HVAC PIPING/TUBING MATERIAL, JOINTS & FITTINGS

SYSTEM	PIPE SIZE	CONSTRUCTION	PIPING	FITTINGS	UNIONS	FLANGES
COOLING COIL CONDENSATE DRAINS	2" AND SMALLER	SOLDER JOINT CONSTRUCTION WITH THREADED ADAPTERS AS REQUIRED. 95-5 TIN/ANTIMONY SOLDER.	COPPER, TYPE L, HARD DRAWN, ANSI H23.1, ASTM B88.	CAST BRONZE OR WROUGHT COPPER, SOLDER ENDS, ANSI B16.9 OR ANSI B16.22.	BRONZE SOLDER ENDS, GROUND JOINTS, ANSI B16.19 OR ANSI B16.22.	USE UNIONS
	2 1/2" AND LARGER	SOLDER JOINT CONSTRUCTION WITH THREADED ADAPTERS AS REQUIRED. 95-5 TIN/ANTIMONY SOLDER.	COPPER, TYPE L, HARD DRAWN, ANSI H23.1, ASTM B88.	CAST BRONZE OR WROUGHT COPPER, SOLDER ENDS, ANSI B16.9 OR ANSI B16.22.	BRONZE SOLDER ENDS, GROUND JOINTS, ANSI B16.19 OR ANSI B16.22.	USE UNIONS
HIGH TEMPERATURE HOT WATER AND HEATING BRINE SUPPLY AND RETURN, VENTS AND DRAINS	2" AND SMALLER	BUTT WELDED CONSTRUCTION WITH FLANGED CONNECTIONS TO VALVES AND EQUIPMENT AS REQUIRED.	BLACK STEEL, SCHEDULE 80, SEAMLESS, ASTM A106, GRADE B.	STEEL, CLASS 150, BUTT WELD ENDS, ANSI B16.9, ASTM A234.	STEEL, CLASS 150, WELD TYPE, ANSI B16.5, ASTM 181, GRADE 1.	STEEL, CLASS 150, WELD TYPE, ANSI B16.5, ASTM A234, GRADE WPA.
	2 1/2" AND LARGER	BUTT WELDED CONSTRUCTION WITH FLANGED CONNECTIONS TO VALVES AND EQUIPMENT AS REQUIRED.	BLACK STEEL, SCHEDULE 80, SEAMLESS, ASTM A106, GRADE B.	STEEL, CLASS 150, BUTT WELD -ENDS, ANSI B16.9, ASTM A234.	STEEL, CLASS 150, WELD TYPE, ANSI B16.5, ASTM 181, GRADE 1.	STEEL, CLASS 150, WELD TYPE, ANSI B16.5, ASTM A234, GRADE WPA.
REFRIGERANT SUCTION, HOT GAS AND LIQUID PIPING AND TUBING	2" AND SMALLER	BRAZED JOINT CONSTRUCTION. AWS A5.8 FILLER METAL.	COPPER, ACR TUBING, STRAIGHT LENGTHS, DRAWN H58, ASTM B 280.	WROUGHT COPPER, BRAZED ENDS, ANSI B16.22.	WROUGHT COPPER, BRAZED ENDS, ANSI B16.22.	USE UNIONS
	2 1/2" AND LARGER	BRAZED JOINT CONSTRUCTION. AWS A5.8 FILLER METAL.	COPPER, ACR TUBING, STRAIGHT LENGTHS, DRAWN H58, ASTM B 280.	WROUGHT COPPER, BRAZED ENDS, ANSI B16.22.	WROUGHT COPPER, BRAZED ENDS, ANSI B16.22.	USE UNIONS

