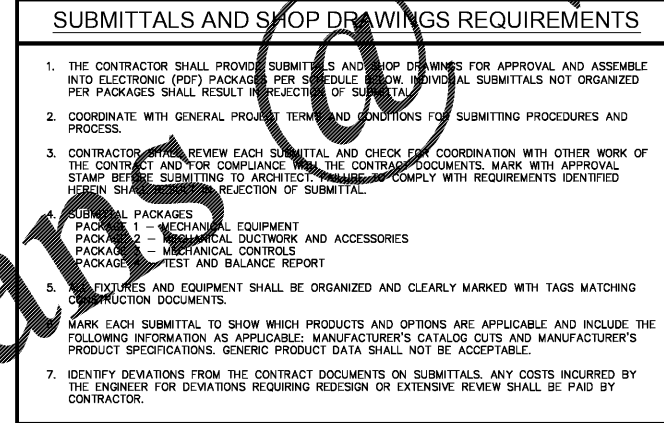
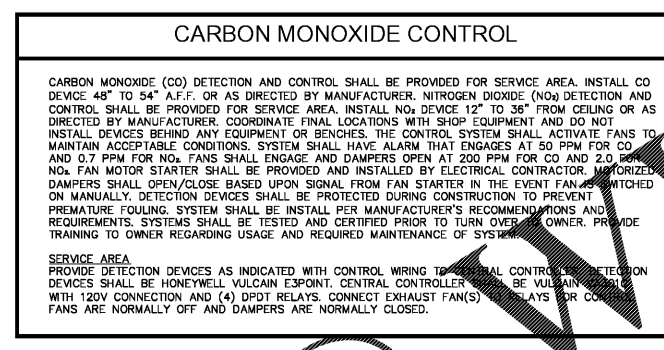
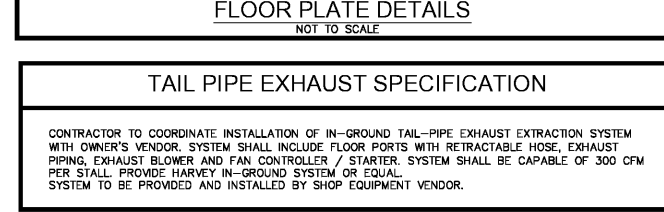
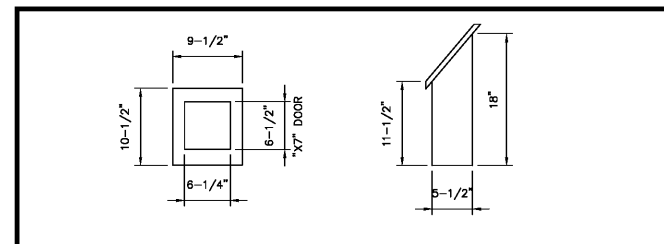
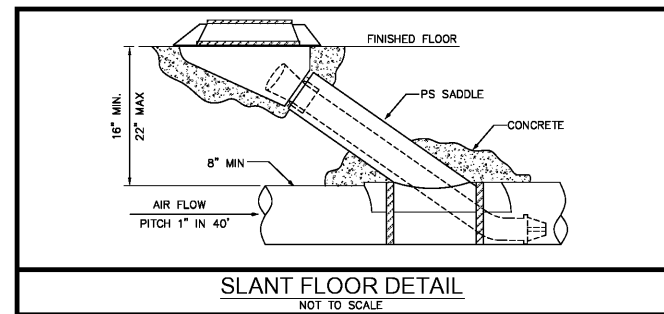


