

CLIENT:



NORTHSIDE BREAKROOM

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PROJECT ISSUE:

100% SUBMITTAL

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ROBERT HOENSHEL, AIA

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SITE LOCATION

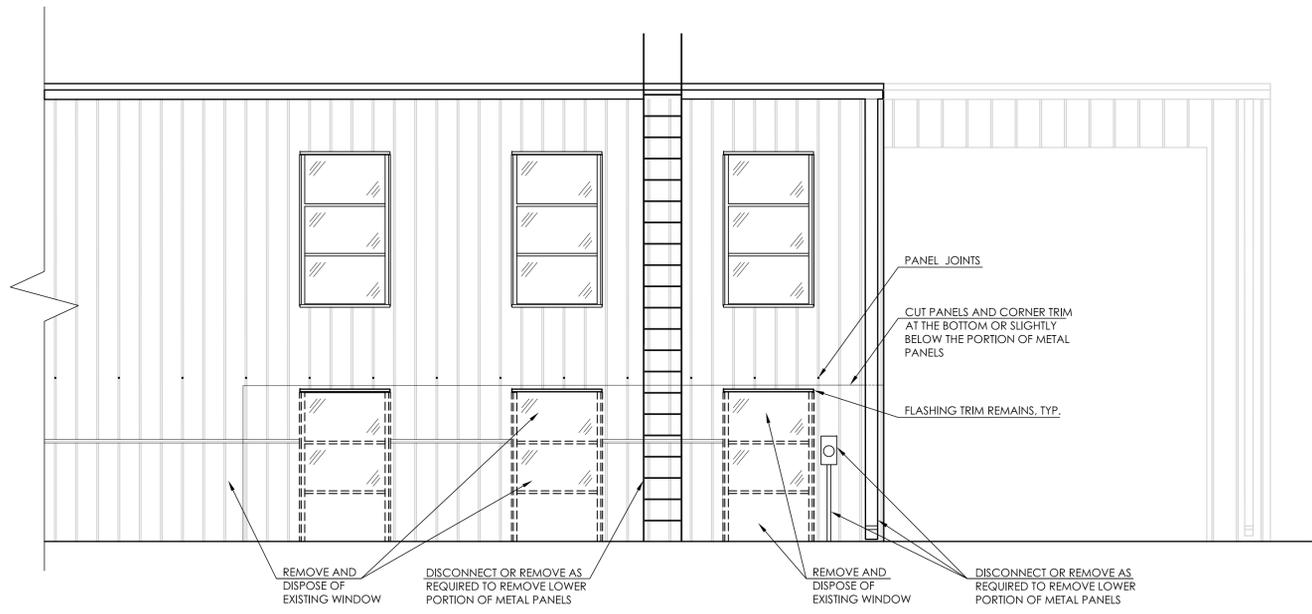
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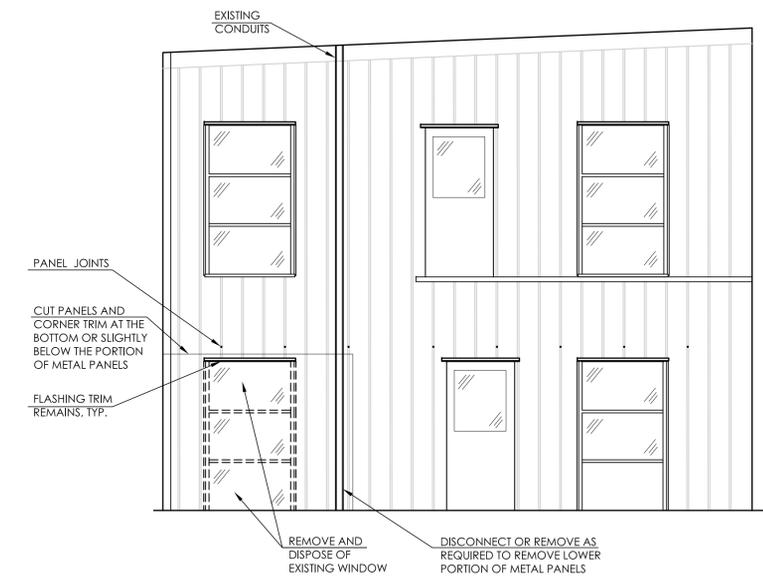
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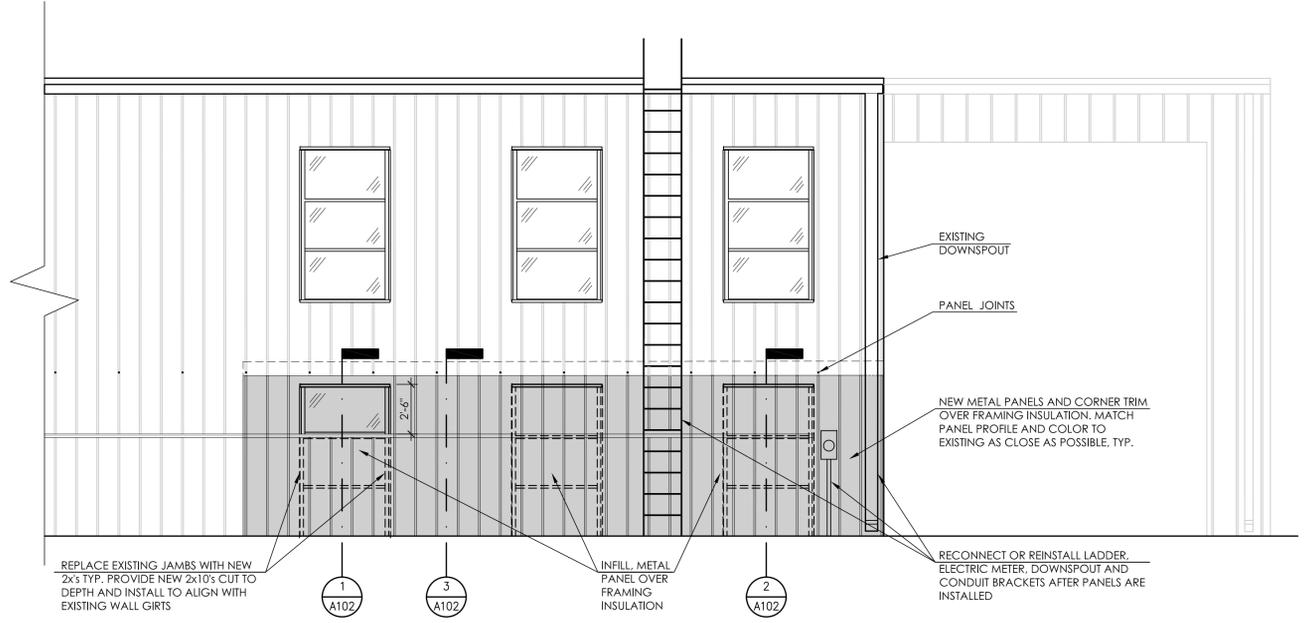
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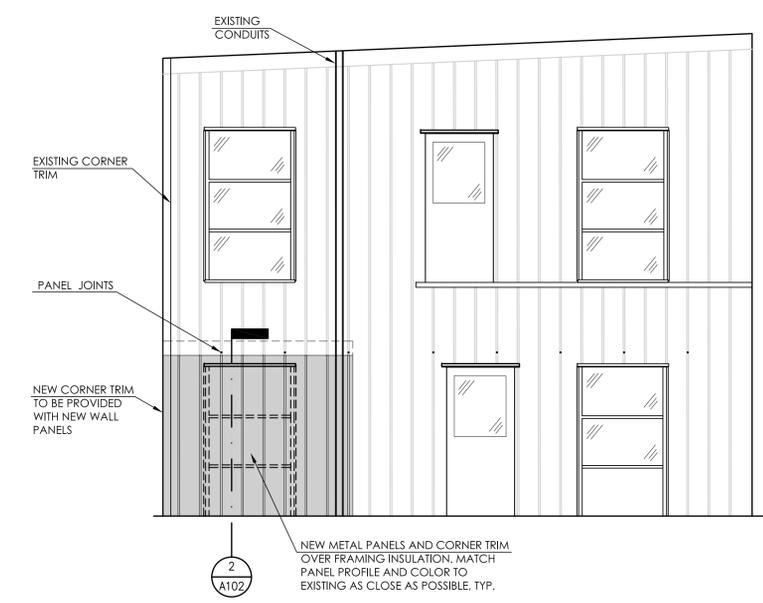
1/4"=1'-0" **1** EXISTING ELEVATION DEMO



1/4"=1'-0" **1** EXISTING ELEVATION DEMO

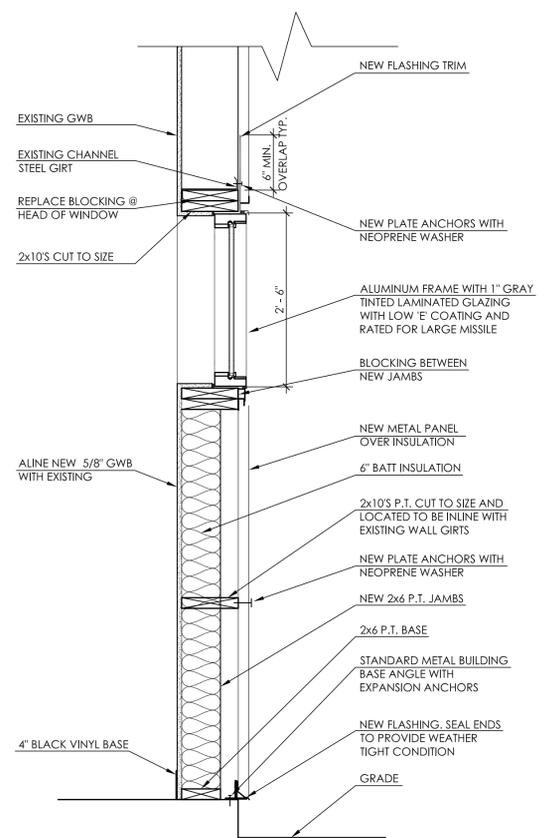


1/4"=1'-0" **3** NEW ELEVATION

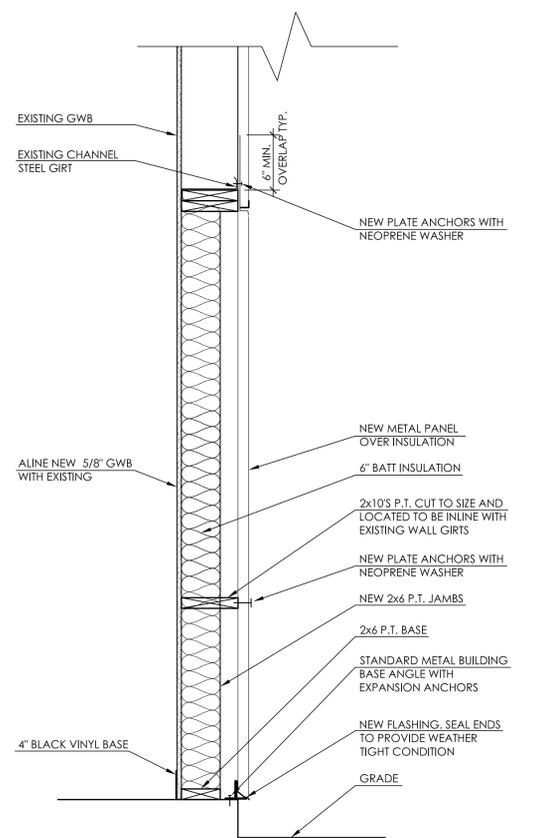


1/4"=1'-0" **4** NEW ELEVATION

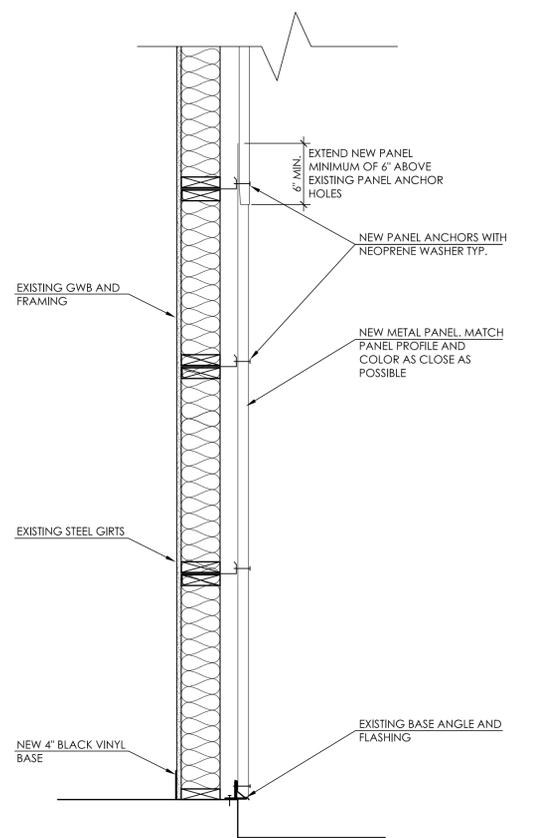
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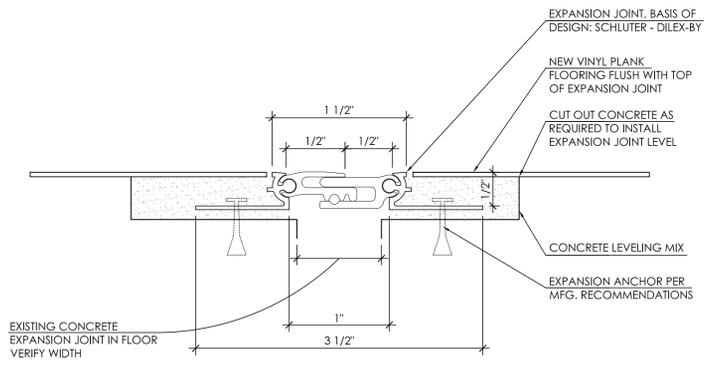
1"=1'-0" **1** WALL SECTION



