APPENDIX C – WCPSS PROVIDED STANDARD DETAILS
U.L. SYSTEM NO. WL1052
METAL PIPE THROUGH 1-HR. GYPSUM WALL

F RATING = 1-HR.
T RATING = 0-HR.

1. 1-HR. FIRE-RATED GYPSUM WALL ASSEMBLY.
2. 10" DIA. (OR SMALLER) STEEL PIPE, 4" DIA. (OR SMALLER) COPPER PIPE, EMT OR CONDUIT.
3. MIN. 5/8" DEPTH HILTI FS 601.

NOTE: NOMINAL ANNULAR SPACE OF 1/4" TO 1" REQUIRED

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

P1.01 1-HR GYPSUM WALL U.L. DETAIL
SCALE: NONE
1. A. MIN. 4-1/2" THICK CONCRETE FLOOR.
   B. MIN. 4-1/2" THICK CONCRETE WALL.
   C. ANY U.L. CLASSIFIED CONCRETE BLOCK WALL.
2. 4" DIA. (OR SMALLER) STEEL PIPE, COPPER PIPE, EMT, OR CONDUIT.
3. MIN. 3" THICK MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
4. MIN. 1/2" DEPTH HILTI FS 601 FIRESTOP SEALANT.
5. 1/2" BEAD HILTI FS 601 FIRESTOP SEALANT.

NOTE:
1. MAXIMUM DIAMETER OF OPENING = 6".
2. ANNULAR SPACE = MIN. 0" (POINT CONTACT), MAX. 2".
3. WALLS REQUIRE 1/2" OF SEALANT FLUSH WITH BOTH SIDES.

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

P1.02 2-HR CONCRETE WALL/FLR/ BLOCK WALL U.L. DETAIL
SCALE: NONE
ACID DILUTION TRAP INSTALLATION DETAIL

COORDINATE HOLE LOCATION FOR WASTE & WATER PIPING WITH CASework CONTRACTOR TO DRILL HOLE

1/2" C/WASH/W SUPPLIES & STOPS TO SINK
1-1/2" VENT PIPING

1-1/2" WASTE FROM DILUTION TANK

FINISHED FLOOR

UNION

3/8" PLYWOOD BOARD BY PLUMBING CONTRACTOR

2" WASTE PIPING

OPTIONAL DISCHARGE LOCATION

3/8" PLYWOOD BOARD BY PLUMBING CONTRACTOR

1/2" C/WASH/W SUPPLIES & STOPS TO SINK

1-1/2" WASTE ROUTED TO DILUTION TANK IN ADJACENT CABINET

1-1/2" VENT FROM DILUTION TANK INTO WALL, SEE SECTION VIEW FOR CONTINUATION

WAKE COUNTY PUBLIC SCHOOL SYSTEM
1429 Rock Quarry Road, Suite 116
Raleigh, NC 27610
(919) 588-3608
UNISTRUT #P-2676 SWIVEL BEAM CLAMPS HANG FROM JOIST BOTTOM.

3/8"Ø MINIMUM THREADED ROD (TYPICAL)

MOUNTING AT BAR JOIST FRAMING

NOTE: DO NOT SUPPORT PIPING FROM BAR JOIST BRIDGING.

HANGER ROD (TYPICAL)

LOCKING NUT (TYPICAL)

SUPPORT NUT (TYPICAL)

HEAVY DUTY CLEVIS HANGER

VAPER BARRIER INSULATION

16 GAUGE SHEET METAL SADDLE AT LEAST 12" LONG

NOTE: FOR ALL PIPE SIZES, PROVIDE PRESSURE TREATED WOOD BLOCKING AT HANGERS TO PREVENT CRUSHING OF INSULATION.

SINGLE HORIZONTAL RUNS
NO INSULATION

SINGLE HORIZONTAL RUNS
WITH VAPOR BARRIER INSULATION

P1.04
CLEVIS HANGER SUPPORT DETAIL
SCALE: NONE
HEAT TRACE SPECIFICATION:
HEAT-TRACING CABLES: 5 W/FT OUTPUT. SELF-REGULATING, ELECTRIC HEATING CABLES SUITABLE FOR FREEZE PROTECTION OF METAL PIPING. CABLES: PAIR OF PARALLEL NO. 16 AWG TINNED-COPPER BUS WIRES EMBEDDED IN CROSS-LINKED CONDUCTIVE POLYMER CORE, WHICH VARIES POWER OUTPUT IN RESPONSE TO TEMPERATURE ALONG ITS LENGTH. CABLE SHALL BE CAPABLE OF CROSSING OVER ITSELF WITHOUT OVERHEATING. HEAT OUTPUT: AT LEAST 90 PERCENT OF RATING OVER A TEMPERATURE RANGE FROM 40 TO 150 DEG F PIPE TEMPERATURE. CABLE COVER: FABRICATED OF CROSS-LINKED, MODIFIED, POLYOLEFIN DIELECTRIC JACKET; WITH ULTRAVIOLET INHIBITOR. PIPE THERMOSTAT: UNIT WITH ADJUSTABLE TEMPERATURE RANGE FROM 35 TO 50 DEG F SNAP ACTION; OPEN-ON-RISE, SINGLE-POLE SWITCH WITH 25-A RATING; AND REMOTE BULB FOR DIRECTLY SENSING PIPE-WALL TEMPERATURE.

