2.	CAREFULLY VERIFY THE LOCATIONS OF THE OUTLET BOXES AND DETERMINE THAT THEY HAVE NOT BEEN DISTURBED DURING THE INSTALLATION OF MATERIALS OF OTHER TRADES.	3.	U. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
3.	COORDINATE THE LOCATION OF THE TRENCHES AND CONDUITS FOR ELECTRICAL AND TELEPHONE UTILITY SERVICES WITH THE GENERAL CONTRACTOR.	4.	V. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
4.	COORDINATE HVAC AND PLUMBING EQUIPMENT CONNECTION REQUIREMENTS WITH HVAC AND PLUMBING CONTRACTORS	5.	W. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
J. RECORD DRAWINGS			
1.	THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE JOB SITE FOR THE EXCLUSIVE PURPOSE OF MAINTAINING A RECORD OF ALL WORK INSTALLED AND TO SHOW ANY DEVIATIONS FROM THE WORK INDICATED ON THE DRAWINGS.	2.	X. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
2.	AT THE COMPLETION OF THE PROJECT, ONE SET OF REPRODUCIBLE DRAWINGS, SHOWING ALL RECORD CONDITIONS, SHALL BE DELIVERED TO THE OWNER FOR ACCEPTANCE PRIOR TO FINAL PAYMENT.	3.	Y. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
PART II – PRODUCTS AND EXECUTION			
A. MATERIALS			
1.	ALL MATERIALS SHALL BE NEW AND OF QUALITY AS SPECIFIED ON THE PLANS OR SPECIFICATIONS AND MUST CARRY THE UNDERWRITER'S LABORATORIES APPROVAL COVERING THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL REQUIREMENTS OF THE CURRENT APPLICABLE CODES AND REGULATIONS.	2.	Z. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.
B. SHOP DRAWINGS AND APPROVALS			
1.	THE ITEMS SPECIFIED HEREIN AND ON DRAWINGS ARE USED AS A STANDARD OF QUALITY. ANY MATERIALS OF EQUAL QUALITY AND AESTHETIC VALUE WILL BE GIVEN CONSIDERATION AS A SUBSTITUTE FOR THE MATERIALS SPECIFIED. NO APPROVAL WILL BE GIVEN TO A SPECIFIC CATALOG NUMBER, MODEL, OR TYPE OF EQUIPMENT, PRIOR TO BIDDING. AFTER BIDDING, THE DECISION OF THE ARCHITECT AND/OR ENGINEER DETERMINING EQUAL MATERIALS WILL BE FINAL.	2.	AA. REMODELING WORK 1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING CONDITIONS. 2. CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON THE WORK POTENTIAL. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN THE BID ALL COSTS REQUIRED TO MAKE THE WORK MEET EXISTING CONDITIONS. 3. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN. 4. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED. 5. PROTECT MATERIALS INDICATED TO REMAIN.

SYMBOLS LEGEND

NOTE: THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ETC, ARE NECESSARILY USED ON THE DRAWINGS.

