ABBREVIATIONS

A	ALARM, COMPRESSED AIR OUTLET
AC	AIR COMPRESSOR
AD	ACCESS DOOR, AIR DRYER
AF	AIR FLOW, AIRFOIL
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
AFM	AIR FLOW MONITOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AP	ACCESS PANEL
APPROX	APPROXIMATE
AR	AIR RECEIVER
AS	AIR SEPARATOR
ATU	AIR TERMINAL UNIT
AUTO	AUTOMATIC
AVG	AVERAGE
AVS	AUTOMATIC VALVE STATION
B	BELT DRIVE, BLOW THROUGH
BDD	BACKDRAFT DAMPER
BF	BLIND FLANGE
BFF	BELOW FINISH FLOOR
BFP	BACKFLOW PREVENTER
BH	BASEBOARD HEATER
BI	BACKWARD INCLINED, BUILT-IN THERMOSTAT
BL	BOTTOM LEVEL
BLDG	BUILDING
BLR	BLOWER
BOD	BOTTOM OF DUCT ELEVATION
BOT	BOTTOM
BTF	BIOTRICKLING FILTER
BTUH	BRITISH THERMAL UNITS PER HOUR
BU	BELL-UP
BV	BALL VALVE
C	CHANNEL, CONVECTOR, COOLING, COOLING (MAKE ON RISE)
CAU	CARBON ADSORPTION UNIT
CB	CENTRIFUGAL BLOWER
CBD	COUNTERBALANCE BACKDRAFT DAMPER
CC	COOLING COIL
CCU	CARBON CANISTER UNIT
CD	CONTROL DAMPER
CDWP	CONDENSER WATER PUMP
CENTR	CENTRIFUGAL
CF	CABINET FAN
CFM	CUBIC FEET PER MINUTE
CH	CONVECTION HEATER
C/L	CENTERLINE
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUATION
CP	CIRCULATING PUMP
CS	CUP SINK
CT	COOLING TOWER
CU	CONDENSING UNIT
CV	CHECK VALVE, CONTROL VALVE
CWP	CHILLED WATER PUMP
CWW	CLEAR WATER WASTE
D	DIRECT DRIVE, DRAW-THRU
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEH	DEHUMIDIFIER
DF	DRINKING FOUNTAIN, DUCT FAN
DIA	DIAMETER
DM	DUCT MOUNTED
DN	DOWN
DSN	DOWNSPOUT NOZZLE
DX	DIRECT EXPANSION
E	ELECTRIC, ELECTRIC OPERATOR, EXHAUST
EA	EACH, EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ECONOMIZER, EVAPORATIVE COOLER
ECH	ELECTRIC CABINET HEATER
ECP	EQUIPMENT CONTROL PANEL
EDH	ELECTRIC DUCT HEATER
EEW	EMERGENCY EYE WASH
EF	EXHAUST FAN
EFF	EFFICIENCY
EGS	EMERGENCY GAS SCRUBBER
EIH	ELECTRIC INFRARED HEATER
EL	ELEVATION
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
ES	EMERGENCY SHOWER, EMERGENCY SWITCH
ES/EEW	EMERGENCY SHOWER AND EYEWASH
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EV	EXHAUST VALVE
EVS	EMERGENCY VENTILATION SWITCH
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING
F	DEGREES FAHRENHEIT
FA	FOUL AIR
FBD	FACE AND BYPASS DAMPER
FC	FORWARD CURVE, FAN COIL
FCO	FLOOR CLEANOUT
FD	FIRE DAMPER, FLOOR DRAIN
FDB	DEGREES FAHRENHEIT DRY BULB
FEF	FUME EXHAUST FAN
FLEX	FLEXIBLE
FM	FLOW METER
FPM	FEET PER MINUTE
FR	FUNNEL RECEPTOR
FRP	FIBERGLASS REINFORCED PLASTIC PIPE
FS	FLOOR SINK, FLOW SWITCH
FSD	COMBINATION FIRE/SMOKE DAMPER
FSW	FILTER SURFACE WASH
FT	FEET, FIN TUBE HEATER, FLOW TUBE
FUR	FURNACE
FWB	DEGREES FAHRENHEIT WET BULB
G	GAS OUTLET
GA	GAUGE
GALV	GALVANIZED
GD	GARBAGE DISPOSER
GIH	GAS INFRARED HEATER
GPM	GALLONS PER MINUTE
GUH	GAS UNIT HEATER
GV	GATE VALVE
GW	GLASS WASHER
GWH	GAS WATER HEATER
H	HAND OPERATOR, HEATING, HEATING (MAKE ON FALL), HEIGHT, HORIZONTAL, HUMIDISTAT
HC	HEATING COIL
HCH	HEATING WATER CABINET HEATER