HVAC DUCT INSULATION

SYSTEM	INSULATION TYPE	MINIMUM INSTALLED INSULATION VALUES	NOMINAL DENSITY
INDOOR DUCT/PLENUM CONCEALED SA, RA, OA.	MINERAL FIBER BLANKET	1-1/2" R-3.5	3/4 LB/FT^3
	MINERAL FIBER BOARD WITH REFLECTIVE VAPOR BARRIER.	1-1/2" R-3.5	3 LB/FT^3
INDOOR DUCT/PLENUM EXPOSED SA AND RA: LOCATED IN MECHANICAL ROOMS, OTHER NON-OCCUPIED SPACES, NON-AIR CONDITIONED SPACES, PASSING THROUGH AIR CONDITIONED SPACES.	MINERAL FIBER BOARD WITH REFLECTIVE VAPOR BARRIER.	1-1/2" R-3.5	3 LB/FT^3
INDOOR DUCT/PLENUM EXPOSED OA: ALL SPACES OTHER THAN ATTICS AND CRAWLSPACES	MINERAL FIBER BOARD WITH REFLECTIVE VAPOR BARRIER.	1-1/2" R-3.5	3 LB/FT^3
INDOOR DUCT/PLENUM EXPOSED SA, RA, OA: ALL ATTIC SPACES AND CRAWL SPACES	MINERAL FIBER BOARD WITH REFLECTIVE VAPOR BARRIER.	2" R-8	3 LB/FT^3
INDOOR DUCT/PLENUM EXPOSED SA AND RA: LOCATED WITHIN THE AIR-CONDITIONED SPACE IT SERVES.	NONE; UNLESS OTHERWISE NOTED ON THE DRAWINGS OR IN THE SPECIFICATION.	-	-
DUCT LINING DUCTS INSTALLED OUTDOORS, ALL ATTIC SPACES AND CRAWL SPACES SA AND RA. SA AND RA DUCTWORK WHERE INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION, 15 FT DOWNSTREAM OF SUPPLY FANS. RETURN FANS AND 10 FT DOWNSTREAM OF TERMINAL BOXES WHETHER INDICATED OR NOT.	FIBROUS-GLASS DUCT LINER WITH CLEANABLE COMPOSITE COATING ON AIRSTREAM SIDE. METAL NOSING SHALL BE FURNISHED ON ALL LEADING AND LEAVING EDGES. (REFER TO NOTES #2, #4)	2" R-8	3 LB/FT^3
DUCT LINING DUCTS INSTALLED IN INDOOR SPACES: EXPOSED AND CONCEALED SA OR RA DUCTWORK WHERE INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION, 15 FT DOWNSTREAM OF SUPPLY FANS, RETURN FANS AND 10 FT DOWNSTREAM OF TERMINAL BOXES WHETHER INDICATED OR NOT.	FIBROUS-GLASS DUCT LINER WITH CLEANABLE COMPOSITE COATING ON AIRSTREAM SIDE. METAL NOSING SHALL BE FURNISHED ON ALL LEADING AND LEAVING EDGES. (REFER TO NOTES #2, #4)	1-1/2" R-3.5	3 LB/FT^3
EXHAUST AIR SYSTEMS DRYER, LABORATORY FUME HOOD, KILN AND ALL OTHER EXHAUST SYSTEMS WHERE FIRE, SMOKE AND FIRE/SMOKE DAMPERS ARE NOT PERMITTED TO BE INSTALLED WITHIN THE DUCTWORK.	FIRE-RATED BLANKET OR BOARD (REFER TO NOTE #5)	THICKNESS REQUIRED FOR 2-HR FIRE RATING	-

1. FOR OUTDOOR DUCTWORK PROVIDE A PRE-MANUFACTURED SELF ADHERING PRODUCT WITH AN UV RESISTANT, STUCCO EMBOSSED FACING. WATER VAPOR TRANSMISSION OF THE INSTALLED PRODUCT SHALL BE .020 PERMS OR LESS. PRODUCT SHALL BE SUITABLE FOR CONTINUOUS USE IN LOW TEMPERATURES OF -10°F. MANUFACTURERS SHALL BE SIMILAR TO FLEX-CLAD 400, MFM BUILDING PRODUCTS CORP. OR ALUMAGUARD 60, POLYGUARD PRODUCTS, INC.
2. DUCT LINING SHALL NOT BE INSTALLED WITHIN 10 FT UPSTREAM OR DOWNSTREAM OF A DUCT MOUNTED HUMIDIFIER DISPERSION TUBE OR DISPERSION GRID.
3. INSULATION TYPES INDICATED IN THE SCHEDULE SHALL USED UNLESS OTHERWISE INDICATED ON THE PLANS OR SPECIFICATIONS.
4. CLOSED CELL, FIBER FREE, ANTI-MICROBIAL COATED, LOW VOC CERTIFIED, MOISTURE AND MOLD RESISTANT DUCT LINING SHALL BE PROVIDED IN DUCTWORK AND EQUIPMENT WITHIN HOSPITAL AND HEALTHCARE FACILITIES AND ROOMS CLASSIFIED AS MOIST OR WET ENVIRONMENTS WHERE THIS SCHEDULE, DRAWINGS AND SPECIFICATION INDICATE DUCT LINING.
5. DUCTWORK SHALL BE FIRE WRAPPED FROM THE APPLIANCE CONNECTION TO THE TERMINATION POINT.