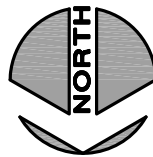
	FLUORESCENT OR LED FIXTURE (SEE SCHEDULE)
	FIXTURE WITH EMERGENCY BATTERY BALLAST UNIT
	TRACK LIGHT
	DOWNLIGHT FIXTURE WITH EMERGENCY BATTERY BALLAST UNIT
	WALL MOUNTED FIXTURE WITH EMERGENCY BATTERY BALLAST UNIT
	DOWNLIGHT FIXTURE
	WALL MOUNTED FIXTURE
	PENDANT MOUNTED FIXTURE
	WALL WASHER
	SINGLE FACE EXIT SIGN – UNIVERSAL MOUNTED
	SINGLE FACE EXIT SIGN W/ DIRECTIONAL ARROWS – UNIVERSAL MTD
	DOUBLE FACE EXIT SIGN W/ DIRECTIONAL ARROWS – UNIVERSAL MTD
	DUAL HEADED EMERGENCY UNIT
	COMBO DUAL HEADED EMERGENCY AND EXIT SIGN UNIT
	LETTER INDICATES LIGHT FIXTURE AS INDICATED ON FIXTURE SCHED
	SINGLE POLE SWITCH @ +48" UNLESS NOTED
	SWITCH BANK @ +48" UNLESS NOTED. LOWER CASE LETTER INDICATES FIXTURE CONTROLLED.
	2 POLE SWITCH @ +48" UNLESS NOTED
	3-WAY SWITCH @ +48" UNLESS NOTED
	4-WAY SWITCH @ +48" UNLESS NOTED
	DIMMER SWITCH – SIZE AS REQUIRED @ +48" UNLESS NOTED
	OCCUPANCY SENSING DIMMER SWITCH – DEFAULT MANUAL-ON/AUTO-OFF. 3-WAY DIMMER SWITCH BANK @ +48" UNLESS NOTED. LOWER CASE LETTER INDICATES FIXTURE CONTROLLED.
	SWITCH SENSOR @ +48" UNLESS NOTED
	MANUAL MOTOR STARTER
	OCCUPANCY SENSOR
	WALL SWITCH WITH OCCUPANCY SENSOR. TWO BUTTON DIGITAL LOW VOLTAGE WALL SWITCH. PROVIDES ON/OFF/0-10V DIMMING. SWITCH @ +48" UNLESS NOTED. LOWER CASE LETTER INDICATES FIXTURE CONTROLLED.
	TWO BUTTON DIGITAL LOW VOLTAGE WALL SWITCH. PROVIDES ON/OFF/0-10V DIMMING. SWITCH @ +48" UNLESS NOTED. LOWER CASE LETTER INDICATES FIXTURE CONTROLLED.
	LIGHTING CONTACTOR
	LIGHTING CONTROLS POWER PACK
	DAYLIGHT SENSOR (SEE LIGHTING CONTROLS SCHEDULE)
	OCCUPANCY SENSOR (SEE LIGHTING CONTROLS SCHEDULE FOR TYPE INDICATED BY "X")
	CAMERA
	SPEAKER
	TELEPHONE OUTLET @ +18" UNLESS NOTED
	DATA OUTLET @ +18" UNLESS NOTED
	COMBINATION TELEPHONE/DATA OUTLET @ +18" UNLESS NOTED
	TELEVISION OUTLET @ +18" UNLESS NOTED
	DUCT DETECTOR
	HEAT DETECTOR
	120 VOLT SMOKE DETECTOR WITH SOUNDER BASE AND BATTERY BACKUP
	AUXILIARY SYSTEM TERMINAL CABINET
	SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION BOARD 120/240V., 3 PHASE, 3 WIRE PANELBOARD, UNO
	CARD READER. PROVIDE 2-GANG OUTLET BOX WITH SINGLE GANG RING AND 3/4" CONDUIT STUBBED UP IN WALL TO ABOVE ACCESSIBLE CEILING WITH BUSHING ON END OF CONDUIT @ 48" UNLESS NOTED OTHERWISE.
	GENERATOR
	TRANSFORMER
	MOTOR OUTLET
	DISCONNECT SWITCH – SIZE AND TYPE NOTED
	COMBINATION FUSED STARTER DISCONNECT SWITCH FUSE SIZE AS INDICATED, STARTER SIZE "I"
	MECHANICAL EQUIP. CONNECTION, SEE SCHED. ON MECH. PLAN
	JUNCTION BOX
	CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING
	CONDUIT RUN BELOW FLOOR OR GRADE
	SPECIAL HEAVY DUTY RECEPTACLE – SIZE AS NOTED. @ +18" UNLESS NOTED
	1/2 SWITCHED RECEPTACLE @ +18" UNLESS NOTED
	FIRE RATED POKE THRU WITH TYPE INDICATED
	FLUSH FLOOR BOX WITH TYPE INDICATED
	SINGLE RECEPTACLE @ +18" UNLESS NOTED
	DUPLEX RECEPTACLE @ +18" UNLESS NOTED
	DOUBLE DUPLEX RECEPTACLE @ +18" UNLESS NOTED
	GF1 DUPLEX RECEPTACLE
	FULL SWITCHED RECEPTACLE
	DUPLEX RECEPTACLE INSTALLED ABOVE COUNTERTOP
	DUPLEX RECEPTACLE WITH WEATHERPROOF COVERPLATE @ 18" UNLESS NOTED
	HOMERUN TO PANELBOARD, INFORMATION AT ARROWS ARE CIRCUIT NUMBERS AND PANELBOARD FOR TERMINATION. REFER TO ASSOCIATED NOTE FOR BRANCH CIRCUIT CONDUCTOR SIZES.
	INDICATES 1/2" CONDUIT CONCEALED IN CEILING OR WALL WITH (3) CONDUCTORS. (1) PHASE, (1) NEUTRAL AND (1) GROUND WIRE. ALL ARE #12 AWG UNLESS NOTED OTHERWISE.
	WHIP COUNT INDICATES NUMBER OF HOT CONDUCTORS



FIRST FLOOR LIGHTING PLAN

SCALE : 1/4" = 1'-0"

1



GENERAL NOTES

- A. REFER TO ARCHITECTURAL DRAWNGS AND ELEVATIONS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES.
- B. REFER TO LIGHTING FIXTURE SCHEDULE FOR LIGHT FIXTURE TYPES AND REQUIREMENTS.
- C. CONNECT ALL EXIT SIGNS AND EMERGENCY LIGHTING UNITS TO THE INDICATED CIRCUIT WITH A SEPARATE AND UN-SWITCHED CONDUCTOR BYPASSING ALL CONTROLS AND CONTACTORS. REFER TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR PROPER INSTALLATION AND TESTING.
- D. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT COORDINATION AND CONFLICT ISSUES BE RESOLVED PRIOR TO INSTALLATION OF LIGHT FIXTURES.
- E. ROUTE ALL EXPOSED, RIGID CONDUIT TIGHT TO STRUCTURE, PARALLEL TO BUILDING LINES AND IN UNISTRUT CABLE/PIPE TRAY WHERE POSSIBLE. COORDINATE CONDUIT ROUTING AND INSTALLATION WITH OTHER TRADES PRIOR TO ROUGH-IN. SUPPORT CONDUIT FROM STRUCTURE NOT ROOF DECK. MAINTAIN 2" MIN SPACING FROM BOTTOM OF ROOF DECK TO PREVENT ROOFING SCREWS FROM PENETRATING CONDUITS.
- F. THROUGH WIRING OF RECESSED LIGHT FIXTURES, IN SUSPENDED CEILINGS, IS NOT PERMITTED. CONNECT EACH LIGHT FIXTURE BY A WHIP TO A JUNCTION BOX. PROVIDE CABLE WHIPS OF SUFFICIENT LENGTH TO ALLOW FOR RELOCATING EACH LIGHT FIXTURE WITHIN A 5-FOOT RADIUS OF ITS INSTALLED LOCATION, BUT NOT EXCEEDING 6 FEET IN UNSUPPORTED LENGTH.
- G. ALL INTERNALLY ILLUMINATED SIGNS SHALL BE PROVIDED WITH AN ACCESSIBLE DISCONNECTION MEANS. VERIFY EACH SIGN IS FURNISHED WITH AN INTEGRAL DISCONNECT SWITCH. PROVIDE WEATHERPROOF DISCONNECT SWITCHES WITHIN SIGHT OF ALL SIGNS AS REQUIRED. MAKE FINAL CONNECTION AS REQUIRED.
- H. ALL FIXTURE DESIGNATED WITH "NL" SHALL BE UNSWITCHED NIGHT LIGHT TO REMAIN ON CONTINUOUSLY.
- I. PROVIDE FUNCTIONAL TESTING OF OCCUPANCY SENSING LIGHTING CONTROL DEVICES WITH IECC C408.
- J. ALL CIRCUIT NUMBERS SHOWN NEXT TO DEVICES ARE ASSOCIATED WITH THE HOMERUN SHOWN AT A NEARBY DEVICE AND SHALL TERMINATE AT THE DESIGNATED PANLEBOARD CIRCUIT BREAKER.
- K. LIGHTING SHALL HAVE LIGHTING CONTROLS TO MEET IECC 2012.