1"=1'-0" **2** WALL SECTION

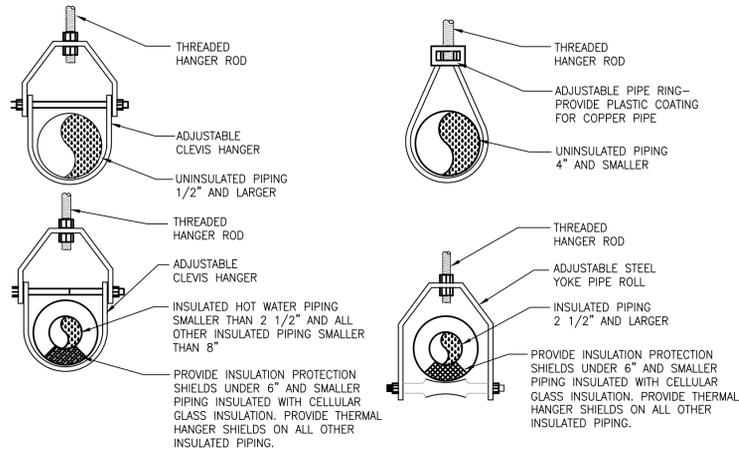


1"=1'-0" **3** WALL SECTION



1"=1'-0" **4** FLOOR EXPANSION JOINT

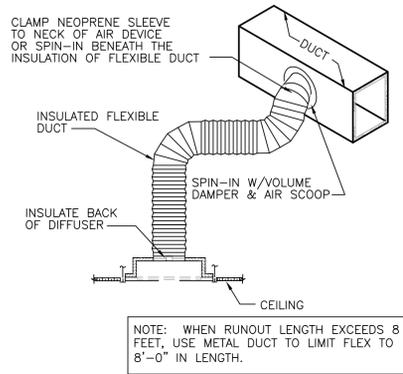
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PIPE HANGER DETAILS

NOT TO SCALE

1
M1.0

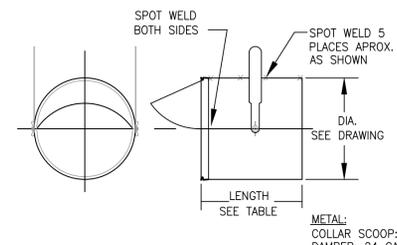


NOTE: WHEN RUNOUT LENGTH EXCEEDS 8 FEET, USE METAL DUCT TO LIMIT FLEX TO 8'-0" IN LENGTH.

SUPPLY DIFFUSER DETAIL

NOT TO SCALE

2
M1.0

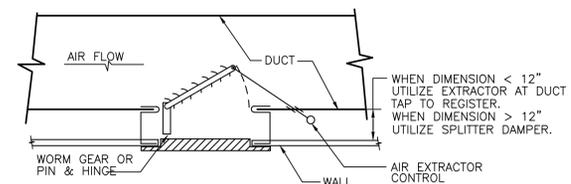


METAL:
COLLAR SCOOP: 26 GAGE GALVANIZED STEEL
DAMPER: 24 GAGE GALVANIZED STEEL

SPIN-IN COLLAR DETAILS

NOT TO SCALE

3
M1.0



WHEN DIMENSION < 12" UTILIZE EXTRACTOR AT DUCT TAP TO REGISTER.
WHEN DIMENSION > 12" UTILIZE SPLITTER DAMPER.

SIDEWALL REGISTER DETAIL

NOT TO SCALE

4
M1.0

AIR DISTRIBUTION SCHEDULE						
MARK	TYPE	FACE SIZE	BORDER TYPE	MANUFACTURER	MODEL NO.	NOTES
A	LOUVER FACED DIFFUSER	24X24	LAY-IN	PRICE	ASDA-3	1, 3
B	EGGCRATE FACE RETURNS	24X24	LAY-IN	PRICE	81DAL	1, 2, 3
C	SIDEWALL SUPPLY	SEE DWGS.	SURFACE	PRICE	22DAL	1, 3
D	EXHAUST GRILLE	SEE DWGS.	ATTACH TO FAN	-	-	4

NOTES:
 1. PROVIDE OPPOSED BLADE DAMPER.
 2. EGGCRATE SHALL BE FULL FACE SIZE WITH 1/2" X 1/2" X 1" SINGLE LAYER GRID.
 3. PROVIDE DAMPER AT FITTING OF LOW PRESSURE DUCTWORK.
 4. CONTRACTOR TO PROVIDE NEW ALUMINUM GRILLE FROM FAN MANUFACTURER.

HVAC LEGEND	
CFM	CUBIC FEET PER MINUTE
T	THERMOSTAT
Wavy line	FLEX. RUN OUT
A 10X10 / 410	SIZE CFM
L	MANUAL VOLUME DAMPER

DIA.	LENGTH
4 IN	4 IN
5 IN	5 IN
6 IN	6 IN
7 IN	7 IN
8 IN	8 IN
9 IN	9 IN
10 IN	10 IN
12 IN	12 IN
14 IN	14 IN
16 IN	16 IN
18 IN	18 IN

HVAC GENERAL NOTES

- CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
- VERIFY INSTALLED STRUCTURE PRIOR TO FABRICATION OF DUCTWORK AND THE HANGING OF DUCTWORK. COORDINATE ALL DUCTWORK WITH JOIST AND STEEL SPACING.
- SEE SPECIFICATIONS FOR GAGES AND BRACING REQUIREMENTS OF DUCTWORK. ALL DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
- ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH COPPER FLEXIBLE STRAP 1/8" BY 1/2" WIDE MULTI-STRANDED BRAID (#4 AWG) WITH FLAT LUG (3/16" HOLE DIAMETER) AT EACH END FOR ATTACHMENT. EACH FLEXIBLE STRAP SHALL BE 8" LONG.
- ACCESS PANELS IN DUCT WORK AND CEILINGS SHALL BE PROVIDED FOR OPERATION AND MAINTENANCE OF ALL FANS, HEATERS, VALVES, DAMPERS, AND MECHANICAL EQUIPMENT.
- THE CENTERLINE OF THE SENSORS SHALL BE LOCATED AT 46" AFF. COORDINATE WITH LIGHT SWITCHES.
- ALL DUCTS AND PIPING SHALL BE INSTALLED AS TIGHT AS POSSIBLE TO WALLS AND BEAMS.
- FLEXIBLE DUCT CONNECTIONS SHALL BE PROVIDED ON ALL DUCT CONNECTIONS TO FANS AND AIR HANDLING UNITS. FLEX SHALL BE A MINIMUM OF 4" AND A MAXIMUM OF 8" IN LENGTH.
- INSIDE OR OUTSIDE OF DUCT VISIBLE THROUGH GRILLES, REGISTERS, AND DIFFUSERS OR EXPOSED DUCT AND EQUIPMENT SHALL BE PAINTED FLAT BLACK.
- ALL EQUIPMENT, PIPING, AND DUCTWORK SHALL BE SUPPORTED AS DETAILED AND SPECIFIED. ADDITIONAL SUPPORTS SHALL BE PROVIDED AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
- PROVIDE AND INSTALL IONIZATION TYPE SMOKE DETECTORS IN SUPPLY AIR STREAM FOR FAN SHUTDOWN ON AIR HANDLING UNITS (AS SCHEDULED). SMOKE DETECTORS SHALL BE CONNECTED TO AUDIBLE/VISUAL ALARM. PROVIDE ACCESS FOR SMOKE DETECTORS IN DUCTWORK.
- INSULATE THE BACKS OF EACH RETURN REGISTER AND SUPPLY DIFFUSER WITH A 2" THICK DUCTWRAP INSULATION. MINIMUM R-VALUE = R-6.
- FLEXIBLE DUCT CONNECTING MAIN DUCT TO SUPPLY DIFFUSER SHALL NOT EXCEED 8 FEET IN LENGTH. IF THE DISTANCE EXCEEDS THIS LIMIT, AN INSULATED METAL DUCT OF REQUIRED LENGTH AND EQUAL DIAMETER SHALL BE INSTALLED WITH AIR SCOOP AND DAMPER AT MAIN DUCT TO REDUCE FLEXIBLE DUCT TO A MAXIMUM LENGTH OF 8 FEET. THE FLEXIBLE DUCT SHALL BE UL 181 RATED. MINIMUM INSTALLED R-VALUE = R-6.
- PROVIDE SPIN-IN CONE WITH LOCKING DAMPER AT EACH FLEXIBLE DUCT RUN OUT CONNECTING SUPPLY DUCT TO DIFFUSER. PROVIDE DAMPER EXTENSIONS TO ACCOMMODATE EXTERNAL INSULATION.
- COORDINATE WITH ALL TRADES INVOLVED. PROVIDE OFFSETS AND TRANSITIONS AROUND OBSTRUCTIONS AT NO ADDITIONAL COST TO THE OWNER.
- REFER TO TYPICAL DETAILS FOR INSTALLATION OF EQUIPMENT.
- REFRIGERANT PIPE IS SIZED IN ACCORDANCE WITH ASHRAE'S RECOMMENDATIONS. APPROVED ALTERNATE EQUIPMENT SHALL HAVE THE PIPE SIZES REVISED IN ACCORDANCE WITH MANUFACTURER'S AND ASHRAE'S RECOMMENDATIONS. LINE LOSS SHALL NOT EXCEED ONE DEGREE FAHRENHEIT.
- CONDENSATE DRAIN SHALL BE PVC. CONDENSATE TRAP DEPTH SHALL BE AS SHOWN IN DETAIL ON DETAIL SHEET FOR ALL AHU'S.
- ALL FINISHES DAMAGED OR REMOVED FOR THE INSTALLATION OF WORK SHALL BE REPLACED TO MATCH ADJACENT FINISHES.
- ALL PIPE PENETRATIONS THROUGH FIRE WALLS TO BE AIR TIGHT AND SEALED WITH FIRE-PROOF SEALANT. ALL DUCT PENETRATIONS THROUGH FIRE WALLS TO BE PROVIDED WITH FIRE DAMPERS INSTALLED IN ACCORDANCE WITH NFPA.
- LOAD CALCULATIONS ARE BASED ON TRANE TRACE COMPUTER PROGRAM. ALL OUTSIDE AIR CALCULATIONS ARE BASED ON FBC - MECH 2017.
- OUTDOOR DESIGN AMBIENT FOR ALL EQUIPMENT IS 95 DEGREES FdB/ 77 DEGREES FwB IN SUMMER AND 32 DEGREES FAHRENHEIT IN WINTER.
- ALL DUCT PENETRATIONS OF THE FLOORS ARE TO BE PROVIDED WITH FIRE DAMPERS AND ACCESS PANELS. ALL PIPE PENETRATIONS OF FLOORS TO BE SEALED WITH UL LISTED INTUMESCENT CAULK.
- SET ALL HVAC SUPPLY, RETURN, AND EXHAUST SYSTEM AIR FLOW RATE TOLERANCES TO WITHIN PLUS 10 PERCENT (10%) OR MINUS ZERO PERCENT (0%).
- MECHANICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS AND ACCESSORIES WITH ELECTRICAL CONTRACTOR PRIOR TO PURCHASE AND INSTALLATION AND SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF ENGINEER.