HE	HEAT EXCHANGER, HELIUM
HF	HOSE FAUCET
HO	HAND-OFF
HOA	HAND-OFF-AUTO
HP	HEAT PUMP, HORSEPOWER
HR	HEAT RECOVERY UNIT, HOUR, HOSE REEL
HUH	HEATING WATER UNIT HEATER
HUM	HUMIDIFIER
HV	HOSE VALVE
HWB	HEATING WATER BOILER
HWP	HEATING WATER PUMP
HZ	HERTZ
I	INTAKE
ID	INSIDE DIAMETER
IN	INCHES
INV	INVERT
JS	JANITOR'S SINK
KS	KITCHEN SINK
KW	KILOWATT
L	LINED DUCT, LOUVER
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LBS	POUNDS
LD	COMBINATION LOUVER/DAMPER
LI	LEVEL INDICATOR
LS	LABORATORY SINK, LEVEL SWITCH
LWT	LEAVING WATER TEMPERATURE
MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPS
ME	MIST ELIMINATOR
MFR	MANUFACTURER
MOCP	MAXIMUM OVERCURRENT PROTECTION
MIN	MINIMUM
MOD	MODULATING
MS	MOP SINK
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
NPSHR	NET POSITIVE SUCTION HEAD REQUIRED
NT	NEUTRALIZATION TANK
OA	OUTSIDE AIR
OC	ODOR CONTROL
OCBD	ODOR CONTROL BALANCE DAMPER
OCF	ODOR CONTROL FAN
OCFS	ODOR CONTROL FLOW SWITCH
OCLS	ODOR CONTROL LEVEL SWITCH
OCP	ODOR CONTROL PANEL
OCPS	ODOR CONTROL PRESSURE SWITCH
OCS	ODOR CONTROL SCRUBBER
OCSD	ODOR CONTROL SHUTOFF DAMPER
OD	OUTSIDE DIAMETER
ORD	OVERFLOW ROOF DRAIN
ORP	OXIDATION REDUCTION POTENTIAL
P	PNEUMATIC
PD	PRESSURE DROP (INCHES OF WATER FOR AIR, FEET OF WATER FOR FLUIDS)
PAC	PACKAGED AIR CONDITIONING UNIT
PAH	PACKAGED AIR HANDLING UNIT
PDI	PLUMBING AND DRAINAGE INSTITUTE
PDS	PRESSURE DIFFERENTIAL SWITCH
PF	PROPELLER FAN
PHP	PACKAGED HEAT PUMP
PL	PLATE
POS	POSITION
PPM	PARTS PER MILLION
PROP	PROPELLER
PRS	PRESSURE REDUCING STATION
PRV	POWER ROOF VENTILATOR, PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	REACTIVATION AIR, RETURN AIR
RAC	ROOM AIR CONDITIONER
RCS	REMOTE CONTROL STATION
RD	ROOF DRAIN
REQD	REQUIRED
RH	RELATIVE HUMIDITY, ROOF HOOD
RSF	ROOF SUPPLY FAN
SA	SUPPLY AIR
SCD	SMOKE CONTROL DAMPER
SCFM	STANDARD CUBIC FEET PER MINUTE
SCP	SCRUBBER CONTROL PANEL
SF	SQUARE FEET, SUPPLY FAN
SH	SHEET, SHOWER
SIM	SIMILAR
SMD	SMOKE DETECTOR
SP	STATIC PRESSURE (INCHES OF WATER)
SPS	STATIC PRESSURE SENSOR
SRP	SCRUBBER RECIRCULATION PUMP
SS	STAINLESS STEEL
SSK	SERVICE SINK
SSP	SUBMERSIBLE SUMP PUMP
STD	STANDARD
SV	SERVICE VALVE, SHUTOFF VALVE, SUPPLY VALVE, SOLENOID VALVE
T	THERMOSTAT
TCP	TEMPERATURE CONTROL PANEL
TCV	TEMPERATURE CONTROL VALVE
TD	TRENCH DRAIN
TE	TEMPERATURE ELEMENT
TL	TOP LEVEL
TP	TRAP PRIMER
TS	TIP SPEED, TAMPER SWITCH
TYP	TYPICAL
UR	URINAL
V	VERTICAL
VAC	VACUUM OUTLET
VANE	VANEAXIAL
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VCD	VOLUME CONTROL DAMPER
VF	VANEAXIAL FAN
VP	VACUUM PUMP
VSP	VERTICAL COLUMN SUMP PUMP
VTR	VENT THRU ROOF
W	WIDE FLANGE, WIDTH
WB	WET BULB
WBP	WATER BOOSTER PUMP
WC	WATER CHILLER, WATER CLOSET
WCO	WALL CLEANOUT
WF	WALL FAN
WG	WATER GAUGE
WH	WALL HEATER, WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WM	WALL MOUNTED
WST	WATER STORAGE TANK
WT	WEIGHT
WV	WATER CONTROL VALVE
ZD	ZONE DAMPER