Order Plans



MECHANICAL NOTES

- THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE SYSTEM IN ACCORDANCE WITH THESE DRAWINGS, THE INTERNATIONAL BUILDING CODE 2012 AND ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL ORDINANCES AND THE LATEST EDITION OF THE FOLLOWING PUBLICATIONS; SMACNA-95, 92, 95; ASHRAE 15-01, 34-01, 62.1; NFPA 70-02, 72-02, 90A-02, 90B-02, 91-99, 96-01; ANSI Z10.1-95, Z10.3-95, Z21.5-94, Z21.53-95.
- ALL WORK SHALL BE PERFORMED BY A LICENSED MECHANICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER.
- THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
- THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WORK WITH OTHER TRADES.
- THE CONTRACTOR SHALL SUPPLY THE ARCHITECT WITH "AS-BUILT" DRAWINGS.
- CONTRACTOR SHALL SUBMIT, FOR APPROVAL ELECTRONIC COPIES IN PDF FORMAT OF MANUFACTURER'S DRAWINGS FOR EACH PIECE OF EQUIPMENT AND CONTROLS INCLUDED IN CONTRACT.
- ALL MATERIAL SHALL BE NEW OF U.S. MANUFACTURER OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED AT INDUSTRY STANDARD QUALITY LEVEL BY CERTIFIED PROFESSIONALS. ALL EQUIPMENT SHALL BE UL OR ETL LISTED.
- DUCTWORK:
 - ALL CONCEALED DUCTWORK SHALL BE GALVANIZED SHEETMETAL WITH SEALED SEAMS AND JOINTS WITH EXTERNAL BLANKET INSULATION R-6 MIN. THE CONTRACTOR SHALL PROVIDE ALL SHEETMETAL DUCTWORK, HANGERS, AUX. SUPPORT STEEL, ETC., ALL FLEX DUCT SHALL BE RATED CLASS I, UL-151 LISTED WITH METALLIZED INNER AND OUTER FOIL LINERS, MIN. R-6 WITH A MAX. TOTAL LENGTH NOT TO EXCEED 15 FT. INSTALL UL LISTED FOR PLENUM, FLEXIBLE DUCTWORK ELBOW SUPPORTS AT EACH DIFFUSER, GRILLE, AND REGISTER EQUAL TO "FLEXFLOW ELBOW" AS MANUFACTURED BY "THERMAFLEX". ALL METAL DUCTS SHALL BE FABRICATED IN ACCORDANCE WITH LATEST EDITION OF S.M.A.C.N.A.
 - ALL EXHAUST DUCTS AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED SHEET METAL WITH SEALED SEAMS AND JOINTS. ALL OUTSIDE AIR DUCT SHALL BE INSULATED WITH EXTERNAL BLANKET INSULATION R-6 MIN. ALL METAL EXHAUST, MAKE-UP OR OTHERWISE DUCTS INSTALLED IN LOCATIONS WHERE DEWPOINT CONDITIONS CAN OCCUR INSIDE THE DUCT SHALL BE EXTERNALLY INSULATED WITH R-6 MIN.
 - OUTSIDE AIR INTAKES SHALL BE SCREENED WITH A CORROSION RESISTANT MATERIAL NOT LARGER THAN 1/2" MESH. O/A INTAKES SHALL NOT BE TAKEN FROM A LOCATION CLOSER THAN 10 FT. FROM ANY CHIMNEY, VENT, OUTLET OR SANITARY SEWER VENT OUTLET, UNLESS SUCH VENT IS NOT LESS THAN 24 INCHES ABOVE THE OUTSIDE AIR VENT. OUTSIDE AIR INTAKE VENTS INSTALLED ON ROOFS WILL BE PROPERLY MARKED WITH A UNIVERSAL MARKING "INTAKE", PERMANENTLY ATTACHED PER ICC 2012, SEC. 401.5
- DUCT SIZES SHOWN ARE INSIDE DIMENSIONS.