HEAT TRACE POWER CONNECTOR

PROVIDE WITH DISCONNECT SWITCH & CONNECT TO ELECTRICAL CIRCUIT

HEAT TRACE POWER CONNECTOR MOUNTING BASE

HEAT TRACE END SEAL KIT WITH L.E.D. PILOT LIGHT AND MOUNTING BASE

HEAT TRACE CABLE

SECURE MOUNTING BASE TO PIPING WITH PLASTIC CABLE TIE

SECURE HEAT TRACE TO PIPE WITH GLASS TAPE

ALL HEAT TAPE SHALL BE SPLICED OUTSIDE OF INSULATION

P1.05 HEAT TRACE CABLE INSTALLATION DETAIL
SCALE: NONE
BRANCH CIRCUIT AND CONDUIT IN ELECTRICAL WORK. SEE PANELBOARD SCHEDULES FOR WIRE AND BREAKER SIZES TO HVAC AND PLUMBING EQUIPMENT.

EXTERNALLY OR INTERNALLY MOUNTED DISCONNECT SWITCH FURNISHED UNDER DIV. 23 WORK, AND INSTALLED UNDER DIV. 26 WORK

EXTERNALLY MOUNTED STARTER FURNISHED UNDER DIV. 23 WORK, INSTALLED UNDER DIV. 26 WORK. LINE AND LOAD CONNECTIONS UNDER DIV. 26 WORK. CONTROL CONNECTIONS BY OTHERS.*

JUNCTION MAY BE SHOWN ON ELECTRICAL PLANS FOR SOME EQUIPMENT (NOT NECESSARY IF WIRING IS CONNECTED DIRECTLY TO STARTER OR DISCONNECT SWITCH.)

WIRING IN ELECTRICAL WORK

WIRING IN ELECTRICAL WORK

FINAL CONNECTIONS INSIDE EQUIPMENT TO BE MADE UNDER DIVISION 22 WORK.

A COMBINATION STARTER MAY BE USED IN LIEU OF A SEPARATE DISCONNECT SWITCH AND STARTER.

EQUIPMENT IN HVAC OR PLUMBING WORK OR WORK OF OTHER TRADES. SEE HVAC, PLUMBING AND ARCHITECTURAL DRAWINGS FOR LOCATION OF ALL EQUIPMENT.
PROVIDE EXTRA HEAVY PATTERN FULL OPENING IRON BODY TRAP SCREW FERRULE & ALL BRASS CLEANOUT WITH COUNTERSUNK HEAD

FINISH GRADE

LONG SWEEP. USE SHORT SWEEP WHERE REQUIRES

12"x12"x8" POURED CONC. BLOCK WHEN CLEANOUT IS NOT IN PAVED AREA

EXTERIOR ELEVATION

FINISH FLOOR MINIMUM 1"

SAME SIZE AS SEWER - MAX. SIZE 4"

COMBINATION "Y" & 1/8" BEND

STAINLESS STEEL COVER SCREWED TO THREADED C.O. PLUG

FACE OF WALL

INTERIOR ELEVATION

WALL- TYPE

P1.07 TYPICAL CLEANOUT DETAIL

SCALE: NONE
SEAL ALL AROUND WITH A SEALANT THAT WILL REMAIN FLEXIBLE (TYPICAL OF BOTH SIDES)

WALL

SCHEDULE 40 PIPE SLEEVE

SEE DRAWINGS FOR NUMBER AND SIZE OF PIPING

SCHEDULE 40 PIPE SLEEVE

1" SPACE - PACK WITH MINERAL WOOL PACKING

NOTES:
1. THE VOID BETWEEN FIBROUS PACKING AND SLEEVE SHALL BE FILLED WITH CAULKING MATERIAL.
2. SEE FLOOR PLANS FOR LOCATION OF ALL RATED WALLS.
3. CHROME ESCUTCHEONS TO BE PROVIDED FOR ALL EXPOSED PENETRATIONS.
DOMESTIC WATER TO SYSTEM

PROVIDE PRESSURE REDUCER VALVE: BASIS OF DESIGN, FLOWMATIC C100 SERIES, 108 PSI–INLET, 80 PSI OUTLET

BUTTERFLY VALVE (TYP.)

