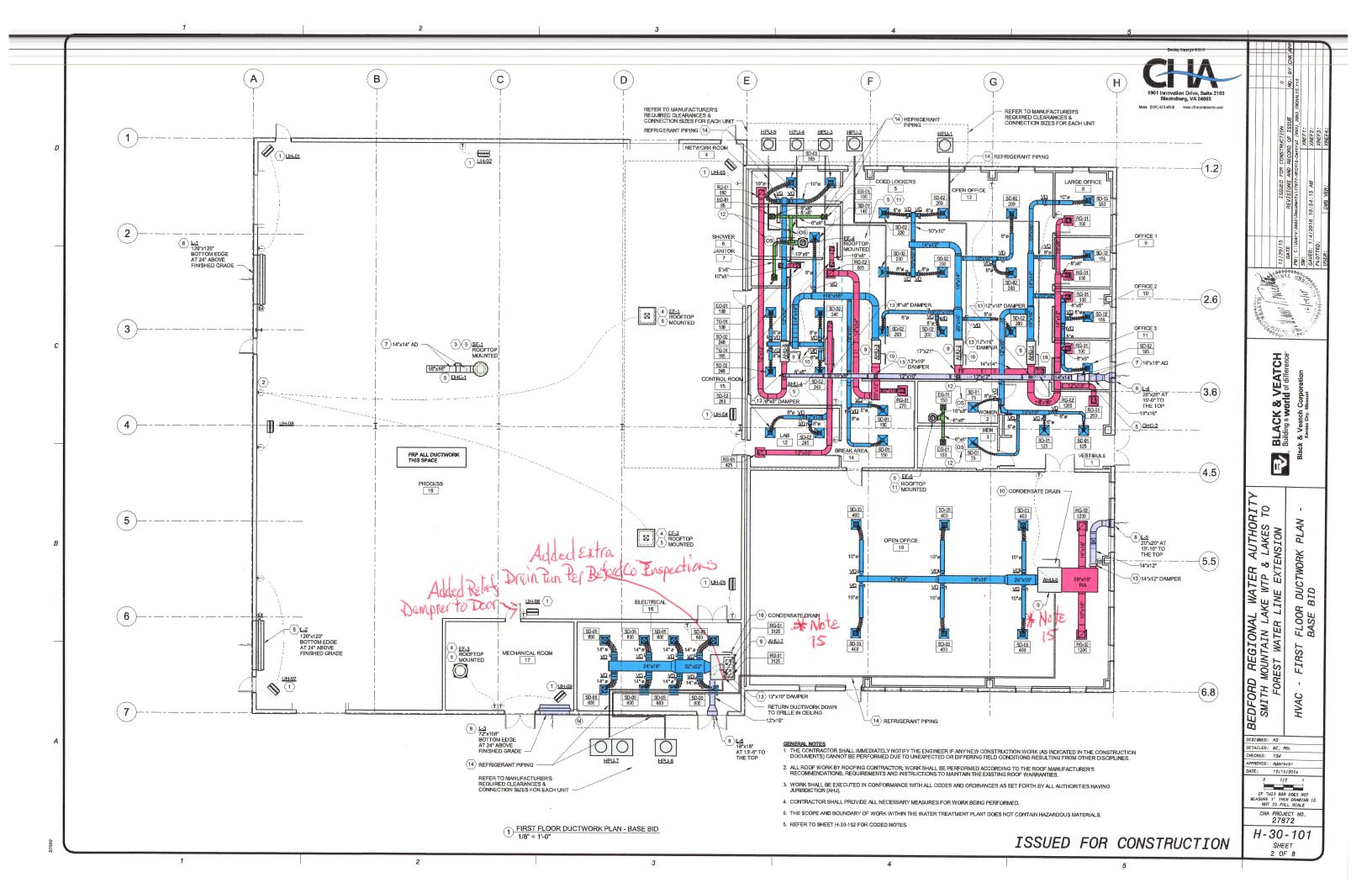
DUCTWORK FITTING STANDARDS ABBREVIATIONS DUCTWORK SYMBOLS PIPING AND VALVE SYMBOLS AIR COOLED CONDENSER 2" COND THE FOLLOWING INDICATE THE STANDARD FOR DUCTWORK FITTINGS REQUIRED FOR THIS PROJECT. DUCT SIZE, (WxH) CONDENSATE (SIZE AS INDICATED) ACU AIR CONDITIONING UNIT ,--2° NG INDICATES DUCT LINER USED: INTERIOR DIMENSIONS ACCEPTABLE NOT ACCEPTABLE ACCESS DOOR (SIZE AS INDICATED ABOVE FINISH FLOOR ROUND, FLAT OVAL SUPPLY DUCT UP , 2" REF ROUND, FLAT OVAL ACCESS PANEL Main: (518) 453-4500 www.chacompanie (SIZE AS INDICATED) RECTANGULAR RECTANGULAR APD AIR PRESSURE DROP RETURN/EXHAUST DUCT UP --5---BRAKE HORSEPOWER GATE VALVE MITERED ELBOWS SUPPLY DUCT DOWN ROD BOTTOM OF DUCT SMOOTH RADIUS ELBOWS W/ R/D>1.5 (SUPPLY) BUTTERFLY VALVE ----CONDENSATE DRAIN RETURN/EXHAUST DUCT DOWN 2 WAY CONTROL VALVE CFM CUBIC FEET PER MINUT ROUND, FLAT OVA RRR ROUND, FLAT OVAL 3 WAY CONTROL VALVE INCLINED RISE IN DIRECTION OF AIRFLOW CLG CEILING PRESSURE RELIEF VALVE RECTANGULAR COND D D INCLINED DROP IN DIRECTION OF AIRFLOW DECIBEL PRESSURE REDUCING VALVE SMOOTH RADIUS ELBOWS W/ R/D>.75 MITERED ELBOWS W/ VANES DOWN SUPPLY DUCT SECTION, FIRST FIGURE IS TOP SOLENOID VALVE WITH FULL RADIUS SPLITTER VANE DIRECT EXPANSION GAS COCK RETURN/EXHAUST DUCT SECTION, FIRST FIGURE IS TOP EXHAUST AIR ROUND, FLAT OVAL PIPE TURNING UP EAT PIPE TURNING DOWN RECTANGULAR FLEXIBLE DUCT CONNECTION ELECTRICAL CONTRACTOR PIPE BRANCH UP EDB ENTERING DRY BULB TEMPERATURE RECTANGULAR THROAT W/ PIPE BRANCH DOWN RADIUS HEEL WYE W/ TURNING VANES W/ OR W/OUT DIVIDER ELEV ELEVATION VD ---PIPE CAP ESP