- ALL AIR DEVICES (DIFFUSERS, REGISTERS AND GRILLES) SHALL BE EXPOSED SURFACES OFF WHITE BAKED ENAMEL FINISH OR AS SPECIFIED BY ARCHITECT. DEVICES SHALL BE AS SPECIFIED OR EQUAL TO TITLE PROVIDE OPPOSED BLADE DAMPERS AT ALL DIFFUSERS AND REGISTERS AS INDICATED IN PLANS. PROVIDE BALANCING DAMPERS FOR ALL AIR DEVICES TO ENSURE COMPLIANCE WITH ICC 2012, PAR. 603.18 FOR BALANCED AIR FLOW.
- CONTROLS:
 - FOR NEW UNITS: SHALL BE COMBINATION COOLING/HEATING WITH SYSTEM "COOL-AUTO-HEAT-OFF" AND FAN "ON/AUTO" SELECTOR SWITCHES. PROVIDE PROGRAMMABLE TYPE AS RECOMMENDED BY MANUFACTURER HONEYWELL OR EQUAL.
- REFRIGERANT LINES SHALL BE COPPER, TYPE "L" HARD DRAWN WITH WROUGHT COPPER BRAZING-JOINT TYPE FITTINGS. BRAZING MATERIALS OF HIGH PRESSURE PIPING PER AWS A5.8; BCUP SERIES COPPER-PHOSPHOR BRASS ALLOY OR BAGI SOLDER. REFRIGERANT LINES SHALL BE SIZED PER MANUFACTURER'S RECOMMENDATIONS. SOFT COPPER TYPE "M" SHALL BE ALLOWED FOR RISES IN INSULATION TO LIMIT NUMBER OF JOINTS. COORDINATE WITH ENGINEER FOR PRIOR APPROVAL. ALL EXPOSED INSULATION SHALL BE PROTECTED WITH UV RESISTANT PAINT OR ALUMIN. SHIELD.
 - ARMAFLEX INSULATION SHALL BE USED FOR SUCTION LINES (1/2" FOR ABOVE 40° F AND 1" FOR BELOW 40° F) PER IECC 2009 TABLE C403.2.8 FOR PIPING INSULATION. FILTER/DRYER AND SIGHT GLASSES SHALL BE PROVIDED AT LIQUID LINES.
- ALL FLEX TAKE-OFFS TO BE PROVIDED W/ MANUAL VOLUME DAMPERS. PROVIDE RADIUS ELBOWS WHERE APPLICABLE. SQUARE ELBOWS AND TEE'S SHALL BE FURNISHED W/SINGLE FOIL TURNING VANES. PROVIDE MANUAL VOLUME DAMPERS WITH EXTRACTOR AT ALL FLEX TAKE-OFFS. PROVIDE REMOTE, CABLE OPERATED VOLUME DAMPERS IN INACCESSIBLE AND HARD CEILING AREAS, "YOUNG INSULATOR" OR EQUAL.
- PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE START-UP, REPLACE PRIOR TO FINAL ACCEPTANCE BY OWNER.
- PROVIDE SMOKE DETECTORS WITH SERVICE ACCESS DOORS IN ALL SUPPLY AIR DUCTS FOR FANS AND AHU'S SERVING A COMMON PLENUM OF 2000 CFM OR ABOVE. FOR SMOKE DETECTORS NOT VISIBLE, IN CONCEALED SPACES, PROVIDE REMOTE ANNUNCIATION/TEST STATION AS REQUIRED BY AUTHORITY HAVING JURISDICTION. COORDINATE PRIOR TO INSTALLATION. DETECTORS SHALL BE BY ONE MANUFACTURER, COORDINATE VOLTAGE ETC. WITH ELECTRICAL CONTRACTOR AND FIRE ALARM SYSTEM BEFORE ORDERING. UPON DETECTION, SMOKE DETECTORS SHUT DOWN ASSOCIATED AIR MOVING EQUIPMENT AND ALL AIR MOVING EQUIPMENT SERVING THAT COMMON PLENUM.
