

MECHANICAL ABBREVIATIONS:

AC	AIR CONDITIONER
ACH	AIR CHANGES PER HOUR
AF	AIR FILTER
AHJ	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
BAS	BUILDING AUTOMATION SYSTEM
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BTUS PER HOUR
CC	COOLING COIL
CF	CUBIC FEET
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CO	CLEANOUT
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	CONSTANT AIR VOLUME
DAT	DISCHARGE AIR TEMPERATURE
DB	DECEBEL OR DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DH	DUCT HEATER
DX	DIRECT EXPANSION
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWI	ENTERING WATER TEMPERATURE
FA	FREE AREA
FC	FAN COIL
FD	FIRE DAMPER
FI	FLUME HOOD
FPB	FAN POWERED BOX
FM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FREEZE STAT
FSD	COMBINATION FIRE/SMOKE DAMPER
GA	GAUGE
GAL	GALLON
GPH	GALLONS PER HOUR
GPW	GALLONS PER MINUTE
H	HUMIDISTAT
HC	HEATING COIL
HD	HOOD OR HEAT DETECTOR
HEPA	HIGH EFFICIENCY PARTICULATE AIR FILTER
HP	HORSEPOWER OR HEAT PUMP
HR	HOUR
HUM	HUMIDIFIER
HX	HEAT EXCHANGER
HERTZ	HERTZ
IN W.C.	INCHES WATER COLUMN
IN W.G.	INCHES WATER GAUGE
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTUH
NC	NORMALLY CLOSED
NK	NECK
NO	NORMALLY OPEN
P	PUMP
PA	PASCAL
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RM	RELIEF OPENING
RO	REVOLUTIONS PER MINUTE
SAT	SUPPLY AIR TEMPERATURE
SD	SMOKE DAMPER OR SMOKE DETECTOR
SF	SQUARE FEET OR SUPPLY FAN
SPS	STATIC PRESSURE SENSOR
T	THERMOSTAT
TD	TEMPERATURE DIFFERENCE
TO	TRANSFER OPENING
UC	UNDERCUT (DOOR)
UH	UNIT HEATER
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
VTR	VENT THROUGH ROOF
W	WATT
WB	WET BULB TEMPERATURE
WC	WATER COLUMN
WPD	WATER PRESSURE DROP

GENERAL ABBREVIATIONS:

A/E	ARCHITECT/ENGINEER
ABV	ABOVE
AFB	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ALT	ALTERNATE
ARCH	ARCHITECT
BFG	BELOW FINAL GRADE
BLDG	BUILDING
CLG	CEILING
DIR	DIRECT
DISC	DISCONNECT
DN	DOWN
EC	ELECTRICAL CONTRACTOR
ELEV	ELEVATION REFERENCE
EM	EMERGENCY
EP	EXPLOSION PROOF
EWG	ELECTRIC WATER COOLER
F	FLUSH
FBO	FURNISHED BY OTHERS
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLO	FLOOR
FS	FLOW SWITCH
GC	GENERAL CONTRACTOR
GRD	GROUND
GYP	GYPSON BOARD
HC	HEATING CONTRACTOR
HVAC	HEATING & VENTILATING - AIR CONDITIONING
HVC	HEATING VENTILATING CONTRACTOR
HW	HEAVY WALL
ID	INDIRECT
IL	INTERLOCK
IJ	IN UNIT
J-BOX	JUNCTION BOX
LG	LAY-IN GRID
LTG	LIGHTING
LV	LOW VOLTAGE
LVT	LINE VOLTAGE THERMOSTAT
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPS
MCCP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
NC	NOT IN CONTRACT
NTS	NOT TO SCALE
PLBG	PLUMBING CONTRACTOR
RM	ROOM
SURF	SURFACE
TS	TAMPER SWITCH
TYP	TYPICAL
UG	UNDERGROUND
VC	VENTILATION CONTRACTOR

HYDRONIC FITTINGS:

	45° ELBOW
	CAP
	90° ELBOW
	ELBOW DOWN
	ELBOW UP
	TEE
	TEE DOWN
	TEE UP
	UNION
	FLEXIBLE CONNECTION
	PIPE CONTINUATION
	FLANGE