EXTERNAL STATIC PRESSURE FLEXIBLE DUCT, MAXIMUM LENGTH 4" PIPE PLUG EWB ENTERING WET BULB TEMPERATURE PIPE BREAK ROUND, FLAT OVAL SUPPLY AIR SIDEWALL REGISTER/GRILLE FIRE DAMPER 3 UNION RECTANGULAR FULL LOAD AMPS RETURN/EXHAUST AIR SIDEWALL REGISTER/GRILLE FLOW ARROW A Proposition of the Proposition FLR FLOOR MITERED ELBOWS (TRANSFER DUCT ONLY) SMOOTH RADIUS ELBOWS W/ R/D<1.5 FOOT/FEET THERMOMETER FIRE DAMPER IN HORIZONTAL DUCT FT HD FEET OF HEAD PRESSURE GAUGE GAUGE or GAGE FIRE DAMPER IN VERTICAL DUCT ROUND, FLAT OVAL ROUND, FLAT OVAL GALLONS SINGLE FLANGE RECTANGULAR RECTANGULAR SMOKE DAMPER GPH BLACK & VEATCH Building a world of difference GALLONS PER HOUR DOUBLE FLANGE GPM GALLONS PER MINUTE (M) FLROWS 7-SHAPED BLIND FLANGE MOTOR OPERATED DAMPER OFFSET W/ ANGLE <30° HORSEPOWER DOUBLE BLIND FLANGE HEAT PUMP UNIT FLANGED VALVE WITH BLIND FLANGE HERTZ ACCESS DOOR IN DUCT ROUND, FLAT OVAL CONCENTRIC REDUCER INCHES RECTANGULAR ACCESS DOOR IN DUCT ECCENTRIC REDUCER IN WG INCHES WATER GAUGE KILOWATTS WYE W/ OR W/OUT DIVIDER SMOOTH RADIUS WYE W/ R/D>1.5 SUPPLY AIR CEILING DIFFUSER OR REGISTER LAT LEAVING AIR TEMPERATURE LAVATORY CONTROL SYMBOLS ROUND, FLAT OVAL ROUND, FLAT OVAL LBS/HR POUNDS PER HOUR EXHAUST/RETURN AIR CEILING GRILLE OR REGISTER LDB DUCT SMOKE DETECTOR, FURNISHED BY EC, INSTALLED BY HC RECTANGULAR RECTANGULAR (8) LINEAR FEET or FOOT LINEAR SLOT DIFFUSER BELLMOUTH FITTINGS S/S WYE W/ ANGLE <90° LWB LEAVING WET BULB TEMPERATURE START/STOP SYMBOLS ROOF MOUNTED EXHAUST FAN (M) ROUND, FLAT OVAL DAMPER MOTOR MAX MAXIMUM ROUND RECTANGULAR BTU PER HOUR (THOUSAND) CS CURRENT SENSOR FR AL