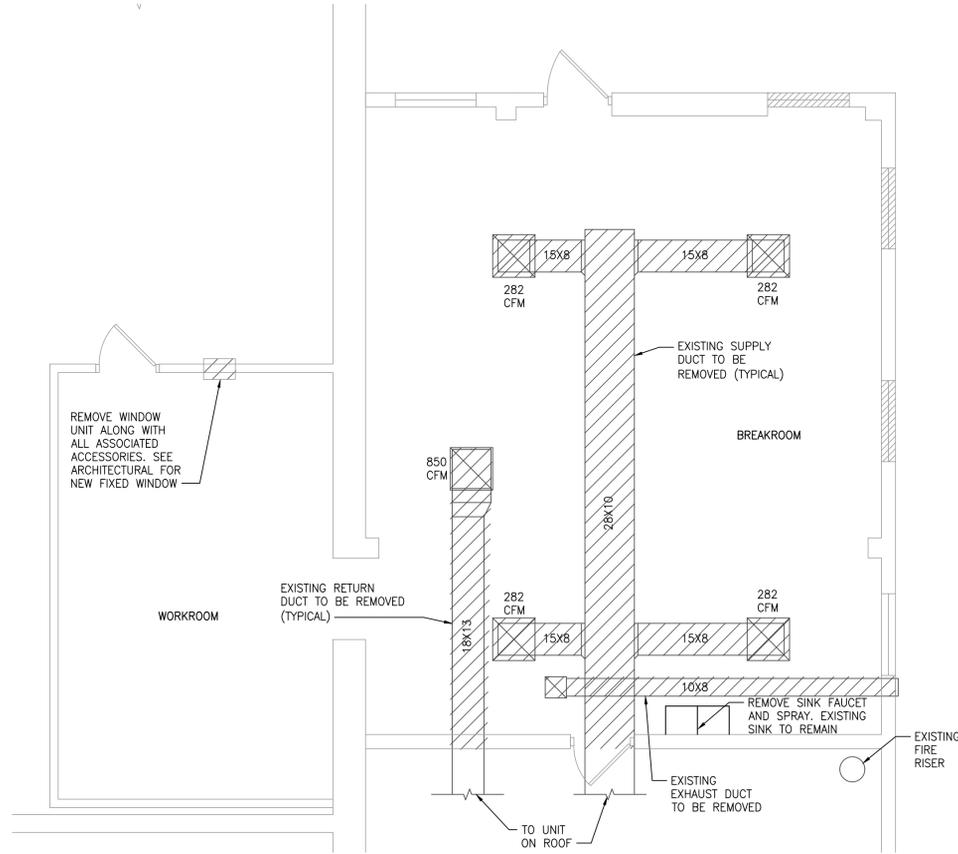
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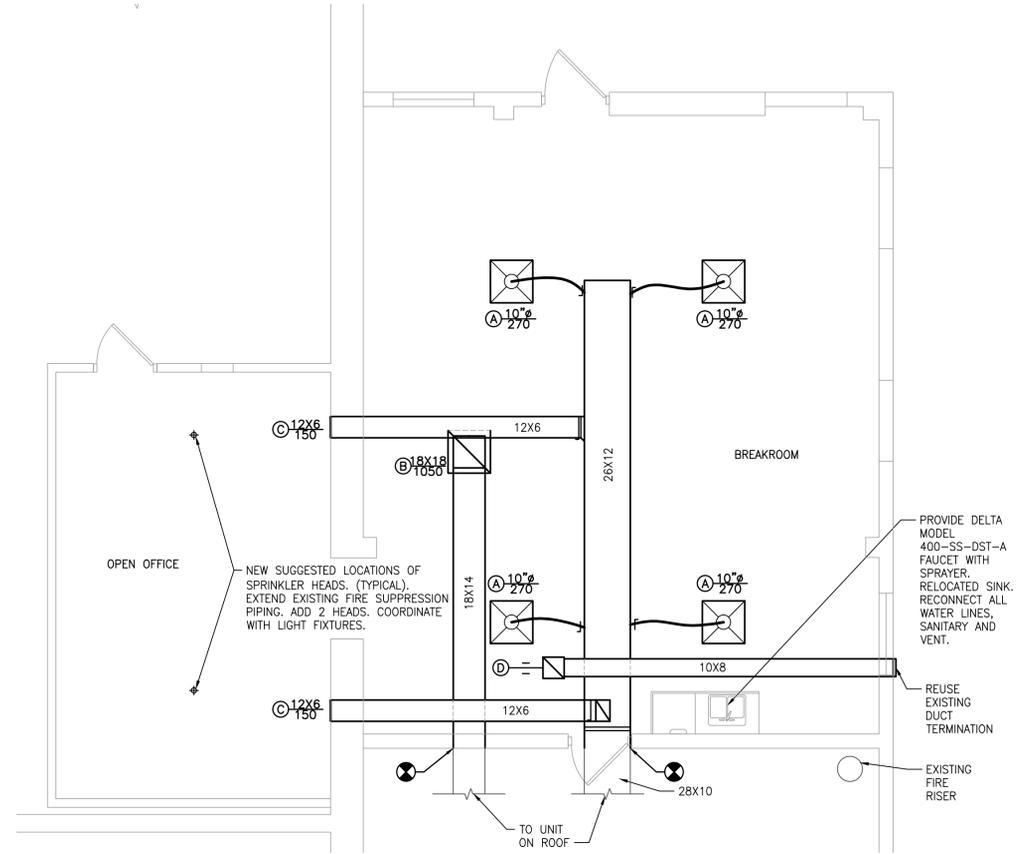
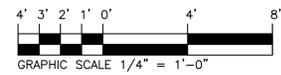
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BREAKROOM**
JACKSONVILLE, FLORIDA

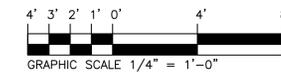
**MECHANICAL NOTES,
SCHEDULE, LEGEND AND
DETAIL**



MECHANICAL FLOOR FLOOR - DEMOLITION



MECHANICAL FLOOR FLOOR - NEW



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		CHECK	ACCEPTED
		SL	SL

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BREAKROOM**
JACKSONVILLE, FLORIDA

**MECHANICAL FLOOR
FLOOR - DEMO AND NEW**

DRAWING

M2.O

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MECHANICAL SPECIFICATIONS

I. MECHANICAL GENERAL PROVISIONS

PART 1 GENERAL

WORK INCLUDED:

A. FURNISH ALL MATERIALS, EQUIPMENT, ACCESSORIES, LABOR, SUPERVISION AND ALL RELATED ITEMS NECESSARY TO COMPLETE THE SCOPE OF THE WORK AS INDICATED ON THE DRAWINGS AND/OR SPECIFIED HEREIN.

B. THE FOLLOWING DATA WAS USED FOR THE THERMAL LOAD CALCULATIONS FOR THIS BUILDING: –INDOOR DESIGN: SUMMER 75 DB @ 50% RH –OUTDOOR DESIGN: 95 DEG. F@B/ 77 DEG. F@B IN SUMMER AND 32 DEG. F IN WINTER.

CODES AND STANDARDS:

A. ALL MECHANICAL SYSTEMS, AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS, SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE LOCAL BUILDING CODE, ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL ORDINANCES AND ALL APPLICABLE SECTIONS OF THE FOLLOWING STANDARDS, LATEST EDITION: "ASHRAE", "AMCA", "ANSI", "ARI", "ASME", "ASTM", "CITI", "NFPA", "SMACNA", "UL".

B. THE ABOVE STANDARDS AND CODES ARE USED AS A MINIMUM DESIGN CRITERIA AND NO REDUCTIONS WILL BE PERMITTED, EVEN IF ALLOWED BY APPLICABLE CODES, WITHOUT WRITTEN PERMISSION BY ENGINEER. DRAWINGS: A. IN GENERAL, MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE AND SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, PLUMBING, ELECTRICAL, FIRE PROTECTION, STRUCTURAL AND ALL OTHER ASSOCIATED PLANS AND SHALL BE CONSTRUED AS ONE SET OF DOCUMENTS. DUCTWORK AND PIPING OFFSETS, BENDS AND TRANSITIONS OF EQUIVALENT SIZE WILL BE REQUIRED IN ORDER TO PROVIDE A COMPLETE, FUNCTIONAL MECHANICAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER. PLANS SHALL NOT BE SCALED. B. AS-BUILT DRAWINGS AND RECORDS: CONTRACTOR SHALL PROVIDE "AS-BUILT" DRAWINGS TO THE ARCHITECT/OWNER AT THE COMPLETION OF THE PROJECT REFLECTING THE ACTUAL CONDITION OF THE MECHANICAL SYSTEM INSTALLATION AND ANY DEVIATION FROM THE ORIGINAL CONSTRUCTION DOCUMENTS. MAINTAIN A COMPLETE SET OF MECHANICAL PRINTS FOR INDICATING ALL CHANGES. USE COLORS TO MAKE CHANGES AT THE TIME OF EXECUTION. DELIVER SET TO ARCHITECT PRIOR TO ISSUANCE OF FINAL PAYMENT AND/OR CERTIFICATE OF OCCUPANCY. ELEVATIONS, INVERTS AND DIMENSIONED LOCATIONS OF UNDERGROUND WORK SHALL BE INDICATED, DIMENSION TO PERMANENT REFERENCES.

SUBMITTALS:

A. SHOP DRAWINGS: CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL 1 COPY, INCLUDING MANUFACTURER SUBMITTAL DATA SHEET (MSDS) OF ALL EQUIPMENT, MATERIALS, DEVICES, ACCESSORIES AND FINISHES AS SPECIFIED BY THE ENGINEERING CONSTRUCTION DOCUMENTS. REVIEW OF EQUIPMENT AND MATERIAL SUBMITTAL SHALL IN NO WAY RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO COMPLY WITH PLANS, SPECIFICATIONS AND CODE REQUIREMENTS. ANY SUBSTITUTIONS SHALL BE PRE-APPROVED BY ARCHITECT AND OWNER AND SHALL BE CONTRACTOR'S RESPONSIBILITY TO INSURE FULL COMPLIANCE WITH THE ORIGINAL DESIGN PER PLANS AND SPECIFICATIONS.

B. MANUFACTURER'S MANUALS: SUBMIT MANUALS FOR APPROVAL AS INDICATED. MANUALS SHALL INCLUDE OPERATING AND MAINTENANCE INSTRUCTIONS, PARTS LISTS, MANUFACTURERS' AND LOCAL SUPPLIERS ADDRESSES AND PERTINENT DESCRIPTIVE DATA. MANUALS SHALL BE LOOSE-LEAF BOUND AND INDEXED.

PERMITS AND FEES:

A. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND NECESSARY ACCESSORIES (I.E. WIRING, CONTROLS, DEVICES, ETC.) AND SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS AND ALL OTHER INCIDENTAL COSTS AND SERVICES NECESSARY FOR THE INSTALLING AND TESTING OF A COMPLETE OPERABLE AND SERVICEABLE MECHANICAL SYSTEM.

MANUFACTURER'S WARRANTY:

A. CONTRACTOR SHALL PROVIDE WARRANTY FOR A PERIOD OF (1) ONE YEAR AFTER BUILDING C.O. FOR ALL MECHANICAL SYSTEMS, DUCTWORK, CONTROLS, ACCESSORIES AND ALL OTHER EQUIPMENT, PARTS AND LABOR UNDER THESE DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL PROVIDE WARRANTY FOR COMPRESSORS FOR (5) FIVE YEARS. ANY REPAIRS REQUIRING SYSTEM SHUT DOWN WILL BE DONE DURING NON-OPERATIONAL PERIODS OR AS AGREED WITH OWNER.

CONTRACTOR'S GUARANTEE:

A. ALL WORK AND MATERIALS TO BE PROVIDED UNDER THESE PLANS AND SPECIFICATIONS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF BENEFICIAL OCCUPANCY.

B. CONTRACTOR SHALL PROVIDE MAINTENANCE AND OPERATION MANUAL ON ALL MECHANICAL EQUIPMENT AND SYSTEMS, AND TRAINING TO THE OWNER'S PERSONNEL AS NECESSARY OR REQUIRED FOR PROPER OPERATION.

PART 2 PRODUCTS

MATERIALS:

A. ALL MATERIALS SHALL BE NEW AND OF GOOD QUALITY OF U.S. MANUFACTURING WHENEVER POSSIBLE. ALL WORKMANSHIP AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, PRODUCT APPROVALS, RULES AND ORDINANCES. ALL EMPLOYED INSTALLING PROCEDURES, METHODS AND TECHNOLOGIES SHALL CONFORM TO ESTABLISHED INDUSTRY STANDARDS AND GOOD ENGINEERING PRACTICE. ANY DAMAGED EQUIPMENT SHALL BE REPLACED OR RESTORED TO ITS ORIGINAL CONDITION WITH NO ADDITIONAL COST TO THE OWNER.

B. ALL MECHANICAL EQUIPMENT AND MATERIALS SHALL BE RATED FOR THE REQUIRED SERVICE, PRESSURES, TEMPERATURES, VOLTAGE, ETC. AND SHALL BE CERTIFIED AND/OR LISTED WHERE APPLICABLE. PROVIDE ALL NECESSARY ACCESSORIES, CONTROLS, TRANSFORMERS, VALVES, CONNECTIONS, GAUGES, ETC. FOR PROPER OPERATION AND SERVICE.