LEGEND

GENERAL

- PIPING ABOVE FLOOR OR GRADE
- PIPING BELOW FLOOR OR GRADE
- PIPE TURNING UP
- PIPE TURNING DOWN

WATER

- NPW — COLD WATER (NONPOTABLE)
- CW — COLD WATER (POTABLE)
- DE — DEIONIZED WATER
- DW — DISTILLED WATER
- F — FIRE PROTECTION WATER
- HWC — HOT WATER CIRCULATING (POTABLE)
- NPHW — HOT WATER (NONPOTABLE)
- HW — HOT WATER (POTABLE)
- PEW — PLANT EFFLUENT WATER
- SVW — SERVICE WATER
- SW — SOFTENED WATER
- TW — TEMPERED OR BLENDED WATER
- TNPW — TEMPERED NONPOTABLE WATER

WASTE

- CRW — CHEMICAL RESISTANT WASTE
- CRV — CHEMICAL RESISTANT VENT
- CWW — CLEAR WATER WASTE
- D — INDIRECT DRAIN
- SAN — SANITARY DRAIN
- ST — STORM DRAIN
- PD — SUMP PUMP DISCHARGE
- V — VENT

SPECIAL

- ACET — ACETYLENE
- AR — ARGON
- A — COMPRESSED AIR
- HE — HELIUM
- H — HYDROGEN
- ME — METHANE
- N — NITROGEN
- NO — NITROUS OXIDE
- OX — OXYGEN
- VAC — VACUUM

FUEL GAS

- G — NATURAL GAS
- PG — PROPANE GAS

HVAC/ODOR CONTROL

- CWR — CHILLED WATER RETURN
- CWS — CHILLED WATER SUPPLY
- C — CONDENSATE DRAIN
- CDWR — CONDENSER WATER RETURN
- CDWS — CONDENSER WATER SUPPLY
- FA — FOUL AIR
- HWR — HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- LPC — LOW PRESSURE CONDENSATE
- LPS — LOW PRESSURE STEAM (<15 PSIG)
- R — REFRIGERANT
- SR — SCRUBBER RECIRCULATION

VALVES

- ANGLE VALVE
- BACKFLOW PREVENTER W/STRAINER (2" & SMALLER)
- BACKFLOW PREVENTER
- BACKWATER VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- PRESSURE REDUCING VALVE
- THREE WAY VALVE

PIPE FITTINGS

- BLIND FLANGE
- CAP
- REDUCER
- SLEEVE
- TP — TEST PLUG
- UNION
- P-TRAP
- VENT THROUGH ROOF (VTR)

PIPING SPECIALTIES

- AUTOMATIC VALVE STATION
- S — BASKET STRAINER
- COMBINATION PUMP DISCHARGE VALVE
- FLEXIBLE CONNECTION
- FLOW CONTROL VALVE
- FLOW SENSOR METER
- HF — HOSE FAUCET
- HF — HOSE FAUCET W/ VACUUM BREAKER
- HOSE VALVE W/ HOSE NIPPLE
- AIR VENT
- PRS — PRESSURE REDUCING STATION
- PRESSURE RELIEF VALVE
- PRESSURE/TEMPERATURE RELIEF VALVE
- Q — QUICK COUPLING
- ROTAMETER
- SIGHT FLOW INDICATOR
- SUCTION DIFFUSER (SCHEMATIC)
- TP — TRAP PRIMER
- WH — WALL HYDRANT W/ VACUUM BREAKER
- M — METER
- S — WYE STRAINER
- S — WYE STRAINER W/ BLOWOFF
- VACUUM BREAKER

PLUMBING (SCHEMATIC)

- AIR-GAP FITTING
- BELL-UP DRAIN OR FUNNEL RECEPTOR
- FLOOR CLEANOUT
- FLOOR DRAIN
- FLOOR DRAIN W/ FUNNEL

FIRE PROTECTION

- ALARM CHECK VALVE - WET SYSTEM
- DRY PIPE VALVE
- FIRE DEPARTMENT CONNECTION
- TS — SUPERVISORY (TAMPER) SWITCH

PLUMBING

- BELL-UP DRAIN OR FUNNEL RECEPTOR W/ TRAP
- FCO — CLEANOUT (FLOOR)
- CO — CLEANOUT (PIPE)
- HW / CW — BLENDING VALVE
- DOWNSPOUT NOZZLE OR SHOWER
- EMERGENCY SHOWER/EYEWASH
- FLOOR DRAIN
- HOSE RACK
- HOSE REEL
- P-TRAP
- ROOF DRAIN
- SPLASHBLOCK
- A — WATER HAMMER ARRESTOR W/ PDI SIZE DESIGNATION

