

DESIGN WEATHER PARAMETERS

Design Parameters:

City NameWashington

LocationDist. of Columbia

Latitude38.9 Deg

Longitude77.0 Deg

Elevation66.0 ft

Summer Design Dry Bulb75.0 F

Summer Condensed Wet Bulb75.0 F

Summer Daily Range16.6 F

Winter Design Dry Bulb15.0 F

Winter Design Wet Bulb12.2 F

Atmospheric Cleaness Number1.00

Average Ground Reflectance0.20

Soil Conductivity0.800 BTU/(hr-ft-F)

Local Time Zone (GMT +/- N hours)5.0 hours

Consider Daylight Savings TimeNo

Current Date6/20/2011

Design Cooling MonthsJanuary to December

Express Total

PKG VERT

SZCAV

Number of zones1

Floor Area7228.0 sq ft

LocationWashington, Dist. of Columbia

HVAC LOAD CALCULATIONS

Air System Information

Express Total

PKG VERT

SZCAV

Sizing Calculation Information

Calculation MonthsJan to Dec

User/Modified

Central Cooling Coil Sizing Data

Total coil load20.1 Tons

Total coil load240.9 MBH

Sensible coil load182.8 MBH

Coil CFM at Jul 14008000 CFM

Max block CFM8000 CFM

Sum of peak zone CFM8000 CFM

Sensible heat ratio0.759

RT/ton350.0

Water flow @ 10.0 F riseN/A

Load occurs at

Jul 1400

OA DB / WB94.5 / 75.9 F

Entering DB / WB79.5 / 66.9 F

Leaving DB / WB58.3 / 57.2 F

Coil ADP55.9 F

Bypass Factor0.100

Resulting RH54 %

Design supply temp57.0 F

Zone Total Check1 of 1 OK

Max zone temperature deviation0.0 F

Central Heating Coil Sizing Data

Max coil load105.0 MBH

Coil CFM at Des Htg8000 CFM

Max coil CFM8000 CFM

Water flow @ 20.0 F dropN/A

Load occurs at

Des Htg

14.5

Ent. DB / Lvg DB59.3 / 71.5 F

Supply Fan Sizing Data

Actual max CFM8000 CFM

Standard CFM7981 CFM

Actual max CFM/Rt1.11 CFM/Rt

Fan motor BHP2.19 BHP

Fan motor kW1.74 kW

Fan static1.00 in wg

Outdoor Ventilation Air Data

Design airflow CFM1553 CFM

CFM/Rt0.21 CFM/Rt

CFM/person17.69 CFM/person

DESIGN COOLING

COOLING DATA AT Jul 1400

COOLING OA DB / WB 94.5 F / 75.9 F

Details

Sensible

Latent

Details

Sensible

Latent

Window & Skylight Solar Loads0 ft²

Wall Transmission0 ft²

Roof Transmission7794 ft²

Window Transmission0 ft²

Skylight Transmission0 ft²

Door Loads0 ft²

Floor Transmission0 ft²

Partitions0 ft²

Ceiling0 ft²

Overhead Lighting880 W

Task Lighting18030 W

Electric Equipment4750 W

People87

Infiltration-

Miscellaneous-

Safety Factor10% / 10%

>> Total Zone Loads131774

Zone Conditioning-

Plenum Wall Load0

Plenum Roof Load0

Plenum Lighting Load0

Return Fan Load8000 CFM

Ventilation Load1553 CFM

Supply Fan Load8000 CFM

Space Fan Coil Fans0

Duct Heat Gain / Loss0%

>> Total System Loads182832

Central Cooling Coil182832

>> Total Conditioning182832

Key:Positive values are ckg loads

Negative values are htg loads

DESIGN HEATING

HEATING DATA AT Des Htg

HEATING OA DB / WB 15.0 F / 12.2 F

Details

Sensible

Latent

Details

Sensible

Latent

Window & Skylight Solar Loads0 ft²

Wall Transmission0 ft²

Roof Transmission7794 ft²

Window Transmission0 ft²

Skylight Transmission0 ft²

Door Loads0 ft²

Floor Transmission0 ft²

Partitions0 ft²

Ceiling0 ft²

Overhead Lighting880 W

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Infiltration-

Miscellaneous-

Safety Factor10% / 10%

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Zone Conditioning-

Plenum Wall Load0

Plenum Roof Load0

Plenum Lighting Load0

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Supply Fan Load8000 CFM

Space Fan Coil Fans0

Duct Heat Gain / Loss0%

>> Total System Loads182832

Central Heating Coil182832

>> Total Conditioning182832

Key:Positive values are ckg loads

Negative values are htg loads

HVAC EQUIPMENT COMMISSIONING

DETAILED HVAC COMMISSIONING INFORMATION IS INCLUDED IN THE ESD&C SITE MANUAL PROVIDED TO THE CONTRACTOR AT THE START OF THE PROJECT.