KEYED PLAN NOTES

- 1. CONNECT EXIT/EMERGENCY LIGHT VIA UNSWITCHED HOT CONDUCTOR.
- 2. COORDINATE DIMMING SWITCH SPECIFICATIONS/CONNECTION STYLES WITH LIGHTING FIXTURES SERVED.
- 3. LIGHTING CONTROLS POWER PACK. WATTSTOPPER BLZ-150 OR APPROVED EQUAL. MAKE CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS.
- 4. CEILING MOUNTED OCCUPANCY SENSOR. WATTSTOPPER DT-300 SERIES OR APPROVED EQUAL. MAKE CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS.
- 5. WALL SWITCH OCCUPANCY SENSOR. WATTSTOPPER DW-100 OR APPROVED EQUAL. MAKE CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS.
- 6. WALL SWITCH DIMMING OCCUPANCY SENSOR. WATTSTOPPER DW-311 OR APPROVED EQUAL. MAKE CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS.
- 7. EXTERIOR LIGHTING EXISTING TO REMAIN.

Proposed New Ceiling Layout
Salon DeCrist
905 E. Langsford Rd.
Lee's Summit, MO

date
08.14.2020
drawn by
JRS
checked by
JRS
project number
20-160
revisions

sheet number
E2

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Justin R. Smothers

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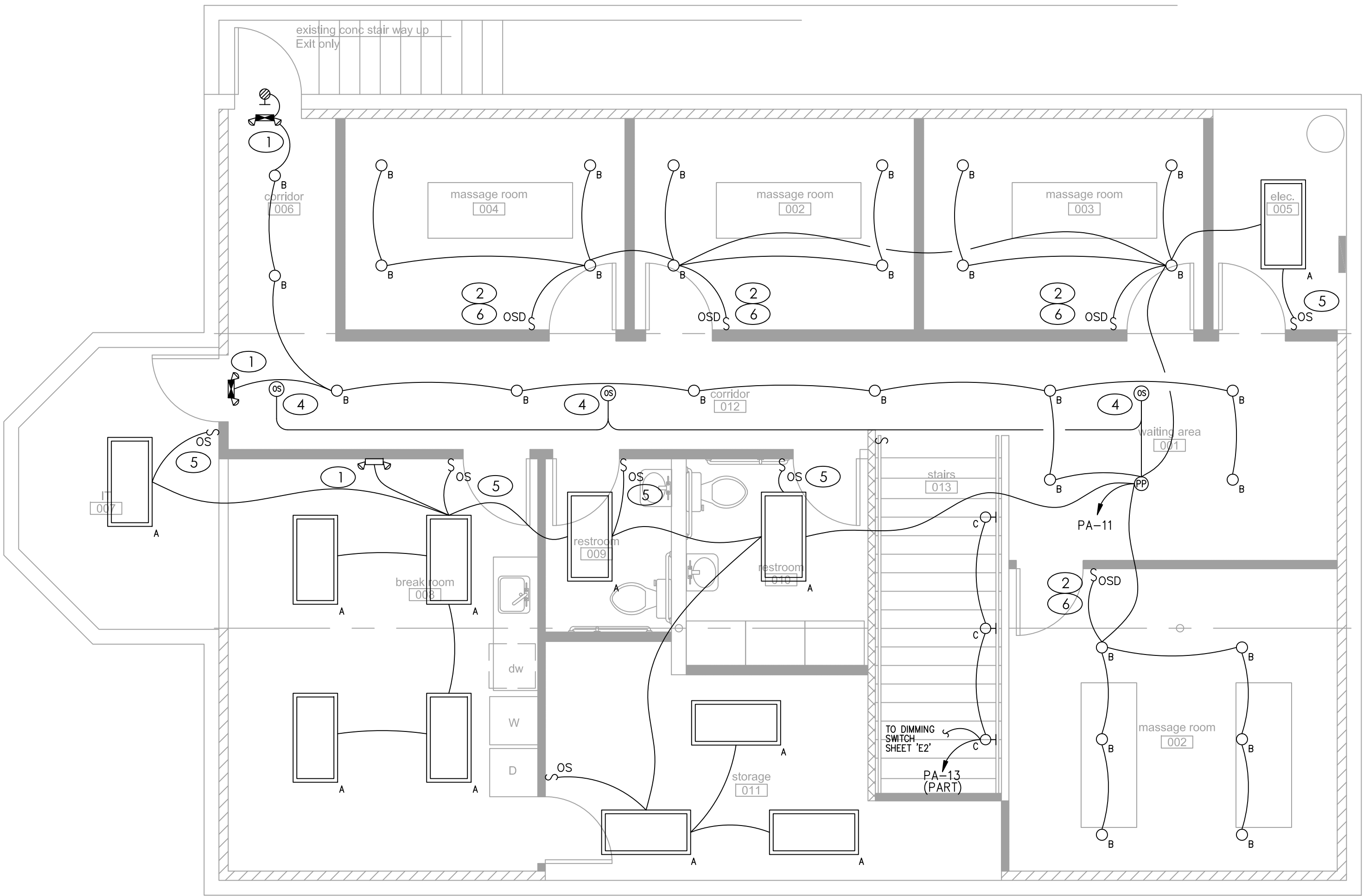
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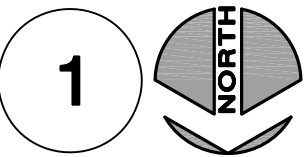
08-14-20

