

**MECHANICAL GENERAL NOTES**

- 1 APPLICABLE CODES: FLORIDA BUILDING CODE FIFTH EDITION INCLUDING MECHANICAL, PLUMBING, FUEL GAS, NEC 2011, SMACNA, ASHRAE, NFPA
- 2 THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE SYSTEM IN ACCORDANCE WITH THESE DRAWINGS. THE APPLICABLE BUILDING CODE AND ALL OTHER APPLICABLE STATE, COUNTY, AND LOCAL ORDINANCES AND THE LATEST ADDITION OF THE FOLLOWING PUBLICATIONS; SMACNA, ASHRAE, NFPA 90A, 90B, 91, AND ANSI B-9.1 MECHANICAL REFRIGERATION.
- 3 THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS, AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
- 4 THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WITH ALL OTHER TRADES.
- 5 THE CONTRACTOR SHALL SUPPLY THE ARCHITECT WITH "AS-BUILT" DRAWINGS. IF FIELD CHANGES ARE MADE, CONTRACTOR NEEDING DRAWINGS CHANGES FOR INSPECTION, SHALL SUBMIT CHANGES WITH SUFFICIENT TIME TO MAKE DRAWINGS CHANGES. THE CONTRACTOR WILL BE BILLED HOURLY FOR CADD CHANGES IF THE CHANGES WERE NOT PRE-APPROVED BY THE ENGINEER AND OWNER.
- 6 THE CONTRACTOR SHALL SUBMIT FOR APPROVAL FIVE (5) COPIES OF MANUFACTURER'S DRAWINGS FOR EACH PIECE OF EQUIPMENT AND CONTROLS INCLUDED IN CONTRACT. CONTRACTOR SHALL ALSO SUBMIT OPERATION AND MAINTENANCE MANUALS FOR ALL EQUIPMENT TO THE OWNER. CONTRACTOR SHALL ALSO SUBMIT WITH MANUFACTURER SUBMITTALS A NOTICE TO OWNER FOR TRAINING. TRAINING SHALL BE PROVIDED BY THE CONTRACTOR FOR ALL EQUIPMENT AND CONTROLS WITH NECESSARY TIME TO ENSURE THE OWNER HAS UNDERSTOOD SYSTEM. MINIMUM TRAINING HOURS SHALL BE SCHEDULED AT 4-HOURS. ALL COSTS AND TIME OF TRAINING SHALL BE INCLUDED IN THE BID.
- 7 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.
- 8 DUCT SIZES SHOWN ARE INSIDE AIRFLOW DIMENSIONS. WHERE INTERNAL LINERS ARE USED, INSIDE DIAMETER OF DUCT SHALL COMPENSATE FOR INSULATION THICKNESS.
- 9 ALL SUPPLY AND RETURN BRANCH TAKE-OFFS TO BE PROVIDED WITH MANUAL VOLUME DAMPERS. ALL ELBOWS AND TEE'S MUST BE FURNISHED IN TURNING VANES. PROVIDE MANUAL VOLUME DAMPERS AND EXTRACTOR AT ALL FLEX TAKE OFFS.
- 10 PROVIDE "CONSTRUCTION" AIR FILTERS IN ALL AIR MOVING EQUIPMENT AND ROUGHED IN AIR DEVICE BOOTS. FOR ALL ROUGHED IN FLEX RUN-OUTS PULL AND TWIST THE END SECTION OF THE OUTER FOIL FACE ONLY, SPIN SO THE FOIL CLOSES. SECURE WEATHER TIGHT WITH ZIP TIE TO PREVENT MOISTURE INTRUSION. PROVIDE NEW FILTERS FOR ALL AIR MOVING EQUIPMENT PRIOR TO START-UP. REPLACE ALL FILTERS PRIOR TO FINAL ACCEPTANCE BY OWNER. SUBMIT A NOTICE TO THE OWNER OF FILTER QUANTITIES, SIZES AND LOCATIONS OF ALL FILTERS CHANGED.
- 11 PROVIDE SMOKE DETECTORS WITH SERVICEABLE ACCESS DOORS IN ALL SUPPLY AIR DUCTS FROM ALL AIR HANDLERS WHERE NOTED. ALL SMOKE DETECTORS SHALL BE BY SAME MANUFACTURER, COORDINATE VOLTAGE, ETC. WITH ELECTRICAL CONTRACTOR AND FIRE ALARM SYSTEM, BEFORE ORDER. UPON DETECTION, SMOKE DETECTORS SHUT DOWN ASSOCIATED AIR MOVING EQUIPMENT AND ALL AIR MOVING EQUIPMENT SERVICING THAT AREA. WHERE NO FIRE ALARM SYSTEM IS INDICATED, MECHANICAL CONTRACTOR SHALL ALSO PROVIDE AND INSTALL REMOTE KEY SWITCH WITH AUDIBLE/VISUAL ALARM PER CODE.