CONTRACTOR MUST CONTACT HVAC EQUIPMENT MANUFACTURER/VENDOR DURING THE FIRST WEEK AFTER AWARD OF CONTRACT TO SET PRELIMINARY DATES FOR HVAC EQUIPMENT AND CONTROLS INSPECTION AND COMMISSIONING.

LIST TO BE COMPLETED BY THE MECHANICAL CONTRACTOR PRIOR TO HVAC INSPECTION / COMMISSIONING:

1. CONNECT AND BLEED CONDENSATE, DUCTWORK, NATURAL GAS, CHILLED WATER PIPING AND/OR CONDENSER WATER PIPING.

2. CHARGE HVAC SYSTEMS WITH REFRIGERANT FOLLOWING MANUFACTURER'S GUIDELINES AND INSTRUCTIONS. VERIFY REFRIGERANT CHARGES REQUIRE SPECIFIC PROCESSES, CONTACT MANUFACTURER FOR TECHNICAL SUPPORT.

3. VERIFY REFRIGERANT CHARGES TO THE HVAC EQUIPMENT FOR A MINIMUM OF 24 HOURS. NOTE: IN COLD WEATHER SITUATIONS, DO NOT OPERATE THE UNITS PRIOR TO COMMISSIONING.

HVAC EQUIPMENT SHOULD BE STARTED UP EARLY IN THE PROJECT. COORDINATE EARLY START UP OF EQUIPMENT WITH MANUFACTURER.

NOTE: THE GC MAY BE BACK CHARGED FOR ADDITIONAL HVAC VENDOR SITE VISITS BEYOND THE FIRST THREE (3) VISITS TO DOCUMENT THE RESOLUTION OF THE HVAC PUNCHLIST ITEMS.

HVAC COMMISSIONING PROCESS

VISIT 1: HVAC INSPECTION AND EQUIPMENT START-UP

1. MECHANICAL CONTRACTOR AND ELECTRICAL CONTRACTOR MUST BE ON SITE DURING THIS HVAC INSPECTION AND START-UP VISIT. EACH CONTRACTOR SHALL INCLUDE 8 HOURS FOR THE HVAC INSPECTION AND EQUIPMENT START-UP. (NOTE: THESE HOURS ARE TO BE USED FOR THE COMPLETION OF THE COMMISSIONING PROCESS ONLY. ADDITIONAL HOURS WILL NOT BE APPROVED FOR WORK THAT WAS IN SCOPE AND NOT COMPLETED PRIOR TO THE MECHANICAL CONTRACTOR PRIOR TO HVAC INSPECTION / COMMISSIONING.)

2. CONTRACTOR TO COMPLETE AND EMAIL (OR FAX) THE HVAC EQUIPMENT START-UP SURVEY TO HVAC VENDOR PRIOR TO THIS VISIT.

3. MECHANICAL CONTRACTOR WILL COORDINATE THE HVAC EQUIPMENT COMMISSIONING AND SHALL BE RESPONSIBLE FOR COMMUNICATING SCHEDULE DATE CHANGES TO HVAC VENDOR AND SUBCONTRACTORS.

4. PROVIDED THERE ARE NO HVAC INSTALLATION ISSUES, SYSTEMS SHALL BE STARTED FOR TEMPORARY OPERATION ON LOCAL CONTROL DURING THIS VISIT.

5. IF THERE ARE HVAC INSTALLATION PUNCHLIST ITEMS, THE GC MUST CORRECT THEM AND RESCHEDULE INSPECTION VISIT WITH HVAC VENDOR.