C. SUBSTITUTIONS MUST BE REQUESTED IN CONFORMANCE WITH GENERAL CONDITIONS PER ARCH. SPECIFICATIONS.

D. ALL HARDWARE AND ACCESSORY FITTINGS SHALL BE OF A TYPE DESIGNED, INTENDED OR APPROPRIATE FOR USE AND COMPLEMENT ITEMS WITH WHICH THEY ARE USED, AND SHALL HAVE CORROSION PROTECTION SUITABLE FOR ATMOSPHERE IN WHICH THEY ARE INSTALLED. ALL SUCH HARDWARE SHALL BE U.S. STANDARD SIZES.

E. EQUIPMENT OF A SIMILAR NATURE SHALL BE IDENTICAL AND FIT ALLOTTED SPACE PROVIDED.

F. STORE AND PROTECT ALL MATERIALS FROM DAMAGE. MATERIALS SHALL NOT BE STORED DIRECTLY ON GROUND OR FLOOR AND SHALL BE KEPT CLEAN AND DRY, FREE FROM DETERIORATION BY ELEMENTS. DAMAGED MATERIALS SHALL NOT BE INSTALLED.

G. ALL EQUIPMENT AND MATERIALS SHALL BE SET LEVEL, PROPERLY ALIGNED, SECURED FIRMLY IN PLACE AND BOLTED TOGETHER WHERE IN SECTIONS, AND INSTALLED COMPLETE.

H. ALL OUTSIDE EXPOSED, VISIBLE MECHANICAL EQUIPMENT AND DEVICES SUCH AS GRILLES, PIPING, ETC. SHALL BE PAINTED TO MATCH SURROUNDING TEXTURES AND COLOR AS REQUIRED BY ARCHITECT AND/OR OWNER. PAINT ALL OUTSIDE EXPOSED MECHANICAL EQUIPMENT WITH CORROSION PROTECTIVE PAINT WHENEVER NECESSARY OR REQUIRED, ALL EXPOSED FASTENERS SHALL BE STAINLESS STEEL OR CADMIUM PLATED. ALL FASTENING DEVICES SHALL BE MADE UP TIGHT.

I. FOLDOW INSTALLATION DIRECTIONS AND RECOMMENDATIONS OF MATERIAL AND EQUIPMENT MANUFACTURERS.

J. MATERIALS DAMAGED DURING INSTALLATION SHALL BE REPAIRED TO A NEW CONDITION OR SHALL BE REPLACED. FINISHES ON EQUIPMENT WHICH HAVE BEEN SCRATCHED OR MARRED SHALL BE TOUCHED UP TO MATCH ORIGINAL FINISH OR SHALL BE COMPLETELY REFINISHED.

K. ALL ENCLOSURES, ACCESS PANELS, CABINETS, FIXTURES AND ALL OTHER EXPOSED EQUIPMENT OR ACCESSORIES SHALL BE FACTORY PAINTED OR FINISHED EXCEPT AS INDICATED ON DRAWINGS.

L. GROUP MOUNTED ITEMS SHALL BE SIMILAR IN FINISH AND COLOR.

PART 3 EXECUTION

GENERAL:

A. CONTRACTOR MUST COMMENCE HIS WORK AS SOON AS BUILDING HAS SUFFICIENTLY ADVANCED IN CONSTRUCTION LAYOUT.

B. LOCATIONS OF EQUIPMENT AND PIPING MAY BE SHOWN ON DRAWINGS IN CERTAIN POSITIONS. CONTRACTOR SHALL BE GUIDED BY ARCHITECTURAL DETAILS AND CONDITIONS EXISTING AT JOB, CORRELATING THIS WORK WITH THAT OF OTHERS AND SHALL CAREFULLY EXAMINE ANY EXISTING CONDITIONS, EXISTING PIPING AND PREMISES AND COMPARE THE CONTRACT DOCUMENTS WITH EXISTING CONDITIONS.

C. LOCATION OF ELECTRICAL OUTLETS, PIPING, DUCTS, CEILING DIFFUSERS, ETC. SHALL BE COORDINATED BEFORE MATERIAL OR EQUIPMENT IS INSTALLED SO THAT THERE WILL BE NO INTERFERENCE. IN CASE ANY INTERFERENCE DEVELOPS, THE ARCHITECT/ENGINEER WILL DECIDE WHICH EQUIPMENT SHALL BE RELOCATED AT NO COST TO OWNER, REGARDLESS OF WHICH EQUIPMENT WAS INSTALLED FIRST.

D. CONTRACTOR SHALL CHECK ALL ELECTRICAL CONTROL CONNECTIONS OF EQUIPMENT FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS TO INSURE PROPER OPERATION OF EQUIPMENT.

E. CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BIDDING, ORDERING, FABRICATION AND INSTALLATION OF MATERIALS AND EQUIPMENT AND SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF ARCHITECT AND ENGINEER.

F. SUBMITTAL OF BID SHALL INDICATE THE CONTRACTOR HAS INCLUDED ALL REQUIRED ALLOWANCE IN HIS BID. NO ALLOWANCE SHALL BE MADE FOR ANY ERROR RESULTING FROM CONTRACTOR'S FAILURE TO VISIT JOB SITE AND TO REVIEW DRAWINGS.

G. LAYOUT: WORK LINES AND ESTABLISHED HEIGHTS SHALL BE IN STRICT ACCORDANCE WITH PLANS AND SPECIFICATIONS. SET ALL SLEEVES, ANCHORS, BOLTS, AND/OR INSERTS BEFORE CONCRETE IS POURED.

H. ALL MATERIALS AND LABOR REGARDING SITE WORK, STRUCTURAL STEEL, WEATHER PROOFING, PAINTING, WALL AND ROOF OPENINGS, CUTTING, PATCHING, ETC. SHALL BE DONE BY THE GENERAL CONTRACTOR.

I. WATERPROOFING: WHERE WORK MUST PIERCE WATERPROOFING, IT SHALL BE DONE WITH CARE AND AFTER ITEM PIERCING WATERPROOFING HAS BEEN SET IN PLACE, THE OPENING MADE FOR THIS PURPOSE SHALL BE SEALED AND MADE ABSOLUTELY WATERPROOF.

J. BALANCING: ALL SYSTEMS UNDER THIS SECTION SHALL BE FULLY BALANCED BEFORE FINAL ACCEPTANCE TO ACHIEVE OPTIMUM PERFORMANCE CHARACTERISTICS. ALL WATER SYSTEMS SHALL BE FREE FROM WATER HAMMER UPON COMPLETION OF WORK.

K. PROVIDE CONNECTIONS TO ALL EQUIPMENT (INCLUDING KITCHENS) FURNISHED BY OWNER OR OTHER CONTRACTORS, INCLUDING MATERIALS AND NECESSARY APPURTENANCES REQUIRED TO COMPLETE THE INSTALLATION.

L. ALL OPENINGS IN BUILDING STRUCTURES FOR PASSING OF MECHANICAL DUCTWORK, PIPING, ETC. SHALL BE 1/2" LARGER ON ALL SIDES (OR AS REQUIRED FOR FIRE-STOPPING) THAN OUTSIDE DIMENSIONS OF PASSING ELEMENT. INTERSTITIAL VOIDS SHALL BE FILLED WITH FIRE RETARDANT MATERIAL AS MANUFACTURED BY "PYROSAFE", "THERMOFIRE", "3M" OR OTHER APPROVED MANUFACTURER.

M. CONTRACTOR SHALL UNDERCUT DOORS 1/2" (MAX. 50 CFM) TO PROVIDE REQUIRED VENTILATION FOR UTILITY ROOMS, STORAGE ROOMS, ELECTRICAL ROOMS, TOILETS, ETC. WHEN TRANSFER GRILLES OR DUCTS ARE NOT PROVIDED.

II. HEATING, VENTILATION AND AIR CONDITIONING

PART 1 GENERAL

WORK INCLUDED:

A. GENERAL REQUIREMENTS: THE GENERAL CONDITIONS AND PROVISIONS ARE HEREBY MADE A PART OF THIS SECTION OF THE SPECIFICATIONS.

B. WORK INCLUDED: THIS SECTION IS INTENDED TO DESCRIBE A COMPLETE SYSTEM OF AIR CONDITIONING, VENTILATING, AND ALL COMPONENTS THEREOF. SYSTEMS SHALL MEET REQUIREMENTS OF APPLICABLE CODES AND REGULATIONS AND SHALL BE COMPLETE IN EVERY RESPECT.

PROVISIONS:

A. THE FOLLOWING CODES AND REGULATIONS SHALL, IN ADDITION TO THOSE LISTED ABOVE, APPLY TO WORK AND SYSTEMS COVERED BY THIS SECTION:

- NFPA 90A & 90B – AIR CONDITIONING AND VENTILATION SYSTEMS, LATEST ED.
- NFPA 91 – BLOWER AND EXHAUST SYSTEMS, LATEST ED.
- NFPA 101 – LIFE SAFETY CODE, LATEST ED.
- NFPA 703 – FIRE RETARDANT TREATMENTS OF BUILDING MATERIALS.
- NFPA 255 – BUILDING MATERIALS TEST OF SURFACE BURNING CHARACTERISTICS.
- MECHANICAL REFRIGERATION CODE.
- ASTM. E8475 – METHOD OF TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS
- UL – 723.

B. ALL THERMOSTATS SHALL BE INSTALLED AS INDICATED ON PLANS OR AS REQUIRED/APPROVED BY OWNER AND ENGINEER. ALL THERMOSTATS SHALL BE INSTALLED AS PER THE A.D.A. CODE REQUIREMENTS WHERE APPLICABLE.

C. PROVIDE HIGH EFFICIENCY MOTORS WITH MATCHING NON-FUSIBLE DISCONNECT SWITCH TYPE COMBINATION MOTOR-STARTERS (AS COORDINATED WITH ELECTRICAL CONTRACTOR) AS FOLLOWS, UNLESS OTHERWISE RECOMMENDED BY MOTOR OR EQUIPMENT MANUFACTURER: – ACROSS THE LINE VOLTAGE STARTING BELOW 25 HP – REDUCED VOLTAGE STARTING FROM 25 HP AND ABOVE – OVERLOAD PROTECTION – 1/3 HP AND ABOVE FOR ALL PHASES WHERE SPECIFIED. PROVIDE MOTORS WITH MATCHING VARIABLE FREQUENCY DRIVES FOR QUIET OPERATION. ALL STARTERS SHALL HAVE PHASE LOSS AND UNBALANCE PROTECTION.

D. PROVIDE A MIN. OF 36" CLEARANCE IN FRONT OF ALL 120-208 VOLT PANELS AND 42" CLEARANCE IN FRONT OF ANY 240-480 VOLT PANELS WITH ADEQUATE SIDE CLEARANCE PER NEC REQUIREMENTS.

E. PROVIDE MIN. 10"-0" CLEARANCE BETWEEN OUTSIDE AIR INTAKES AND ANY EXHAUST OPENINGS, EQUIPMENT, ETC., COORDINATE WITH PREVAILING WIND DIRECTION FOR THE DESIGN AREA.

F. FOR ALL EXHAUST FANS PROVIDE BACK-DRAFT DAMPERS WITH TIGHT SEAL IF NOT OTHERWISE SPECIFIED ON SCHEDULES AND PLANS.

G. ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH VIBRATION ISOLATORS AS SPECIFIED ON SCHEDULES AND PLANS OR AS RECOMMENDED BY MANUFACTURER FOR NORMAL OPERATION WITHIN PRESCRIBED NOISE AND VIBRATION LIMITS.

H. PROVIDE FLEXIBLE CONNECTORS BETWEEN DISTRIBUTION SYSTEM AND AIR OR WATER MOVING EQUIPMENT: AHU'S, FANS, PUMPS, ETC.

I. OUTDOOR INSTALLED EQUIPMENT SHALL COMPLY WITH ALL LOCAL NOISE REGULATIONS AND ORDINANCES. IT SHALL NOT EXCEED A NOISE LEVEL OF 65 DECIBELS AS MEASURED RADIALLY 30 FEET FROM THE EQUIPMENT IN ALL DIRECTIONS. IF REQUIRED, PROVIDE ACOUSTIC INSULATION.

PRODUCT DELIVERY, STORAGE AND HANDLING

A. DELIVERY: DELIVER PRODUCTS TO JOB SITE IN THEIR ORIGINAL UNOPENED CONTAINERS CLEARLY LABELED WITH THE MANUFACTURER'S NAME AND BRAND DESIGNATION, REFERENCED SPECIFICATION NUMBER, TYPE, AND CLASS AS APPLICABLE.

B. STORAGE: STORE PRODUCTS IN AN APPROVED DRY AREA; PROTECT FROM CONTACT WITH SOIL AND FROM EXPOSURE TO THE ELEMENTS. KEEP PRODUCTS DRY AT ALL TIMES.

C. HANDLING: HANDLE PRODUCTS IN A MANNER THAT WILL PREVENT BREAKAGE OF CONTAINERS AND DAMAGE TO PRODUCTS.

PART 2 – PRODUCTS

SHEETMETAL DUCTWORK

A. DUCTWORK SHALL BE GALVANIZED SHEETMETAL WITH SEALED SEAMS AND JOINTS WITH EXTERNAL BLANKET INSULATION. PROVIDE PROTECTIVE JACKET & SEAL WHERE EXPOSED. THE HVAC CONTRACTOR SHALL PROVIDE ALL SHEETMETAL DUCTWORK, HANGERS, AUXILIARY SUPPORT STEEL, ETC. ALL FLEX DUCT SHALL BE RATED CLASS I, UL-181 LISTED WITH METALIZED INNER AND OUTER FOIL LINERS.