YENSION <del>-(</del>⇒ , MCA MINIMUM CIRCUIT AMPS ES SPIN-IN FITTINGS END SWITCH TRANSITION WYE ANGLE <30° SD-X XXX AND GRILLES, REGISTERS AND DIFFUSERS NOTATION MIN SP MINIMUM STATIC PRESSURE AD ANALOG OUTPU MOCP MAXIMUM OVERCURRENT PROTECTION SD-X XXX ANALOG INPUT ROUND, FLAT OVAL ROUND VAV BOX NOTATION MANUAL VENT TEF TP EXi **ABBREVIATIONS** BO BINARY OUTPUT RECTANGULAR RECTANGULAR NOT APPLICABLE RECTANGLE TO ROUND DUCT TRANSITION BINARY INPUT D REGIONAL WATI MOUNTAIN LAKE WTI REST WATER LINE E NOISE CRITERIA 0 STRAIGHT TEES CONNECT NEW TO EXISTING DPS PIPE DIFFERENTIAL PRESSURE SENSOR TEE W/ 45° ENTRY BRANCH TO MAIN NC NORMALLY CLOSED Н HUMIDITY SENSOR NO NORMALLY OPEN AIR FLOW SP STATIC PRESSURE SENSOR NTS NOT TO SCALE ROUND OR Rectangular ROUND, FLAT OVAL VARIABLE SPEED DRIVE OUTSIDE AIR RECTANGULAR PRESSURE DROP THERMOSTAT - LOW VOLTAGE (24 VOLT - MOUNT AT 48" AFF) CONICAL TEES THERMOSTAT - LINE VOLTAGE (120 VOLT - MOUNT AT 48" AFF) POUNDS PER SQUARE INCH DOUBLE TEE WITH BRANCH ANGLE <45° PSIG POUND-FORCE PER SQUARE INCH GAUGE (OS) OCCUPANCY SENSOR - CEILING MOUNTED TE TEMPERATURE ELEMENT DFC RELATIVE HUMIDITY HVAC RECTANGULAR RPM REVOLUTIONS PER MINUT **DUCTWORK LINE WEIGHTS** UCP UNIT CONTROL PANEL SUPPLY AIR PROPOSED DUCTWORK CO2 8 CO2 SENSOR ISIZE AS INDICATED STATIC PRESSURI TEE WITH BRANCH ANGLE <45° SQ FT AL DESIGNED: NS ALARM DETAILED: MZ, PDL TD or AT TEMPERATURE DIFFERENCE STR CHECKED: TSW MOTOR STARTER TOTAL STATIC PRESSURE ROUND, FLAT OVAL PPROVED: Approver SCR SILICON CONTROLLED RECTIFIER ATE: 12/15/2014 RECTANGULAR 0 1/2 UNLESS NOTED OTHERWISE (R) TIME DELAY RELAY VOLT VOLTAGE IF THIS BAR DOES NO FASURE 1" THEN DRAWIN NOT TO FULL SCALE DOUBLE TEE W/ 45° ENTRY BRANCH TO MAIN WET BULK TEMPERATURE CHA PROJECT NO. DEGREES FAHRENHEIT 27872 AND H-00-001 NUMBER ISSUED FOR CONSTRUCTION SHEET 1 OF 8