HYDRONIC SYSTEM ABBREVIATIONS:

---	PIPE TO BE DEMOLISHED
— D —	DRAIN
— NG —	NATURAL GAS
— LP —	LIQUEFIED PETROLEUM
— V —	VENT
— CHWS —	CHILLED WATER SUPPLY
— CHWR —	CHILLED WATER RETURN
— CWS —	CONDENSER WATER SUPPLY
— CWR —	CONDENSER WATER RETURN
— CD —	CONDENSATE DRAIN
— HWS —	HEATING HOT WATER SUPPLY
— HWR —	HEATING HOT WATER RETURN
— GS —	GLYCOL SUPPLY
— GR —	GLYCOL RETURN
— MJ —	MAKEUP WATER
— HPWS —	HEAT PUMP WATER SUPPLY
— HPWR —	HEAT PUMP WATER RETURN
— GWS —	GEOTHERMAL WATER SUPPLY
— GWR —	GEOTHERMAL WATER RETURN
— RHG —	REFRIGERANT HOT GAS
— RL —	REFRIGERANT LIQUID
— RS —	REFRIGERANT SUCTION
— HPS —	HIGH PRESSURE STEAM
— MPS —	MEDIUM PRESSURE STEAM
— LPS —	LOW PRESSURE STEAM
— HPC —	HIGH PRESSURE STEAM CONDENSATE
— MPC —	MEDIUM PRESSURE STEAM CONDENSATE
— LPC —	LOW PRESSURE STEAM CONDENSATE
— CR —	CONDENSATE RETURN
— PC —	PUMPED CONDENSATE
— VPR —	VACUUM PUMP RECHARGE
— BBD —	BOILER BLOWDOWN
— FWS —	BOILER FEEDWATER SUPPLY
— H —	HUMIDIFICATION LINE
— FOF —	FUEL OIL FILL
— FOR —	FUEL OIL RETURN
— FOS —	FUEL OIL SUPPLY
— FOV —	FUEL OIL VENT
— A —	COMPRESSED AIR
— VAC —	VACUUM AIR

HYDRONIC VALVES:

	TWO-POSITION 2-WAY VALVE
	MODULATING 2-WAY VALVE
	TWO-POSITION 3-WAY VALVE
	MODULATING 3-WAY VALVE
	BALANCING VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	DIFFERENTIAL PRESSURE VALVE
	FLOAT OPERATED VALVE
	GATE VALVE
	GLOBE VALVE
	PLUG VALVE
	PRESSURE INDEPENDENT VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	TRIPLE DUTY VALVE
	BACKFLOW PREVENTER

HYDRONIC SPECIALTIES:

	FLOW SWITCH
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	PRESSURE GAUGE
	PRESSURE SWITCH
	PUMP SUCTION DIFFUSER
	THERMOMETER
	STRAINER, BLOW DOWN
	STRAINER, HOSE CONNECTION
	STRAINER
	ANCHOR
	PIPING GUIDE
	EXPANSION LOOP
	EXPANSION JOINT
	FLOW METER

DUCT SYSTEM ABBREVIATIONS:

CA	COMBUSTION AIR
CV	COMBUSTION VENT
EA-All	EXHAUST AIR - AIRBORNE INFECTIOUS ISOLATION
EA-CH	EXHAUST AIR - CHEMICAL
EA-D	EXHAUST AIR - DRYER
EA	EXHAUST AIR - ENVIRONMENTAL
EA-K1	TYPE 1 - KITCHEN EXHAUST
EA-K2	TYPE 2 - KITCHEN EXHAUST
OA	OUTDOOR AIR
RA	RETURN AIR
SA	SUPPLY AIR

DUCT SYSTEMS:

	BACKDRAFT DAMPER
	FIRE DAMPER
	SMOKE DAMPER
	COMBINATION FIRE SMOKE DAMPER
	MOTORIZED DAMPER
	VOLUME DAMPER
	SIDEWALL GRILLE
	CEILING DIFFUSER, SUPPLY 4-WAY BLOW PATTERN
	CEILING DIFFUSER, SUPPLY 3-WAY BLOW PATTERN
	CEILING DIFFUSER, SUPPLY 2-WAY BLOW PATTERN
	CEILING DIFFUSER, SUPPLY 1-WAY BLOW PATTERN
	CEILING DIFFUSER, RETURN
	CEILING DIFFUSER, EXHAUST
	DOOR UNDERCUT
	DUCT SECTION, SUPPLY
	DUCT SECTION, RETURN
	DUCT SECTION, EXHAUST