B. ALL METAL DUCTS SHALL BE FABRICATED IN ACCORDANCE WITH ALL RECOMMENDATIONS AND ILLUSTRATIONS IN THE LATEST EDITION OF THE DUCT MANUAL AND SHEET METAL CONSTRUCTION FOR VENTILATING AND AIR CONDITIONING SYSTEMS BOOK, LOW & MEDIUM VELOCITY SYSTEMS, PUBLISHED BY SMACNA. EXCEPTIONS AND OPTIONS OF FABRICATION METHODS SHALL BE AS STATED HEREIN. FOR ANY ITEMS THAT ARE COVERED IN THIS PUBLICATION, USE THE RECOMMENDATIONS PUBLISHED IN THE LATEST EDITION OF THE GUIDE AND DATA BOOK OF THE AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS (ASHRAE).

C. DUCT GAUGES FOR SHEET METAL WORK SHALL CONFORM TO TABLES IN SMACNA MANUAL, EXCEPT NO PLAIN "S" OR HEMMED "S" WILL BE ALLOWED ON DUCTS OVER 16". LONGITUDINAL SEAMS SHALL BE OF PITTSBURGH LOCK.

D. ANGLE REINFORCEMENT SHALL BE ON 4 FOOT CENTERS FOR ALL DUCTS OVER 48 INCHES AND SHALL CONFORM TO TABLE 1. ANGLES SHALL BE LOCATED AT THE CENTER OF CROSS-BREAK ON ALL FOUR SIDES OF DUCT.

E. DUCT HANGERS SHALL BE AS PER SMACNA MANUAL. SHOOTING OF HANGERS SHALL NOT BE PERMITTED.

F. VOLUME DAMPERS WHICH ARE SHOWN OR REQUIRED SHALL BE AS DETAILED. VOLUME DAMPER TO BE COMPLETE WITH LOCKING QUADRANT SHOWING ALL POSITIONS. PROVIDE DAMPER INSULATION BRACKET EXTENSION.

G. TURNING VANES SHALL BE INSTALLED IN ALL BENDS OVER 45 DEGREES WHERE INSIDE RADIUS OF DUCT BEND OR DUCT SEGMENT BEND IS LESS THAN THE DIFFERENCE BETWEEN THE INSIDE AND OUTSIDE RADIUS. ANGLE DUCT BENDS SHALL NOT BE USED. TURNING VANES OVER 16" LONG SHALL BE DOUBLE THICKNESS AIR FOIL TYPE. ALL BENDS AND DUCT RAISES SHALL BE O.G. TYPE FITTINGS OR RADIUS ELBOWS.

H. SHEET METAL DUCT CONNECTIONS TO EACH VIBRATION ISOLATED EQUIPMENT ITEM SHALL BE MADE WITH FIREPROOF FLEXIBLE CONNECTIONS. FLEXIBLE CONNECTORS OUTDOORS SHALL BE NEOPRENE GLASS CLOTH REINFORCED FABRIC SECURELY FASTENED TO METAL CONNECTORS. INDOOR FLEXIBLE CONNECTIONS MAY BE GLASS FABRIC, TREATED HEAVY CANVAS FABRIC, SUITABLE FOR DUCT AIR PRESSURES WITH SECURELY ATTACHED METAL CONNECTORS.

I. DUCT SUPPORTS SHALL BE NOT LESS THAN THE SIZES IN THE FOLLOWING TABLE:

MAXIMUM DUCT DIMENSION	BAND SPACING	BAND SIZE
1 THRU 8"	8"-0"O.C.	18 GAUGE 1" WIDE
19 THRU 30"	8"-0"O.C.	16 GAUGE 1" WIDE
31 THRU 38"	6"-0"O.C.	1/8X1-1/2"
39 THRU 60"	6"-0"O.C.	3/16 X 1-1/2"

J. ALL DUCTS SHALL BE REINFORCED (CROSS-BROKEN OR BEADED) AS REQUIRED BY SMACNA.

K. VOLUME CONTROL DAMPERS: AT ALL POINTS WHERE BRANCH DUCTS TAKE OFF FROM A MAIN TRUNK DUCT OR WHERE A DUCT DIVIDES, FURNISH AND INSTALL AN ADJUSTABLE SPLITTER DAMPER OF GALVANIZED STEEL, SECURELY FASTENED TO A 3/8" SQUARE STEEL OPERATING ROD. WHERE INDICATED ON THE DRAWINGS, FURNISH AND INSTALL BUTTERFLY TYPE AND OPPOSED BLADE TYPE MANUAL VOLUME DAMPERS IN BRANCH DUCTS. FURNISH AND INSTALL INDICATING TYPE DAMPER REGULATORS FOR ALL MANUAL VOLUME AND SPLITTER DAMPERS. VOLUME DAMPERS USED WITH AUTOMATIC CONTROLS SHALL BE AS SPECIFIED HEREINAFTER.

FLEXIBLE DUCT

PROVIDE UL 181, CLASS 1 AIR DUCTS MANUFACTURED WITH A DOUBLE LAMINATION OF POLYESTER WHICH ENCAPSULATES A STEEL WIRE HELIX THAT IS THEN WRAPPED IN MULTIPLE THICKNESS OF FIBERGLASS INSULATION WITH A METALLIZED POLYESTER JACKET. MINIMUM R VALUE OF 6.0.

DUCTWORK INSULATION

A. AIR CONDITIONING SHEETMETAL DUCTS SHALL BE INSULATED WITH 2 INCH THICK, 1 1/2 POUND DENSITY (R-6) FIBERGLASS, DUCT INSULATION WITH A UL APPROVED FIRE RESISTING REINFORCED ALUMINUM FOIL VAPOR SEAL FACING. JOINTS SHALL BE SEALED WITH FIRE RESISTING MASTIC. DUCT TAPE IS NOT ACCEPTABLE.

B. MANUFACTURERS SHALL BE JOHNS-MANVILLE, OWENS-CORNING, ARMSTRONG OR APPROVED EQUAL.

C. PROVIDE INSULATION OVER CLEAN DRY SURFACES WITH JOINTS FIRMLY BUTTED TOGETHER. FOR PRESIZED GLASS CLOTH OR VAPOR BARRIER JACKETS, LONGITUDINAL LAP SHALL OVERLAP NOT LESS THAN 1-1/2 INCH. BUTT JOINTS SHALL BE WRAPPED WITH A 3 INCH WIDE STRIP OF THE SAME MATERIAL AS JACKET.

D. INSULATION SHALL BE AS SPECIFIED HEREIN AND AS PER MANUFACTURER'S RECOMMENDATIONS.

E. INSULATION SHALL NOT BE APPLIED UNTIL THE ENTIRE SYSTEM HAS BEEN TESTED AND APPROVED.

F. INSULATION SHALL HAVE A FIRE/SMOKE RATING LESS THAN 25/50.

G. VAPOR BARRIER SHALL BE INTACT AND CONTINUOUS. USE GLASS CLOTH AND MASTIC FOR VAPOR BARRIER SEALANT. THE USE OF TAPE IS NOT PERMITTED.

AIR DISTRIBUTION PRODUCTS:

A. AIR DISTRIBUTION PRODUCTS: GRILLES, REGISTERS AND DIFFUSERS SHALL BE THE PRODUCTS OF ONE MANUFACTURER, SIZES AND PATTERNS INDICATED ON THE DRAWINGS AND SCHEDULES. EQUIVALENT MODELS AND UNITS ARE AS MANUFACTURED BY: PRICE, KRUEGER, TUTTLE & BAILEY, OR METALAIR, MEETING THE SAME PERFORMANCE SOUND AND DIFFUSION CHARACTERISTICS, EACH OUTLET TO BE SIZED IN ACCORDANCE WITH MAXIMUM AND MINIMUM AIR VOLUME, THROW, PRESSURE DROP, SOUND (MAXIMUM NC RATING PER SCHEDULE) AND TERMINAL VELOCITY OF THE OUTLET USED. DIFFUSERS, GRILLES AND REGISTERS SHALL BE CONSTRUCTED ENTIRELY OF ALUMINUM WITH CLEAN ACRYLIC LACQUER FINISH (COLOR SUBJECT TO ARCHITECT'S APPROVAL).

B. CEILING DIFFUSERS SHALL BE AS SCHEDULED WITH OPPOSED BLADE DAMPER KEY OPERATED THROUGH FACE OF REGISTER OR AS APPROVED, WITH FRAME TYPE COMPATIBLE WITH CEILING TYPE.

C. RETURN REGISTERS SHALL BE AS SCHEDULED OR AS APPROVED WITH SINGLE DEFLECTION BLADES AND OPPOSED BLADE DAMPER OPERABLE THRU FACE OF REGISTER. FRAME TYPE COMPATIBLE WITH CEILING TYPE. MINIMUM 70% FREE AREA.

D. ACCESS DOORS: FURNISH AND INSTALL ACCESS DOORS IN DUCTS AT ALL CONTROLS, FIRE DAMPERS, OR OTHER APPARATUS TO PERMIT INSPECTION, OPERATION AND MAINTENANCE. PROVIDE DOUBLE PANEL INSULATED ACCESS DOORS FABRICATED OF MINIMUM 20 GAUGE METAL IN INSULATED DUCTS. PROVIDE SINGLE PANEL DOORS FABRICATED OF MINIMUM 18 GAUGE GALVANIZED METAL IN UN-INSULATED DUCTS. AIR DUCT SERVICE OPENINGS SHALL BE SIZED AND LABELED IN ACCORDANCE WITH NFPA 90A.

PART 3 – EXECUTION

A. INSTALL ALL EQUIPMENT, ACCESSORIES AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS PUBLISHED RECOMMENDATIONS.

B. PROTECTION OF DUCTWORK DURING CONSTRUCTION: 1. THE OPEN ENDS OF UNFINISHED SECTIONS OF DUCTWORK INCLUDING FAN OUTLETS, TAPPINGS FOR AIR OUTLETS, ETC., SHALL BE PROPERLY CAPPED AT ALL TIMES DURING CONSTRUCTION, UNLESS THE PARTICULAR SECTION OF DUCTWORK IS ACTUALLY BEING WORKED ON.

2. THE REQUIREMENTS FOR CAPPED DUCT OPENINGS SHALL CONTINUE UNTIL PLASTERING OR EQUIVALENT FINISHING OPERATIONS IN THE BUILDING ARE COMPLETED.

3. IF ABOVE REQUIREMENTS HAVE NOT BEEN STRICTLY ENFORCED DURING THE CONSTRUCTION PERIOD, THE MECHANICAL CONTRACTOR WILL BE REQUIRED TO COVER ALL AIR OUTLETS WITH CHEESECLOTH AND BLOW THE DUCT SYSTEM TO THE SATISFACTION OF ENGINEER.

C. DIFFUSERS: 2 SADDLE HANGERS SHALL BE PLACED ON EITHER SIDE OF THE COLLARS TO PROVIDE ADDED SUPPORT FOR THE SYSTEM AT THAT POINT IN SUCH MANNER THAT THE HANGERS TAKE UP THE WEIGHT OF DIFFUSER AND COLLAR.

TESTING AND BALANCING:

GENERAL:

A. MECHANICAL CONTRACTOR SHALL PROVIDE AN INDEPENDENT TEST AND BALANCE OF ALL MECHANICAL EQUIPMENT (AHU'S, FANS, ETC.), AIR DISTRIBUTION DEVICES (DIFFUSERS, GRILLES, REGISTERS, EXTRACTORS, DAMPERS, ETC.) TO ACHIEVE THE DESIGN QUANTITIES AND FLOW RATES AS NOTED ON THE PLANS AND SCHEDULES. THE SUBMITTED T & B REPORT SHALL BE IN ACCORDANCE WITH THE AIR BALANCE COUNCIL STANDARDS INCLUDING, BUT NOT LIMITED TO, AIR AND WATER FLOW QUANTITIES AND TEMPERATURES AND SHALL BE SIGNED AND SEALED BY A STATE REGISTERED PROFESSIONAL ENGINEER. CONTRACTOR SHALL PROVIDE ALL DEVICES AND ACCESSORIES AS NECESSARY FOR FINAL BALANCING OF ALL SYSTEMS FOR PROPER OPERATION TO THE SATISFACTION OF OWNER AND ENGINEER.

B. TESTING AND BALANCING OF AIR CONDITIONING SYSTEMS AS DESCRIBED IN THIS SECTION SHALL NOT BE PERFORMED UNTIL ALL SYSTEM COMPONENTS HAVE BEEN INSTALLED INCLUDING CONTROL DEVICES.