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BLACK & VEATCH Building a world of difference

FORD REGIONAL WATER AUTHORI TITH MOUNTAIN LAKE WTP & LAKES TO FOREST WATER LINE EXTENSION

ETAILED: MZ

CHA PROJECT NO 27872

H-30-102 SHEET 3 OF 8

- 1 ELECTRIC UNIT HEATER MOUNTED FROM CEILING WITH MANUFACTURER'S WALL-MOUNTED THERMOSTAT PROVIDE INTEGRAL ON/OFF/FAN SWITCH, AND MANUFACTURER'S BRACKETS AND HARDWARE FOR CEILING MOUNTING FIELD LOCATE AS NECESSARY MAINTAINING ACCESS CLEARANCES ON ALL SIDES AND COORDINATE WITH PROCESS PIPING, LOCATE WALL-MOUNTED THERMOSTAT AT 52" TO 54" ABOVE FINISHED FLOOR, PROVIDE THERMOSTAT WITH MANUFACTURER'S THERMAL BREAK ACCESSORY
- 2 PROVIDE WALL MOUNTED THERMOSTAT FOR FAN START/STOP CONTROL. COORDINATE THERMOSTAT VOLTAGE WITH FAN POWER VOLTAGE PROVIDE CONTROLS TRANSFORMER AS NECESSARY TO COORDINATE DAMPER MOTOR VOLTAGE WITH FAN MOTOR VOLTAGE INTENT IS FOR FANS TO BE MANUALLY STARTED DURING COOLING SEASON, AND MANUALLY TURNED OFF DURING HEATING SEASON PROVIDE THERMOSTAT WITH MANUFACTURER'S THERMAL BREAK ACCESSORY
- 3 ROOFTOP CURB-MOUNTED DOME MINIMUM VENTILATION SUPPLY FAN SF-1 ON FACILITY ROOFTOP WITH 18 5'X18 5' ROOF OPENING PROVIDE WITH FACTORY MOUNTED INTEGRAL MOTORIZED ISOLATION DAMPER AND FACTORY MOUNTED AND WIRED NEMA-4X INTEGRAL DISCONNECT SWITCH PROVIDE CORROSION RESISTANT COATING AND ALLIMINUM CONSTRUCTION FOR FAN HOUSING, WHEEL AND ISOLATION DAMPER.
  PROVIDE STAINLESS STEEL MESH INSECT SCREEN, SF-1 FAN SHALL BE HARDWIRE INTERLOCKED WITH EXHAUST FANS EF-1 AND EF-2 WHENEVER THOSE EXHAUST FANS ARE STOPPED OR STOPPED INTERLOCKED WITH EXHAUST FANS EF-1 AND EF-2 WHENEVER THOSE EXHAUST FANS ARE STOPPED OR STOPPED INTERLOCKED WITH EXHAUST FANS EF-1 AND EF-2 WHENEVER THOSE EXHAUST FANS ARE STOPPED OR STOPPED INTERLOCKED WITH EXHAUST FANS EF-1 AND EF-2 WHENEVER THOSE EXHAUST FANS ARE STOPPED OR STOPPED INTERLOCKED WITH EXHAUST FANS EF-1 AND EF-2 WHENEVER THOSE EXHAUST FANS ARE STOPPED OR STOPPED INTERLOCKED WITH EXHAUST FANS EF-1 AND EF-2 WHENEVER THOSE EXHAUST FANS ARE STOPPED OR STOPPED INTERLOCKED WITH EXHAUST FANS EF-1 AND EF-2 WHENEVER THOSE EXHAUST FANS ARE STOPPED OR STOPPED INTERLOCKED WITH EXHAUST FANS EF-1 AND EF-2 WHENEVER THOSE EXHAUST FANS EF-1 AND EF-1 AND
- 4 ROOFTOP CURB-MOUNTED CENTRIFUGAL HOODED EXHAUST FAN ON FACILITY ROOFTOP WITH 56 5'x56.5' ROOF OPENING PROVIDE WITH FACTORY MOUNTED INTEGRAL MOTORIZED ISOLATION DAMPER AND FACTORY MOUNTED AND WIRED NEMA-4 INTEGRAL DISCONNECT SWITCH PROVIDE CORROSION RESISTANT COATING AND ALUMINUM CONSTRUCTION FOR FAN HOUSING. WHEEL AND ISOLATION DAMPER. PROVIDE STAINLESS STEEL MESH INSECT SCREEN.
- 5 PROVIDE FAN MANUFACTURER'S FACTORY FABRICATED ROOF CURB. MINIMUM 24" TALL. COORDINATE FRAMING AND STEEL REQUIREMENTS WITH STRUCTURAL AND PRE-ENGINEERED METAL BUILDING.