- 12 PROVIDE TYPE "B" STATIC FIRE DAMPERS WITH CURTAIN TOTALLY OUT OF AIR STREAM IN ALL DUCTS OR OPENINGS PENETRATING RATED WALLS AND FLOORS PER ARCHITECTURAL LIFE SAFETY PLANS AND MECHANICAL PLANS PROVIDE TYPE "A" STATIC FIRE DAMPERS WITH CURTAIN IN AIR STREAM FOR ALL FIRE DAMPERS USED IN CONJUNCTION WITH GRILLES/REGISTERS PENETRATING RATED WALLS AND FLOORS PER ARCHITECTURAL LIFE SAFETY PLANS AND MECHANICAL PLANS.
- 13 THERMOSTAT LOCATION SHALL BE APPROVED BY THE OWNER AND ENGINEERS BEFORE INSTALLATION. INSTALL 48" A.F.F. PER A.D.A. REQUIREMENTS. INCLUDE ADD ALTERNATE TO PROVIDE ALL THERMOSTATS WITH LOCKING COVERS AND COORDINATE REQUIREMENTS WITH OWNER. PROVIDE A KEYMAP AT EACH THERMOSTAT WHICH SHOWS A FLOOR PLAN OF AREA BEING SERVED BY THE THERMOSTAT. INSTALL KEYMAP WITHIN A GLASS PICTURE FRAME AND MOUNT ON WALL. LABEL THERMOSTAT FOR AIR UNIT BEING SERVED.
- 14 ALL INSULATION SHALL HAVE FIRE/SMOKE RATING LESS THAN 25/50.
- 15 PROVIDE MINIMUM OF 3' CLEARANCE IN FRONT OF ALL 120-240 VOLT PANELS AND 4' CLEARANCE IN FRONT OF ANY 480 VOLT PANEL. PROVIDE ADEQUATE SIDE CLEARANCE PER NEC.
- 16 MECHANICAL PLANS IN GENERAL, ARE DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING, ELECTRICAL, AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS WILL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- 17 THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BIDDING, ORDERING, FABRICATING OR INSTALLATION OF MATERIALS OR EQUIPMENT.
- 18 ALL WORK SHALL BE DONE IN ACCORDANCE WITH FLORIDA BUILDING CODE FIFTH EDITION, NFPA, ASHRAE, AND SMACNA DUCT CONSTRUCTION STANDARDS.
- 19 ROUTE ALL DUCTWORK, PIPING AND ACCESSORIES IN A MANNER TO AVOID BUILDING COMPONENTS STRUCTURE, AND LIGHTING. COORDINATE TRANSITIONS MADE TO MAXIMUM PRESSURE DROPS PER FAN AND PUMP MANUFACTURERS CURVES.
- 20 WHERE REFRIGERANT LINES ARE INSTALLED, SIZE PER MANUFACTURER'S INSTRUCTIONS WITH RESPECT TO LENGTH AND FITTINGS TO BE INSTALLED IN PIPING.
- 21 ALL DEBRIS SHALL BE PROPERLY DISPOSED OFF SITE. CLEAN UP SITE DAILY AFTER WORK IS COMPLETE. IF CLEAN UP PERFORMED BY OWNERS REPRESENTATIVE AS A RESULT OF SUBCONTRACTOR NOT PERFORMING CLEAN UP OPERATIONS, OWNER WILL HAVE THE RIGHT TO CHARGE SUBCONTRACTOR FOR CLEAN UP LABOR.
- 22 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY SUPPORTING DEVICES FOR ALL ACCESSORIES INCLUDED WITHIN THIS CONTRACT.