OA = OUTDOOR AIR DUCTWORK
SA = SUPPLY AIR DUCTWORK
RA = RETURN AIR DUCTWORK

HVAC PIPING/TUBING INSULATION

SYSTEM	LOCATION	PIPE SIZE	CELLULAR GLASS	FLEXIBLE ELASTOMERIC	MINERAL-FIBER TYPE I	CALCIUM SILICATE
CONDENSATE & EQUIPMENT DRAIN, BELOW 60°F	INDOOR	ALL	1-1/2"	-	1/2"	-
	OUTDOOR	ALL	1-1/2"	-	-	-
HEATING HOT WATER AND GLYCOL, 200°F & BELOW	INDOOR	12" & SMALLER	2"	-	1"	-
		14" & LARGER	2"	-	1-1/2"	-
	OUTDOOR	ALL	3"	-	-	-
	BURIED	ALL	3"	-	-	3"
HEATING HOT WATER AND GLYCOL ABOVE 200°F	INDOOR	3/4" & SMALLER	2"	-	1-1/2"	2"
		1" & LARGER	3"	-	3"	3"
	OUTDOOR	ALL	3"	-	-	3"
	BURIED	ALL	3"	-	-	3"
REFRIGERANT (ALL) SUCTION, HOT GAS, VAPOR, & LIQUID PIPING	INDOOR	ALL	2"	2"	2"	-
	OUTDOOR	ALL	2"	2"	-	-
REFRIGERANT (ALL) SUCTION, HOT GAS, VAPOR, & LIQUID FLEXIBLE TUBING	INDOOR	ALL	-	2"	-	-
	OUTDOOR	ALL	-	2"	-	-

BLANKS (-) INDICATE INSULATION TYPE SHALL NOT BE USED.
THICKNESS BASED ON INSULATION HAVING A CONDUCTIVITY (K) NOT EXCEEDING 0.27 BTU PER INCH/ft^2 °F

1. ALL EXPOSED INDOOR PIPING/TUBING AND FITTINGS WITHIN OCCUPIED SPACES, CORRIDORS, MECHANICAL ROOMS AND OTHER NON-CONCEALED LOCATIONS SHALL BE FITTED WITH PVC FITTING COVERS AND PVC PIPE COVERS FROM THE FLOOR LEVEL TO 12' ABOVE THE FINISHED FLOOR. PVC FITTING AND PIPE COVERS SHALL BE 25/50 FLAME AND SMOKE SPREAD RATED. COVERS AND JACKETING COLOR TO BE SELECTED BY ARCHITECT. PROVIDE TEMPLATE OF JACKET COLORS FOR THE ARCHITECT'S REVIEW.
2. ALL ELBOWS; CONCEALED OR EXPOSED, SHALL BE INSULATED WITH PRE-MOLDED, FACTORY FORMED FIBROUS GLASS WITH 3.5 PCF MINIMUM DENSITY AS MANUFACTURED BY HAMFAB OR APPROVED EQUAL. ALL ELBOWS; CONCEALED OR EXPOSED, SHALL BE COVERED WITH PVC FITTING COVERS. PVC FITTING COVERS SHALL BE 25/50 FLAME AND SMOKE SPREAD RATED. COVER COLOR TO BE SELECTED BY ARCHITECT. PROVIDE TEMPLATE OF JACKET COLORS FOR THE ARCHITECT'S REVIEW.
3. DIAPER AND LOOSE FILL STYLE INSULATION ON PIPE FITTINGS IS NOT ACCEPTABLE. ELBOWS WITHOUT PVC COVERS ARE NOT ACCEPTABLE.
4. INSULATE ALL COILS MOUNTED IN DUCTWORK OR TERMINAL BOXES. INSULATION THICKNESS SHALL BE EQUAL TO THE ASSOCIATED DUCT INSULATION THICKNESS.
5. ALL OUTDOOR PIPING/TUBING SHALL BE FITTED WITH A PRE-MANUFACTURED ALUMINUM JACKET PRODUCT. 0.024" ALUMINUM JACKET LOCK-ON OR SLIP-ON TYPE JACKETING TO BE COVERED WITH ACRYLIC COATING ON THE OUTER SURFACE AND A BAKED EPOXY MOISTURE BARRIER ON THE INNER SURFACE. MANUFACTURER SHALL BE SIMILAR TO CHILDERS PRODUCTS, DIVISION OF ITW; METAL JACKETING SYSTEMS. ALL EXPOSED JOINTS IN THE JACKET PRODUCT SHALL BE INSTALLED IN SUCH A WAY AS TO PREVENT THE INFILTRATION OF MOISTURE AND WATER.
6. ALL BURIED PIPING/TUBING SHALL BE FITTED WITH A PRE-MANUFACTURED ALUMINUM JACKET PRODUCT. 0.024" ALUMINUM JACKET LOCK-ON OR SLIP-ON TYPE JACKETING TO BE COVERED WITH ACRYLIC COATING ON THE OUTER SURFACE AND A BAKED EPOXY MOISTURE BARRIER ON THE INNER SURFACE. MANUFACTURER SHALL BE SIMILAR TO CHILDERS PRODUCTS, DIVISION OF ITW; METAL JACKETING SYSTEMS.