RCH designs 816.803.0412



BASEMENT LIGHTING PLAN

SCALE : 1/4" = 1'-0"



GENERAL NOTES

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- B. REFER TO LIGHTING FIXTURE SCHEDULE FOR LIGHT FIXTURE TYPES AND REQUIREMENTS.
- C. CONNECT ALL EXIT SIGNS AND EMERGENCY LIGHTING UNITS TO THE INDICATED CIRCUIT WITH A SEPARATE AND UN-SWITCHED CONDUCTOR BYPASSING ALL CONTROLS AND CONTACTORS. REFER TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR PROPER INSTALLATION AND TESTING.
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KEYED PLAN NOTES

- 1. CONNECT EXIT/EMERGENCY LIGHT VIA UNSWITCHED HOT CONDUCTOR.
- 2. COORDINATE DIMMING SWITCH SPECIFICATIONS/CONNECTION STYLES WITH LIGHTING FIXTURES SERVED.
- 3. LIGHTING CONTROLS POWER PACK. WATTSTOPPER BLZ-150 OR APPROVED EQUAL. MAKE CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS.
- 4. CEILING MOUNTED OCCUPANCY SENSOR. WATTSTOPPER DT-300 SERIES OR APPROVED EQUAL. MAKE CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS.
- 5. WALL SWITCH OCCUPANCY SENSOR. WATTSTOPPER DW-100 OR APPROVED EQUAL. MAKE CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS.
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- 7. EXTERIOR LIGHTING EXISTING TO REMAIN.

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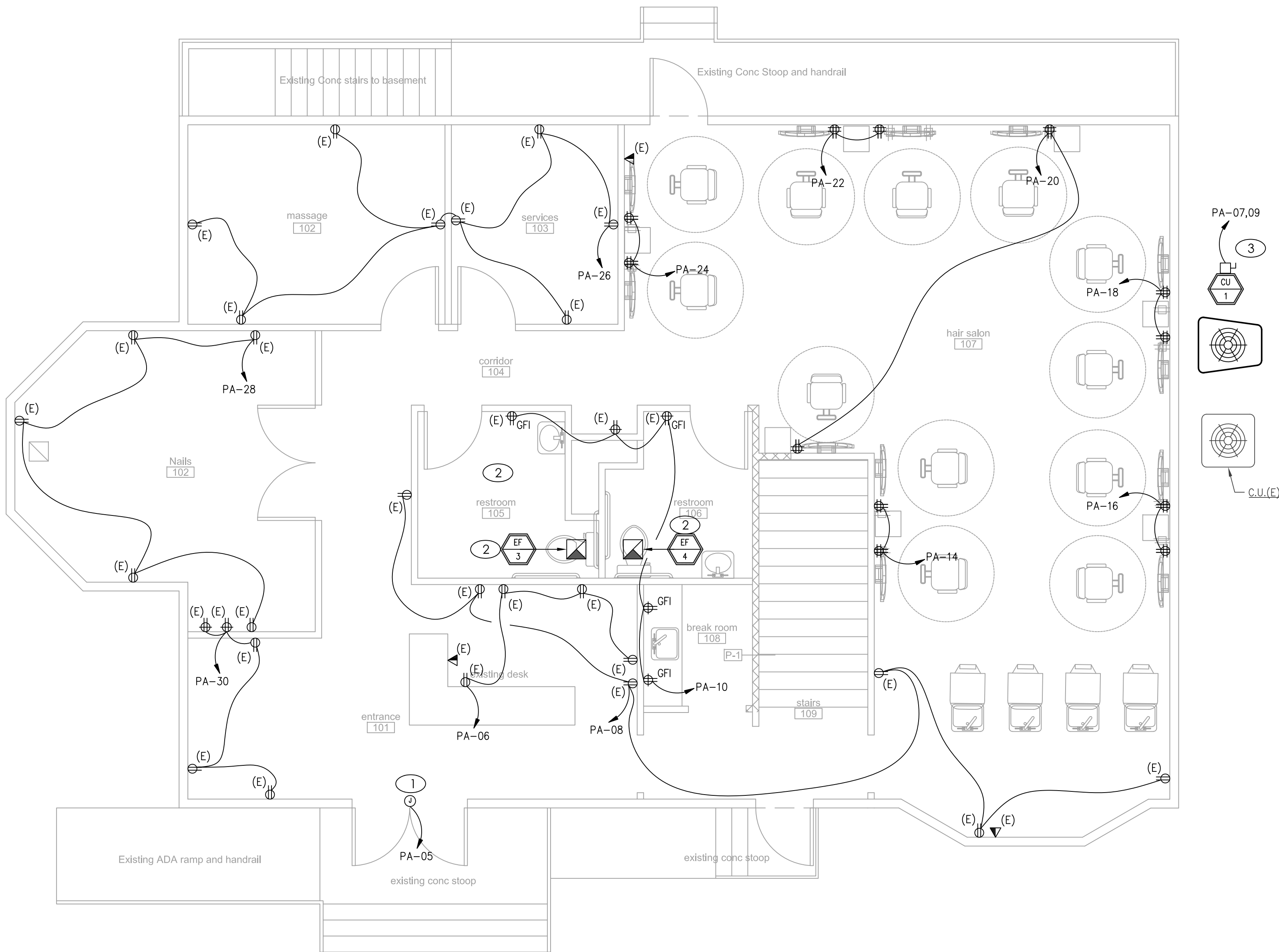
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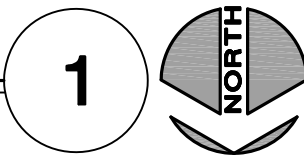
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FIRST FLOOR POWER PLAN