FULL SIZE BY–PASS (NORMALLY CLOSED)

WATER SERVICE SHUT–OFF VALVE

FLOOR

DOMESTIC WATER SERVICE FROM SITE

NOTES:
MIN. CLEARANCE ON EITHER SIDE OF PRV SHALL BE 18".
MIN. CLEARANCE IN FRONT SHALL BE 36"

P1.10 TYPICAL DOMESTIC WATER RISER DETAIL
SCALE: NONE
NOTE:
1. INSTALLATION KITS VARY BASED ON PIPE MATERIAL AND APPLICATION. FOR INSTALLATIONS IN PRESSURIZED SYSTEMS, USE "HOT TAP" 1 1/4" INSTALLATION KIT AND DRILL HOLE USING A 1" WET TAP DRILL.
2. METER IS ACCEPTABLE TO INSTALL IN VERTICAL PIPE
3. WATER METER SHALL BE ONICON, INC. MODEL F-1210, OR EQUAL. METER SHALL BE FURNISHED BY CONTROLS CONTRACTOR AND INSTALLED BY PLUMBING CONTRACTOR.
4. WATER METER SHALL BE INSTALLED IN AN ACCESSIBLE FASHION. CONTRACTOR SHALL MEET WITH ENGINEER AND INDICATE INSTALLATION LOCATION, PRIOR TO INSTALLING.
NOTES:
1. REFER TO SPECIFICATIONS FOR CONTROL AND BALANCING VALVE TYPES.
2. MANUAL BALANCING VALVE ON BYPASS IS NOT REQUIRED IF USING AUTOMATIC BALANCING VALVE
3. PROVIDE DRAIN PAN OVERFLOW SWITCH FOR COOLING COIL
NOTE: REFER TO SPECIFICATIONS FOR CONTROL AND BALANCING VALVE TYPES.

BALANCE VALVE

3-WAY CONTROL VALVE

PRESSURE DEPENDENT 2-WAY CONTROL VALVE

AUTO FLOW BALANCING VALVE

COIL BYPASS AND VALVE

RETURN

SUPPLY

COIL

MANUAL AIR VENT

AIR FLOW

UNION (TYPICAL)

DRAIN VALVE WITH SCREW CAP & CHAIN

P/T PORT & PLUG (TYPICAL)

STRAINER WITH BLOWDOWN VALVE, SCREW CAP & CHAIN

ISOLATION VALVE (TYPICAL) REFER TO SPECIFICATIONS FOR VALVE TYPE

M1.03 TERMINAL UNIT COIL DETAIL

SCALE: NONE
NOTES:
1. PROVIDE LOUVERED PANELS AT CONDENSER FANS.
2. PPR PIPE AS SPECIFIED ON ALL PIPING BELOW GRADE.
1. PROVIDE PALL MODEL 18FMO3-316L-2-IP OR EQUAL FILTER HOUSING FOR FILTRATION AND CHEMICAL FEED.

2. INSTALL FILTER AFTER CORROSION INHIBITOR IS IN SYSTEM

3. OPERATE WITH FLOW THROUGH FILTER

4. PROVIDE 3 SPARE FILTERS TURN OVER TO OWNERS REP AT TIME OF INITIAL FILTER INSTALLATION

- Top construction with opening for addition of treatment and filter installation.
- Swing bolt assembly
- Filter cartridge
- Filter housing
- "See thru" sight glass
- Ball valve
- TEE in pump suction or common piping of parallel pumps
- Pipe around perimeter of room and into nearest floor drain.
- Bolt steel tank supports directly to concrete pad
- 6" high concrete housekeeping pad
- Circuit setter
- Mounting legs
- 1/2" ball valve for drain
- TEE in pump discharge or common piping of parallel pumps

M1.13 CHEMICAL FEEDER DETAIL
SCALE: NONE
DUCTED COMBUSTION
AIR. SEE PLANS FOR SIZE
AND ROUTING.

BOILER BURNER
CONTROLS

EQUIPMENT PAD

GAS PRESSURE REGULATOR (TYP)
FOR EACH BOILER NEAR FLOOR. VERIFY
INCOMING GAS PRESSURE AT METER.
REDUCE TO 8.5" W.C.

DIAL THERMOMETER

HOT WATER SUPPLY

FLOW CONTROL VALVE

AL-294C
STAINLESS STEEL
VENT STACK.

ASME PRESSURE
RELIEF VALVE

BYPASS PIPE WITH VALVE

CONDENSATE DRAIN
TO FLOOR DRAIN. SEE
M____ FOR LOCATION
OF DRAIN.

HOT WATER RETURN

PIPE TO FLOOR DRAIN

TO GAS VALVE BY P.C.
SEE M____ FOR LOCATION
OF GAS VALVE.

UNION

GAS SUPPLY

6" DIRT LEG.