**ABBREVIATIONS**

AC	AIR CONDITIONING	F	FAHRENHEIT	PRESS	PRESSURE
ACH	AIR CHANGES PER HOUR	FA	FILTER ACCESS	PVC	POLYVINYLCHLORIDE
AD	ACCESS DOOR	FACP	FIRE ALARM CONTROL PANEL	RA	RETURN AIR
AFF	ABOVE FINISHED FLOOR	FCD	FLOW CONTROL DAMPER	RD	ROOF DRAIN
AG	ABOVE GRADE	FCU	FAN COIL UNIT	REF	REFRIGERANT
AHU	AIR HANDLING UNIT	FD	FIRE DAMPER	RG	RETURN GRILLE
AI	ANALOG INPUT	FSD	FIRE SMOKE DAMPER	RL	RAIN LEADER
AO	ANALOG OUTPUT	FL	FLOOR	RLA	RUNNING LOAD AMPS
AP	ACCESS PANEL	FLA	FULL LOAD AMPACITY	RPM	REVOLUTIONS PER MINUTE
APPROX	APPROXIMATELY	FPF	FINS PER FOOT	RS	REFRIGERANT SENSOR
BAS	BUILDING AUTOMATION SYSTEM	FPI	FINS PER INCH	RTU	ROOFTOP A/C UNIT
BDD	BACK DRAFT DAMPER	FPM	FEET PER MINUTE	RTU	ROOF TOP UNIT
BFF	BELOW FINISHED FLOOR	FPM	FINS PER MINUTE	SA	SUPPLY AIR
BHP	BRAKE HORSE POWER	FSD	FIRE/SMOKE DAMPER	SD	SUPPLY DIFFUSER
BOD	BOTTOM OF DUCT	GPH	GALLONS PER HOUR	SD	FIRE STAT
BOT	BOTTOM	GPM	GALLONS PER MINUTE	SD	SMOKE DETECTOR
BTU	BRITISH THERMAL UNIT	H	HUMIDITY	SEN	SENSIBLE
CAP	CAPACITY	HC	HEATING COIL	SG	SUPPLY GRILLE
CC	COOLING COIL	HP	HORSEPOWER	SP	STATIC PRESSURE
CD	CONDENSATE DRAIN	HHRW	HEATING HOT WATER RETURN	STRUCT	STRUCTURAL
CFM	CUBIC FEET PER MINUTE	HHWS	HEATING HOT WATER SUPPLY	SYS	SYSTEM
CHWR	CHILLED WATER RETURN	HZ	HERTZ	T	TEMPERATURE
CHWS	CHILLED WATER SUPPLY	IN-H2O	INCHES OF WATER	TSP	TOTAL STATIC PRESSURE
CLG	CEILING	KW	KILOWATT	TYP	TYPICAL
CMU	CONCRETE MASONRY UNIT	LAT	LEAVING AIR TEMPERATURE	UC	UNDERCUT
CONN	CONNECTION	LAT	LATENT	UG	UNDERGROUND
CT	COOLING TOWER	LD	LOUVERED DOOR	UL	UNDERWRITERS LABORATORY
CU	CONDENSING UNIT	LPC	LOW PRESSURE CONDENSATE	UON	UNLESS OTHERWISE NOTED
DB	DRY BULB	LPS	LOW PRESSURE STEAM	UV	UNIT VENTILATOR
DDC	DIRECT DIGITAL CONTROL	LRA	LOCKED ROTOR AMPS	VAV	VARIABLE AIR VOLUME
DG	DOOR GRILLE	LVG	LEAVING	VV	VOLUME DAMPER
DI	DIGITAL INPUT	LWT	LEAVING WATER TEMPERATURE	VFD	VARIABLE FREQUENCY DRIVE
DN	DOWN	MAX	MAXIMUM	WB	WET BULB
DO	DIGITAL OUTPUT	MBH	1000xBTU		
DP	DEW POINT	MCA	MINIMUM CIRCUIT AMPACITY		
DX	DIRECT EXPANSION	MEZZ	MEZZANINE		
EA	EXHAUST AIR	MIN	MINIMUM		
EAT	ENTERING AIR TEMPERATURE	MISC	MISCELLANEOUS		
EA	EXHAUST AIR	NC	NORMALLY CLOSED		
EER	ENERGY EFFICIENCY RATIO	NIC	NOT IN CONTRACT		
EF	EXHAUST FAN	NO	NORMALLY OPEN		
EG	EXHAUST GRILLE	NTS	NOT TO SCALE		
EL	ELEVATION	OA	OUTSIDE AIR		
ELEC	ELECTRICAL	OAI	OUTSIDE AIR INTAKE		
ENT	ENTERING	OAL	OUTSIDE AIR LOUVER		
EQUIP	EQUIPMENT	OC	ON CENTER		
ESP	EXTERNAL STATIC PRESSURE	PD	PRESSURE DROP		
ET	EXPANSION TANK	PKU	PACKAGE UNIT		
EXH	EXHAUST	PH	PHASE		
EXIST	EXISTING	POC	POINT OF CONNECTION		