HVAC

- DIFFUSER FOR FLEXIBLE DUCT
- 30"x20"(L) — DUCTWORK DIMENSIONS, THE FIRST DIMENSION IS THE SIDE SEEN OR SIDE THE LEADER LINE TOUCHES. SEE GENERAL MECHANICAL NOTES.
- FLEXIBLE CONNECTION
- FLEXIBLE DUCTWORK
- XX — INCLINED RISE (UP) OR DROP (DN) IN RESPECT TO DIRECTION OF AIRFLOW
- NEGATIVE PRESSURE DUCT
- POSITIVE PRESSURE DUCT
- REGISTER, GRILLE OR DIFFUSER
- ROUND OR FLEXIBLE DUCT TAKEOFF
- ROUND TO SQUARE TRANSITION
- TURNING VANES

CONTROLS AND INSTRUMENTATION

- DIAL TYPE THERMOMETER
- DG — DRAFT GAUGE
- E — ELECTRIC OPERATOR (EXPLOSION PROOF)
- E — M — ELECTRIC OPERATOR (MODULATING)
- E — ELECTRIC OPERATOR (2 POSITION)
- EVS 1 — EMERGENCY VENTILATION SWITCH W/ NUMBER
- FS — FLOW SWITCH
- GAUGE ACTIVATOR/ISOLATOR
- H 1 — HUMIDISTAT W/ NUMBER
- I — INSTRUMENT TEST OPENING
- LS — LEVEL SWITCH
- PDS 1 — PRESSURE DIFFERENTIAL SWITCH W/ NUMBER
- P — PRESSURE GAUGE W/ SHUTOFF VALVE
- PS — PRESSURE SWITCH
- SMD 1 — SMOKE DETECTOR W/ NUMBER
- S — SOLENOID OPERATOR
- STEM TYPE THERMOMETER
- TS — TEMPERATURE SENSOR
- T 1 — THERMOSTAT WITH NUMBER
- V — VACUUM GAUGE W/ SHUTOFF VALVE

AIR INLET AND OUTLET IDENTIFICATION

24"x10"-10"
SR-1-760

- SIZE-LENGTH BY WIDTH (INCHES)
- FLEXIBLE DUCT DIAMETER (INCHES, IF USED)
- CFM THRU DEVICE
- DEVICE DESIGNATION
- DEVICE GROUP: R-REGISTER, G-GRILLE, D-DIFFUSER
- DEVICE TYPE: S-SUPPLY, E-EXHAUST, R-RETURN, T-TRANSFER