	FLEXIBLE DUCT
	DIRECTION OF AIR FLOW
	DUCT SIZE TRANSITION
	RECTANGULAR ELBOW DOWN - SINGLE LINE
	ROUND ELBOW DOWN - SINGLE LINE
	RECTANGULAR ELBOW UP - SUPPLY
	ROUND ELBOW UP - SUPPLY
	RECTANGULAR ELBOW DOWN - SUPPLY
	ROUND ELBOW DOWN - SUPPLY
	RECTANGULAR ELBOW UP - RETURN
	ROUND ELBOW UP - RETURN
	RECTANGULAR ELBOW DOWN - RETURN
	ROUND ELBOW DOWN - RETURN
	RECTANGULAR ELBOW UP - EXHAUST
	ROUND ELBOW UP - EXHAUST
	RECTANGULAR ELBOW DOWN - EXHAUST
	ROUND ELBOW DOWN - EXHAUST
	MITERED ELBOW
	MITERED ELBOW WITH TURNING VANES
	ACCESS DOOR - TOPSIDE
	AIR FLOW MEASURING STATION
	SOUND ATTENUATOR
	FLEXIBLE CONNECTION

HVAC SENSORS:

	CARBON DIOXIDE
	CARBON MONOXIDE
	DEWPOINT
	GAS
	HUMIDITY
	NITROGEN OXIDE
	RELATIVE PRESSURE MONITOR
	REFRIGERANT MONITOR
	SMOKE DETECTOR
	STATIC PRESSURE
	THERMOSTAT
	TEMPERATURE

MECHANICAL EQUIPMENT:

PLAN	SYMBOL
	AIR SEPARATOR
	BASKET STRAINER
	EXPANSION TANK, FREE STANDING
	EXPANSION TANK, HANGING
	SIDE STREAM FILTER
	LOUVER
	HEAT EXCHANGER, PLATE AND FRAME
	HEAT EXCHANGER, SHELL AND TUBE
	STEAM TRAP
	VARIABLE FREQUENCY DRIVE
	CONTROL BOX
	ENERGY METER
	NATURAL GAS METER
	PUMP (SEE SCHEDULE FOR TYPE)
	VARIABLE AIR VOLUME BOX
	VAV BOX WITH ELECTRIC REHEAT
	VAV BOX WITH HYDRONIC REHEAT
	ROUND IN / ROUND OUT VAV BOX
	FAN POWERED BOX

MECHANICAL TAGS:

	VISIBLE DIMENSION
	DUCT DIMENSIONS (CLEAR, INTERNAL)
	SYSTEM ABBREVIATION
	TYPE: S - SUPPLY R - RETURN E - EXHAUST T - TRANSFER
	SIZE (OPTIONAL)
	DIFFUSER TAG
	AIR FLOW RATE
	MARK
	MECHANICAL EQUIPMENT TAG
	RISER TAG
	NUMBER
	PIPE SIZE
	PIPE DIMENSION TAG
	SYSTEM ABBREVIATION
	POINT OF NEW CONNECTION
	POINT OF DISCONNECTION

GENERAL:

	REFERENCE NOTE SYMBOL
	DETAIL NUMBER
	BUILDING SECTION
	SHEET NUMBER
	DETAIL NUMBER
	BUILDING ELEVATION
	DETAIL NUMBER
	CALLOUT BOUNDARY
	SHEET NUMBER
	DETAIL NUMBER
	VIEW REFERENCE CALLOUT
	SHEET NUMBER
	MOUNTING HEIGHT DESIGNATION

RENOVATION LEGEND:

<E>	EXISTING TO REMAIN
<EC>	EXISTING DEVICE TO REMAIN, NEW CIRCUIT AS INDICATED
<ED>	EXISTING LOCATION, NEW DEVICE OR EQUIPMENT TO BE INSTALLED IN PLACE
<EL>	EXISTING LIGHT FIXTURE TO REMAIN, NEW LAMPING AS INDICATED
<ER>	EXISTING TO BE RELOCATED
<EO>	EXISTING TO BE REMOVED
<EN>	EXISTING IN NEW LOCATION
<E+>	NEW
<RA>	REMAIN AS IS

GENERAL NOTES

- THESE PLANS ARE DIAGRAMMATIC IN NATURE SINCE THEY REFLECT ONLY THE AVAILABLE INFORMATION OBTAINED FROM EXISTING PLANS, SPECIFICATIONS, AND FIELD SURVEYS. THE EXACT LOCATION OF EXISTING DUCTWORK, PIPING, AND EQUIPMENT MAY DEViate FROM THE LOCATION INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL BE PREPARED TO MAKE SOME ALTERATIONS TO NEW AND/OR EXISTING SERVICES TO FIT ACTUAL JOB CONDITIONS.
- THE SPACE ALLOWED FOR MECHANICAL (HVAC, PLUMBING, FIRE PROTECTION) AND ELECTRICAL WORK ABOVE THE SUSPENDED CEILING IS CRITICAL AND REQUIRES COORDINATION BETWEEN TRADES. CONTRACTORS SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS PRIOR TO FABRICATION OR INSTALLATION OF ANY MATERIALS. DUCTWORK SHALL BE HUNG AS CLOSE AS POSSIBLE TO THE STRUCTURE ABOVE UNLESS INDICATED OTHERWISE. REWORK OF PIPING, DUCTWORK, EQUIPMENT LOCATION, CONDUIT, ETC. AS A RESULT OF POOR PLANNING, COORDINATION, OR SCHEDULING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ANY HOLES LEFT IN EXISTING WALL CONSTRUCTION DUE TO DEMOLITION OR NEW WORK SHALL BE PATCHED TO MATCH EXISTING CONDITIONS.
- PIPES/DUCTS/ETC. PENETRATING EXTERIOR WALLS AND ROOFS SHALL BE SEALED WEATHER PROOF.
- CONTRACTOR TO FIRESTOP ALL PENETRATIONS THROUGH FIRE-RATED FLOORS AND WALLS CREATED BY DEMOLITION OR NEW WORK WITH "SPEC'ED SSS" OR EQUAL.
- PROVIDE OPENING IN DRY WALL ABOVE CEILING TO ALLOW SUPPLY AIR TO RETURN TO HEAT PUMPS OR AIR HANDLERS.
- REFRIGERANT PIPING TO BE SIZED BY EQUIPMENT MANUFACTURER AND INSTALLED PER THE MANUFACTURER'S INSTALLERS GUIDE. CONTRACTOR TO SUBMIT DRAWINGS SHOWING ROUTING. SEE SPECIFICATIONS.
- THERMOSTATS & ROOM TEMPERATURE SENSORS SHALL BE MOUNTED AT 48" A.F.F. TO THE TOP OF THERMOSTAT UNLESS NOTED OTHERWISE. DO NOT MOUNT IN DIRECT SUNLIGHT OR NEAR HEAT PRODUCING EQUIPMENT.