THIS IS A GENERAL LIST OF ABBREVIATIONS AND MAY NOT BE USED ON A SPECIFIC PROJECT. IF AN ABBREVIATION IS USED ON A PROJECT AND IS NOT REPRESENTED IN THIS LIST, CONTRACTOR SHALL SUBMIT A REQUEST FOR INFORMATION.

**IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT**

- A. INSTALL OR PERMANENTLY FASTEN LABELS ON EACH MAJOR ITEM OF MECHANICAL EQUIPMENT.
- B. LOCATE EQUIPMENT LABELS WHERE ACCESSIBLE AND VISIBLE.
- C. LOCATE PIPE LABELS WHERE PIPING IS EXPOSED OR ABOVE ACCESSIBLE CEILINGS IN FINISHED SPACES; MACHINE ROOMS; ACCESSIBLE MAINTENANCE SPACES SUCH AS SHAFTS, TUNNELS, AND PLENUMS; AND EXTERIOR EXPOSED LOCATIONS AS FOLLOWS:
  1. NEAR EACH VALVE AND CONTROL DEVICE.
  2. NEAR EACH BRANCH CONNECTION, EXCLUDING SHORT TAKEOFFS FOR FIXTURES AND TERMINAL UNITS. WHERE FLOW PATTERN IS NOT OBVIOUS, MARK EACH PIPE AT BRANCH.
  3. NEAR PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND INACCESSIBLE ENCLOSURES.
  4. AT ACCESS DOORS, MANHOLES, AND SIMILAR ACCESS POINTS THAT PERMIT VIEW OF CONCEALED PIPING.
  5. NEAR MAJOR EQUIPMENT ITEMS AND OTHER POINTS OF ORIGATION AND TERMINATION.
  6. SPACED AT MAXIMUM INTERVALS OF 50 FEET (15 M)] ALONG EACH RUN.
  7. ON PIPING ABOVE REMOVABLE ACOUSTICAL CEILINGS. OMIT INTERMEDIATELY SPACED LABELS.
- C. LOCATE LABELS NEAR POINTS WHERE DUCTS ENTER INTO CONCEALED SPACES AND AT MAXIMUM INTERVALS OF 50 FEET (15 M) IN EACH SPACE WHERE DUCTS ARE EXPOSED OR CONCEALED BY REMOVABLE CEILING SYSTEM.

**HVAC INSULATION**

- GENERAL REQUIREMENTS**
- A. PRODUCTS SHALL NOT CONTAIN ASBESTOS, LEAD, MERCURY, OR MERCURY COMPOUNDS.
  - B. PRODUCTS THAT COME IN CONTACT WITH STAINLESS STEEL SHALL HAVE A LEACHABLE CHLORIDE CONTENT OF LESS THAN 50 PPM WHEN TESTED ACCORDING TO ASTM C 871.
  - C. INSULATION MATERIALS FOR USE ON AUSTENITIC STAINLESS STEEL SHALL BE QUALIFIED AS ACCEPTABLE ACCORDING TO ASTM C 795.
  - D. FIRE-RATED BLANKET: HIGH-TEMPERATURE, FLEXIBLE, BLANKET INSULATION WITH FSK JACKET THAT IS TESTED AND CERTIFIED TO PROVIDE A 2-HOUR FIRE RATING BY A NRTL ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.
  - E. INSULATE INSTRUMENT CONNECTIONS FOR THERMOMETERS, PRESSURE GAGES, PRESSURE TEMPERATURE TAPS, TEST CONNECTIONS, FLOW METERS, SENSORS, SWITCHES, AND TRANSMITTERS ON INSULATED PIPES, VESSELS, AND EQUIPMENT. SHAPE INSULATION AT THESE CONNECTIONS BY TAPERING IT TO AND AROUND THE CONNECTION WITH INSULATING CEMENT AND FINISH WITH FINISHING CEMENT, MASTIC, AND FLASHING SEALANT.

