

ROOFTOP PACKAGE HEAT PUMP	
MARK	RTU-1
MANUFACTURER	TRANE
MODEL NUMBER	WSC060
DESIGNATION	RTU-1
POWER (V/PH/Hz) *	240/1/60
DRIVE	BELT
CFM	2,000
FAN MOTOR HP	1
EXTERNAL S.P.-IN. W.G.	5/8
COOLING CAPACITIES	
AMBIENT E.A.T., °F DB	95.0
EVAP. E.A.T.-°F DB/WB	79.0/65.0
NET SENSIBLE CAPY.-(MBH)	47.1
NET TOTAL CAPY.-(MBH)	59.7
HEATING CAPACITY	
COND. E.A.T.-°F DB	47.0
HEATING E.A.T.-°F DB	61.0
HEATING L.A.T.-°F DB	74.9
TOTAL HTG CAPY.-MBH	28.5
ELECTRIC RESISTANCE HEATER	
NO. STAGES	2
POWER (V/PH/Hz) *	240/1/60
TOTAL HTG CAPY.-KW	17.4
OUTSIDE AIR QTY (CFM)	400
REMARKS: HORIZONTAL DUCT CONNECTIONS; SINGLE-PT POWER CONN.; FACTORY-INSTALLED ELEC. DISCONN.; LOW AMBIENT CONTROLS; WALL-MTD THERMOSTAT W/ AUTO. SWITCHOVER CAPABILITY.	

EXHAUST FANS		
MARK	EF-1	EF-2; EF-3; EF-4
MANUFACTURER	GREENHECK	GREENHECK
MFR. MODEL NUMBER	SP-B90	SEI-10-428-P
FLOW RATE (CFM)	75	400
S.P. (IN. W.G.)	1/8	1/8
MOTOR POWER	50 W	1/20 HP
POWER *	120/1/60	120/1/60
REMARKS:	ELEC. DISCONNECT; HANGING VIBRATION ISOLATORS; GREENHECK MODEL WC-6 HOODED WALL CAP; SPEED CONTROLLER	ELEC. DISCONNECT; WALL HOUSING W/ HOUSING GUARD; GRAY. DAMPER; WEATHERHOOD W/ BIRD SCREEN; SPEED CONTROLLER

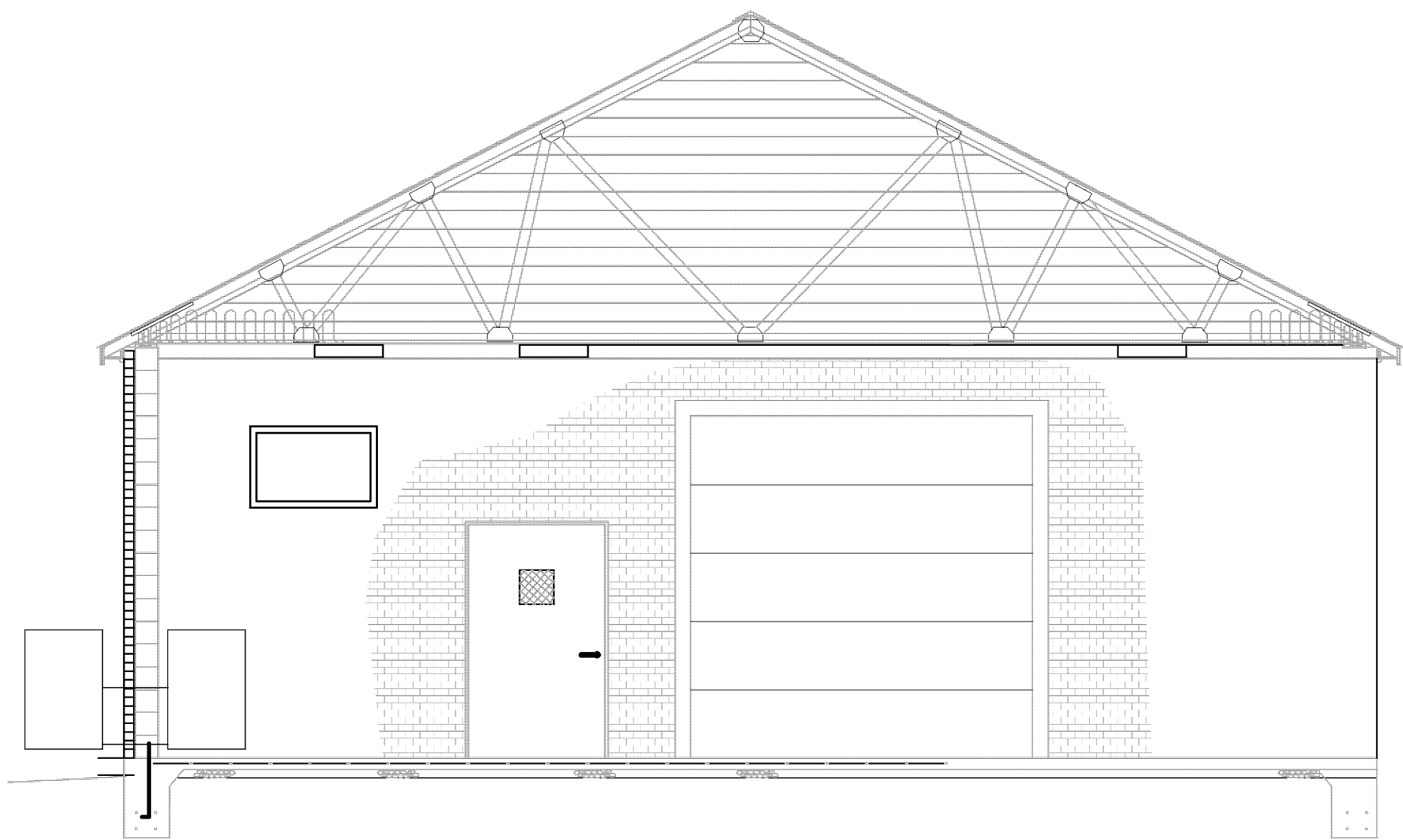
LOUVERS	
MARK	L-1
MANUFACTURER	RUSKIN
MFR. MODEL NO.	ELF375DX
SIZE	18" X 18"
FLOW RATE (CFM)	600
S.P. (IN. W.G.)	0.07
CONSTRUCTION	ALUMINUM
REMARKS:	EXTRUDED DRAINABLE BLADES; BIRD SCREEN; CLEAR ANODIZED FINISH.