- INSTALL H.V.A.C. SYSTEM IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ANY FRAMING REVISIONS, EQUIPMENT LOCATIONS, ADDITION OF CONTROLS, ELECTRICAL CIRCUITING REVISIONS, ETC. THAT RESULT FROM USING EQUIPMENT OTHER THAN INDICATED ON THE DRAWINGS. APPROVAL OF THE SHOP DRAWINGS BY THE ENGINEER WILL NOT WAIVE THE CONTRACTOR OF THIS RESPONSIBILITY.
- THE CONTRACTOR SHALL HAVE THE FINAL RESPONSIBILITY FOR SYSTEM START UP AND TURN OVER TO THE OWNER.
- ALL ITEMS INCLUDED ON THESE DRAWINGS AND THE SPECIFICATIONS SHALL BE INCLUDED IN THE CONTRACTORS BID. IF THE CONTRACTOR DOES NOT CLEARLY UNDERSTAND THESE PLANS OR IS NOT SURE OF THEIR MEANING, THE CONTRACTOR SHOULD OBTAIN THE ENGINEER'S WRITTEN EXPLANATION AND INTERPRETATION PRIOR TO BID TIME. THE CONTRACTOR WILL BE HELD TO THE INTERPRETATION OF THE ENGINEER.
- FIRE CAULK ALL PENETRATIONS THRU FIRE RATED PARTITIONS TO MAINTAIN FIRE RATING OF PARTITION.
- CAULK ALL PENETRATIONS THRU WALLS TO MINIMIZE SOUND PENETRATION THRU WALLS.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL TEMPERATURE CONTROL SYSTEM REQUIREMENTS.
- ROUTE LINE SIZE PVC CONDENSATE DRAIN PIPING FROM AIR HANDLING UNIT TO NEAREST FLOOR DRAIN. PROVIDE TRAP AT CONNECTION TO AIR HANDLING UNIT.
- ANY DAMAGE TO THE SITE (SIDEWALKS, CURBS, ETC) OR TO THE BUILDING AS A RESULT OF WORK PERFORMED UNDER THIS CONTRACT SHALL BE FIXED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR WILL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF ROOFS/WALLS/FLOORS AND CORE DRILLS REQUIRED TO COMPLETE THEIR RESPECTIVE WORK.
- THE OWNER SHALL HAVE FIRST SALVAGE RIGHTS OF EQUIPMENT AND MATERIALS REMOVED. ALL EQUIPMENT AND MATERIALS NOT CLAIMED BY THE OWNER SHALL BE REMOVED FROM THE PREMISES BY THE CONTRACTORS.
- REMOVE AND DISPOSE OF REFRIGERANT IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TEMPORARY FENCING AROUND THE LIFT SITE DURING LIFTS.
- OWNER SHALL BE RESPONSIBLE FOR REMOVING ALL ASBESTOS-CONTAINING MATERIAL ASSOCIATED WITH THIS PROJECT.
- PROVIDE FLEXIBLE CONNECTIONS ON ALL PIPING PENETRATIONS AT BACK TO BACK 2 HOUR RATED FIRE WALLS TO ALLOW FOR EXPANSION BETWEEN THE WALLS.
- ALL EXISTING MECHANICAL EQUIPMENT, DUCTWORK, ETC. THAT SERVES SPACES ON OTHER FLOORS SHALL REMAIN AS IS. DO NOT DISCONNECT OR REMOVE ANY EQUIPMENT NOT SHOWN IN THESE PLANS.
- REMOVE AND RE-INSTALL EXISTING LAY-IN CEILING AS REQUIRED TO COMPLETE ALL DEMOLITION AND NEW WORK. REPLACE CEILING TILES DAMAGED DURING CONSTRUCTION WITH NEW TILES MATCHING EXISTING.