M1.16
LARGE CONDENSING BOILER DETAIL
SCALE: NONE
NOTES:
1. SEPERATE PRV STATION FOR EACH CHW AND HW SYSTEM
2. MOUNT PRV STATION MAX 6FT A.F.F.

M1.17 MAKEUP WATER STATION DETAIL
SCALE: NONE
Flow Control Valve

Hot Water Supply

Dial Thermometer

6" Round
Al-29-4C
Stainless Steel
Vent Stack,
See
For Boiler
Vent Detail.

ASME Pressure
Relief Valve

Bypass Pipe
With Valve

Hot Water Return

Boiler Burner
Controls

Equipment Pad

Union

Gas Supply

Union

Pipe to Floor Drain

Drain Trap Assembly

3/4" Drain Line

To Drain

Gas Pressure Regulator (Typ)
For Each Boiler Near Floor. Size
For 15 PSI Inlet Pressure,
8.5" W.C. Delivery Pressure
@ 100 CFH. Vent Regulator Thru
Roof.

6" Dirt Leg.
M1.19  SUSPENDED INLINE CIRCULATION PUMP DETAIL

SCALE: NONE
DIRECT DRIVE MOTOR
EXCEPT WHERE SCHEDULED DIFFERENTLY

WIRING FROM DISCONNECT TO FAN MOTOR BY FACTORY
DISCONNECT PROVIDED WITH EQUIPMENT

ALUMINUM BIRD SCREEN
ALUMINUM HOUSING

Curb furnished with equipment by M.C.
Coordinate requirements for curb and flashing

BACKDRAFT DAMPER

8" MIN.

SEE PLANS FOR DUCT SIZE

WIRING AND CONDUIT FROM MOTOR STARTER TO DISCONNECT BY ELEC. CONTR.
INSTALL HANGER AS CLOSE TO PIPE ELBOW AS POSSIBLE

SUCTION PIPE

DIAL PIPE THERMOMETER

P&T PORT

SUCTION GUIDE WITH STRAINER

NEOPRENE ISOLATION PAD

DRAIN CONNECTION

Provide insulation on chilled water pumps

Triple duty valves are not permitted on variable speed pumps. Provide with check valve and butterfly valve.

FLOTEX VALVE

4" CONCRETE HOUSEKEEPING PAD

M1.21 PAD MOUNTED VERTICAL PUMP INSTALLATION DETAIL

SCALE: NONE
NOTES:

1. LOCATE TRAP SO AS TO BE ACCESSIBLE FOR CLEANING.

2. \[ H = \text{FAN OUTLET PRESSURE (IN. W.C.)} + 1 \text{ IN. MINIMUM} \]
BOILER STACK SUPPORT DETAIL

EXPANSION BOLT TO WALL

ANGLE STRUT Brace AT 45 DEGREES.

ANGLE BRACKET

SUPPORT RING

DOUBLE WALL BOILER VENT STACK

ANGLE WALL BRACKET

ALL BRACING MATERIALS SHALL BE STAINLESS STEEL OR GALVANIZED STEEL

NOTE:
INSTALL AT JOINT DIRECTLY ABOVE TEE AT WALL PENETRATION AND EVERY 15'-0"
O.C. VERTICAL. EXTEND BOILER VENT MINIMUM 3'-0" ABOVE ROOF / PARAPET.

SCALE: NONE
PROVIDE STORM CAP

10'-0' HORIZONTAL

DOUBLE WALL BOILER STACK AS SPECIFIED

MIN. 0.72

MIN. 4.5

ROOF THIMBLE AND FLASHING PROVIDED BY M.C. CURB FURNISHED BY M.C. AND INSTALLED BY G.C.
NOTES:
1. LOCATE TRAP SO AS TO BE ACCESSIBLE FOR CLEANING.
2. $H = \text{FAN INLET PRESSURE (IN. W.C.)} + 1 \text{ IN.}$
NOTES:

1. GROUND SHIELD AT CONTROL PANEL ONLY.
2. PURGE AIR FROM TUBING PRIOR TO START-UP USING VENT VALVES ON TRANSMITTER.
3. OPEN EQUALIZATION VALVE TO BALANCE PRESSURE, CLOSE PRIOR TO SYSTEM START-UP.
4. PIPING SHALL BE TYPE 'L' RIGID COPPER ONLY WITH SOLDERED FITTINGS. NO SOFT COPPER ALLOWED.
18 GA. GALV. DUCT
WELD ALL JOINTS TO
BE WATERTIGHT – SEE
PLANS FOR SIZE

CONTINUOUS
MASTIC SEAL

20 GA. GALV.
COUNTER FLASHING
MECH CONTR.

FLASHING BY
GEN. CONTR.

ALUMINUM
BIRD SCREEN

24" MIN

INSULATION BY
GEN. CONTR.

INSULATED PRE-
FABRICATED METAL CURB
BY MECH CONTR.