ABBREVIATIONS:	
AFF	ABOVE FINISHED FLOOR
CD	CEILING MTD SUPPLY AIR DIFFUSER
DN	DOWN
EL	ELEVATION
O.A.	OUTSIDE AIR
RG	RETURN GRILLE
Ⓟ	THERMOSTAT
SD	SMOKE DETECTOR
Ⓜ	MANUAL STARTER

AIR INLETS / OUTLETS								
MARK	TYPE	SHAPE	CONSTRUCTION	FINISH	NECK SIZE	CFM RANGE	ACCESSORIES	SELECTION BASED ON
CD-1	CEILING LAY-IN ADJUSTABLE PATTERN	SQUARE	ALUMINUM	WHITE	8	135-270	OPPOSED BLADE BALANCING DAMPER	TITUS MODEL TDCA (12"X12" BACKPAN)
RG-1	SURFACE MOUNT GRILLE	SQUARE	HEAVY DUTY ALUMINUM	WHITE	18X18	100-900	N/A	TITUS MODEL 63FL
RG-2	SURFACE MOUNT GRILLE	SQUARE	HEAVY DUTY ALUMINUM	WHITE	24X20	100-1,600	N/A	TITUS MODEL 63FL

DRAWING NOTES:

- O.A. INTAKE LOUVER, GRAVITY DAMPER & GRILLE TO BE ATTACHED TO SHEETMETAL SLEEVE.
- CONCRETE PAD, MIN. 4" ABOVE GRADE; 4" LARGER THAN RTU, ALL SIDES.
- ALL EXTERIOR DUCT 12" MIN. ABOVE GRADE.