GENERAL NOTES (ROOF PROTECTION)

- THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE A MINIMUM OF SEVEN DAYS PRIOR TO THE BEGINNING OF WORK THAT INVOLVES ACTIVITY ON THE ROOF.
- TRAFFIC OVER THE EXISTING ROOF SURFACES SHALL BE KEPT TO AN ABSOLUTE MINIMUM.
- THE CONTRACTOR AND THE OWNER'S REPRESENTATIVE SHALL INSPECT THE EXPOSED ROOFING MEMBRANE SYSTEM PRIOR TO THE START OF CONSTRUCTION. ANY PREVIOUS DAMAGE OR DEFECTS OF THE ROOFING SYSTEM SHALL BE DOCUMENTED BY WRITING AND/OR PHOTOGRAPHS.
- THE CONTRACTOR SHALL PLACE MINIMUM OF 48" WIDE, 1/2" THICK APPROVED PROTECTION BOARDS (1 LAYER) MADE OF CONSTRUCTION GRADE PLYWOOD (ORIENTED STRAND BOARD WILL BE ACCEPTABLE) OVER ALL MEMBRANE ROOFING THAT WILL HAVE CONSTRUCTION TRAFFIC. THIS ROOF PROTECTION SHALL BE PROVIDED FOR THE ENTIRE AREA WITHIN THE LIMITS OF THE WORK (SEE DRAWINGS THIS SHEET). SUCH PROTECTION SHALL ALSO BE PROVIDED IN THE FORM OF A WALKWAY FROM THE ROOF ACCESS DOOR TO THE PROTECTED CONSTRUCTION AREA.
- STORAGE OF MATERIALS ON EXISTING ROOF WILL NOT BE ALLOWED.
- THE CONTRACTOR SHALL REMOVED DAILY ALL PROJECT DEBRIS FROM ALL ROOFING SURFACES.
- THE CONTRACTOR SHALL ADVISE THE OWNER'S REPRESENTATIVE WHEN WORK ON THE ROOF IS COMPLETE AND THE PROTECTION BOARDS HAVE BEEN REMOVED. THE CONTRACTOR AND THE OWNER'S REPRESENTATIVE SHALL EXAMINE ALL ROOF SURFACES WHERE WORK HAS OCCURRED AND WILL REPAIR ALL DEFECTS NOT PREVIOUSLY DOCUMENTED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE BUILDING, ROOF, STRUCTURAL FRAMING, ETC. INCURRED DURING CONSTRUCTION.
- CONTRACTOR SHALL UTILIZED A LICENSED APPLICATOR OF THE EXISTING ROOFING SYSTEM TO REPAIR ANY AND ALL DAMAGE INCURRED DURING THE COURSE OF CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY WARRANTY OF THE EXISTING MEMBRANE ROOFING SYSTEM. THE CONTRACTOR SHALL UTILIZE A LICENSED APPLICATOR OF THE EXISTING ROOFING SYSTEM TO PERFORM ALL ROOFING WORK AND TO REPAIR ANY AND ALL DAMAGE. UPON COMPLETION, THE CONTRACTOR SHALL OBTAIN A LETTER FROM THE ROOF MANUFACTURER STATING THAT THE EXISTING WARRANTY REMAINS IN FULL FORCE AND EFFECT.

GENERAL NOTES (AIR SIDE)