- INSULATION SCHEDULE:**  
INDOOR DUCT AND PLENUM INSULATION SCHEDULE
- A. CONCEALED SUPPLY-AIR OR RETURN-AIR DUCT AND PLENUM INSULATION: MINERAL-FIBER BLANKET, 2.5 INCHES 0.75-LB/CU. FT. NOMINAL DENSITY.
  - B. EXPOSED SUPPLY-AIR OR RETURN-AIR DUCT AND PLENUM INSULATION: MINERAL-FIBER BOARD, 3.0 INCHES 1.0-LB/CU. FT. NOMINAL DENSITY.

**METAL DUCTS**

- A. INSTALL DUCTS WITH FEWEST POSSIBLE JOINTS.
- B. UNLESS OTHERWISE INDICATED, INSTALL DUCTS VERTICALLY AND HORIZONTALLY, AND PARALLEL AND PERPENDICULAR TO BUILDING LINES.
- C. INSTALL DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION, COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING.
- D. INSTALL DUCTS WITH A CLEARANCE OF 1 INCH (25 MM), PLUS ALLOWANCE FOR INSULATION THICKNESS.
- E. ROUTE DUCTS TO AVOID PASSING THROUGH TRANSFORMER VAULTS AND ELECTRICAL EQUIPMENT ROOMS AND ENCLOSURES.
- F. WHERE DUCTS PASS THROUGH NON-FIRE-RATED INTERIOR PARTITIONS AND EXTERIOR WALLS AND ARE EXPOSED TO VIEW, COVER THE OPENING BETWEEN THE PARTITION AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME METAL THICKNESS AS THE DUCT. OVERLAP OPENINGS ON FOUR SIDES BY AT LEAST 1-1/2 INCHES (38 MM).
- G. WHERE DUCTS PASS THROUGH FIRE-RATED INTERIOR PARTITIONS AND EXTERIOR WALLS, INSTALL FIRE DAMPERS.
- H. PROTECT DUCT INTERIORS FROM MOISTURE, CONSTRUCTION DEBRIS AND DUST, AND OTHER FOREIGN MATERIALS.
- I. SEAL DUCTS FOR DUCT STATIC-PRESSURE, SEAL CLASSES, AND LEAKAGE CLASSES SPECIFIED IN "DUCT SCHEDULE" ARTICLE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."
- J. HANGERS EXPOSED TO VIEW SHALL BE THREADED ROD AND ANGLE OR CHANNEL SUPPORTS.
- K. SUPPORT VERTICAL DUCTS WITH STEEL ANGLES OR CHANNEL SECURED TO THE SIDES OF THE DUCT WITH WELDS, BOLTS, SHEET METAL SCREWS, OR BLIND RIVETS; SUPPORT AT EACH FLOOR AND AT A MAXIMUM INTERVALS OF 16 FEET (5 M).
- L. CLEAN EXISTING DUCT SYSTEM(S) BEFORE TESTING, ADJUSTING, AND BALANCING.