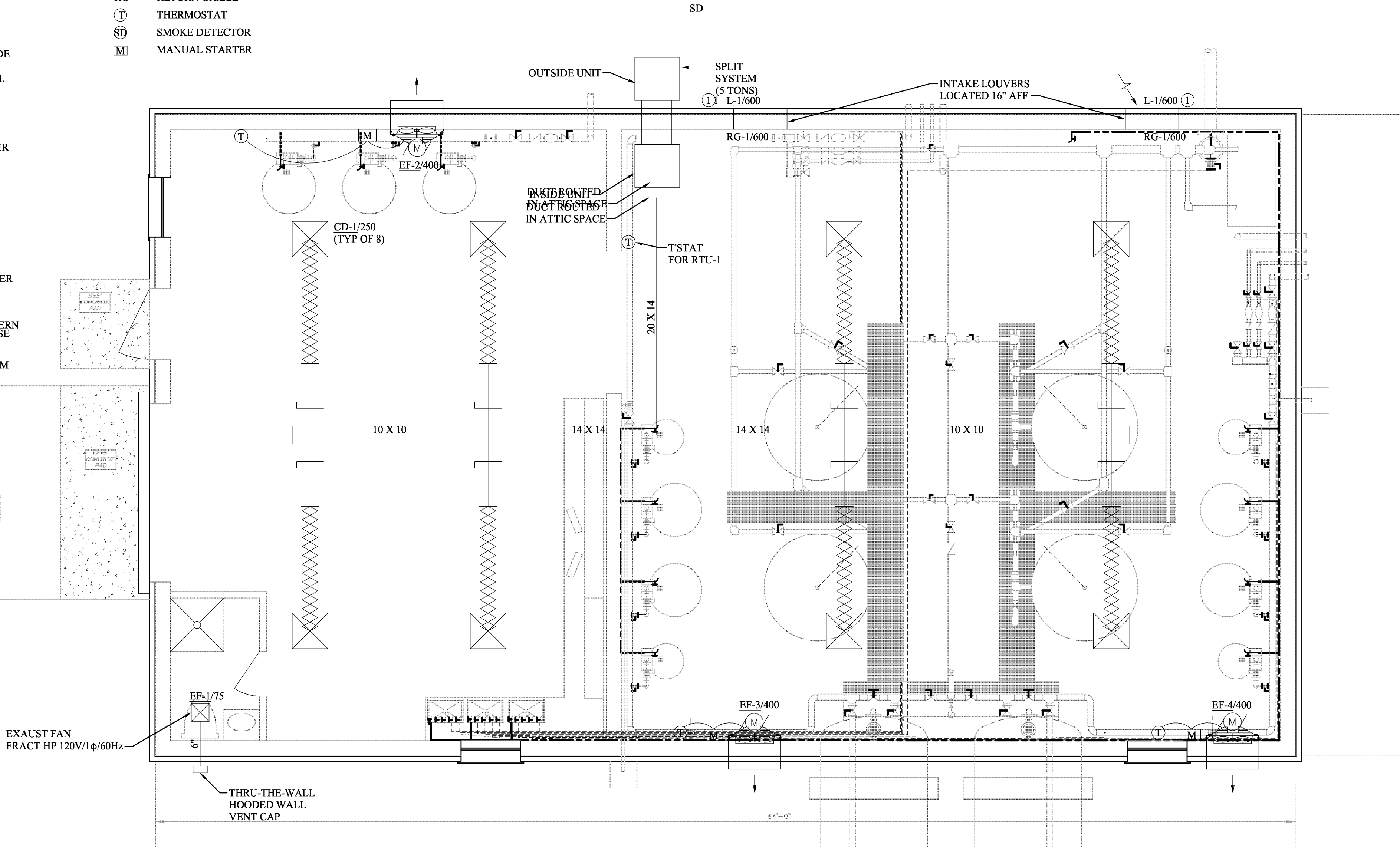
WATER TREATMENT BUILDING MECHANICAL SECTION

SCALE: 1/4" = 1'-0"

MECHANICAL NOTES:

- EXTENT OF THE WORK: CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, CONTROLS, & DEVICES NEEDED TO PROVIDE A COMPLETE SYSTEM TESTED AND OPERATING AS SHOWN ON PLANS AND AS SPECIFIED.
- COORDINATION: THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE BUILDING STRUCTURE AND WORK OF THE OTHER CONTRACTORS & INSTALLERS. THE CONTRACTOR SHALL INFORM OR SUPPLY THE OTHER TRADES WITH ALL APPLICABLE INFORMATION CONCERNING LOCATIONS AND SIZES OF ALL OPENINGS & CLEARANCES NEEDED FOR ALL EQPT, PIPING, & ACCESSORIES SO AS NOT TO HOLD UP BUILDING CONSTRUCTION.
- COMPLIANCE: ALL WORK & MATERIALS SHALL CONFORM TO ALL APPLICABLE CODES, APPLICABLE PROVISIONS OF LATEST EDITION OF NATIONAL FIRE PROTECTION ASSOCIATION, LOCAL UTILITY REGULATIONS, GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION, LOCAL CODES AND MANUFACTURERS' WRITTEN INSTRUCTIONS.
- SUBMITTALS: SUBMIT DRAWINGS AND PRODUCT INFORMATION WHICH INCLUDE COMPLETE SUBMITTALS OF ASSOCIATED SYSTEMS, PRODUCTS, AND ACCESSORIES IN ONE COMPLETE SUBMITTAL.
- DRAWINGS: THESE DRAWINGS ARE ILLUSTRATIVE AND ONLY SHOW THE OVERALL ARRANGEMENT OF SYSTEMS AND WORK. IT IS NOT THE INTENT OF THE DRAWINGS TO INCLUDE EVERY ASPECT OF CONSTRUCTION.
- ACCESS: LOCATE ALL EQUIPMENT, CONTROLS & DAMPERS IN POSITIONS W/ EASY ACCESS FOR SERVICE & ADJUSTMENT.
- CLEANING: MECHANICAL SYSTEMS SHALL BE PROVIDED FREE OF ALL DIRT AND FOREIGN MATERIALS. FURNISH TEMPORARY FILTERS FOR ANY EQUIPMENT OPERATED DURING CONSTRUCTION. SEAL OPENINGS IN THE EQUIPMENT & DUCTWORK UNTIL THEY ARE INSTALLED. REMOVE ALL UNUSED MATERIAL AND WASTE FROM THE JOB SITE RESULTING FROM THE INSTALLATION OF MECHANICAL SYSTEMS.
- SYSTEM NOISE: SYSTEMS SHALL FUNCTION WITHOUT ABNORMAL OR EXCESSIVE NOISE AND/OR VIBRATION.
- TESTING & BALANCING: THE COMPLETE HVAC SYSTEM SHALL BE TESTED, BALANCED & ADJUSTED. A REPORT SHALL BE GIVEN TO THE PROJECT ENGINEER UPON COMPLETION OF WORK.
- OPERATION & MAINTENANCE INSTRUCTIONS: PROVIDE THE OWNER WITH 2 COMPLETE SETS OF OPERATIONS AND MAINTENANCE INSTRUCTIONS FOR THE EQUIPMENT AND SYSTEMS PROVIDED. MANUALS PROVIDED WITH THE EQUIPMENT SHALL BE LEFT WITH THE EQUIPMENT. A COPY OF THESE DOCUMENTS SHALL BE INCLUDED WITH THE SETS GIVEN TO THE OWNER.
- GARANTEE: EQUIPMENT, MATERIALS, AND LABOR REQUIRED BY THESE DRAWINGS AND SPECIFICATIONS SHALL BE GUARANTEED TO BE FREE FROM DEFECTIVE MATERIALS FOR ONE (1) YEAR AFTER FINAL ACCEPTANCE OF THE PROJECT UNLESS SPECIFIED FOR A LONGER PERIOD IN OTHER PORTIONS OF THESE SPECIFICATIONS. DEFECTIVE MATERIALS OR WORKMANSHIP OCCURRING DURING THIS PERIOD SHALL BE CORRECTED AT NO ADDITIONAL COST. ANY GUARANTEE GIVEN BY THE MANUFACTURERS SHALL BE HONORED (BY THE MANUFACTURER, MANUFACTURERS' REPRESENTATIVE, & INSTALLER) FOR THE PERIOD STATED IN THE MANUFACTURERS' LITERATURE.
- SQUARE & RECTANGULAR DUCTWORK:
 - GENERAL - DUCTWORK SHALL BE ZINC-COATED SHEET STEEL OR ALUMINUM, CONSTRUCTED AND INSTALLED AS RECOMMENDED BY THE LATEST EDITION OF SMACNA.
 - DUCT CLEARANCE SHALL BE ESTABLISHED AT THE JOB SITE BEFORE ANY DUCTS ARE FABRICATED.
 - MANUAL VOLUME CONTROL DAMPERS SHALL HAVE ACCESSIBLE OPERATING MECHANISM.
 - ANY DAMPERS IN SQUARE DUCT OVER 12" TO BE MANUFACTURED PARALLEL OR OPPOSED BLADE, COMPLETE W/ HAND QUADRANTS.
 - TURNING VANES SHALL BE PROVIDED IN ALL SQUARE ELBOWS. DOUBLE THICKNESS VANES TO BE PROVIDED IN DUCTWORK OVER 14".
 - PROVIDE FLEXIBLE DUCT CONNECTION BETWEEN THE SUPPLY AND RETURN DUCTS FROM AIR HANDLING EQUIPMENT.
 - ROUND DUCT TAKEOFFS IN SUPPLY ARE TO BE MADE WITH SIDE TAKEOFFS ONLY. NO SPIN-INS OR STAB-INS PERMITTED.
- INSULATION & SEALANT:
 - THE FINISHED DUCT SYSTEM SHALL MEET THE REQUIREMENTS OF NFPA 90A & 90B. ALL MATERIALS USED SHALL NOT HAVE A COMPOSITE FLAME SPREAD RATING OF OVER 25 AND A SMOKE DEVELOPED RATING EXCEEDING 50.
 - DUCT WRAP INSULATION SHALL MEET THE REQUIREMENTS OF ASTM C 1290, TYPE III, TO MAXIMUM SERVICE TEMPERATURE OF 250°F. FACING MATERIAL SHALL MEET THE REQUIREMENTS OF ASTM C 1136, TYPE II, WHEN SURFACE BURNING CHARACTERISTICS ARE DETERMINED IN ACCORDANCE WITH ASTM 84 WITH THE FOIL SURFACE OF THE MATERIAL EXPOSED TO THE FLAME AS IT IS IN THE FINAL COMPOSITE.
 - ALL EXTERIOR LOW PRESSURE DUCTWORK SHALL BE INSULATED WITH DUCT BOARD WITH AS-INSTALLED MIN. R-8 RATING. SEALED W/ WEATHER PROOF MASTIC SEALER & COVERED W/ A WATER-TIGHT 0.032" THK ALUMINUM JACKET W/ 2-1/2"X5/8" CORRUGATIONS.
 - ALL LOW PRESSURE SUPPLY, RETURN, & RELIEF DUCTWORK SHALL BE INSULATED W/ MIN. R-5 AS INSTALLED DUCT WRAP INSULATION, W/ KRAFT PAPER VAPOR BARRIER RETARDER WITH A 2" MIN. STAPLING & TAPING ON ONE EDGE. ALL JOINTS SHALL BE SEALED W/ PRESSURE SENSITIVE TAPE MATCHING THE INSULATION FACING.
 - ALL DUCTWORK IS TO BE SEALED WITH A WATER BASED SEALANT MEETING APPROPRIATE U.L. LISTINGS & ASTM REQUIREMENTS.
- SUPPLY AIR FLEX. DUCT & ROUND DUCT SIZE SHALL MATCH THAT OF ASSOCIATED CEILING DIFFUSER NECK.
- FLEX DUCT RUNOUT SHALL NOT EXCEED 8 FT. IN LENGTH.
- DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS.