C. AFTER COMPLETION OF TESTS, 1 COPY OF A TEST REPORT INCLUDING PROCEDURES, METHODS AND RECORDED RESULTS SHALL BE DELIVERED TO THE ARCHITECT/ENGINEER ELECTRONICALLY.

AIR BALANCING:

A. THE CONTRACTOR SHALL PERFORM THE FOLLOWING, TEST AND BALANCE OF THE SYSTEM IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS (PROVIDE WRITTEN SUBSTANTIATING DATA).

B. AIR VOLUME AND VELOCITIES: DETERMINE AND TABULATE AT EACH GRILLE, DIFFUSER, LOUVER, ETC. AND ADJUST DAMPERS, AND CONTROL DEVICES TO OBTAIN THE INDICATED AIR QUANTITIES. ADJUST

OR MODIFY EACH SUPPLY GRILLE AND DIFFUSER DISTRIBUTION PATTERN AS REQUIRED TO MAINTAIN AIR MOTION, NOISE LEVEL AND TEMPERATURE VARIATIONS WITHIN ACCEPTABLE LIMITS THROUGHOUT EACH SPACE. CLEARLY AND PERMANENTLY MARK ALL DAMPERS AT FINAL SETTING FOR REPORTED AIR BALANCE.

C. SYSTEM COMPONENT CAPACITY: RECORD AND CALCULATE ALL DATA NECESSARY TO DEMONSTRATE CAPACITY UNDER ACTUAL OPERATING CONDITIONS, AND ADJUST DAMPERS, TO OBTAIN A SUITABLE OPERATING BALANCE FOR EACH SYSTEM. RECORD DATA FOR EACH ITEM OR EQUIPMENT, TOGETHER WITH COINCIDENT OUTSIDE AIR DRY BULB AND WET BULB TEMPERATURES, TO PERMIT EVALUATION OF TOTAL SYSTEM PERFORMANCE. DATA TO INCLUDE THE FOLLOWING: 1. SUPPLY AND RETURN AIR QUANTITIES FOR EACH AIR GRILLE. 2. ENTERING AND LEAVING AIR DRY BULB AND WET BULB TEMPERATURE 3. TEST AND ADJUST EACH GRILLE REGISTER TO WITHIN PLUS 10 PERCENT (10%) OR MINUS ZERO PERCENT (0%). 4. IN READING AND TEST OF DIFFUSERS, GRILLES AND REGISTERS, INCLUDE REQUIRED FPM VELOCITY, AND REQUIRED CFM AFTER ADJUSTMENTS.

TEMPERATURE MEASUREMENT:

A. SET ADJUSTMENTS OF ALL INSTALLED CONTROLLERS TO OPERATE AS INDICATED. MAKE 4 HOUR TEMPERATURE TRAVERSE OF EACH AREA OR ZONE. PROVIDE TESTING AGENCY PERSONNEL WITH INSTRUMENTS TO VERIFY REPORTS TO ARCHITECT/ENGINEER.

B. TESTS SHALL BE CONDUCTED BY USING AIR MEASURING DEVICES INSTALLED IN MAIN SUPPLY AND BRANCH DUCTS AS SHOWN ON DRAWINGS, AND A PORTABLE INCLINED METER. AIR FLOW AT OUTLETS SHALL BE MEASURED WITH AN AIR FLOW MEASURING CONE, DUCT AND OUTLET AIR FLOW MEASURING DEVICES AS MANUFACTURED BY AIR MONITOR CORP. OR EQUAL. THE RESULTS OF THESE TESTS SHALL BE SUCH THAT THE TOTAL SUM OF AIR SHALL BE WITHIN THE PRESCRIBED LIMITS OF THE TOTAL SHOWN ON THE SCHEDULES FOR THE PARTICULAR SYSTEM.

INSTRUCTIONS TO OWNER:

A. THE AIR CONDITIONING SUB CONTRACTOR SHALL DEMONSTRATE THAT ALL SYSTEMS ARE FUNCTIONAL DURING THE HEATING AND COOLING SEASONS, IN FULL ACCORDANCE WITH THE INTENT OF THE PLANS AND SPECIFICATIONS, AND SHALL INSTRUCT THE OWNER OR HIS REPRESENTATIVE IN THE OPERATION OF THE SYSTEMS.

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GENERAL NOTES:

- EXISTING DIMENSIONS INDICATED ARE APPROXIMATE, THE CONTRACTOR SHALL FIELD MEASURE ALL DIMENSIONS AND ELEVATIONS FOR THE REQUIRED WORK.
- NOTIFY THE ENGINEER OF ANY CONDITIONS IN EXISTING MATERIALS OR STRUCTURE, WHICH MAY ADVERSELY AFFECT THE EXECUTION, PERFORMANCE OR QUALITY OF THE FINAL RESULT.
- PROVIDE BARRICADES AS NECESSARY TO RESTRICT AND PROTECT THE PUBLIC FROM THE AREAS OF THE WORK. THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS, EQUIPMENT AND UTILITIES AT OR NEAR THE SITE OF THE WORK. THE CONTRACTOR WILL REPAIR OR RESTORE ANY DAMAGE TO SUCH FACILITIES RESULTING FROM THE PERFORMANCE OF THE WORK.
- PROVIDE SECURE STORAGE FOR ALL MATERIALS AND EQUIPMENT INVOLVED IN THIS PROJECT. THE SECURE AREA SHALL PROTECT MATERIALS AND EQUIPMENT FROM THEFT, VANDALISM AND CAUSING PERSONAL INJURY. NO EQUIPMENT OR MATERIALS SHALL BE LEFT UNATTENDED OR UNSECURED.
- THE OWNER WILL OCCUPY THE BUILDING DURING THE CONTRACT. THE CONTRACTOR SHALL MAINTAIN SAFE EGRESS FROM ALL AREAS DURING THE WORK. DO NOT BLOCK THE BUILDING EXITS.
- THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO THE EXISTING BUILDING OR ITS' CONTENTS AS A RESULT OF THE CONSTRUCTION AND SHALL MAKE GOOD ANY DAMAGE. THE CONTRACTOR SHALL MAKE A SURVEY OF THE INTERIOR CONDITIONS PRIOR TO THE START OF WORK.
- CLEANING: THE CONSTRUCTION AREA SHALL BE CLEANED DAILY. MISCELLANEOUS MATERIALS SHALL BE REMOVED AND AREAS VACUUMED AT THE END OF EACH WORK SHIFT.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE SEQUENCE OF CONSTRUCTION TO MAINTAIN PROJECT SAFETY.
- REPAIR AND REPAINT ANY DAMAGE TO INTERIOR OR EXTERIOR FINISHES TO MATCH ADJACENT SURFACES.
- THE DRAWINGS ARE GRAPHIC REPRESENTATIONS OF EXISTING CONDITIONS. DIMENSIONS, SIZES, QUANTITIES AND LOCATIONS OF EXISTING HALLS, CEILINGS, FINISHES AND THE CONTRACTOR SHALL VERIFY EQUIPMENT.
- PROVIDE TEMPORARY DUST PARTITIONS AS FOLLOWS: STEEL SPRING RODS WITH 6-ML VLSQUEEN AND ZIPPER DOORS. DUCT TAPE TO FLOOR AND TO CEILING.
- EPOXY ANCHORS WILL NOT BE ACCEPTABLE. USE MINI DROP-IN INTERNALLY THREADED EXPANSION ANCHORS.
- PROVIDE ACCESS PANELS FOR ELECTRICAL AS REQUIRED TO MAINTAIN CLEARANCES AND ACCESS PER NEC.
- THE SIZE OF WIRING, CONDUIT, DISCONNECT AND FUSES FOR HVAC EQUIPMENT IS BASED ON THE MECHANICAL BASIS OF DESIGN. IF THE BASIS OF DESIGN IS NOT USED, THE CONTRACTOR SHALL RESIZE THESE ITEMS PER THE NATIONAL ELECTRICAL CODE AND MANUFACTURER'S RECOMMENDATIONS AND SHALL SUBMIT THIS DATA WITH THE HVAC SUBMITTAL FOR APPROVAL. (TYPICAL).
- METALLIC ELECTRICAL OUTLET BOXES SHALL BE INSTALLED IN VERTICAL FIRE RESISTIVE ASSEMBLIES CLASSIFIED AS FIRE/SMOKE AND SMOKE PARTITIONS WITHOUT AFFECTING THE FIRE CLASSIFICATION. PROVIDED SUCH OPENINGS OCCUR ON ONE SIDE ONLY IN EACH FRAMING SPACE AND THAT OPENINGS DO NOT EXCEED 16 SQ. INCHES. ALL CLEARANCES BETWEEN SUCH OUTLET BOXES AND THE GYPSUM BOARD MUST BE COMPLETELY FILLED WITH JOINT COMPOUND OR OTHER APPROVED MATERIALS. THE WALL MUST BE BUILT AROUND OUTLETS OF LARGER SIZE, SO AS NOT TO INTERFERE WITH THE INTEGRITY OF THE WALL RATING. THE AGGREGATE SURFACE AREA OF THE BOXES SHALL NOT EXCEED 100 SQUARE INCHES PER 100 SQUARE FEET. BOXES LOCATED ON OPPOSITE SIDES OF WALLS OR PARTITIONS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF 4 INCHES. THE METALLIC OUTLET OR SWITCH BOXES SHALL BE SECURELY FASTENED TO THE STUDS AND THE OPENING IN THE WALLBOARD FACING SHALL BE CUT SO THAT THE CLEARANCE BETWEEN THE BOX AND THE WALLBOARD DOES NOT EXCEED 1/8 INCH. IN STEEL STUD PARTITIONS, ATTACH BOXES TO STUDS WITH SHEET METAL SCREWS.
- OUTLETS SHALL NOT BE INSTALLED BACK-TO-BACK, EVEN IF SO INDICATED ON THE DIAGRAMMATIC PLANS, UNLESS SPECIFICALLY SO NOTED TO BE INSTALLED BACK-TO-BACK. THRU-WALL TYPE BOXES ARE NOT ACCEPTABLE. OUTLETS ON OPPOSITE SIDES OF THE SAME WALL SHALL BE INSTALLED IN SEPARATE BOXES JOINED BY AN OFFSET OR CLOSE NIPPLE WITH MINIMUM LENGTH OF 2-INCHES. SEPARATE BACK-TO-BACK BOXES CONNECTED BY A CHASE NIPPLE ARE NOT ACCEPTABLE.
- INSTALL ALL ELECTRICAL BOXES FINISHED FLUSH OR NO GREATER THAN 1/4 INCH RECESSED FROM THE WALL SURFACE.
- INTERLOCK EXHAUST FAN WITH RESPECTIVE AHJ. PROVIDE REQUIRED #12 WIRE IN CONDUIT. SEE MECHANICAL DRAWINGS, FAN SCHEDULE, FOR INTERLOCK.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR TO PROVIDE ADEQUATE WORKING SPACE FOR ALL PANELBOARDS, MOTOR STARTERS AND FUSED DISCONNECT SWITCH. WORKING SPACE SHALL BE CLEAR OF PIPES AND DUCTS. ANY CODE VIOLATION AS A RESULT OF LACK OF COORDINATION SHALL BE RECTIFIED AT NO COST TO OWNER.