SCALE : 1/4" = 1'-0"



GENERAL NOTES - POWER

- A. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL PLANS OR FIELD MEASUREMENTS FOR DIMENSIONS.
- B. ALL WORK SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL LOCAL BUILDING CODES AND AMENDMENTS.
- C. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.
- D. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACE AVAILABLE, AND WITHOUT INTERFERENCES.
- E. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE ELECTRICAL SYSTEMS.
- F. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED HVAC AND PLUMBING EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT SUBSTITUTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- G. ALL POWER WIRING SHALL BE BY THE ELECTRICAL CONTRACTOR. ALL CONTROL WIRING SHALL BE ROUTED BY THE ELECTRICAL CONTRACTOR WITH FINAL CONTROL DEVICE (T-STATS) LANDINGS BY THE MECHANICAL CONTRACTOR.
- H. ALL WIRING SHALL BE IN APPROVED RACEWAY.
- I. WIRE SIZE SHALL BE MINIMUM #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET.
- K. FIRE ALARM, AUDIO/VIDEO AND SURVEILLANCE SYSTEMS BY OTHERS.
- L. (E) DENOTES EXISTING FIXTURES/DEVICES EXISTING TO REMAIN.

KEYED PLAN NOTES

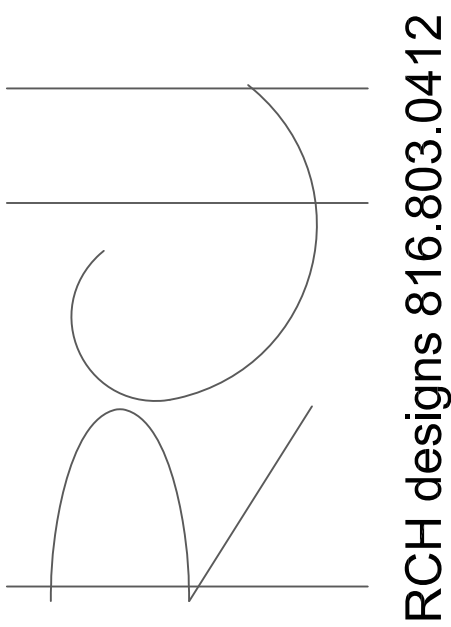
- 1. PROVIDE JUNCTION BOX FOR EXTERIOR LIGHTED SIGN. COORDINATE EXACT LOCATIONS AND REQUIREMENTS WITH SIGN SUPPLIER / INSTALLER, PROJECT MANAGER, AND LANDLORD.
- 2. CONNECT EXHAUST FAN TO POWER AND CONTROLS CIRCUITS SERVING LIGHTING FIXTURE(S) IN ROOM.
- 3. PROVIDE DISCONNECT SWITCH FOR NEW CONDENSING UNIT IN NEMA 3R ENCLOSURE. INSTALL AND MAKE CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS.

Proposed New Ceiling Layout
Salon DeCrist
905 E. Langsford Rd.
Lee's Summit, MO

date	08.14.2020
drawn by	JRS
checked by	JRS
project number	20-160
revisions	△

sheet number

E4



MEP ENGINEER:

JSC
ENGINEERS

MO COA NO. 2012006761 KS COA NO. E2818
1951 NW BLUE HAWKWAY, UNITY VILLAGE, MO 64085
2ND FLOOR UNITY VILLAGE TOWER
phone: (816) 272-6289
email: jsmithers@jscengineers.com

Justin R. Smaothers

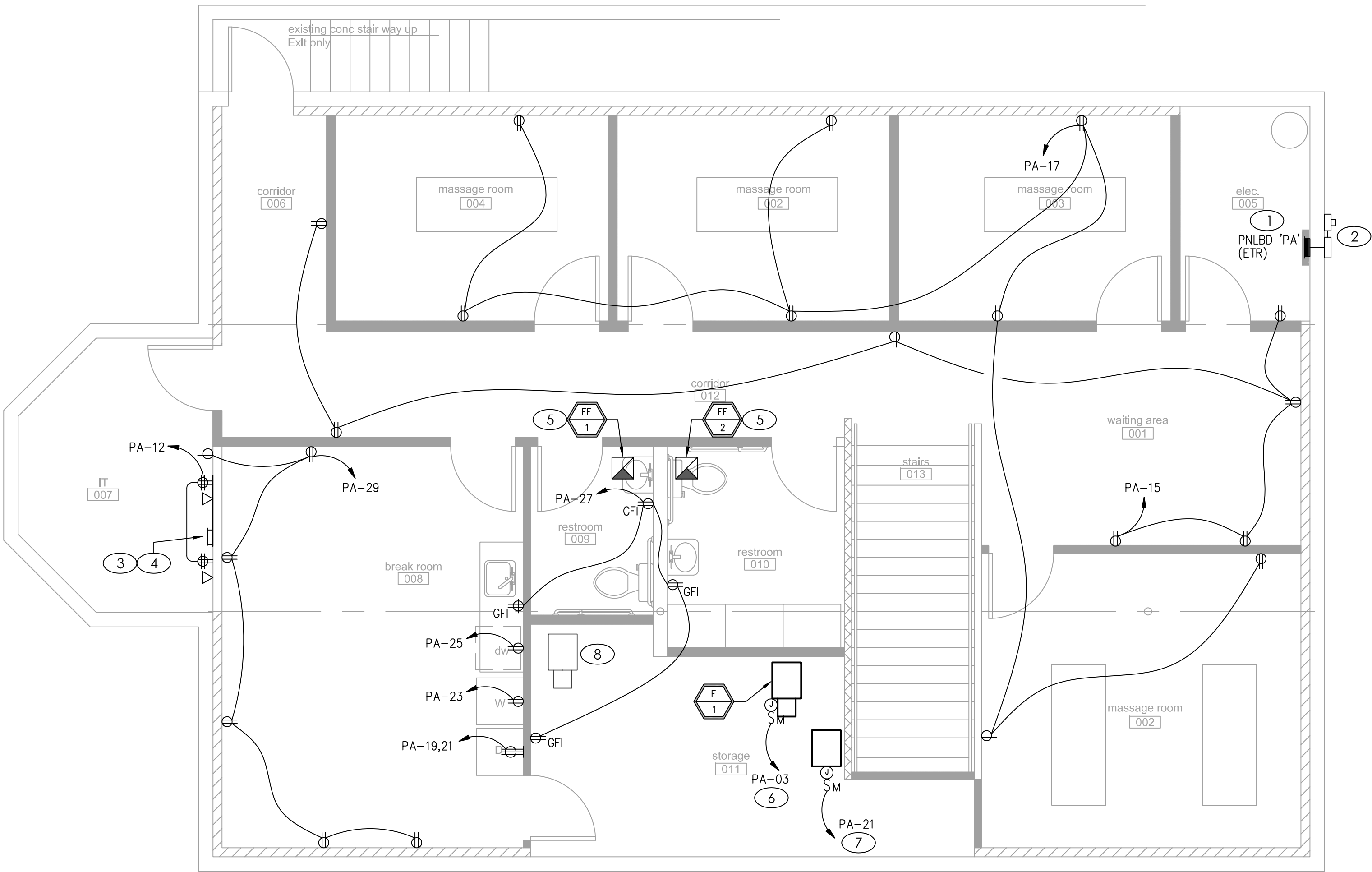
STATE OF MISSOURI
JUSTIN R. SMOOTHERS
NUMBER
PE-20120035668
08-14-20