- LEGEND:
- SUPPLY DUCT SECTION
 - RETURN, EXHAUST OR OUTSIDE AIR DUCT SECTION
 - DUCT SIZE, INCHES, FIRST DIM. IS SIDE SHOWN
 - MANUAL DAMPER
 - GRAVITY BACKDRAFT DAMPER
 - SQUARE ELBOW WITH MULTIPLE TURNING VANES
 - ELBOW TURNING UP
 - ELBOW TURNING DOWN
 - RETURN OR EXHAUST REGISTER
 - DIFFUSER W/ 4-WAY AIR PATTERN UNLESS INDICATED OTHERWISE
 - XX-X/XXX INLET OR OUTLET "MARK"/CFM
 - NEW DUCT



WATER TREATMENT BUILDING MECHANICAL PLAN

SCALE: 1/4" = 1'-0"



*ENGINEERING >> SURVEYING >> PLANNING

HURT & PROFFITT
INCORPORATED



2524 LANGHORNE ROAD
LYNCHBURG VA 24501
800.242.6906 TOLL FREE
434.847.7796 MAIN
434.847.0047 FAX

WATER TREATMENT BUILDING MECH. PLAN-ASBUILT
FOR
TOWN OF BOONES MILL WATER SYSTEM REPLACEMENT
TOWN OF BOONES MILL, BOONE DISTRICT, FRANKLIN COUNTY, VA

PROJECT NO.	20080815
G.L. NO.	297-03-A3
FILE NO.	G-12675
DATE:	09/24/09
DRAWN BY:	WKH/RNM
CHECKED BY:	WKH/BLC

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SHEET NO.
E3