- NOTE: ALL DUCTWORK OFFSETS ARE NOT SHOWN. THE CONTRACTOR SHALL MODIFY DUCTS AND OFFSETS TO COORDINATE WITH THE BUILDING STRUCTURE AND ALL TRADE REQUIREMENTS.
- ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED PER THE LATEST VERSION OF THE S.M.A.C.N.A. H.V.A.C. DUCT CONSTRUCTION STANDARDS, UNLESS SPECIFIED MORE STRINGENTLY IN THESE CONSTRUCTION DOCUMENTS. MINIMUM DUCT GAUGE SHALL BE 24.
- 90° DUCT ELBOWS SHALL BE EQUIPPED WITH SINGLE THICKNESS TURNING VANES MOUNTED TO A PREFABRICATED VANE RAIL.
- ALL ELBOWS SHALL BE SUPPLIED WITH TURNING VANES, WHETHER SHOWN ON DOCUMENTS OR NOT.
- ALL 90° AND 45° RECTANGULAR RADIUS ELBOWS TO BE FABRICATED WITH AN INSIDE RADIUS NO LESS THAN 1/2 OF THE WIDTH OF THE DUCT - WHERE THE WIDTH OF THE DUCT IS DEFINED AS THE DIMENSION OF THE DUCT IN THE PLANE IN WHICH THE DUCT IS TURNING.
- RECTANGULAR DUCTWORK SHALL BE SUPPORTED PER THE S.M.A.C.N.A. STANDARDS AND AT EACH CHANGE IN DIRECTION.
- PROVIDE MANUAL, SINGLE BLADE, BALANCING DAMPERS WITH LOCKING QUADRANT AND INTEGRAL POSITION INDICATOR ON ALL RUNOUTS TO SUPPLY AND EXHAUST AIR DEVICES - EXCEPT THOSE LOCATED IN AREAS WITH PLASTER CEILINGS AND ARE NOT ACCESSIBLE (DAMPER SHALL BE INTEGRAL WITH THE AIR DEVICE IN THESE CASES).
- PROVIDE MANUAL OPPOSED BLADE DAMPERS WITH LOCKING QUADRANT AND INTEGRAL POSITION INDICATOR ON ALL RECTANGULAR BRANCH DUCTS AND AIR DEVICE RUNOUTS THAT EXCEED 12' IN HEIGHT.
- MANUAL SPLITTER DAMPERS ARE NOT ACCEPTABLE.
- NOT ALL OF THE ACCESS DOORS IN THE DUCT SYSTEMS OR PLENUMS ARE SHOWN. PROVIDE MAKE-UP AIR UNIT, ROOFTOP UNIT, AND EACH AIR HANDLING UNIT. PROVIDE STANDARD FLEXIBLE CONNECTIONS ON ALL BLOWER COILS, EXHAUST FANS, SUPPLY FANS, AND DUST COLLECTOR.
- WHERE DAMPER ACTUATORS ARE MOUNTED TO DUCTWORK OR PLENUMS PROVIDE A HEAVY GAGE BASE PLATE, ANGLE STIFFENERS, OR MOUNTING AS REQUIRED TO ELIMINATE DEFLECTION OF DUCTWORK DURING ACTUATOR OPERATION.
- FLEXIBLE DUCT CONNECTIONS TO EQUIPMENT ARE NOT SHOWN ON THE DRAWINGS. PROVIDE EXTRA WIDE FLEXIBLE CONNECTIONS ON THE SUPPLY DUCT AND THE RETURN DUCT OF EACH MAKE-UP AIR UNIT, ROOFTOP UNIT, AND EACH AIR HANDLING UNIT. PROVIDE STANDARD FLEXIBLE CONNECTIONS ON ALL BLOWER COILS, EXHAUST FANS, SUPPLY FANS, AND DUST COLLECTOR.
- PROVIDE 45° FLARED TAKEOFFS FOR ALL RECTANGULAR BRANCH CONNECTIONS TO THE MAIN DUCT.
- ALL DAMPER ACTUATORS FOR DUCT SYSTEMS OR EQUIPMENT THAT COMMUNICATES DIRECTLY WITH THE OUTDOORS SHALL BE SPRING RETURN TYPE TO CLOSE IN THE EVENT OF A POWER FAILURE.
- PROVIDE 1-1/2 HOUR RATED FIRE DAMPERS IN THE DUCTWORK WHERE INDICATED ON THE PLANS AND REQUIRED BY CODE. FIRE DAMPERS SHALL BE PROVIDED WITH AN ACCESS PANEL LARGE ENOUGH TO PERMIT INSPECTION AND MAINTENANCE OF THE DAMPER. ACCESS PANELS TO FIRE DAMPERS SHALL BE PERMANENTLY IDENTIFIED ON THE EXTERIOR BY A WATERPLATE WITH THE WORDS "FIRE DAMPER". THE LETTERS ON THE FIRE DAMPER LABELS SHALL NOT BE LESS THAN 1/2 INCH IN HEIGHT.
- THE SPACE ABOVE THE SUSPENDED CEILINGS SHALL BE USED AS A RETURN AIR PLENUM. IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE THE WORK OF OTHER TRADES TO PROVIDE ADEQUATE SPACE FOR THE FLOW OF RETURN AIR (25 FPM MAXIMUM VELOCITY), WHERE PARTITIONS EXTEND TO THE CONSTRUCTION ABOVE. OPENINGS SHALL BE PROVIDED IN THE PARTITION ABOVE THE CEILING.
- AREAS ABOVE THE CEILING SERVE AS A RETURN AIR PLENUM. ALL MATERIALS EXPOSED IN THE PLENUM SHALL HAVE A 2550 SMOKE/FLAME SPREAD RATING.
- ALL DUCT RUNOUTS TO AIR DEVICES ARE TO BE THE SAME SIZE AS THE NECK OF THE AIR DEVICE UNLESS NOTED OTHERWISE.
- DIRECTIONAL ARROWS ON AIR DEVICES INDICATE THROWS FOR AIR DEVICE. VERIFY PROPER ADJUSTMENT OF THROW DEFLECTION VANES OF ALL AIR DEVICES PRIOR TO BEGINNING BALANCING. WHERE NO ARROWS ARE SHOWN, THROW SHALL BE 4-WAY.
- CONTRACTOR SHALL BALANCE EACH AREA OF COMPLETED