- 6 DUCT MOUNTED ELECTRIC HEATING COIL; MAINTAIN ALL REQUIRED ACCESS AND ELECTRICAL CLEARANCES ON ALL SIDES COIL SIZED FOR FREEZE PROTECTION AT 55°F SETPOINT PROVIDE DUCT MOUNTED THERMOSTAT MADE BY DUCT HEATING COIL MANUFACTURER; THERMOSTAT SHALL BE LINE VOLTAGE, OR PROVIDE CONTROL TRANSFORMER AS NECESSARY
- 7 PROVIDE ACCESS DOORS ON BOTH SIDES OF INLINE AND DUCT MOUNTED ELECTRIC HEATING COIL.
- 8 PROVIDE OUTSIDE AIR INTAKE COMBINATION LOUVER/DAMPER WITH MOTORIZED ACTUATOR, COORDINATE WALL OPENING WITH FINAL LOUVER SELECTION, AND WITH BUILDING STRUCTURAL MEMBERS AND ELEMENTS. FOR LOUVERS THAT ARE DUCTED, COORDINATE FINAL ELEVATION WITH DUCT SYSTEMS ON INSIDE OF BUILDING PROVIDE SHEET METAL PLENUM THRU WALL OPENING; SLOPE BOTTOM TO EXTERIOR FOR DRAINAGE PROVIDE CORROSION RESISTANT COATING AND ALUMINUM CONSTRUCTION FOR FRAME AND DAMPER BLADES PROVIDE STAINLESS STEEL MESH INSECT SCREEN FOR L-1 AND L-2. PROVIDE ALUMINUM MESH INSECT SCREEN FOR L-3, L-4, L-5, AND L-6.
- 9. SUSPENDIAIR HANDLING UNIT FROM BUILDING STRUCTURE: MAINTAIN ALL REQUIRED ACCESS CLEARANCES (i.e., ELECTRICAL FILTER PULL, ETC.) ABOVE, BELOW, AND AROUND LINIT
- 10 ROUTE AND SLOPE CONDENSATE DRAIN LINE TO NEAREST FLOOR DRAIN OR TRENCH DRAIN, REFER TO PLUMBING PLAN DRAWINGS FOR DRAIN LOCATIONS
- 11ROOFTOP, CURB-MOUNTED CENTRIFUGAL DOWNBLAST EXHAUST FAN ON FACILITY ROOFTOP WITH 14 5'x14 5' ROOF OPENING FOR EF-4, AND 12 5'x12 5' ROOF OPENING FOR EF-5. PROVIDE WITH FACTORY MOUNTED INTEGRAL MOTORIZED ISOLATION DAMPER AND FACTORY MOUNTED AND WIRED NEWS-4X INTEGRAL DISCONNECT SWITCH PROVIDE CORROSION RESISTANT COSTING AND ALUMINUM CONSTRUCTION FOR FAN HOUSING, WHEEL AND ISOLATION DAMPER, PROVIDE ALUMINUM MESH INSECT SCREEN. CONNECT EXHAUST AIR DUCT TO EXHAUST FAN AT UNDERSIDE OF ROOFTOP WITH FLEX; PROVIDE 18"x18" ACCESS DOOR
- 12PROVIDE OCCUPANCY SENSOR IN TOILETS CEILINGS TO START EXHAUST FAN WHENEVER THEY ARE OCCUPIED; PROVIDE TIME DELAY RELAY TO ALLOW EXHAUST FAN TO CONTINUE TO OPERATE AFTER THERE IS NO OCCUPANCY TO PURGE SPACES
- 13PROVIDE MOTORIZED DAMPER IN OUTSIDE AIR DUCT DOWN AND CONNECT TO AIR HANDLER RETURN DUCT.
- 14ROUTE SPLIT SYSTEM REFRIGERANT LINES TO HEAT PUMP UNITS OUTSIDE ON GRADE. REFRIGERANT LINES SHALL BE SIZED PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS PROVIDE OUTDOOR
- IS DUCT SMOKE DETECTOR SHALL BE FURINISHED BY ELECTRICAL CONTRACTOR FOR INSTALLATIO A CONFIGURATION AND INPUT TO FIRE ALARM SYSTEM BY ELECTRIC CONTRACTOR
  - B, INPUT TO BAS BY CONTROLS CONTRACTOR
  - C. DUCT SMOKE DETECTORS INSTALLED IN SUPPLY AR AND IN RETURN AIR POR AHU-G
  - D. DUCT SMOKE DETECTOR WSTALLED IN SUPPLY AIR OF DE AHU-7.
    - D. DUCT TAKE-OPFS SHALL BE 24 INCHES AWAY PROMUNIT CONVECTION TO ALLOW FOR INSTALL ATION
  - E. UPON DETECTION OF PRODUCTS OF COMBUSTION, FIRE MARM SYSTEM SHALL STOP ISSUED FOR CONSTRUCTION THE ASSECIATED AIR HANDLING UNIT