GENERAL NOTES - POWER

- A. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL PLANS OR FIELD MEASUREMENTS FOR DIMENSIONS.
- B. ALL WORK SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL LOCAL BUILDING CODES AND AMENDMENTS.
- C. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.
- D. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACE AVAILABLE, AND WITHOUT INTERFERENCES.
- E. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE ELECTRICAL SYSTEMS.
- F. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED HVAC AND PLUMBING EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT SUBSTITUTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- G. ALL POWER WIRING SHALL BE BY THE ELECTRICAL CONTRACTOR. ALL CONTROL WIRING SHALL BE ROUTED BY THE ELECTRICAL CONTRACTOR WITH FINAL CONTROL DEVICE (T-STATS) LANDINGS BY THE MECHANICAL CONTRACTOR.
- H. ALL WIRING SHALL BE IN APPROVED RACEWAY.
- I. WIRE SIZE SHALL BE MINIMUM #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET.
- K. FIRE ALARM, AUDIO/VIDEO AND SURVEILLANCE SYSTEMS BY OTHERS.

KEYED PLAN NOTES

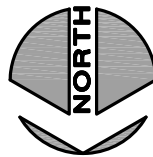
- 1. EXISTING BUILDING SERVICE PANELBOARD TO REMAIN. REFER TO SINGLE LINE DIAGRAM ON SHEET E6 FOR MORE INFORMATION.
- 2. EXISTING SERVICE ENTRANCE METER AND DISCONNECTING MEANS TO REMAIN. REFER TO SINGLE LINE DIAGRAM ON SHEET E6 FOR MORE INFORMATION.
- 3. PROVIDE RECEPTACLES FOR OWNER FURNISHED TELE/DATA AND POINT OF SALES (POS) HEAD END EQUIPMENT. FIELD VERIFY LOCATION AND REQUIREMENTS WITH OWNER PRIOR TO BEGINNING WORK.
- 4. PROVIDE MINIMUM 4" SQUARE X 2-1/8" DEEP OUTLET BOX WITH SINGLE GANG PLASTER RING FOR EACH NEW TELE/DATA, POS, AND TELEVISION OUTLET. PROVIDE 1" CONDUIT WITH INSULATED BUSHING ON EACH END, AND 200 LB NYLON PULL STRING, INTO ACCESSIBLE CEILING SPACE.
- 5. CONNECT EXHAUST FAN TO POWER AND CONTROLS CIRCUITS SERVING LIGHTING FIXTURE(S) IN ROOM.
- 6. MAKE CONNECTION TO DIVISION 22/23 EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
- 7. MAKE CONNECTION TO DEHUMIDIFIER VIA EXISTING CIRCUIT SERVING EXISTING WATER HEATER TO REMAIN. MAKE ALL CONNECTIONS PER MANUFACTURER'S RECOMMENDATIONS.
- 8. EXISTING FURNACE TO REMAIN. MAINTAIN ALL CONNECTIONS AS EXISTING.



BASEMENT POWER PLAN

SCALE : 1/4" = 1'-0"

1



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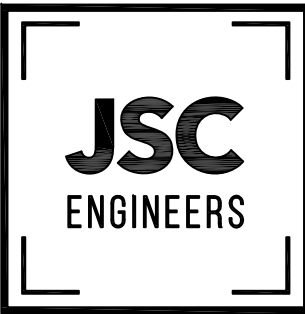
revisions



sheet number

E5

MEP ENGINEER:



MO CON. NO. 2012006781 KCS CON. NO. E-2818
1951 NW BLUE PONDWAY, UNITY VILLAGE, MO 64085
2ND FLOOR UNITY VILLAGE TOWER
phone: (816) 272-6289
email: jsmothers@jscengineers.com