VISIT 2: HVAC CONTROLS COMMISSIONING

THE CONTROLS COMMISSIONING IS PERFORMED BY THE HVAC VENDOR IN CONJUNCTION WITH THE GENERAL CONTRACTOR, MECHANICAL CONTRACTOR AND ELECTRICAL CONTRACTOR. EACH CONTRACTOR SHALL INCLUDE 4 HOURS TO COMPLETE THE CONTROLS COMMISSIONING. (NOTE: THESE HOURS ARE TO BE USED FOR THE COMPLETION OF THE COMMISSIONING PROCESS ONLY. ADDITIONAL HOURS WILL NOT BE APPROVED FOR WORK THAT WAS IN SCOPE AND NOT COMPLETED PRIOR TO THE COMMISSIONING PROCESS.)

FOLLOW THE CONSTRUCTION DRAWINGS AND MANUFACTURER'S DETAILS AND DRAWINGS DURING THE INSTALLATION OF THE HVAC CONTROL EQUIPMENT.

1. CONTRACTOR TO COMPLETE AND EMAIL (OR FAX) THE CONTROLS COMMISSIONING SURVEY TO HVAC VENDOR PRIOR TO THE CONTROLS COMMISSIONING.

2. CONNECT THE HVAC CONTROLS TO AN OPERATIONAL ANALOG PHONE LINE OR ETHERNET CONNECTION TO ALLOW COMMUNICATION. IF NECESSARY, UTILIZE SITE FAX LINE TO CONNECT TO THE CONTROLS MODERN IN THE IFS PANEL.

3. CONTACT HVAC VENDOR AT THE SCHEDULED TIME FOR THE CONTROLS COMMISSIONING.

4. PROVIDED THERE ARE NO OPEN ISSUES, VISIT 2 IS COMPLETE. IN THE EVENT THERE ARE OPEN ITEMS, THE GC MUST CORRECT THEM AND RESCHEDULE THE CONTROLS COMMISSIONING.

VISIT 3: FINAL HVAC INSPECTION

THIS VISIT IS TO DO A FINAL INSPECTION OF THE HVAC EQUIPMENT AND CONTROL INSTALLATION. THIS VISIT MUST TAKE PLACE PRIOR TO CONSTRUCTION COMPLETION.

THE FOLLOWING ITEMS MUST BE COMPLETED PRIOR TO THE INSPECTION:

1. HVAC SYSTEM INSTALLATION IS COMPLETE - NO OPEN PUNCHLIST ITEMS EXCEPT FOR POSSIBLY THE PERMANENT PHONE LINE.

2. AIR BALANCE IS COMPLETE. NOTE: AIR BALANCE IS IN THE CONTRACTOR'S SCOPE OF WORK.

THE GC MUST COMPLETE THE HVAC VENDOR SITE VISIT #3 SURVEY FORM PRIOR TO SCHEDULING THIS VISIT.

THE GENERAL CONTRACTOR, MECHANICAL CONTRACTOR AND ELECTRICAL CONTRACTOR SHALL BE ON SITE DURING THE FINAL INSPECTION. EACH CONTRACTOR SHALL INCLUDE 4 HOURS FOR THE FINAL HVAC INSPECTION. (NOTE: THESE HOURS ARE TO BE USED FOR THE COMPLETION OF THE INSPECTION ONLY. ADDITIONAL HOURS WILL NOT BE APPROVED FOR WORK THAT WAS IN SCOPE AND NOT COMPLETED PRIOR TO THE FINAL INSPECTION.)

1. MECHANICAL CONTRACTOR WILL COORDINATE THE HVAC EQUIPMENT COMMISSIONING AND SHALL BE RESPONSIBLE FOR COMMUNICATING SCHEDULE DATE CHANGES TO HVAC VENDOR AND SUBCONTRACTORS.

2. FILTERS ARE TO BE PROVIDED BY THE MECHANICAL CONTRACTOR FOR REPLACEMENT OF SLEEVES, PULLEYS, AND BELTS AS NEEDED FOR PROPER AIR BALANCE.

3. THE HVAC CONTROL NUMBER WILL BE ISSUED AT THE END OF THE VISIT PROVIDED THERE ARE NO UNRESOLVED HVAC PUNCHLIST ITEMS.

4. THE HVAC CONTROL NUMBER WILL BE ISSUED AT THE END OF THE VISIT PROVIDED THERE ARE NO UNRESOLVED HVAC PUNCHLIST ITEMS.

5. IN THE EVENT THERE ARE OPEN ITEMS, THE CONTRACTOR MUST CORRECT THEM AND RESCHEDULE THE FINAL INSPECTION WITH HVAC VENDOR.