## H-30-101 CODED NOTES

- 1. ELECTRIC UNIT HEATER MOUNTED FROM CEILING WITH MANUFACTURER'S WALL-MOUNTED THERMOSTAT, PROVIDE INTEGRAL ON/OFF/FAN SWITCH, AND MANUFACTURER'S BRACKETS AND HARDWARE FOR CEILING MOUNTING. FIELD LOCATE AS NECESSARY MAINTAINING ACCESS CLEARANCES ON ALL SIDES AND COORDINATE WITH PROCESS PIPING. LOCATE WALL-MOUNTED THERMOST AT 52" TO 14" ABOVE FINISHED FLOOR, PROVIDE THERMOSTAT WITH MANUFACTURER'S THERMAL BREAK ACCESSORY
- 2. PROVIDE WALL MOUNTED THERMOSTAT FOR FAN STARTISTOP CONTROL. COORDINATE THERMOSTAT VOLTAGE WITH FAN POWER VOLTAGE. PROVIDE CONTROLS TRANSFORMER AS NECESSARY TO COORDINATE DAMPER MOTOR VOLTAGE WITH FAN MOTOR VOLTAGE. INTENT IS FOR FANS TO BE MANUALLY STARTED DURING COOLING SEASON, AND MANUALLY TURNED OFF DURING HEATING SEASON, PROVIDE THERMOSTAT WITH MANUFACTURER'S THERMAL BREAK ACCESSORY.
- 3. ROOFTOP, CURB-MOUNTED DOME MINIMUM VENTILATION SUPPLY FAN SF-1 ON FACILITY ROOFTOP WITH 18.5'x18.5' ROOF OPENING. PROVIDE WITH FACTORY MOUNTED INTEGRAL MOTORIZED ISOLATION DAMPER AND FACTORY MOUNTED AND WIRED NEWA-4X INTEGRAL DISCONNECT SWITCH. PROVIDE CORROSION RESISTANT COATING AND ALUMINUM CONSTRUCTION FOR FAN HOUSING, WHEEL AND ISOLATION DAMPER. PROVIDE STAINLESS STEEL MESH INSECT SCREEN. SF-1 FAN SHALL BE HARDWIRE INTERLOCKED WITH EXHAUST FANS EF-1 AND EF-2 WHENEVER THOSE EXHAUST FANS ARE STOPPED OR STOPPED. INTENT IS FOR SF-LTO PROVIDE MINIMUM REQUIRED VENTIL ATION
- 4. ROOFTOP, SURB-MOUNTED CENTRIFUGAL HOODED EXHAUST FAN ON FACILITY ROOFTOP WITH 56.5"x56.5" ROOF OPENING. PROVIDE WITH FACTORY MOUNTED INTEGRAL MOTORIZED ISOLATION DAMPER AND FACTORY MOUNTED AND WIRED NEMA-4 INTEGRAL DISCONNECT SWITCH. PROVIDE CORROSION RESISTANT COATING AND ALUMINUM CONSTRUCTION FOR FAN HOUSING, WHEEL AND ISOLATION DAMPER. PROVIDE STAINLESS STEEL MESH INSECT SCREEN.
- 5. PROVIDE FAN MANUFACTURER'S FACTORY FABRICATED ROOF CURB, MINIMUM 24" TALL. COORDINATE FRAMING AND STEEL REQUIREMENTS WITH STRUCTURAL AND PRE-ENGINEERED METAL BUILDING FABRICATION.
- 6. DUCT MOUNTED ELECTRIC HEATING COIL; MAINTAIN ALL REQUIRED ACCESS AND ELECTRICAL CLEARANCES ON ALL SIDES. COIL SIZED FOR FREEZE PROTECTION AT 55°F SETPOINT. PROVIDE DUCT MOUNTED THERMOSTAT MADE BY DUCT HEATING COIL MANUFACTURER; THERMOSTAT SHALL BE LINE VOLTAGE, OR PROVIDE CONTROL TRANSFORMER AS NECESSARY.
- 7. PROVIDE ACCESS DOORS ON BOTH SIDES OF INLINE AND DUCT MOUNTED ELECTRIC HEATING COIL.
- 8 PROVIDE OUTSIDE AIR INTAKE COMBINATION LOUVER/DAMPER WITH MOTORIZED ACTUATOR. COORDINATE WALL OPENING WITH FINAL LOUVER SELECTION, AND WITH BUILDING STRUCTURAL MEMBERS AND ELEMENTS. FOR LOUVERS THAT ARE DUCTED, COORDINATE FINAL ELEVATION WITH DUCT SYSTEMS ON INSIDE OF BUILDING. PROVIDE SHEET METAL PLENUM THRU WALL OPENING; SLOPE BOTTOM TO EXTERIOR FOR DRAINAGE. PROVIDE CORROSION RESISTANT COATING AND ALUMINUM CONSTRUCTION FOR FRAME AND DAMPER BLADES. PROVIDE STAINLESS STEEL MESH INSECT SCREEN FOR L-1 AND L-12 PROVIDE ALUMINUM MESH INSECT SCREEN FOR L-3, L-4, L-5, AND L-6.
- 9. SUSPEND AIR HANDLING UNIT FROM BUILDING STRUCTURE; MAINTAIN ALL REQUIRED ACCESS CLEARANCES (i.e. ELECTRICAL, FILTER PULL, ETC.) ABOVE, BELOW, AND AROUND UNIT.
- 10 ROUTE AND SLOPE CONDENSATE DRAIN LINE TO NEAREST FLOOR DRAIN OR TRENCH DRAIN. REFER TO PLUMBING PLAN DRAWINGS FOR DRAIN LOCATIONS.
- 11.ROOFTOP, CURB-MOUNTED CENTRIFUGAL DOWNBLAST EXHAUST FAN ON FACILITY ROOFTOP WITH 14.5 X14.5 ROOF OPENING FOR EF-4, AND 12.5 X12.5 ROOF OPENING FOR EF-5. PROVIDE WITH FACTORY MOUNTED INTEGRAL MOTORIZED ISOLATION DAMPER AND FACTORY MOUNTED AND WIRED NEMA-4X INTEGRAL DISCONNECT SWITCH. PROVIDE CORROSION RESISTANT COATING AND ALUMINUM CONSTRUCTION FOR FAN HOUSING, WHEEL AND ISOLATION DAMPER. PROVIDE ALUMINUM MESH INSECT SCREEN. CONNECT EXHAUST AIR DUCT TO EXHAUST FAN AT UNDERSIDE OF ROOFTOP WITH FLEX; PROVIDE 18"x18" ACCESS DOOR
- 12 PROVIDE OCCUPANCY SENSOR IN TOILETS CEILINGS TO START EXHAUST FAN WHENEVER THEY ARE OCCUPIED; PROVIDE TIME DELAY RELAY TO ALLOW EXHAUST FAN TO CONTINUE TO OPERATE AFTER THERE IS NO OCCUPANCY TO PURGE SPACES.
- 13.PROVIDE MOTORIZED DAMPER IN OUTSIDE AIR DUCT DOWN AND CONNECT TO AIR HANDLER RETURN DUCT.
- 14.ROUTE SPLIT SYSTEM REFRIGERANT LINES TO HEAT PUMP UNITS OUTSIDE ON GRADE, REFRIGERANT LINES SHALL BE SIZED PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, PROVIDE OUTDOOR CONCRETE HOUSEKEEPING PAD UNDERNEATH CONDENSING UNIT: REFER TO DETAIL