- PROVIDE TYPE "B" DYNAMIC FIRE DAMPERS WITH SERVICE ACCESS DOORS IN ALL DUCTS AND OPENINGS PENETRATING FIRE RATED WALLS, MECHANICAL AND ELECTRICAL EQUIPMENT ROOMS, TENANT SEPARATION, PARTITIONS, FLOOR OR ROOF SLABS AND AT OUTSIDE AIR INTAKES AS REQUIRED. PROVIDE RADIATION DAMPERS IN RATED CEILING OPENINGS, CEILING FANS, DIFFUSERS OR GRILLES RATED FOR USE IN THE CEILING ASSEMBLY. PROVIDE LOW-LEAKAGE CLASS DAMPERS FOR ALL SITUATIONS WHERE THE AIRFLOW CFM HAS TO BE CONTROLLED. VERIFY AND REPLACE AS REQUIRED FOR EXISTING SYSTEMS.
- HVAC CONTRACTOR SHALL PROVIDE A T & B REPORT PER IECC 2009 C408.2.5.3 (THE T & B REPORT SHALL BE INDEPENDENT FOR SYSTEMS OVER 15 TONS) FOR ALL MECHANICAL EQUIPMENT, AIR DEVICES, DAMPERS, AHU'S AND FANS. THE TEST AND BALANCE REPORT SHALL BE IN ACCORDANCE WITH THE AIR BALANCE COUNCIL STANDARDS AND SHALL INCLUDE AIR QUANTITIES FOR ALL SUPPLY GRILLES, RETURN GRILLES AND EXHAUST GRILLES AND THE LEAVING AND ENTERING AIR TEMPERATURE (°F) FROM SUPPLY GRILLES AND EVAPORATORS.
- THERMOSTAT LOCATION SHALL BE APPROVED BY OWNER AND ENGINEER BEFORE INSTALLATION. INSTALL THERMOSTAT 48" TO 54" A.F.F. PER A.D.A REQUIREMENTS WHERE APPLICABLE. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR ALL REQUIREMENTS FOR JUNCTION BOXES, CONDUITS, CONTROL WRINGS, POWER, ETC. AND DEFINE RESPONSIBILITIES AND SCOPE OF WORK FOR EACH TRADE PRIOR TO ANY PURCHASING OR INSTALLATION.
- ALL INSULATION WILL HAVE FIRE/SMOKE RATING LESS THAN 25/50.
- MECHANICAL EQUIPMENT ON ROOF OR ELEVATED STRUCTURES SHALL COMPLY WITH IMC 2012 PAR. 306.5 IF INSTALLED HIGHER THAN 16 FEET A.F.F. MECHANICAL EQUIPMENT INSTALLED IN ATTICS SHALL MEET THE REQUIREMENTS OF IMC 2012 PAR. 306.3 IF THE EQUIPMENT CAN NOT BE SERVICED/REMOVED THROUGH REQUIRED OPENING. MECHANICAL EQUIPMENT SHALL BE PROTECTED WITH MECHANICAL BARRIERS IF EXPOSED TO MECHANICAL DAMAGE. ALL EQUIPMENT SHALL BE INSTALLED ON 6" CONCRETE PAD AT GRADE LEVEL.
- PROVIDE A MIN. OF 36" CLEARANCE IN FRONT OF ALL 120-208 VOLT PANELS AND MIN. 42" CLEARANCE IN FRONT OF ANY 240-480 VOLT PANEL. PROVIDE ADEQUATE SIDE CLEARANCE PER NEC.
- MECHANICAL PLANS IN GENERAL, ARE DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING, ELECTRICAL, FIRE SPRINKLER, AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS SHALL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. CHANGES IN DUCTWORK SIZE AND ROUTE WILL BE REQUIRED TO AVOID STRUCTURAL, PLUMBING, FIRE SPRINKLER AND ARCHITECTURAL BUILDING FEATURES. DUCTWORK CHANGES MAY BE MADE BY CONTRACTOR USING EQUIVALENT SIZED DUCT. CONTACT ENGINEER IF DUCT AREA WILL NOT FIT.
- THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BIDDING, ORDERING, FABRICATION OR INSTALLATION OF MATERIALS OR EQUIPMENT.
- MANUFACTURER'S WARRANTY: 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 SHUTDOWN ALL BE DONE DURING NON-OPERATIONAL PERIODS OR AS AGREED WITH OWNER.