6. THE HVAC CONTROL NUMBER WILL BE ISSUED AT THE END OF THE VISIT PROVIDED THERE ARE NO UNRESOLVED HVAC PUNCHLIST ITEMS.

THE HVAC VENDOR TECHNICIAN WILL WRITE THE HVAC CONTROL NUMBER ON THE STICKER INSIDE THE CONTROL PANEL (OR THE CONTROL SECTION OF THE IFS PANEL) AND ON THE FINAL VISIT CHECK LIST.

GRILLE, REGISTER, AND DIFFUSER (GRD) SCHEDULE

MARK

MANUFACTURER

MODEL

NECK SIZE (LxW)

FRAME SIZE (LxW)

FRAME TYPE

FINISH

NOISE CRITERIA LEVEL

ACCESSORIES

NOTES

SD-1

TITUS

OPNI

24"x24"

LAY-IN SURFACE

TITUS #27

30

2,3

1,3

SD-2

TITUS

LL-2

36"x4"

LAY-IN SURFACE

TITUS #27

30

1,4

3

SD-3

TITUS

THSA

12"x12"

LAY-IN DUCT MOUNTED

TITUS #27

30

2,3

1,3

SD-4

TITUS

300RL

10"x8"

DUCT MOUNTED

TITUS #27

30

1

3

MARK

MANUFACTURER

MODEL

NECK SIZE (LxW)

FRAME SIZE (LxW)

FRAME TYPE

FINISH

NOISE CRITERIA LEVEL

ACCESSORIES

NOTES

RG-1

TITUS

36S-RL

22"x10"

LAY-IN SURFACE

TITUS #27

30

3

2,3

RG-2

TITUS

36S-RL

24"x12"

LAY-IN SURFACE

TITUS #27

30

3

2,3

TG-3

TITUS

36SRL

22"x10"

SURFACE

TITUS #26

30

2,3

2,3

ACCESSORIES:

1. OPPOSED BLADE DAMPER OPERABLE FROM FACE OF GRD, PROVIDED BY MANUFACTURER.

2. LOOKING QUADRANT VOLUME DAMPER, PROVIDED BY MECHANICAL CONTRACTOR. SEE MECHANICAL SPECIFICATIONS ON SHEET M01.1.

3. RAPID MOUNT FRAME FURNISHED BY MANUFACTURER AND INSTALLED BY MECHANICAL CONTRACTOR WHERE LAY-IN GRD TO BE INSTALLED IN DRYWALL CEILING.

4. 12" TALL INSULATED PLENUM, LENGTH AND WIDTH TO BE DIFFUSER NECK SIZE, PROVIDED BY MECHANICAL CONTRACTOR.

NOTES:

1. ALL DIFFUSERS TO BE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS. WHEN SHADED ON PLANS, MECHANICAL CONTRACTOR TO ORDER BAFFLES FROM MANUFACTURER FOR INSTALLATION. INSTALL BAFFLES SO THAT SHADED QUADRANT IS BLOCKED FOR 1-WAY, 2-WAY OR 3-WAY THROW.

2. MINIMIZE VIEW TO ABOVE CEILING AREAS. FOR CEILING MOUNTED GRD, INSTALL LOUVERS FACING THE BACK OF STORE, CABINET OR WALTER FOR WALL MOUNTED GRD, INSTALL LOUVERS FACING UP.

3. GC TO FIELD PAINT GRD WITH ENAMEL FINISH TO MATCH SURROUNDING CEILING OR WALL COLOR.

GRILLE, REGISTER, AND DIFFUSER (GRD) SCHEDULE

MARK

MANUFACTURER

MODEL

NECK SIZE (LxW)

FRAME SIZE (LxW)

FRAME TYPE

FINISH

NOISE CRITERIA LEVEL

ACCESSORIES

NOTES

SD-1

TITUS

OPNI

24"x24"

LAY-IN SURFACE

TITUS #27

30

2,3

1,3

SD-2

TITUS

LL-2

36"x4"

LAY-IN SURFACE

TITUS #27

30

1,4

3

SD-3

TITUS

THSA

12"x12"

LAY-IN DUCT MOUNTED

TITUS #27

30

2,3

1,3

SD-4

TITUS

300RL

10"x8"