DEMOLITION NOTES:

- THERE SHALL NOT BE ANY INTERRUPTION TO SERVICES TO THE EXISTING BUILDINGS WITHOUT PRIOR SCHEDULING OF SUCH OUTAGES WITH THE OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL NOT TAKE POSSESSION OF OR DISPOSE OF ANY SALVAGEABLE ITEMS IN ASSOCIATION WITH THE WORK. ALL SALVAGEABLE ITEMS SHALL BE THE OWNER'S PROPERTY AT HIS OPTION. ALL UNSALVAGEABLE EQUIPMENT AND MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
- THE GENERAL CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF ANY MODIFICATIONS TO EXISTING SYSTEMS AND SHALL UPON COMPLETION, DELIVER "AS-BUILT" DRAWINGS TO THE OWNER, INDICATING ANY SUCH CHANGES.
- WHERE FEEDERS ARE ABANDONED, WIRE SHALL BE PULLED OUT AND ALL EXPOSED SECTIONS OF CONDUITS REMOVED. ALL SWITCHES, PANELS, ETC. SHALL BE REMOVED. ALL CONCEALED CONDUITS SHALL BE CAPPED AT POINT OF CONCEALMENT.
- ALL EXISTING DEVICES AND FIXTURES IN THE PATH OF RENOVATION OR BUILDING ADDITIONS SHALL BE REMOVED BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN EXISTING CIRCUITRY TO ALL REMAINING DEVICES AND FIXTURES. FOR EACH DEVICE OR FIXTURE REMOVED AT THE END OF A CIRCUIT, CONTRACTOR SHALL REMOVE WIRING FROM LAST REMAINING DEVICE, FOR EACH DEVICE OR FIXTURE REMOVED IN THE MIDDLE OF A CIRCUIT, CONTRACTOR SHALL REMOVE WIRING FROM FIRST DEVICE OR FIXTURE BEFORE AND AFTER REMOVED DEVICE AND FIXTURE. NEW WIRING, SIZED THE SAME AS EXISTING, SHALL BE PULLED BETWEEN THE TWO REMAINING DEVICES OR FIXTURES.
- CONTRACTOR MAY REUSE EXISTING CONDUIT SYSTEM WHERE APPLICABLE, PROVIDING THE REUSED SYSTEMS MEET CURRENT CODES. REMOVE ALL UNUSED SURFACE MOUNTED CONDUIT. UNUSED CONDUITS STUBBING UP FROM FLOOR SHALL BE CUT FLUSH WITH FLOOR AND CAPPED.
- EXISTING EQUIPMENT NOT SHOWN ON THESE PLANS AND NOT REMOVED BY OTHER TRADES SHALL BE RECONNECTED TO PANELS. EXISTING ELECTRICAL OR MECHANICAL EQUIPMENT TO REMAIN THAT HAS TO BE DISCONNECTED FOR CONSTRUCTION SHALL BE REINSTALLED.
- ELECTRICAL DRAWINGS DO NOT INDICATE ALL THE EXISTING INSTALLATIONS.
- ALL EXISTING SWITCHES, RECEPTACLES, LIGHTING FIXTURES, TELEPHONE OUTLETS, ETC. THAT DO NOT INTERFERE WITH RENOVATIONS SHALL REMAIN.
- CONTRACTOR SHALL VISIT THE SITE PRIOR TO PREPARING HIS BID AND DETERMINE THE EXTENT OF EXISTING EQUIPMENT AND WIRING TO ACCOMMODATED CHANGES AND ADDITIONS. ALL THE NECESSARY REROUTING, RELOCATING AND/OR REMOVAL OF EXISTING EQUIPMENT, WIRING ETC. SHALL BE INCLUDED IN THE SCOPE OF THIS WORK. ANY VARIATION FROM EXISTING CONDITIONS SHALL BE INCLUDED UNDER THIS CONTRACT.

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOUGE NUMBER	LIGHT SOURCE			VOLTS	MOUNTING HEIGHT	REMARKS	NOTES
			TYPE/TEMP	WATTS	LUMENS				
A	COLUMBIA	TCAT24-40MLG-ED-U	4000	39	4930	120/277	CEILING	2' X 4' RECESSED LED	
B	COLUMBIA	TCAT24-40MLSC-ED-U	4000	39	4930	120/277	CEILING	2' X 4' SURFACE MOUNTED LED	
C									
D									
E	COMPASS	CCR	-	3.4	-		CEILING	COMBINATION EMERGENCY/EXIT LIGHT	
F	LITHONIA	ELM-2	-	3.4	-		7'-6" AFF	EMERGENCY LIGHT 2-HEAD	

LIGHT FIXTURE SCHEDULE NOTES:

- SINGLE OR DOUBLE FACE AS INDICATED ON PLANS. IF CEILING EXCEEDS 9'-0" WALL MOUNT FIXTURE ABOVE DOOR.

- ROOF PENETRATIONS TO ROOF MOUNTED EQUIPMENT MUST BE WITHIN EQUIPMENT CURBS. STUB-UP TO ABOVE ROOF THRU SIDE OF CURB FOR EXTERNAL EQUIPMENT CONNECTIONS (TYPICAL). DO NOT RUN CONDUIT IN AIR SUPPLY OR RETURN AIR OPENINGS.
- PROVIDE #10 AWG FOR ANY 120V, 20 AMP CIRCUIT OVER 60'-0" IN LENGTH AND #8 AWG FOR ANY CIRCUIT OVER 160'-0" ON A 20A CIRCUIT BREAKER.
- PROVIDE GREEN INSULATION GROUND FOR ALL GROUNDING TYPE RECEPTACLES AND EQUIPMENT OF ALL VOLTAGES. IN ADDITION TO GROUNDING STRAP CONNECTION TO METALLIC OUTLET BOXES, A SUPPLEMENTAL GROUNDING WIRE AND SCREW EQUAL TO RACO NO. 983 SHALL BE PROVIDED TO CONNECT RECEPTACLE GROUND TERMINAL TO THE BOX.
- MAINTAIN ACCURATE RECORDS OF ANY MODIFICATIONS TO EXISTING AND NEW SYSTEMS AND SHALL, UPON COMPLETION, DELIVER "AS-BUILT" DRAWINGS TO THE OWNER INDICATING ALL SUCH CHANGES.
- PROVIDE ALL WORK REQUIRED TO PROVIDE COMPLETE CONDUIT SYSTEMS AND RUNS. THIS INCLUDES, BUT IS NOT LIMITED TO, ALL MATERIALS, INSTALLATION HARDWARE, DRILLING OF WALLS/BEAMS, TRENCHING, MOUNTING HARDWARE, LABOR, PAINTING, REPAIRING OF EXISTING SURFACES, FIRESTOPPING, AND ACCESSORIES. RESTORE DISTURBED CEILINGS/WALLS TO ITS ORIGINAL CONDITION. FINISH AND PAINT DAMAGED AREAS. PAINT SHALL MATCH EXISTING. REPAIR CABINETS, WALLS, AND SHELVES DAMAGED BY CONTRACTOR OPERATION. REPLACE DAMAGED CEILING TILES. PROVIDE NEW CEILING TILES AT ALL LOCATIONS WHERE EXISTING CEILING MOUNTED DEVICES ARE REMOVED. NEW CEILING TILES SHALL BE SAME TYPE AND QUALITY OF EXISTING TILES. TAPE OR SEAL CEILING TILES PENETRATED FOR NEW RACEWAYS TO KEEP BUGS OR DEBRIS FROM FALLING THROUGH THE OPENING OR GAP. PAINT ALL INTERIOR AND EXTERIOR, EXPOSED CONDUITS SAME COLOR AS SURFACE.
- CONDUITS SHALL BE CONCEALED IN WALLS, ABOVE CEILING SPACE, OR UNDERGROUND. SURFACE MOUNTED CONDUITS WILL ONLY BE PERMITTED IN ELECTRICAL AND MECHANICAL ROOMS.
- TRENCHING AND BACKFILL: EXISTING UTILITY LINES MAY BE IN THE PATH OF THE NEW UNDERGROUND CONDUIT INSTALLATIONS. THE USE OF CHAIN TRENCHING MACHINES WILL NOT BE PERMITTED. ALL TRENCHES MUST BE HAND DUG. CONTRACTOR SHALL PROMPTLY REPAIR ANY UTILITY LINES DAMAGED BY HIS OPERATION. DISTURBED SURFACES SHALL BE RESTORED TO ITS ORIGINAL CONDITION. REPAIR ALL SIDEWALKS AND PAVEMENT CUT OR DAMAGED DURING CONSTRUCTION. PATCH / REPAIR TO MATCH THE ORIGINAL / EXISTING CONDITION. REPAIR ALL LANDSCAPE AND AREAS OF GRASS DISTURBED DURING CONSTRUCTION. PROVIDE AND INSTALL NEW SOO OR GRASS AS REQUIRED. CONTRACTOR MAY SEED AREAS ONLY IF APPROVED BY DCPs.
- ALL EXTERIOR JUNCTION BOXES SHALL BE CAST METAL, GASKETED, AND NEMA-3R. PAINT SAME COLOR AS SURFACE.
- UPDATE ELECTRICAL PANEL BOARD DIRECTORIES TO REFLECT TYPE AND LOCATION OF ADDED CIRCUITS. NEW DIRECTORIES SHALL BE TYPED OR MACHINE GENERATED.
- PROVIDE BLANK COVER PLATES FOR ALL ABANDONED RECESSED BOXES. COVERS SHALL BE COMPLETELY SOLID WITH NO OPENINGS OR GAPS. COVERS SHALL COMPLETELY COVER COVER EXISTING OPENINGS.
- IF EXISTING HOLES OR OPENINGS IN WALLS AND/OR CEILINGS ARE UTILIZED FOR CONDUIT ROUTING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PATCHING, CAULKING, FINISHING, OR OTHER MODIFICATIONS REQUIRED TO COMPLETELY REPAIR HOLE OR OPENING IN WALL AND/OR CEILING. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FIRESTOPPING REQUIRED TO RE-ESTABLISH THE FIRE RESISTANCE RATING OF THE BARRIER.
- NEW DEVICES SHALL BE MOUNTED AT HEIGHTS AS SHOWN ON LEGEND AND MOUNTING DETAILS. NOTIFY ENGINEER OF ANY CONFLICTS WITH SPECIFIED MOUNTING HEIGHTS. DRAWINGS SHOW THE APPROXIMATE LOCATION OF DEVICES. EXACT LOCATIONS MAY BE ADJUSTED AT BUILDING SITE BY OWNER'S REPRESENTATIVES. THE OWNER SHALL RESERVE THE RIGHT TO RELOCATE ANY DEVICE TO A DISTANCE NOT EXCEEDING 15' FROM THE LOCATION ON THE DRAWING DURING ROUGH-IN. WORK SHALL BE ACCOMPLISHED AT NO ADDITIONAL COST TO OWNER.
- PROPERLY SEAL ALL NEW PENETRATIONS IN FIRE RATED ASSEMBLIES, BOTH VERTICAL AND HORIZONTAL, IN ACCORDANCE WITH SECTION 705 OF THE FLORIDA BUILDING CODE, WHICH REQUIRES THAT ALL INSTALLATIONS OF PENETRATIONS THROUGH FIRE RATED ASSEMBLIES OR FIRE STOP SYSTEMS SHALL BE AS TESTED BY ASTM E 119 & ASTM E 814.
- NOTIFY ENGINEER OF ANY ITEMS OF NON-COMPLIANCE, WHETHER IT IS THE RESULT OF NEW WORK OR IS AN UNCOVERED EXISTING CONDITION.

ELECTRICAL LEGEND

- LED LIGHTING FIXTURE - RECESSED WITH JUNCTION BOX AND FLEXIBLE METALLIC CONDUIT CONNECTION.
- EMERGENCY LIGHTING FIXTURE. DO NOT SWITCH.
- COMBINATION EMERGENCY LIGHT/EXIT LIGHT - PROVIDE ARROWS AS INDICATED, SHADING DENOTES FACE OPERATION. DO NOT SWITCH.
- LOW VOLTAGE DIMMER SWITCH, ON/OFF AND 0-10V DIMMING - IVORY WITH IVORY COVER PLATE, SENSOR SWITCH MODEL #SP0DM-SA-D-I, 46" MOUNTING HEIGHT, U.N.O.
- LOW VOLTAGE SWITCH, ON/OFF - IVORY WITH IVORY COVER PLAT.
- ON/OFF LIGHTING ROOM CONTROLLER DIMMER. LOCATE IN ACCESSIBLE CEILING SPACE. SEE LIGHTING CONTROL DIAGRAMS.
- CEILING MOUNTED OCCUPANCY SENSOR.
- ABOVE COUNTER DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, 20 AMP, 120 VOLT, 3 WIRE GROUNDING. HUBBELL NO. GFR53621TR WITH NO. NP261 COVERPLATE, 46" MOUNTING HEIGHT, U.N.O.
- LIGHTING AND/OR POWER PANELBOARD.
- WIRING IN CONDUIT, RUN CONCEALED IN SLAB OR UNDERGROUND.
- NM COPPER CABLE, RUN CONCEALED ABOVE CEILING OR IN WALLS. NM CABLE FOR #12 AND #10 WITH GROUNDING CONDUCTOR. PROVIDE WIRES IN CONDUIT FOR #8 AWG AND LARGER. SUPPORT CABLE PER NEC.
- HOMERUN TO PANELBOARD - NUMBER OF ARROWS DENOTES QUANTITY OF CIRCUITS. CROSSMARKS INDICATE QUANTITY OF NO. 12 CONDUCTORS. RUNS VOID OF CROSSMARKS ARE 1/2 INCH CONDUIT, 3 NO. 12, U.N.O. DO NOT COMBINE HOMERUNS EXCEPT AS SPECIFICALLY INDICATED ON THE PLAN.

EXISTING ELECTRICAL LEGEND

- EXISTING LED LIGHTING FIXTURE.
- EXISTING EXIT LIGHT.
- EXISTING EMERGENCY LIGHT.
- EXISTING TOGGLE SWITCH - SINGLE POLE.
- EXISTING DUPLEX RECEPTACLE - 20 AMP, 120 VOLT, 3 WIRE GROUNDING.
- EXISTING DOUBLE DUPLEX RECEPTACELS - (2) TWO 20 AMP, 120 VOLT, 3 WIRE GROUNDING.
- EXISTING DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, 20 AMP, 120 VOLT, 3 WIRE GROUNDING.
- EXISTING TELEPHONE/DATA OUTLET - 4" SQUARE JUNCTION BOX WITH 1-GANG EXTENSION RING.
- EXISTING JUNCTION BOX, SIZE PER NEC.
- EXISTING LIGHTING AND/OR POWER PANELBOARD.
- EXISTING JUNCTION BOX.
- EXISTING SPECIAL PURPOSE RECEPTACLE COMPLETE WITH COVERPLATE. SEE FLOOR PLAN FOR COMPLETE CONFIGURATION.
- EXISTING PULL STATION, REMOVE U.N.O.
- EXISTING SEMI-FLUSH MOUNTED FIRE ALARM AUDIBLE (SPEAKER)/VISUAL WARNING DEVICE.