MECHANICAL SHEET INDEX

SHEET#	DESCRIPTION
M0.1	MECHANICAL NOTES
M2.1	FIRST FLOOR MECHANICAL PLAN
M2.2	SECOND FLOOR MECHANICAL PLAN
M2.3	MECHANICAL ROOF PLAN
M6.1	MECHANICAL SCHEDULES
M7.1	MECHANICAL DETAILS
M7.2	MECHANICAL DETAILS

MECHANICAL LEGEND

R	REFRIGERANT PIPING
○	DROPPING OR RISING PIPE
○	PIPE TO BE FROM ABOVE
○	ISOLATING CHECK OR BALANCE VALVE
○	RESCOPE OR WORK
24x12	RECTANGULAR DUCT SIZE: FIRST DIMENSION IS SIDE DRAWN
○	ROUND DUCTWORK OR FLUE PIPING
○	RECTANGULAR TO ROUND DUCT TRANSITION
○	NEW FLEXIBLE ROUND DUCT
○	FLEXIBLE DUCT CONNECTION
○	ADJUSTABLE DEFLECTOR VANES AT BRANCH DUCT
○	SQUARE DUCT ELBOW WITH TURNING VANES
○	MANUAL VOLUME DAMPER
○	FIRE DAMPER IN DUCT THROUGH WALL
○	AUTOMATIC (MOTORIZED) CONTROL DAMPER
○	ONE INCH THICK DUCT LINER
○	SPIN-IN TAP
○	DUCT SMOKE DETECTOR
○	WALL MOUNTED THERMOSTAT WITH TEMPERATURE SENSOR
○	WALL MOUNTED THERMOSTAT WITH REMOTE TEMPERATURE SENSOR
○	REMOTE TEMPERATURE SENSOR
○	CARBON MONOXIDE (CO) SENSOR
○	NITROGEN DIOXIDE (NO2) SENSOR
○	SINGLE POLE SWITCH
○	CONTROL WIRING - LOW VOLTAGE (24V)
○	CONTROL WIRING - LINE VOLTAGE (120V+)
○	CARBON MONOXIDE CONTROL PANEL
○	WALL MOUNTED TIME CLOCK
○	DOOR GRILLE
○	UNDERCUT DOOR 3/4"

MECHANICAL ABBREVIATION LEGEND

AFF	ABOVE FINISHED FLOOR	LDB	LEAVING DRY BULB
APPROX	APPROXIMATE	LWB	LEAVING WET BULB
BAS	BUILDING AUTOMATION SYSTEM	MAX	MAXIMUM
CFM	CUBIC FEET PER MINUTE	MBH	THOUSAND BTU PER HOUR
DB	DRY BULB	MIN	MINIMUM
DIA, Ø	DIAMETER	NA	NOT APPLICABLE
DX	DIRECT EXPANSION	N.C.	NORMALLY CLOSED
EA	EXHAUST AIR	N.O.	NORMALLY OPEN
EAT	ENTERING AIR TEMPERATURE	OA	OUTDOOR AIR
EER	ENERGY EFFICIENCY RATING	PD	PRESSURE DROP
EDB	ENTERING DRY BULB	PSIG	POUNDS PER SQUARE INCH GAUGE
EFF	EFFICIENCY	RA	RETURN AIR
ESP	EXTERNAL STATIC PRESSURE	RH	RELATIVE HUMIDITY
ETR	EXISTING TO REMAIN	RPM	REVOLUTIONS PER MINUTE
EWB	ENTERING WET BULB	SA	SUPPLY AIR
FLA	FULL LOAD AMPERAGE	SEER	SEASONAL ENERGY EFFICIENCY RATING
FT	FEET	SQ. FT.	SQUARE FEET
H	HEIGHT	TEMP	TEMPERATURE
HP	HORSE POWER	TYP	TYPICAL
HSPF	HEATING SEASONAL PERFORMANCE FACTOR	UC	UNDERCUT DOOR 3/4"
IEER	INTEGRATED ENERGY EFFICIENCY RATING	V	VOLTS
IN	INCHES	W	WIDTH
IN. WG	INCHES WATER GAUGE	WB	WET BULB
KW	KILOWATTS	°F	DEGREES FAHRENHEIT
LAT	LEAVING AIR TEMPERATURE	Δt	TEMPERATURE DIFFERENCE



REVISION	DATE

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DATE: 11.06.2018
SCALE: AS SHOWN
BY: GD
JOB ID:

MECHANICAL NOTES
DRAWING TITLE

M0.1
SHEET 1 OF 7

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