DUCT MOUNTED

TITUS #27

30

1

3

MARK

MANUFACTURER

MODEL

NECK SIZE (LxW)

FRAME SIZE (LxW)

FRAME TYPE

FINISH

NOISE CRITERIA LEVEL

ACCESSORIES

NOTES

RG-1

TITUS

36S-RL

22"x10"

LAY-IN SURFACE

TITUS #27

30

3

2,3

RG-2

TITUS

36S-RL

24"x12"

LAY-IN SURFACE

TITUS #27

30

3

2,3

TG-3

TITUS

36SRL

22"x10"

SURFACE

TITUS #26

30

2,3

2,3

ACCESSORIES:

1. OPPOSED BLADE DAMPER OPERABLE FROM FACE OF GRD, PROVIDED BY MANUFACTURER.

2. LOOKING QUADRANT VOLUME DAMPER, PROVIDED BY MECHANICAL CONTRACTOR. SEE MECHANICAL SPECIFICATIONS ON SHEET M01.1.

3. RAPID MOUNT FRAME FURNISHED BY MANUFACTURER AND INSTALLED BY MECHANICAL CONTRACTOR WHERE LAY-IN GRD TO BE INSTALLED IN DRYWALL CEILING.

4. 12" TALL INSULATED PLENUM, LENGTH AND WIDTH TO BE DIFFUSER NECK SIZE, PROVIDED BY MECHANICAL CONTRACTOR.

NOTES:

1. ALL DIFFUSERS TO BE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS. WHEN SHADED ON PLANS, MECHANICAL CONTRACTOR TO ORDER BAFFLES FROM MANUFACTURER FOR INSTALLATION. INSTALL BAFFLES SO THAT SHADED QUADRANT IS BLOCKED FOR 1-WAY, 2-WAY OR 3-WAY THROW.

2. MINIMIZE VIEW TO ABOVE CEILING AREAS. FOR CEILING MOUNTED GRD, INSTALL LOUVERS FACING THE BACK OF STORE, CABINET OR WALTER FOR WALL MOUNTED GRD, INSTALL LOUVERS FACING UP.

3. GC TO FIELD PAINT GRD WITH ENAMEL FINISH TO MATCH SURROUNDING CEILING OR WALL COLOR.

EXHAUST AND VENTILATION FAN SCHEDULE

MARK

MANUFACTURER

MODEL

TYPE

DRIVE TYPE

PERFORMANCE

ELECTRICAL

APPROX. WEIGHT (LBS)

SERVES

ACCESSORIES

NOTES

EF-1

LOREN COOK

CEPINI 122

CEILING MOUNTED

DIRECT

AIR FLOW (CFM)75

EXT. STATIC (IN H.C.)0.875

FAN SPEED (RPM)1800

VOLTS/PH/Hz120/1/60

FAN MOTOR WATTS15

RESTROOM

1,2

NOTES:

1. BACKDRAFT DAMPER

2. DISCONNECT SWITCH

NOTES:

1. INTERLOCK WITH RESTROOM LIGHTS

WATER SOURCE HEAT PUMP UNIT SCHEDULE

MARK

TRANE MODEL NUMBER

ENERGY RATING (COP)

SUPPLY AIR CFM

OUTSIDE AIR CFM

EXTERNAL STATIC PRESSURE

COOLING

HEATING

ELECTRICAL

APPROXIMATE WEIGHT (LBS)

ACCESSORIES

NOTES

WSHP-1

GEH120

4.4

4,000

800

0.8

79.5 / 66.9

40

100

20

5

126.8

92.4

12.4

59.3

132.27

4.4

480/3/60

3.0

25.7

35

784

1-3,5,6,A-E,G

1,2

NOTES:

1. DISCONNECT SWITCH

2. HOSE KIT WITH CIRCUIT BETTER, FLEX HOSE CONNECTION, STRAINER AND SHUT-OFF

3. ENTERING WATER TEMPERATURE SENSOR

4. WATER BYPASS ECONOMIZER COIL WITH CONTROL VALVES

5. 2-POSITION OUTSIDE AIR DAMPER AND ACTUATOR (MINIMUM AND FULLY CLOSED)

6. DISCHARGE AIR SENSOR

ACCESSORIES FURNISHED BY MANUFACTURER (VERIFY FIELD INSTALLATION REQUIREMENTS):