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BLACK & VEATCH Building a world of difference

ORD REGIONAL WATER AUTHORI: TH MOUNTAIN LAKE WTP & LAKES TO FOREST WATER LINE EXTENSION

BEDFO DESTGNED: NS ETAILED: WZ PROVED: Approver 12/15/2014

IF THIS BAR DOES NOT NEASURE 1" THEN DRAWING NOT TO FULL SCALE CHA PROJECT NO

H-30-102 SHEET

ISSUED FOR CONSTRUCTION

1901 Innovation Drive, Suite 2100 Blackaburg, VA 24060
Mair: (518) 439-4300 www.chacompanies.com

FACTORY WIRED FROM PROVIDE FACTORY WIRED AND MOUNTED NEMA-3 DISCONNECT SWITCH; FACTORY WIRED BETWEEN DISCONNECT AND MOTOR PROVIDE FOAM RUNNER GASKET BETWEEN FAN AND CURB PROVIDE LOCKABLE HINGED FAN BASE TO ALLOW FAN MAINTENANCE ACCESS WOOD NAILER PRE-FARRICATED INSULATED ROOF FLASHING BY ROOFING CONTRACTOR ROOF POWER WIRING BY OTHERS - 1/2" SPACING ALUMINUM WIRE AD MESH SCREEN MANUFACTURER'S INTERNAL/ Integral motorized Damper, opposed blade \_\_\_ - ACCESS DOOR

CENTRIFUGAL DOWNBLAST EXHAUST FAN DETAIL (EF-4, 5)
 NOT TO SCALE
 NOTE:
 1. ROOF FLASHING SHALL BE BY ROOFING CONTRACTOR; COORDINATE FAN INSTALLATION TO MAINTAIN ALL ROOFING ASSEMBLY REQUIREMENTS AND WARRANTIES.