HVAC DUCT MATERIAL

APPLICATION	SUPPLY	RETURN	EXHAUST
TYPICAL (UNLESS OTHERWISE SPECIFIED)	G90 GALVANIZED STEEL	G90 GALVANIZED STEEL	G90 GALVANIZED STEEL
OUTDOOR AIR INTAKE PLENUM	304 STAINLESS STEEL	-	-
OUTDOOR AIR	3003 H-14 ALUMINUM	-	-
EXPOSED AND CONCEALED EXHAUST DUCTWORK AND PLENUMS SERVING TOILET ROOMS, SHOWER ROOMS, CLOTHES DRYER. ALL DUCTWORK RUNNING THROUGH, OVER OR SERVING SHOWER ROOMS, HATCHERIES, AND ALL SPACES WITH OPEN TANKS.	3003 H-14 ALUMINUM	3003 H-14 ALUMINUM	3003 H-14 ALUMINUM
EXPOSED DUCTWORK LOCATED IN AND SERVING AIR-CONDITIONED SPACES TO BE FIELD PAINTED OTHER THAN DUCTWORK LOCATED IN SPACES REQUIRED TO BE ALUMINUM.	A60 GALVANNEALED STEEL	A60 GALVANNEALED STEEL	A60 GALVANNEALED STEEL
EXPOSED DUCTWORK LOCATED IN AND SERVING CONDITIONED SPACES OTHER THAN DUCTWORK LOCATED IN SPACES REQUIRED TO BE ALUMINUM.	G90 GALVANIZED STEEL	G90 GALVANIZED STEEL	G90 GALVANIZED STEEL

1. DUCT CONSTRUCTION SHALL MEET SMACNA METAL & FLEXIBLE 2005 3RD EDITION STANDARDS.

NO.	DATE	REVISION
1	11/01/2010	ISSUE FOR CONSTRUCTION
1	11/01/2010	ISSUE FOR BLDG. DEPT.

SEAL

Perkins Eastman
422 SUMMER STREET
STAMFORD, CT 06901
T. 203.251.7400
F. 203.251.7474

9 E

KEY PLAN

Owner:

Danbury Hospital
A Difference That Matters

DANBURY HOSPITAL
3 TOWER: R/F & ERCP SUITE:
Room 4 & 5
Danbury, Connecticut

MEP:
KOHLER RONAN, LLC
301 MAIN STREET
DANBURY, CT
TEL 203 778 1017
FAX 203 778 1018
E-MAIL:KRCE@KOHLERRONAN.COM

Structural:
JOHN SMOLEN & ASSOCIATES, LLC
50 DEVINE STREET, UNIT A
NORTH HAVEN, CT
TEL: (203) 248-2000
FAX: (203) 248-2003
EMAIL: JSA.ENG@SNET.NET

RECEIVED
DEC 13 2010
ABM AIR CONDITIONING AND HEATING, INC.

PROJECT TITLE:
R/F & ERCP SUITE
ROOM 4 & 5
3 TOWER

24 Hospital Avenue
Danbury, CT

PROJECT No: 41581.00

DRAWING TITLE:
SCHEDULE
- MECHANICAL

SCALE: NOT TO SCALE

M-201

ISSUE FOR CONSTRUCTION
November 1, 2010