1. DISCONNECT SWITCH

2. HOSE KIT WITH CIRCUIT BETTER, FLEX HOSE CONNECTION, STRAINER AND SHUT-OFF

3. ENTERING WATER TEMPERATURE SENSOR

4. WATER BYPASS ECONOMIZER COIL WITH CONTROL VALVES

5. 2-POSITION OUTSIDE AIR DAMPER AND ACTUATOR (MINIMUM AND FULLY CLOSED)

6. DISCHARGE AIR SENSOR

ACCESSORIES FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR:

1. DISCONNECT SWITCH

2. HOSE KIT WITH CIRCUIT BETTER, FLEX HOSE CONNECTION, STRAINER AND SHUT-OFF

3. ENTERING WATER TEMPERATURE SENSOR

4. WATER BYPASS ECONOMIZER COIL WITH CONTROL VALVES

5. 2-POSITION OUTSIDE AIR DAMPER AND ACTUATOR (MINIMUM AND FULLY CLOSED)

6. DISCHARGE AIR SENSOR

NOTES:

1. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTION AND WIRING SCHEMATICS FOR MORE INFORMATION

2. OUTSIDE AIR DAMPER MIN. OPEN POSITION TO BE SET AS SPECIFIED ABOVE AND SHALL FULLY CLOSE ON UNIT SHUTDOWN

FAN POWERED VAV WITH ELECTRIC HEAT UNIT SCHEDULE

MARK

TRANE MODEL NUMBER

INLET SIZE

MAX PRIMARY AIR VALVE FLOW

MIN PRIMARY AIR VALVE FLOW

FAN

HEATING

ELECTRICAL

APPROXIMATE WEIGHT (LBS)

ACCESSORIES

NOTES

VAV-1

VPEF

14" DIA.

1,200

200

0650

FAN TYPE

PARALLEL

1200

0.5

0.5

277/1

6.0

27.28

2

480/3/60

480/3/60/14

3.8 @ 277/1

7.2 @ 480/3

124

20

147

1-5

1

NOTES:

1. DISCONNECT SWITCH

2. CONTROL TRANSFORMER

3. DISCHARGE ELECTRIC HEATER SECTION WITH SINGLE POINT POWER/CONTROL CONNECTION

4. DISCHARGE AIR SENSOR

5. CONTROL ENCLOSURE WITH VALVE ACTUATOR AND UNIT HEATING CONTROLS

ACCESSORIES FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR:

1. FLEXIBLE CONNECTION AND DUCT TRANSITION AT INLET AND OUTLET

2. HANGING VIBRATION ISOLATION DEVICES

3. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS (FILTERS, OPM MANUAL, ETC.)

NOTES:

1. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTION AND WIRING SCHEMATICS FOR MORE INFORMATION

NOT USED

HVAC LOAD CALCULATIONS

DESIGN WEATHER PARAMETERS

DESIGN COOLING

DESIGN HEATING

GRILLE, REGISTER, AND DIFFUSER (GRD) SCHEDULE

EXHAUST AND VENTILATION FAN SCHEDULE

WATER SOURCE HEAT PUMP UNIT SCHEDULE

FAN POWERED VAV WITH ELECTRIC HEAT UNIT SCHEDULE

NOT USED

HVAC EQUIPMENT COMMISSIONING

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HVAC EQUIPMENT COMMISSIONING

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WATER SOURCE HEAT PUMP UNIT SCHEDULE

FAN POWERED VAV WITH ELECTRIC HEAT UNIT SCHEDULE

NOT USED

HVAC EQUIPMENT COMMISSIONING

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HVAC EQUIPMENT COMMISSIONING

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FAN POWERED VAV WITH ELECTRIC HEAT UNIT SCHEDULE

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FAN POWERED VAV WITH ELECTRIC HEAT UNIT SCHEDULE

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HVAC EQUIPMENT COMMISSIONING

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WATER SOURCE HEAT PUMP UNIT SCHEDULE

FAN POWERED VAV WITH ELECTRIC HEAT UNIT SCHEDULE

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HVAC EQUIPMENT COMMISSIONING

GRILLE, REGISTER, AND DIFFUSER (GRD) SCHEDULE

EXHAUST AND VENTILATION FAN SCHEDULE

WATER SOURCE HEAT PUMP UNIT SCHEDULE

FAN POWERED VAV WITH ELECTRIC HEAT UNIT SCHEDULE

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