- DUCT SCHEDULE**
- A. RETURN, OUTSIDE AND ERV DUCTS:
    - a. PRESSURE CLASS: POSITIVE OR NEGATIVE 1-INCH WG (250 PA), MIN. SMACNA SEAL CLASS: B, SMACNA LEAKAGE CLASS FOR RECTANGULAR: 24.
  - B. EXHAUST DUCTS:
    1. DUCTS CONNECTED TO FANS EXHAUSTING (ASHRAE 62.1, CLASS 1 AND 2) AIR:
      - a. PRESSURE CLASS: NEGATIVE 1-INCH WG (250 PA), MIN. SMACNA SEAL CLASS: B IF NEGATIVE PRESSURE, AND A IF POSITIVE PRESSURE, SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12.
    2. DUCTS CONNECTED TO COMMERCIAL KITCHEN HOODS: COMPLY WITH NFPA 96.
      - a. EXPOSED TO VIEW: TYPE 304, STAINLESS-STEEL SHEET, NO. 4 FINISH.
      - b. CONCEALED: TYPE 304, STAINLESS-STEEL SHEET, NO. 2D FINISH.
      - c. WELDED SEAMS AND JOINTS: ALL GREASE EXHAUST DUCTWORK JOINTS SHALL BE EITHER TELESCOPING OR BELL TYPE. BUTT-WELDED JOINTS ARE PROHIBITED.
      - d. PRESSURE CLASS: POSITIVE OR NEGATIVE 2-INCH WG (500 PA).
      - e. MINIMUM SMACNA SEAL CLASS: WELDED SEAMS, JOINTS, AND PENETRATIONS.
      - f. SMACNA LEAKAGE CLASS: 3.

**BASIC MATERIAL AND METHODS**

**SCOPE OF WORK**

PROVIDE LABOR AND MATERIALS AS REQUIRED TO PROVIDE A FULLY FUNCTIONING AND COMPLETE SYSTEM AS INDICATED ON DRAWINGS. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND EQUIPMENT. FINAL LOCATIONS OF EQUIPMENT SHALL BE FIELD DETERMINED. ALL DISCREPANCIES ON DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING PRIOR TO SUBMISSION OF BIDS.

**GENERAL AND SPECIAL CONDITIONS**

ALL DIVISION 1 SPECIFICATIONS AND ARCHITECTURAL GENERAL AND SPECIAL CONDITIONS OUTLINED IN THE CONTRACT DOCUMENTS APPLY TO MECHANICAL SYSTEMS. ADDITIONALLY, WORK SHALL COMPLY WITH FLORIDA BUILDING CODE (2007 W/2009 AMENDMENTS), ORDINANCES AND REGULATIONS OF THE LOCAL AUTHORITY HAVING JURISDICTION, NATIONAL FIRE PROTECTION ASSOCIATION, AND NATIONAL ELECTRICAL CODE. ALL EQUIPMENT SHALL CARRY THE UNDERWRITER'S LABORATORIES (UL) SEAL WHERE APPLICABLE.

**QUALITY CONTROL**

UNLESS OTHERWISE NOTED, PROVIDE NEW MATERIALS FREE OF DEFECTS. WHERE NO SPECIFIC WEIGHTS OR GRADES ARE SPECIFIED PROVIDE MATERIALS OF AN ACCEPTED STANDARD WEIGHT AND GRADE ACCORDING TO CODE AND GOVERNING STANDARDS BY ASHRAE, SMACNA, NFPA, AND UL. INSTALL ALL EQUIPMENT, PIPING, DUCTWORK, AND CONTROLS IN ACCORDANCE WITH CODES, GOVERNING STANDARDS, AND MANUFACTURER'S RECOMMENDATIONS. FIRE PERFORMANCE CHARACTERISTICS OF INSTALLED MATERIALS SHALL BE RATED IN ACCORDANCE WITH ASTM E84. MAXIMUM FLAME SPREAD RATING SHALL BE 25 AND MAXIMUM SMOKE DEVELOPED RATING SHALL BE 50. SUPPLIED EQUIPMENT SHALL BE AS SCHEDULED OR OWNER APPROVED EQUAL IN QUALITY AND PERFORMANCE.

**COORDINATION**

COORDINATE ALL WORK FOR PROPER LOCATION, POWER, AND UTILITY REQUIREMENTS. SCHEDULE INSTALLATIONS TO AVOID CONFLICT AMONG TRADES. ADDITIONS TO THE CONTRACT FOR COORDINATION AMONG TRADES WILL NOT BE ALLOWED.

**SUBMITTALS**

PROVIDE 6-SETS (EACH) OF MANUFACTURER'S DATA, O&M MANUALS, ELECTRICAL DATA, DIMENSIONAL DATA AND CLEARANCES, CONNECTION DATA, COLOR SAMPLERS (IF REQUIRED), AND TEST DATA FOR THE FOLLOWING:

- A/C EQUIPMENT, CONTROLS, EXHAUST FANS, DIFFUSER/GRILLES, T&B REPORT
- SHOP DRAWINGS MUST BE SUBMITTED AND APPROVED PRIOR TO ORDERING OF EQUIPMENT. ENGINEER WILL REQUIRE 7 WORKING DAYS TO REVIEW DRAWINGS.