PROVIDE FACTORY WIRED AND MOUNTED
NEMA-3 DISCONNECT SWITCH; FACTORY
WIRED BETWEEN DISCONNECT AND MOTOR
RUNNER GASKET
BETWEEN FAN BASE
AND CURB
WOOD
NAILER
PROFINE TO ALLOW FAN MAINTENANCE ACCESS
OF TO ALLOW FAN MAINTENANCE ACCESS
OF TO ALLOW FAN MAINTENANCE ACCESS
PRE-FABRICATED INSULTANT
CURB BY FAN MANUFACTURER
FLASHING BY ROOFING CONTRACTOR
POWER WIRING
BY OTHERS

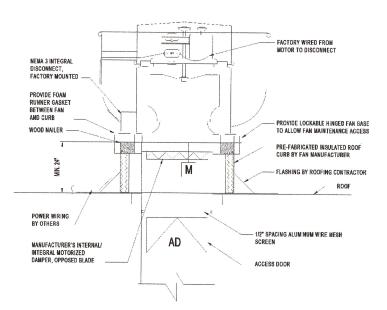
MANUFACTURER'S INTERNALI
INTEGRAL MOTORIZED
DAMPER, OPPOSED BLADE

ACCESS DOOR

(2) CENTRIFUGAL HOOD EXHAUST FAN DETAIL (EF-1 & 2) NOT TO SCALE

## NOTE:

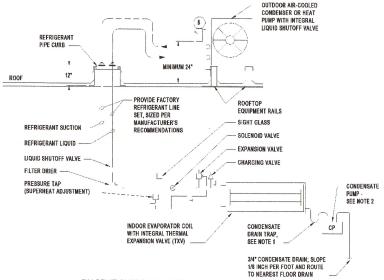
 ROOF FLASHING SHALL BE BY ROOFING CONTRACTOR; COORDINATE FAN INSTALLATION TO MAINTAIN ALL ROOFING ASSEMBLY REQUIREMENTS AND WARRANTIES.



(3) CENTRIFUGAL UPBLAST EXHAUST FAN DETAIL (EF-3) NOT TO SCALE

## NOTE:

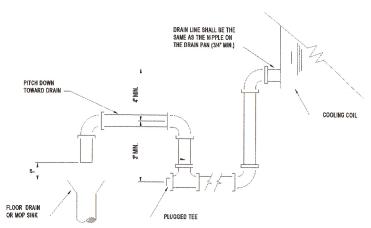
- FAN AND ALL RELATED ACCESSORIES SHALL BE RATED FOR USE IN A CORROSIVE ENVIRONMENT, INCLUDING BUT NOT LIMITED TO EPOXY COATED FAN HOUSING, TEFO MOTOR, STAINLESS STEEL FAN SHAFT, STAINLESS STEEL HARDWARE, NEMA 3 DISCONNECT AND EPOXY COATED CURB.
- RODF FLASHING SHALL BE BY ROOFING CONTRACTOR; COODINATE FAN INSTALLATION TO MAINTAIN ALL ROOFING ASSEMBLY REQUIREMENTS AND WARRANTIES.



DX SPLIT SYSTEM CASSETTE SCHEMATIC (AHU-1, 2, 3, 4, 5, 6,7)
NOT TO SCALE

- NOTES:

  1. PROVIDE CONDENSATE DRAIN WITH TRAP HEIGHT PER MANUFACTURER'S INSTALLATION SPECIFICATIONS AND REGUIREMENTS.
- PROVIDE CONDENSATE DRAIN WITH TRAP HEIGHT PER MANUFACTURER'S INSTALLATION SPECIFICATIONS AND REQUIREMENTS.
   LITTLE GIANT CONDENSATE PUMP MODEL VCMA-20UL, CAPABLE OF 48 GPH AT 10 FT WC; PROVIDE POWER CONNECTION FOR 1/30 HP AT 120V/16/601Z.



5 COOLING COIL CONDENSATE TRAP DETAIL NOT TO SCALE

ISSUED FOR CONSTRUCTION

Black & VEATCH of difference Black & Vestch Corporation

BEDFORD REGIONAL WATER AUTHORIT SMITH MOUNTAIN LAKE WTP & LAKES TO FOREST WATER LINE EXTENSION HVAC - DETAILS

DESIGNED: NS

DETAILED: UZ, PDL

CHECKED: TSW

APPROVED: Approver

DATE: 12/15/2014

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IF THIS BAR DOES NOT MEASURE 1' THEN DRAWING IS NOT TO FULL SCALE

CHA PROJECT NO. 27872

H-30-501 SHEET 4 OF 8

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