M1.42 GOOSENECK ROOF PENETRATION DETAIL
SCALE: NONE
HEAT TRACE SPECIFICATION:
HEAT-TRACE CABLES: 5 W/FT OUTPUT. SELF-REGULATING, ELECTRIC HEATING CABLES SUITABLE FOR FREEZE PROTECTION OF METAL PIPING. CABLES: PAIR OF PARALLEL NO. 16 AWG TINNED-COPPER BUS WIRES EMBEDDED IN CROSS-LINKED CONDUCTIVE POLYMER CORE, WHICH VARIES POWER OUTPUT IN RESPONSE TO TEMPERATURE ALONG ITS LENGTH. CABLE SHALL BE CAPABLE OF CROSSING OVER ITSELF WITHOUT OVERHEATING. HEAT OUTPUT: AT LEAST 90 PERCENT OF RATING OVER A TEMPERATURE RANGE FROM 40 TO 150 DEG F PIPE TEMPERATURE. CABLE COVER: FABRICATED OF CROSS-LINKED, MODIFIED, POLYOLEFIN DIELECTRIC JACKET; WITH ULTRAVIOLET INHIBITOR. PIPE THERMOSTAT: UNIT WITH ADJUSTABLE TEMPERATURE RANGE FROM 35 TO 50 DEG F SNAP ACTION; OPEN-ON-RISE, SINGLE-POLE SWITCH WITH 25-A RATING; AND REMOTE BULB FOR DIRECTLY SENSING PIPE-WALL TEMPERATURE.

HEAT TRACE POWER CONNECTOR

PROVIDE WITH DISCONNECT SWITCH & CONNECT TO ELECTRICAL CIRCUIT

HEAT TRACE POWER CONNECTOR MOUNTING BASE

HEAT TRACE END SEAL KIT WITH L.E.D. PILOT LIGHT AND MOUNTING BASE

HEAT TRACE CABLE

SECURE MOUNTING BASE TO PIPING WITH PLASTIC CABLE TIE

SECURE HEAT TRACE TO PIPE WITH GLASS TAPE

ALL HEAT TAPE SHALL BE SPLICED OUTSIDE OF INSULATION

M1.43 HEAT TRACE CABLE INSTALLATION DETAIL
SCALE: NONE
NOTE:
FURNISH VENT ASSEMBLIES
AT ALL HIGH POINTS OF
WATER PIPING SYSTEMS AND
WHERE INDICATED ON DRAWINGS.
WIRING AND CONDUIT IN ELECTRICAL WORK (TYP.)

JUNCTION BOX PROVIDED BY DIVISION 26 CONTRACTOR

ON/OFF SWITCH BY DIVISION 26 CONTRACTOR (LABEL AS "B.A.S." – SEE SPECS. FOR LABELING REQUIREMENTS)

DIVISION 26 WORK

CONTROL PANEL OR EQUIPMENT PROVIDED BY CONTROLS CONTR. – REFER TO MECHANICAL PLANS FOR ALL B.A.S. (DDC) CONTROL PANEL LOCATIONS

SURGE SUPPRESSOR FURNISHED BY CONTROLS CONTR. AND INSTALLED BY DIVISION 26 CONTR.
PIPE EXPANSION ANCHOR AND GUIDE DETAIL

ANGLES MAY BE TURNED EITHER WAY AS NECESSARY TO PROVIDE LATERAL MOVEMENT FOR HEIGHT ADJUSTMENT.

UNEQUAL LEG ANGLES 1.5 FEET LONG BY 1/2" THICK. LEG LENGTH AS REQ'D.

1/4" 2-4

3/4" ANCHOR STUDS 4 MIN. (REQUIRED WHERE IMBEDDED IN CONCRETE)

1/4" 2-4

BASE PLATE 3/8"x2X WIDTH REQ'D.

PIPE O.D. + 2"

3/16" x

GALVANIZED C6X8.2 WITH 1/2"x8"x8" PLATE. ATTACH TO WALL WITH 4-1/2"Ø X 6" LONG EXPANSION ANCHOR BOLTS AT EACH END.

1/4" 2-4 (TYPICAL)

CARRIER PIPE

GUIDE CLAMP

INSULATION

GUIDE RING

ANCHOR STUD OR STEEL SUPPORT AS REQUIRED.
1" MINERAL WOOL PACKING

5/8" MINIMUM TO 7/8" MAXIMUM ANNULAR SPACE.

STEEL PIPE

1" DEPTH
3M FIRE BARRIER CP 25WB CAULK OR APPROVED EQUAL.

SOLID CONCRETE or UL CLASSIFIED BLOCK WALL.