REVISIONS:

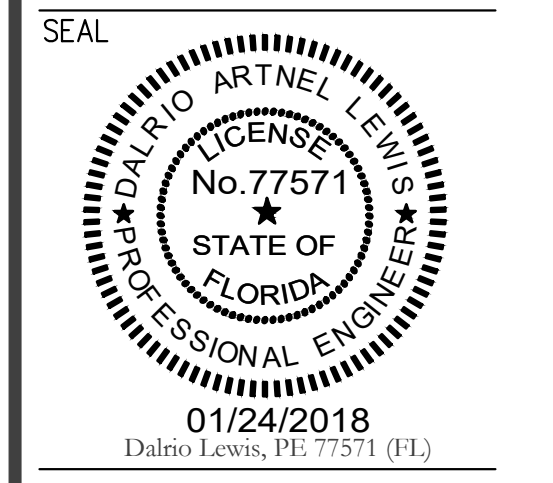
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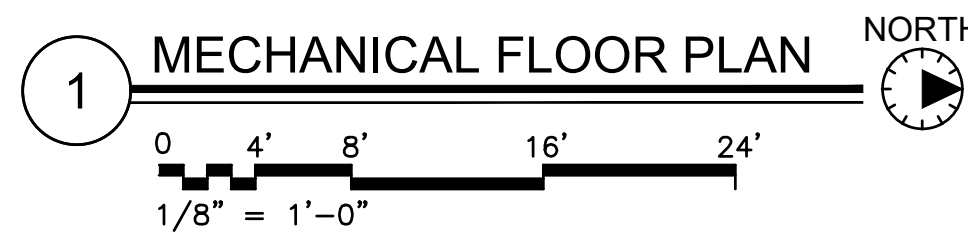
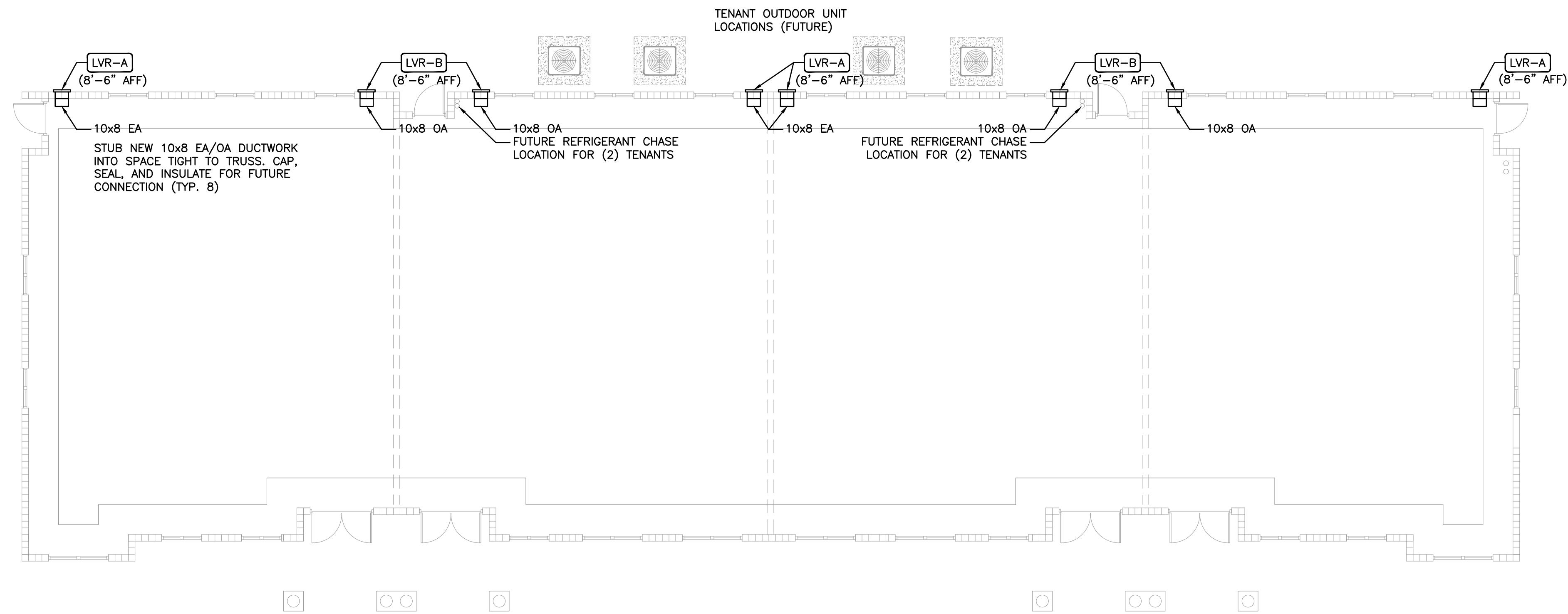
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A PROPOSED DARK SHELL FOR:  
**BONNEVILLE DR PROP OFFICE BLDG.**  
 1716, 1718, AND 1720 BONNEVILLE DR  
 ORLANDO, FLORIDA