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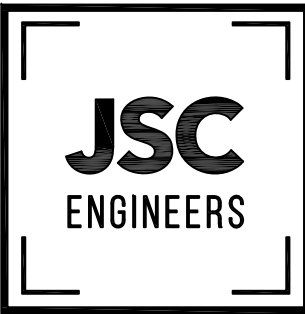
revisions



sheet number

E5

MEP ENGINEER:



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




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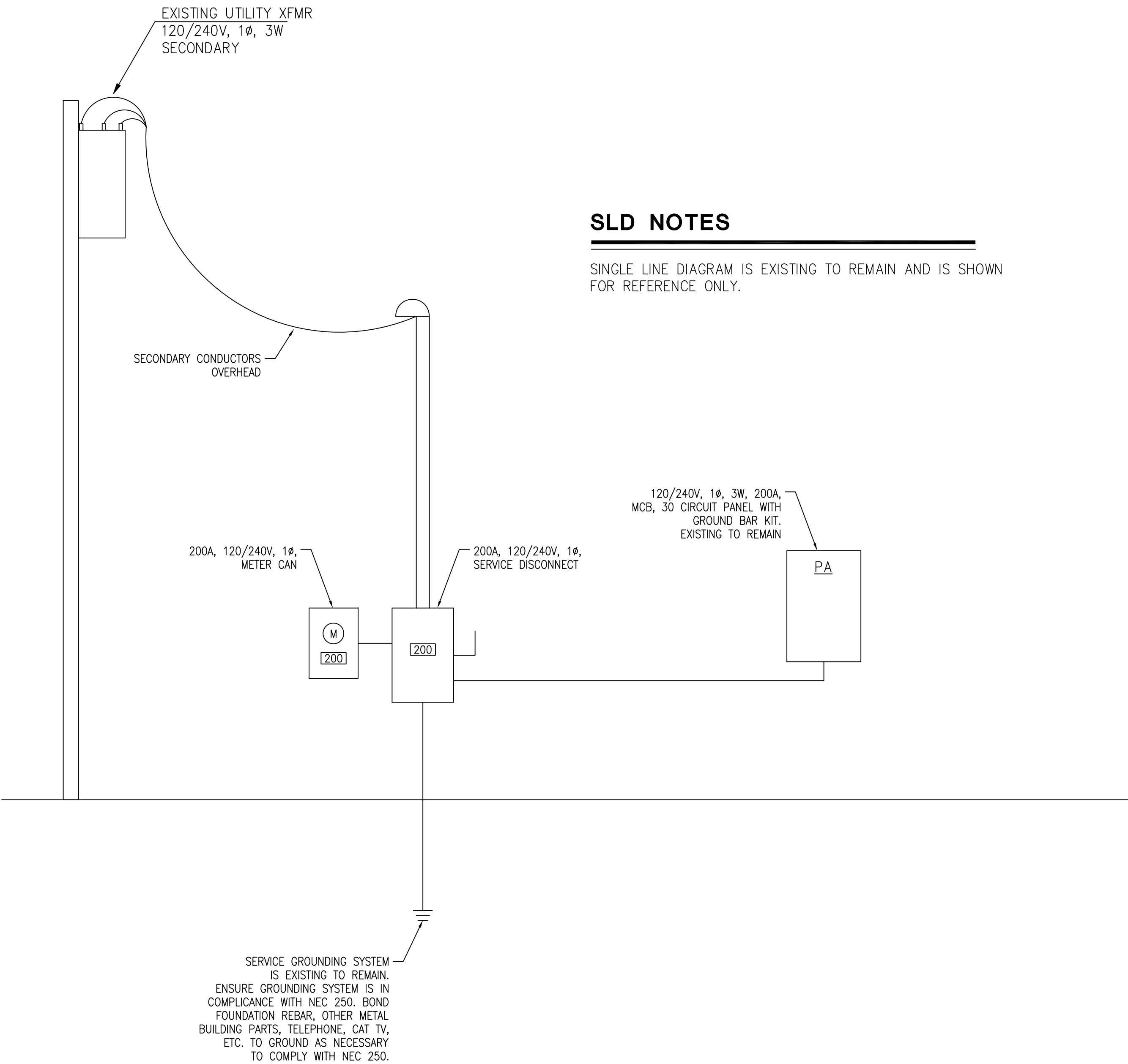
ELECTRICAL LIGHTING SCHEDULE (OR EQUAL, VERIFY ALL SELECTIONS AND FINISHES WITH OWNER AND ARCHITECT PRIOR TO ORDERING).							
FIXTURE TYPE	MANUFACTURER		VOLT AMPS	MOUNTING	LAMP TYPE	REMARKS	VOLT
	NAME	SERIES					
A	LITHONIA	EPANL LED (2X4)	38	GRID/SURFACE/SUSPENDED	INCLUDED 3500K LED	2' X 4' LED FLAT PANEL - COORDINATE MOUNTING WITH CEILING PER ROOM.	120
B	LITHONIA	WF6	13.4	CEILING RECESSED	INCLUDED 3500K LED	LED CEILING RECESSED WAFER STYLE DOWNLIGHT. COORDINATE TRIM WITH ARCHITECT PRIOR TO ORDERING.	120
C	WAC LIGHTING	WL-LED101	3.5	WALL	INCLUDED 3000K LED	WALL-RECESSED LED STEP LIGHT	120
P1	PENDANT	EXISTING TO REMAIN	100	PENDANT	LED	LED PENDANT FIXTURE IN ROOM 'NAILS 101' EXISTING TO REMAIN.	120
P2	PENDANT	OWNER SELECTED	100	PENDANT	LED	LED PENDANT FIXTURE FOR INTERIOR STAIRWELL TO BE SELECTED BY OWNER - MAX OF 100W LOAD.	120
	LITHONIA	ELM2-SD	5	SURFACE	INCLUDED LED	EMERGENCY EGRESS LIGHTING UNIT WITH 90 MIN. BATTERY PACK	120
	LITHONIA	LHQM-LED-R-SD	5	SURFACE	INCLUDED LED	EMERGENCY EXIT EGRESS COMBO LIGHTING UNIT WITH RED FACE EXIT SIGN AND 90 MIN. BATTERY PACK	120
	LITHONIA	ELA-B-T-QWP-L0309-SD	5	SURFACE	INCLUDED LED	OUTDOOR EMERGENCY REMOTE EGRESS LIGHTING UNIT	120