PENETRATION FIRESTOP FOR A MAX. 8" DIA. INSULATED STEEL PIPE THROUGH A CONCRETE WALL. (TYPICAL FOR 2 HR RATED WALLS)

NOTE:
FOR NON-FIRE RATED WALL PENETRATIONS INSTALL AS DETAILED ABOVE AND SUBSTITUTE ACRYLIC SILICONE CAULK FOR FIRE BARRIER CAULK.
NOTE:
FOR NON-FIRE RATED WALL PENETRATIONS
INSTALL AS DETAILED ABOVE AND SUBSTITUTE
ACRYLIC SILICONE CAULK FOR FIRE BARRIER
CAULK.
INSTALL BYPASS 6" ABOVE TOP OF MAIN PIPES

SUPPLY MAIN

MANUAL AIR VENT

UNION

BALL VALVE

1" OR 3/4" PIPE PER PLANS

RETURN MAIN

BYPASS PIPING SHALL BE INSTALLED WITH ADEQUATE SPACE FOR ACCESS AND ADJUSTMENT.
Adjustable Clevis Hanger

Provide insulation shield & insert for all piping

3/8" dia. hanger rods with 36" max. spacing on each channel

1 1/2' 12 gage channel or 2"x2"x1/4" angle

Roller or bottom pipe support

Insulation (vapor barrier type is required for low temperature pipe)

Provide high compressive strength insulation insert under insulation shield

Insulation shield at hanger
WIRING AND CONDUIT IN ELECTRICAL WORK (TYP.)

JUNCTION BOX PROVIDED BY DIVISION 26 CONTRACTOR

ON/OFF SWITCH BY DIVISION 26 CONTRACTOR (LABEL AS "B.A.S." - SEE SPECS. FOR LABELING REQUIREMENTS)

DIVISION 26 WORK

CONTROL PANEL OR EQUIPMENT PROVIDED BY CONTROLS CONTR. - REFER TO MECHANICAL PLANS FOR ALL B.A.S. (DDC) CONTROL PANEL LOCATIONS

SURGE SUPPRESSOR FURNISHED BY CONTROLS CONTR. AND INSTALLED BY DIVISION 26 CONTR.
M2.03
CONSTANT VOLUME HORIZONTAL AHU WITH ECONOMIZER

SCALE: NONE
BOLT FAN TO BRACKET

MOUNT ANGLE BRACKET TO WALL 2" X 2" X 1/4" STEEL ANGLE FABRICATED BRACKET

SEAL BETWEEN ANGLE BRACKET AND WALL
M2.11
EXPOSED DUCT PENETRATION DETAIL

SCALE: NONE
\[ a_1 = \frac{\text{CFM}_1}{\text{CFM}} \times A \]

**DETAIL A**

When \( B \leq b \),

\[ a_1 + \frac{3}{4}A \]

**THROAT RADIUS**

**HEEL RADIUS**

**SLOPE 1" IN 7"**

**NORMAL WHEN B = b**

**DETAIL C**

When \( B > b \),

\[ a/b \]

**FLOW CFM**

**A/B**

**FLOW CFM**

**A/B**

**FLOW CFM**

**A/B**

**45A**

**CFM1**

\[ \text{WHEN} \quad \frac{\text{CFM}_1}{\text{CFM}} \leq 0.1 \]
PROVIDE TRIM RING ON EXPOSED ROUND OR FLAT OVAL DUCT PENETRATIONS

WALL DUCT COLLAR NON RATED WALL PENETRATIONS

ROUND OR FLAT OVAL DUCTWORK

LAY-IN OR HARD CEILING
DOUBLE WALL TRUNK DUCT WITH PERFORATED INNER LINER

STRAP TYPE DUCT HANGER WITH 3/8" THREADED ROD TO BEAM CLAMP AT STRUCTURE

VOLUME DAMPER ADJUSTABLE FROM FACE OF DIFFUSER

DIFFUSER

FACTORY WELDED DUCT TAP

M2.14 EXPOSED SPIRAL DUCT DETAIL
SCALE: NONE
COORDINATE WITH G.C. FOR ROOF PENETRATION. FLASHING BY G.C.

PROVIDE GOOSENECK ON 4" DRYER VENT ABOVE ROOF.

4" DRYER VENT UP FROM APPLIANCE BELOW

12" MIN.
M.C. TO PROVIDE STEEL WIRE HANGERS AT (2) DIAGONAL CORNERS OF DIFFUSER.

LAY-IN CEILING DIFFUSER.
PLASER RING INSTALLED TO ACCEPT LAY-IN STYLE DIFFUSER.

SQUARE OR ROUND NECK SEE PLANS FOR TYPE OF CONNECTION.

GYPSUM BOARD CEILING
M2.23

ROUND NECK LAY-IN DIFFUSER DETAIL

SCALE: NONE
12 GAUGE STEEL HANGER WIRES PROVIDED AND INSTALLED BY HVAC CONTRACTOR

INSULATED ENGINEERED PLENUM

ROUND FLEXIBLE DUCT - SEE FLOOR PLAN FOR SIZES. PROVIDE VOLUME DAMPER AT DUCT TAKE-OFF.