DATE:	01/24/2018
PROJECT:	160202
DRAWN BY:	BK
CHECKED BY:	DL
SHEET	1 OF 2

M-0



LOUVER SCHEDULE										
TAG	TYPE	CFM	WIDTH	HEIGHT	MAX ESP (IN-H2O)	FREE AREA (SQFT)	WIND LOAD RATING (PSF)	BASIS OF DESIGN		
								MANUFACT	MODEL	NOTES
LVR-A		-	16.0	12.0	0.5	0.39		GREENHECK	EVH-501D	1,2,4
LVR-B		-	16.0	12.0	0.5	0.39		GREENHECK	EVH-501D	1,3,4

General Notes

- PROVIDE FACTORY KYNAR COATING. COLOR TO MATCH WALL FINISHED COLOR.
- PROVIDE BIRD SCREEN ON ALL EXHAUST LOUVERS.
- PROVIDE INSECT SCREEN ON ALL INTAKE LOUVERS.
- ALL LOUVERS SHALL BE RATED FOR FLORIDA PRODUCT APPROVAL OF HIGH WIND SPEED UP TO 150 MPH

A/C CALCULATION SCHEDULE					
SPACE	COOLING LOAD CALCULATION				
	GROSS AREA (SQFT)	ESTIMATED LOAD (SQFT/TON)	ESTIMATED LOAD (TONS)	CALCULATED LOAD (TONS)	PROVIDED A/C (TONS)
101A TENANT SPACE A	1575	350	4.50	2.5	5
101B TENANT SPACE B	1575	350	4.50	2.4	5
101C TENANT SPACE C	1575	350	4.50	2.3	5
101D TENANT SPACE D	1575	350	4.50	2.6	5

THE 'CALCULATED LOAD' IS 66% SPACE USAGE AS A TYPICAL OFFICE AND 33% STORAGE/NOT OCCUPIED FOR THE PURPOSES OF INTERIOR LOAD AND VENTILATION. FOR THE PURPOSES OF SIZING ELECTRICAL FOR TENANT FUTURE HVAC THE PROVIDED A/C WAS USED AS THE BASIS.



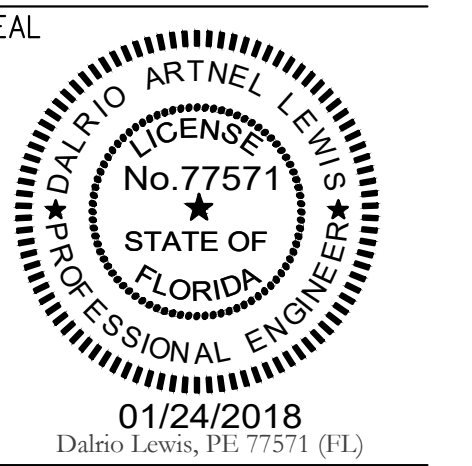
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A PROPOSED DARK SHELL FOR:  
BONNEVILLE DR PROP OFFICE BLDG.  
1716, 1718, AND 1720 BONNEVILLE DR  
ORLANDO, FLORIDA

DATE: 01/24/2018  
PROJECT: 160202  
DRAWN BY: BK  
CHECKED BY: DL  
SHEET 2 OF 2

M-1