(E)PANEL:				PA (ETR)				VOLTAGE: 240/120V				1PH, 3W				CIRCUIT CODES:				1=(CONTINUOUS LOAD)																											
LOCATION:				RECEIVING				BUS: 200 AMPS												2=(NON-CONTINUOUS LOAD)																											
SHEET/ 1 LINE:				E6				MAIN: 200A MCB (ETR,												3=(RECEPTACLES)																											
AIC RATING:				18,000				MOUNTING: SURFACE												4=(KITCHEN EQUIPMENT)																											
CKT		CB		LOAD DESIGNATION						LOAD		PHASES				LOAD		LOAD DESIGNATION						CB		CKT																					
NO.		CODE		TRIP		POLE		DESCRIPTION				MISC		REC		LITE		VA		A		B		C		VA		LITE		REC		MISC		DESCRIPTION				POLE		TRIP		CODE		NO.			
1		1		20		1		PWR - FURNACE (ETR)				X						1500		4500		////////		////////		3000						X		PWR - AIR CONDITIONER (ETR)						50		1		2			
3		1		15		1		PWR - FURNACE "F1"				X						1500		////////		4500		////////		3000						X		/						2				1		4	
5		1		20		1		LTG - SIGNAGE								X		1200		////////		////////		1920		720		X						RCPT - RECEPTION FRONT DESK				1		20		3		6			
7		1		30				PWR - AIR CONDITIONER "CU-1"				X						1500		2580		////////		////////		1080		X						RCPT - RECEPTION/WASH GENERAL				1		20		3		8			
9		1				2		/						X				1500		////////		2400		////////		900		X						RCPT - GFI BREAK ROOM/RR				1		20		3		10			
11		2		20		1		LTG - BASEMENT								X		1600		////////		////////		2320		720		X						RCPT - IT				1		20		3		12			
13		2		20		1		LTG - 1ST FLOOR								X		1600		2320		////////		////////		720		X						RCPT - CUT STATIONS 1				1		20		3		14			
15		3		20		1		RCPT - BASEMENT CORRIDOR/WTG				X						1260		////////		1980		////////		720		X						RCPT - CUT STATIONS 2				1		20		3		16			
17		3		20		1		RCPT - BSMT MASSAGE ROOMS				X						1440		////////		////////		2160		720		X						RCPT - CUT STATIONS 3				1		20		3		18			
19		3		20		1		RCPT - CLOTHES DRYER (GAS)				X						800		1520		////////		////////		720		X						RCPT - CUT STATIONS 4				1		20		3		20			
21		2		20		1		PWR - WATER HEATER (GAS) (ETR)				X						800		////////		1520		////////		720		X						RCPT - CUT STATIONS 5				1		20		3		22			
23		3		20		1		RCPT - WASHING MACHINE				X						1500		////////		////////		2220		720		X						RCPT - CUT STATIONS 6				1		20		3		24			
25		3		20		1		RCPT - DISHWASHER				X						1000		2440		////////		////////		1440		X						RCPT - SERVICES/MASSAGE				1		20		3		26			
27		3		20		1		RCPT - GFI BREAK/RR/STORAGE				X						720		////////		1620		////////		900		X						RCPT - NAILS				1		20		3		28			
29		3		20		1		RCPT - BREAK ROOM				X						1080		////////		////////		1980		900		X						RCPT - NAILS/ENTRANCE				1		20		3		30			
														TOTAL				13360		12020		10600																									
NOTES:																												CONNECTED KVA				36.0															
"GF" = GROUND FAULT RATED BREAKER																												CONNECTED KVA (CODE 1)				13.2															
																												CONNECTED KVA (CODE 2)				4.0															
																												CONNECTED KVA (CODE 3)				18.8															
																												CONNECTED KVA (CODE 4)				0.0															
JOB NAME:				3RD STREET SALON																								FEEDER DEMAND KVA				34.9															
ISSUE DATE:				08.14.20																								FEEDER DEMAND AMPS				96.8															

ELECTRICAL PANELBOARD SCHEDULE

SCALE : NO SCALE

1



ELECTRICAL SINGLE LINE DIAGRAM

SCALE : NO SCALE

2

Proposed New Ceiling Layout

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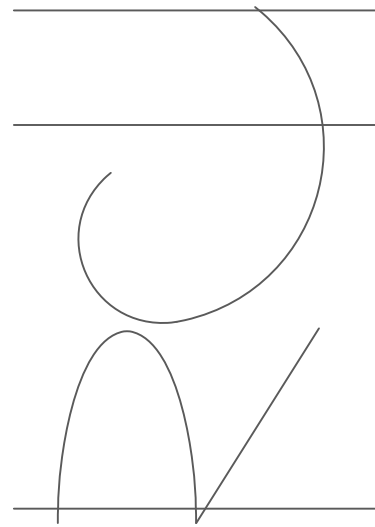
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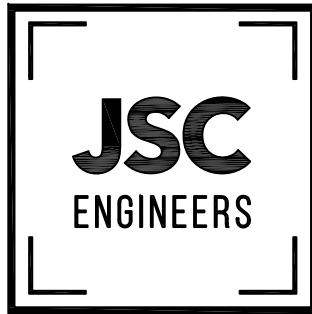
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E6



RCH designs 816.803.0412

MEP ENGINEER:



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