GENERAL MECHANICAL NOTES

1. THIS IS GENERAL LEGEND AND ABBREVIATION SHEET FOR PLUMBING, HVAC AND ODOR CONTROL DRAWINGS. SOME ITEMS CONTAINED ON THIS SHEET MAY NOT BE USED ON THIS SPECIFIC PROJECT.
2. ALL MECHANICAL PLUMBING AND HVAC WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING APPLICABLE CODES:
   2010 FLORIDA PLUMBING CODE
   2010 FLORIDA MECHANICAL CODE
   2010 FLORIDA FIRE CODE
3. FOR ROOFTOP EQUIPMENT CURBS, FLUES, AND FLASHING DETAILS, SEE ARCHITECTURAL DRAWINGS.
4. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL EQUIPMENT BASE DETAILS.
5. "SCREENED" DELINEATION DENOTES EXISTING AMD NEW FACILITIES AND IS FOR REFERENCE ONLY. "LIGHT" LINE DELINEATION DENOTES EXISTING MECHANICAL EQUIPMENT AND SYSTEMS. EXISTING FACILITY AND MECHANICAL SYSTEMS INFORMATION WAS TAKEN FROM PREVIOUS DRAWINGS, CONSTRUCTION RECORDS, DATA, AND FIELD SURVEY INFORMATION. ACTUAL LOCATION ARRANGEMENT, AND DIMENSIONS SHALL BE FIELD VERIFIED AND WORK INSTALLED TO MEET ACTUAL CONDITIONS AND LOCATIONS ENCOUNTERED "BOLD" (DARK) DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
6. METAL ROOF DECKING OR BOTTOM CHORD OF BAR JOISTS SHALL NOT BE USED FOR THE SUPPORT OF EQUIPMENT, PIPING, OR DUCTWORK.
7. ALL HANGERS, BRACKETS, OR BRACES FOR DUCTWORK, EQUIPMENT, AND PIPING ARE NOT INDICATED ON THE DRAWINGS. REFER TO THE SPECIFICATIONS FOR SUPPORT REQUIREMENTS NOT SHOWN ON THE PLANS.
8. ALL EQUIPMENT, PIPING, AND DUCTWORK FINAL LOCATIONS SHALL BE COORDINATED TO AVOID INTERFERENCES WITH STRUCTURE, OTHER PIPING, EQUIPMENT, DUCTWORK, AND CONDUIT. UNLESS SPECIFICALLY DIMENSIONED, THE PIPE AND DUCTWORK ROUTING SHOWN IS INTENDED TO INDICATE GENERAL LOCATION ONLY. INSTALL DUCTWORK TO ALLOW FOR PIPING TO BE ROUTED AGAINST WALLS.
9. ALL PIPING AND DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE WITH A MINIMUM HEIGHT OF 8'-0" ABOVE THE WALKING SURFACE UNLESS OTHERWISE INDICATED BY A CENTERLINE, INVERT, OR BOTTOM OF DUCT ELEVATION.
10. DUCTWORK SHALL BE FABRICATED, REINFORCED, SUPPORTED AND SEALED FOR OPERATING PRESSURES INDICATED IN THE SCHEDULES FOR THE EQUIPMENT IT SERVES. ALL DUCTWORK SHALL HAVE A MINIMUM SMACNA PRESSURE CLASSIFICATION OF ONE INCH.
11. DUCT SIZES INDICATED ARE CLEAR DIMENSIONS INSIDE THE DUCT OR DUCT LINING. SHEET METAL SIZES ARE LARGER FOR INTERNALLY LINED DUCTWORK.
12. MINIMUM INSULATION THICKNESSES FOR DUCTWORK SHALL BE AS INDICATED IN THE SPECIFICATIONS UNLESS OTHERWISE INDICATED ON THE PLANS WITH A "L" OR "W" DESIGNATION. WHERE AN INSULATION THICKNESS IS INDICATED ON THE DRAWINGS, IT SHALL GOVERN. THE FOLLOWING DENOTES THE DIFFERENT INSULATION THICKNESSES INDICATED ON THE DRAWINGS:
    L,L1 - 1 INCH INTERNALLY LINED — W,W1 - 1 INCH EXTERNALLY WRAPPED
    L15 - 1.5 INCH INTERNALLY LINED — W15 - 1.5 INCH EXTERNALLY WRAPPED
    L2 - 2 INCH INTERNALLY LINED — W2 - 2 INCH EXTERNALLY WRAPPED
13. DUCT CONNECTIONS TO EQUIPMENT, PIPING SIZES TO EQUIPMENT, AND EQUIPMENT SUPPORTS SHALL BE VERIFIED AND ADJUSTED TO MATCH ACTUAL EQUIPMENT FURNISHED.
14. THE LOCATION OF PIPING AND VALVES TO THE AIR HANDLING EQUIPMENT SHALL NOT INTERFERE WITH FILTER REMOVAL OR AIR HANDLING EQUIPMENT SERVICING.
15. ROOFTOP EQUIPMENT SHALL NOT BE LOCATED SUCH THAT ACCESS TO CONTROLS AND TO PERFORM SERVICE FOR EQUIPMENT IS LOCATED WITHIN 10 FEET OF THE BUILDING EDGE.
16. CONTROL DAMPER SIZES SHALL MATCH DIMENSIONS OF ASSOCIATED LOUVER UNLESS OTHERWISE INDICATED.
17. INSULATION SHALL BE PROVIDED FOR EQUIPMENT, PIPING, AND DUCT SYSTEMS AS INDICATED IN THE SPECIFICATIONS.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK.	APP
7/2015	BID ISSUE				

CYGNET ID: 50.3070 - HVAC & Plumbing Drawings — XREF1: BORDER.dwg
WF: H01.dwg — XREF2:
SAVED: VAN16643, 12/31/2014 2:19:29 PM — XREF3:
PLOTTED: KAM11443, 5/20/2014 5:11: — XREF4:
USER: VAN16643 — DWG VER: 1002 — XREF5:

BLACK & VEATCH
Building a world of difference.
Black & Veatch Corporation
201 South Orange Avenue, Suite 500
Orlando, Florida 32801
Certificate No. 8132

ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

HVAC
LEGEND, ABBREVIATIONS AND GENERAL NOTES

DESIGNED:	RWC,SEW
DETAILED:	CAK
CHECKED:	JKP
APPROVED:	KMB
DATE:	JANUARY 2015

ENGINEER OF RECORD: JERRY KEVAN PRINDS, JR.
FLORIDA LICENSE NO.: 78678

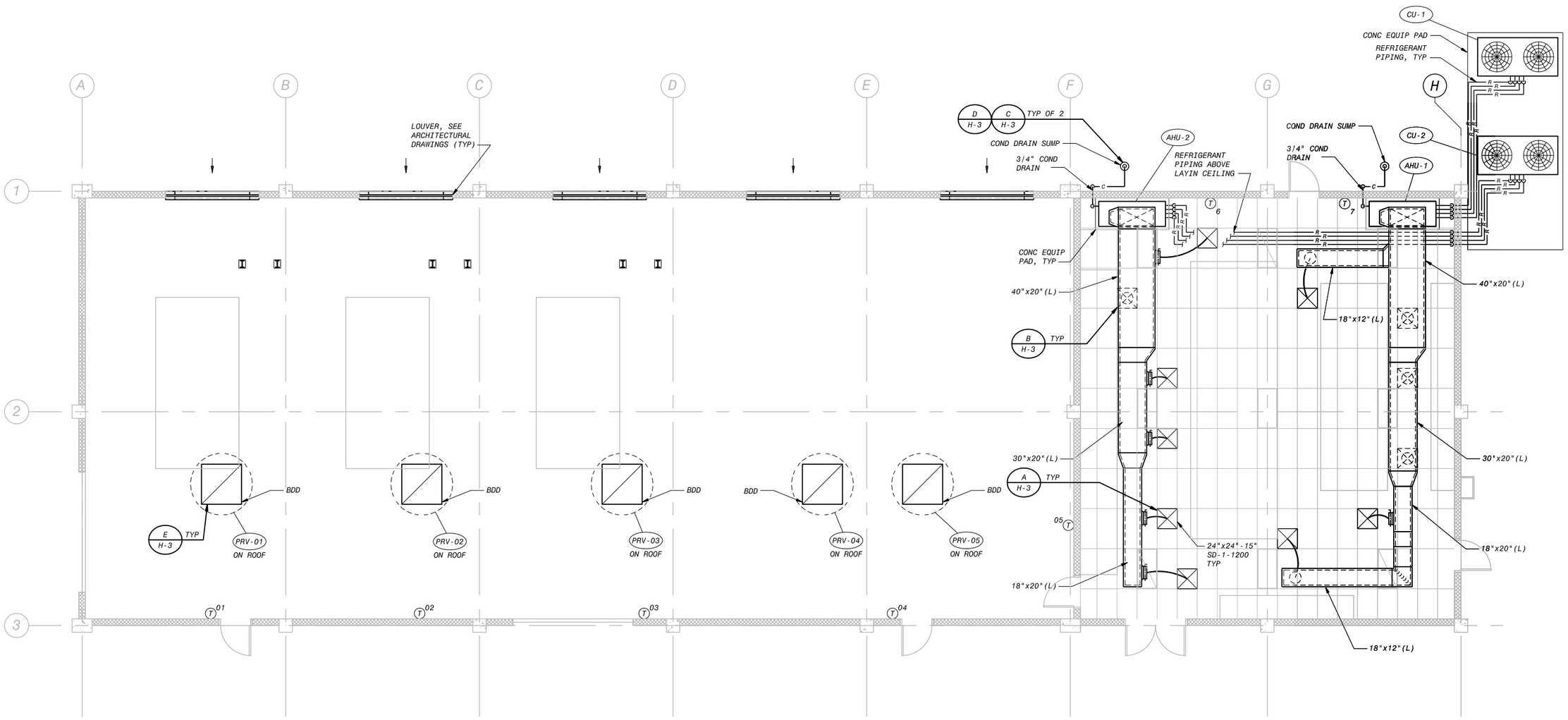
PROJECT NO. 180761

H-1
SHEET
217 OF 364

FD180761
D180761

GENERAL NOTES:

1. SEE STRUCTURAL DRAWINGS FOR CONCRETE EQUIPMENT PAD DETAIL.



FLOOR PLAN - HVAC

3/16" = 1'-0"

4' 2' 0 4' 8'

1/4"=1'-0"

0 1/2 1

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

NO.	BY	CK	APP
7/2015	BID ISSUE		
DATE	REVISIONS AND RECORD OF ISSUE		

CYGNET ID: 50.3070 - HVAC & Plumbing Drawings
WF:H02.dwg
SAVED: VAN18643, 1/26/2015 10:56:00 AM
PLOTTED: VAN42375, 7/17/2014 10:45
USER: VAN18643
XREF1:XH-SPBlow-PP1an.dwg
XREF2:XS-SPBlow-PROOFPlan.dwg
XREF3:XA-SPBlow-PP1an.dwg
XREF4:XS-SPBlow-PFNDPlan2.dwg
XREF5:
DWG VER:1003

BLACK & VEATCH
Building a world of difference.

Black & Veatch Corporation
201 South Orange Avenue, Suite 500
Orlando, Florida 32801
Certificate No. 8132

ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

HVAC
SOUTH PLANT BLOWER BUILDING
PLAN

DESIGNED:	RWC,SEW
DETAILED:	CAK
CHECKED:	JKP
APPROVED:	KMB
DATE:	JANUARY 2015

ENGINEER OF RECORD:
JERRY KEVAN PRINDS, JR.
FLORIDA LICENSE NO.:
79678

PROJECT NO.
180761

H-2
SHEET
218 OF 364

FD180761
D180761

AIR HANDLING UNIT SCHEDULE

UNIT NUMBER	LOCATION	AIRFLOW (CFM)	ESP (IN WC)	ORIENTATION	INDOOR FAN MOTOR HP	DRIVE	POWER SUPPLY VOLTS/ PHASE	COOLING EAT (FDB)	COOLING EAT (FWB)	COOLING CAPACITY (BTUH) SENSIBLE	COOLING CAPACITY (BTUH) TOTAL	HEATING EAT (FDB)	HEATING TYPE	HEATING CAPACITY (BTUH OR (KW))	FILTER DATA TYPE	FILTER DATA THICKNESS (IN)	VIBRATION ISOLATION	APPROX WEIGHT (LBS)	REMARKS
AHU-1	S. BLOWER BLDG ELECTRICAL RM	7200	0.5	UPFLOW	5	BELT	480/3	75	59	172000	174000	---	---	---	PLEATED	2	---	750	1
AHU-2	S. BLOWER BLDG ELECTRICAL RM	7200	0.5	UPFLOW	5	BELT	480/3	75	59	172000	174000	---	---	---	PLEATED	2	---	750	1

CAPACITY NOTE:
CAPACITIES LISTED IN PARENTHESES ARE IN UNITS OF "KW". CAPACITIES LISTED WITHOUT PARENTHESES ARE IN UNITS OF "BTUH".

REMARKS:
1 - MANUFACTURER USED AS THE BASIS OF DESIGN IS TRANE

CONDENSING UNIT/HEAT PUMP SCHEDULE

UNIT NUMBER	LOCATION	COOLING CAPACITY (BTUH)	COOLING MINIMUM CAPACITY STEPS	COOLING SUCTION TEMPERATURE (F) MINIMUM	COOLING SUCTION TEMPERATURE (F) MAXIMUM	HEATING CAPACITY [HEAT PUMP] (BTUH)	POWER SUPPLY VOLTS/ PHASE	MINIMUM CIRCUIT AMPACITY	ARI MINIMUM EFFICIENCY	MATCHED WITH INDOOR UNIT	APPROX WEIGHT (LBS)	REMARKS
CU-1	S. BLOWER BLDG ELECTRICAL RM	174000	2	---	---	---	480/3	32.5	11 EER	AHU-1	800	1,2
CU-2	S. BLOWER BLDG ELECTRICAL RM	174000	2	---	---	---	480/3	32.5	11 EER	AHU-2	800	1,2

NOTE:
OUTDOOR COIL ENTERING AIR TEMPERATURE: COOLING - 95° F DESIGN/ 50° F MIN, HEATING - 43° F (HEAT PUMP)

REMARKS:
1 - MANUFACTURER USED AS THE BASIS OF DESIGN IS TRANE
2 - COIL AND UNIT SURFACES SUBJECT TO CORROSION FROM A HYDROGEN SULFIDE ENVIRONMENT SHALL BE GIVEN A SPECIAL COATING

FAN SCHEDULE

UNIT NUMBER	LOCATION	FAN TYPE	AIRFLOW (CFM)	ESP (IN WC)	MOTOR HP	POWER SUPPLY VOLTS/ PHASE	MINIMUM WHEEL DIA (IN)	WHEEL TYPE	DRIVE	FILTER DATA TYPE	FILTER DATA THICKNESS (IN)	VIBRATION ISOLATION	APPROX WEIGHT (LBS)	REMARKS
PRV-01	BLOWER BLDG	PRV	21,000	0.5	7.5	480/3	48	C	BELT	---	---	---	1200	1
PRV-02	BLOWER BLDG	PRV	21,000	0.5	7.5	480/3	48	C	BELT	---	---	---	1200	1
PRV-03	BLOWER BLDG	PRV	21,000	0.5	7.5	480/3	48	C	BELT	---	---	---	1200	1
PRV-04	BLOWER BLDG	PRV	21,000	0.5	7.5	480/3	48	C	BELT	---	---	---	1200	1
PRV-05	BLOWER BLDG	PRV	21,000	0.5	7.5	480/3	48	C	BELT	---	---	---	1200	1

FAN TYPE NOTES:
PRV - POWER ROOF VENTILATOR

WHEEL TYPE NOTES:
C - CENTRIFUGAL

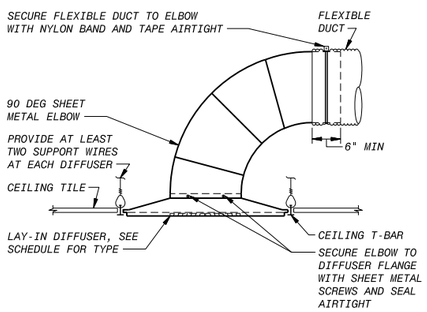
REMARKS:
1-PROVIDE ACCESSORY TIE-DOWNS

AIR DEVICE SCHEDULE

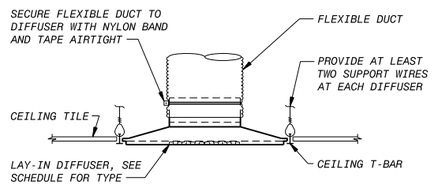
SYMBOL	MODEL	FRAME/BORDER	MODULE SIZE	MATERIAL	FINISH	DAMPER TYPE	ACCESSORIES	REMARKS
SD-1	TMS-AA	LAY-IN	24"x24"	ALUMINUM	BAKED WHITE ENAMEL	---		1,2

NOTE:
SEE DRAWINGS FOR DEVICE LENGTH, WIDTH, AND SUPPLY PATTERN.