CUSTOM FLOW LINEAR JET SLOT DIFFUSER W/2 SLOTS, BLACK INTERIOR, 100% OPEN.

PROVIDE W/ END CAP

LAY-IN CEILING TIE
METAL ROOF PANELS BY G.C.

PITCHED ROOF CAP W/ 1/2"X 1/2" MESH, PAINTED TO MATCH ROOF. DO NOT INSTALL MESH WHERE ROOF CAP IS USED TO VENT DRYER.

COORDINATE REQUIREMENTS OF FLASHING AND COUNTER FLASHING WITH G.C.

ROOF SLOPE

DUCT UP FROM FAN OR APPLIANCE.
M2.41 KILN EXHAUST DETAIL

SCALE: NONE
MAKE CONCRETE BASE PAD 4" LARGER ALL AROUND THAN EQUIPMENT BASE. CONSTRUCT FROM APPROVED SHOP DWGS.

#4 AT 12" EACH WAY. BEND DOWN INTO WALLS

FINISHED GRADE

Side Elevation

End Elevation

WAKE COUNTY PUBLIC SCHOOL SYSTEM
1429 Rock Quarry Road, Suite 116
Raleigh, NC 27610
(919) 588-3608

M2.51 CONCRETE EQUIPMENT PAD DETAIL

SCALE: NONE
1" MIN OVERLAP (FOUR SIDES)

1/4" MIN. CLEARANCE

1 1/2"x 1 1/2"x 14 GAGE MOUNTING ANGLE.

DUCT INSULATION

DUCT SLEEVE

WALL

1 1/2 HOUR UL RATED, DYNAMIC TYPE FIRE DAMPER WITH BLADES OUT OF AIR STREAM. FUSIBLE LINK

DUCTWORK

"S" CLIP

"S" CLIP

SEAL JOINT ALL AROUND ON BOTH SIDES OF DUCT WALL

DUCT INSULATION

2 HOUR FIRE RATED WALL

DAMPER SLEEVE 14 GAGE MIN.

NOTE:
THIS DETAIL INDICATES MINIMUM INSTALLATION REQUIREMENTS. ACTUAL FASTENING AND INSTALLATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH THIS DETAIL OR MANUFACTURER'S INSTALLATION INSTRUCTIONS, WHICHEVER IS MORE STRINGENT. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH NFPA 90A AND UL555.

PROVIDE REMOVABLE ACCESS DOOR OF APPROPRIATE SIZE TO ALLOW INSPECTION AND SERVICE OF DAMPER. PROVIDE FACTORY INSULATED DOOR IF DUCT IS INSULATED. SEE GENERAL NOTES FOR DOOR SIZE.
DRYER VENT COLLECTION BOX DETAIL

- GALV. DUCT
- HINGE
- HOSE CLAMP (TYPICAL OF 2)

- DRYER VENT. FOR RECESSED BOXES, PROVIDE RIGID DUCT WITHIN WALL CAVITY.

- 8”x8”x8” COLLECTION BOX WITH 4” DIA. DUCT COLLARS.
  BOX SHALL HAVE HINGED AND GASKETTED ACCESS DOOR WITH CAM LATCH.