EXISTING PANEL 'P'																
SURFACE MTD. CIRCUIT BREAKER TYPE 120/240 VOLTS 1 PHASE 3 WIRE																
SQ TYPE HOMC300C 150 AMP MAIN BREAKER																
CKT NO.	DESIGNATION	CIRCUIT			CIRCUIT BREAKER	KVA	CIRCUIT			DESIGNATION	CKT NO.					
		WIRE	GND	COND			TRIP	POLE	COND			GND	WIRE			
(E) 1	EXISTING				1	20	1.0	1.0	20	1		EXISTING	2 (E)			
(E) 3	EXISTING				1	20	1.0	1.0	20	1		EXISTING	4 (E)			
(E) 5	EXISTING				1	20	1.0	1.0	20	1		EXISTING	6 (E)			
(E) 7	EXISTING				2	30	2.0	1.0	20	1		EXISTING	8 (E)			
9								1.5	20	1	3/4	12	12	MICROWAVE	10 (N)	
(N) 11	MICROWAVE	12		12	3/4	1	20	1.5	1.5	20	1	12	12	MICROWAVE	12 (N)	
(N) 13	MICROWAVE	12						1.5	20	1	1/2	12	12	COFFEE	14 (N)	
(N) 15	MICROWAVE	12		12	3/4	1	20	1.5	1.5	20	1	1/2	12	12	REFRIG	16 (N)
(N) 17	MICROWAVE	12												SPACE	18	
19	SPACE													SPACE	20	
21	SPACE													SPACE	22	
23	SPACE													SPACE	24	
25	SPACE													SPACE	26	
27	SPACE													SPACE	28	
29	SPACE													SPACE	30	
TOTAL ESTIMATED CONNECTED KVA							20.3	10,000 AMP. RMS. SYMMETRICAL SHORT CIRCUIT CURRENT RATING								

(E) DENOTES EXISTING BREAKER, CONDUIT AND WIRE.

(N) DENOTES NEW BREAKER, CONNECTION NEW CONDUIT AND WIRE.

NOTE:

[1] PROVIDE NEW TYPED DIRECTORY. FIELD VERIFY EXISTING ITEMS SERVED AND LOCATION.

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 CERTIFICATE OF AUTHORIZATION NO. 4050
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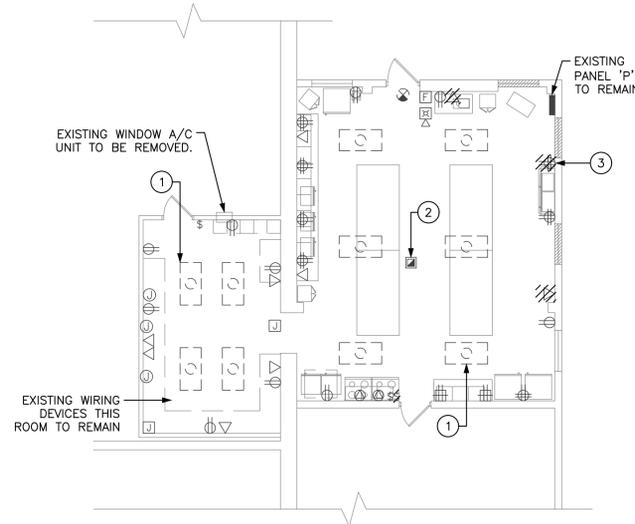
ISSUE/REVISION	DATE	JOB NO.	19009
	07/09/2019	DATE	RS
		DRAWN	NH
		CHECK	NH
		ACCEPTED	NH

**JEA NORTHSIDE
 BREAKROOM**
 JACKSONVILLE, FLORIDA

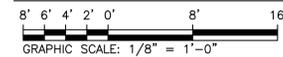
**ELECTRICAL LEGEND, NOTES
 AND SCHEDULE**

DRAWING

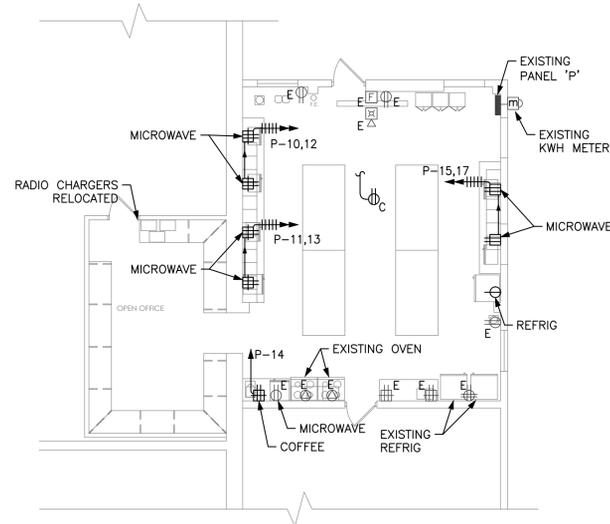




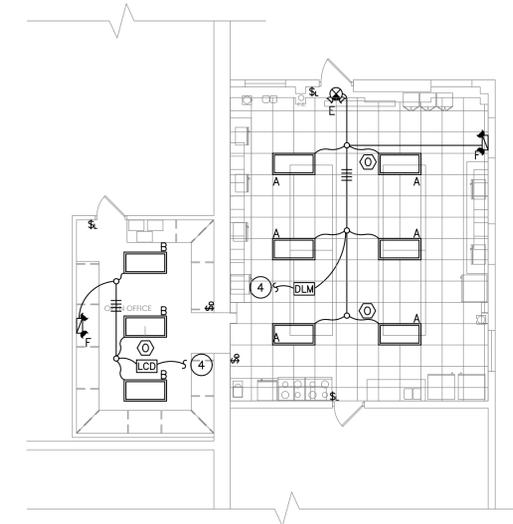
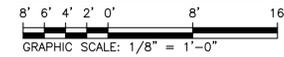
ELECTRICAL FLOOR FLOOR - DEMO



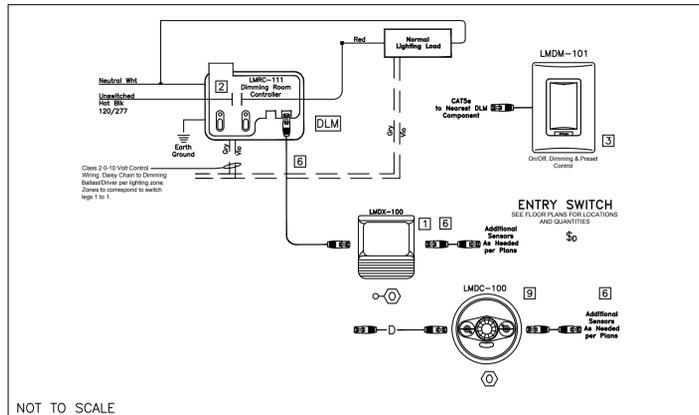
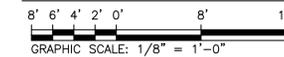
////// HATCHING INDICATES ELECTRICAL DEVICES TO BE REMOVED.



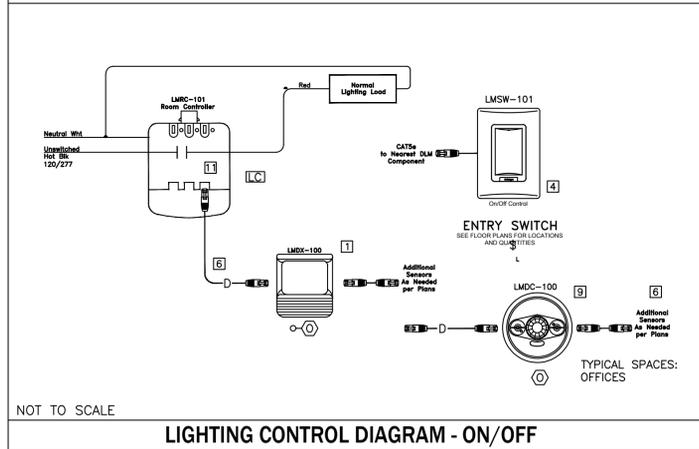
ELECTRICAL FLOOR FLOOR - POWER - NEW WORK



ELECTRICAL FLOOR FLOOR - LIGHTING - NEW WORK



LIGHTING CONTROL DIAGRAM - DIMMING



LIGHTING CONTROL DIAGRAM - ON/OFF

- 1 OCCUPANCY SENSOR, DIGITAL DUAL TECHNOLOGY, LIGHT CONTROL. QUANTITY AND TYPE OF SENSORS AS SHOWN ON FLOOR PLANS. PROVIDE FLUSH METAL OUTLET BOX. MOUNT OCCUPANCY SENSOR TO BOX. LOCATE IN LINE COUPLER INSIDE BOX. SENSOR TO AUTO-COMMISSION TO MOST ENERGY SAVING, CODE COMPLIANT OPERATION, NO PROGRAMMING NEEDED.
 - ADJUSTABLE WALL: WATTSTOPPER LMDX-100.
- 2 DIMMING CONTROLLER 0-10V - WATTSTOPPER. LOCATE IN CEILING SPACE.
- 3 DIMMING SWITCH, IVORY, WATTSTOPPER #LMDM-101-I. PROGRAM BUTTONS FOR INTENDED OPERATION. MOUNT AT 48" AFF. PROVIDE 3/4" CONDUIT FROM OUTLET BOX TO CEILING SPACE.
- 4 ONE BUTTON SWITCH - IVORY, WATTSTOPPER #LMSW-101-I. SEE FLOOR PLANS FOR DETAILS. PROGRAM SWITCH FOR MANUAL ON AND AUTOMATIC OFF, PROVIDE OUTLET BOX, 48" MOUNTING HEIGHT, SENSOR TO AUTO-COMMISSION TO MOST ENERGY SAVING, CODE COMPLIANT OPERATION, NO PROGRAMMING NEEDED. PROVIDE 3/4" CONDUIT FROM OUTLET TO CEILING SPACE.
- 5 PROVIDE DIGITAL WIRELESS CONFIGURATION TOOL, WATTSTOPPER #LMCT-100.
- 6 PROVIDE 3/4" CONDUIT FROM WALL MOUNTED DEVICE OUTLET BOX UP TO CEILING SPACE. SUPPORT DATA CABLES IN CEILING SPACE AT INTERVALS NOT TO EXCEED 30". (TYPICAL)
 - POWER WIRES IN CONDUIT.
 - WATTSTOPPER #LMRJ-P. LENGTHS AS REQUIRED. GREEN/BLACK STRIPS JACKET. CAT 5E PLENUM RATED DATA CABLE CONCEALED IN CEILING SPACE. SUPPORT FROM BUILDING STRUCTURE AT INTERVALS NOT TO EXCEED 30". CAT5E CABLES SHALL BE CONTINUOUS FROM SENSOR TO SENSOR OR FROM SENSOR TO SWITCH/RELAY. NO SPLICES.
- 7 NOT USED.
- 8 DIMMING/ON/OFF CONTROL, IVORY WATT STOPPER LMDM-101. MOUNT AT 48" AFF. PROVIDE 3/4" CONDUIT FROM OUTLET TO CEILING SPACE.
- 9 OCCUPANCY SENSOR, DIGITAL DUAL TECHNOLOGY, LIGHT CONTROL. QUANTITY AND TYPE OF SENSORS AS SHOWN ON FLOOR PLANS. PROVIDE FLUSH METAL OUTLET BOX. MOUNT OCCUPANCY SENSOR TO BOX. LOCATE IN LINE COUPLER INSIDE BOX. SENSOR TO AUTO-COMMISSION TO MOST ENERGY SAVING, CODE COMPLIANT OPERATION, NO PROGRAMMING NEEDED.
 - o CEILING MOUNT: WATTSTOPPER LMDC-100.
- 10 NOT USED.
- 11 MANUAL ON/AUTOMATIC OFF. LOCATE IN CEILING SPACE.

LIGHTING CONTROL DIAGRAM NOTES

NOTES:

- 1 EXISTING LIGHTING FIXTURES AND CONTROLS THIS ROOM TO BE REPLACE NEW LED LIGHTING FIXTURES AND CONTROLS.
- 2 EXISTING EMERGENCY LIGHTING FIXTURE TO BE REMOVED AND REPLACED WITH NEW.
- 3 EXISTING WIRING DEVICE TO BE REWORKED.
- 4 RECONNECT TO EXISTING LIGHTING CIRCUIT

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**ELECTRICAL FLOOR PLANS -
 DEMO & NEW WORK**

DRAWING

E1.1

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