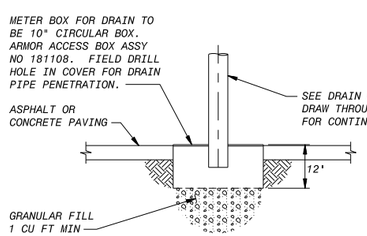
REMARKS:
1 - EQUIPMENT SCHEDULE MODEL NUMBERS BASED ON TITUS.
2 - ALL DIFFUSER CORE STYLES ARE 4-WAY UNLESS OTHERWISE INDICATED ON THE PLANS.



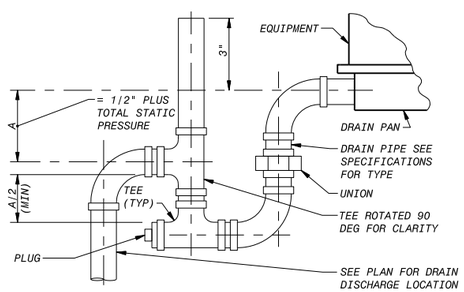
CEILING DIFFUSER - HORIZONTAL DUCT CONNECTION (A)
NO SCALE



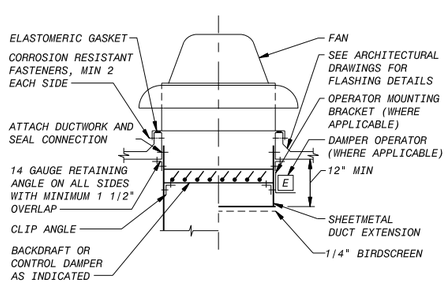
CEILING DIFFUSER - VERTICAL DUCT CONNECTION (B)
NO SCALE



CONDENSATE DRAIN SUMP (C)
NO SCALE



DRAIN PAN TRAP - DRAW THROUGH (D)
NO SCALE



ROOF MOUNTED FAN (E)
NO SCALE

HVAC SEQUENCE OF OPERATION

1. AIR CONDITIONING SYSTEMS.

1.1. SINGLE ZONE CONSTANT VOLUME SYSTEMS. SINGLE ZONE CONSTANT VOLUME SYSTEMS SHALL BE CONTROLLED BY THEIR RESPECTIVE THERMOSTAT. SYSTEM OPERATION SHALL BE CONTROLLED BY AN "OFF-AUTO-COOL" (PROGRAMMABLE) SYSTEM SWITCH AND AN "AUTO-ON" FAN SWITCH LOCATED ON THE THERMOSTAT SUB-BASE. WHEN THE FAN SWITCH IS PLACED IN THE "AUTO" POSITION, THE RESPECTIVE EQUIPMENT FAN SHALL BE ENERGIZED UPON A CALL FOR COOLING AS REQUIRED TO MAINTAIN THE DESIRED ROOM TEMPERATURE. WHEN THE FAN SWITCH IS PLACED IN THE "ON" POSITION, THE FAN SHALL BE ENERGIZED.

2. THERMOSTAT SETPOINTS

2.1 THERMOSTAT SETPOINTS SHALL BE AS INDICATED BELOW, UNLESS THE SETPOINT HAS BE DESCRIBED PREVIOUSLY IN THIS SEQUENCE OF OPERATIONS.

VENTILATING EQUIPMENT	- 103 F
AIR CONDITIONED AREAS	- 75 F

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
7/2015	BID ISSUE				

CYGNET ID: 50.3070 - HVAC & Plumbing Drawings
WF:W03.dwg
SAVED: VAN16643, 1/26/2015 10:56:50 AM
PLOTTED: VAN11443, 5/20/2014 4:26:
USER: VAN16643
XREF1: BORDER.dwg
XREF2: HVAC_Schedules.xlsx
XREF3:
XREF4:
XREF5:
DWG VER: 1004

BLACK & VEATCH
Building a world of difference.
Black & Veatch Corporation
201 South Orange Avenue, Suite 500
Orlando, Florida 32801 Certificate No. 8132

ORANGE COUNTY UTILITIES
SOUTH WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

HVAC
SCHEDULES, DETAILS AND SEQUENCE OF OPERATION

DESIGNED: RWC,SEW
DETAILED: CAK
CHECKED: JKP
APPROVED: KMB
DATE: JANUARY 2015
ENGINEER OF RECORD: JERRY KEVAN PRINDS, JR.
FLORIDA LICENSE NO.: 78678

PROJECT NO. 180761

H-3
SHEET
219 OF 364

FD180761
D180761