M2.55

SCALE: NONE
6" TO 6" NO-HUB COUPLING, CHARLOTTE PIPE STANDARD NO-HUB COUPLING OR EQUAL

CAUTION LABEL, FLOW LABEL. REFER TO DETAIL R1.07

SUPPORT BRACKET

6" CAST IRON PIPE

340 STAINLESS STEEL JACKETED RUBBER CLAMPS

SEE PLUMBING DETAIL FOR FLOOR ASSEMBLY

FINISHED FLOOR

FROM VAPOR COLLECTION PIT

6" SOLID SCHEDULE 40 PVC PIPE

SUBGRADE

#57 STONE

6" SCHEDULE 40 PVC ELBOW

WALL - SEE ARCHITECTURAL PLANS FOR TYPE

TO BLOWER

VAPOR BARRIER

V1.01 VAPOR MITIGATION SYSTEM - VENT PIPE AT RISER DETAIL
SCALE: NONE
VAPOR MITIGATION VENT

CAUTION

VAPOR FLOW
PAD MOUNTED TRANSFORMER BY POWER COMPANY

METER

PULSE METER CONTACTS ENCLOSURE

CONDUIT ON OUTSIDE OF TRANSFORMER

3/4" CONDUIT FROM TRANSFORMER TO LOCATION OF BUILDING AUTOMATION SYSTEM PANEL FOR KWH PULSE RELAY INPUT

PRIMARY CONDUCTORS

SECONDARY CONDUCTORS

E1.02 STANDARD PULSE RELAY CONDUIT DETAIL
SCALE: NONE
NOTES:
1. WALL MOUNTED SPEAKERS REQUIRE A STANDARD 2-GANG BACKBOX THAT WILL ACCOMODATE A 2 1/2" DEEP DEVICE.
2. PROVIDE ALL COMPONENTS FOR A COMPLETE OPERATING SYSTEM.
3. PROVIDE ALL WIRING PER MANUFACTURERS SPECIFICATIONS.
4. PROVIDE SPEAKER-TO-SPEAKER, PUSH TO TALK CONNECTION WITH SPEAKER IN SPEECH ALWAYS RETURNING TO LISTEN.
5. CONNECT TO NEAREST RECEPTACLE CIRCUIT.
PLATFORM DIMMING RISER GENERAL NOTES:

1. THE PLATFORM DIMMING SYSTEM IS A PREFERRED BRAND ALTERNATE, REFER TO SPECIFICATIONS.
2. PROVIDE ALL NECESSARY PARTS, SUPPORTS, AND ACCESSORIES FOR A COMPLETE SYSTEM.
3. ALL WIRING SHALL BE IN CONDUIT (3/4" MINIMUM).
4. COORDINATE TRACK AND FIXTURE LOCATION WITH MANUFACTURER FOR OPTIMUM LOCATION.
5. REFER TO PLANS FOR EXACT EQUIPMENT LOCATION AND CIRCUIT INFORMATION.
6. DMX CABLING NOT SHOWN ON PLANS FOR CLARITY.

E1.04 PLATFORM DIMMING RISER DIAGRAM

SCALE: NONE
CABLE SCHEDULE

MARKS | DESCRIPTION
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(1) | 1 - 4 PAIR Cat5e CABLE FOR DATA.
(2) | 1 - 4 PAIR Cat5e CABLE FOR VOICE.
(3) | MULTI-PAIR Cat3 INDOOR/OUTDOOR CABLE FOR VOICE DISTRIBUTION.
(4) | 1 – 12 STRAND MULTIMODE FIBER CABLE FOR DATA TO OPEN 7FT RACK IN SINGLE OR MODULAR COMPLEX TELECOMMUNICATIONS SUB CLOSET.

FOR CONTINUATION REFER TO 16740-19

INTERCOM DISTRIBUTION CABLE

WIRED NETWORK ANTENNA TO BE INSTALLED BY WCPSS

GENERAL PURPOSE CLASSROOM

INTERCOM SYSTEM VOICE OVER PA

TYPICAL HUB CABINET

REFER TO ATTACHMENT 16740-2A FOR DETAILS

COAX CABLE FROM HC TO WIRED NETWORK ANTENNA TO BE INSTALLED BY WCPSS.

TO TYP BLDG INTERCOM SYSTEM
TO TYP BLDG SECURITY SYSTEM PANEL
TO TYP BLDG FIRE ALARM SYSTEM PANEL

TYP DATA TCO FOR STUDENTS, REFER TO 16740 FOR REQUIRED QTY PER PROGRAM.

TYP V/D TCO FOR TEACHER.

TYP DATA TCO FOR TEACHER.

INTERCOM SYSTEM VOICE OVER PA

INTERCOM DISTRIBUTION CABLE

FLOOR RACK MOUNTED PATCH PANEL

TYP DATA TCO FOR STUDENTS

TYP DATA TCO FOR STUDENTS
1. All conduit and outlet boxes by electrical contractor.
2. All camera cabling shall be green and provided and installed by structured wiring contractor.
3. See specifications for further installation requirements.
4. Provide 15'-0" service loop at each camera location.
5. Please note: Because the cameras are owner provided and installed, the cameras may be installed later. The contractor shall place a yellow dot on ceiling with the respective cable number. The cable number shall be tagged on the cable jacket above the ceiling, coordinate all work with the owners it and security departments prior to installation/rough-in.
6. Cameras cables shall be terminated on separate patch panel in data rack at mid/10 telecom closets. Network POE switches shall be provided and installed by the owner.
7. Plenum rated Cat-6 camera data cable lengths shall not exceed 90 meters. Contractor shall take care in maintaining these lengths.
8. All camera cables shall be tested in compliance with the data cable requirements.
9. Refer to architect's division 1 alternates section.

Cable connection provided and installed by division 26 contractor.

IP CCTV cameras provided and installed by division 26 contractor.

Ceiling

Section

Plan View

1 Cat 6 cables in 3/4"C

Single port data outlet

3' Cat 6 patch cable

Typical CCTV camera

1 Cat 6 cable

SINGLE PORT DATA OUTLET

CONDUITS STUBBED INTO CAMERA BRACKET

Ceiling

TO CCTV PATCH PANEL IN 10' RACK(S)
NOTES (REBOX – RE4 ONLY):
1. CABINET SHALL BE CONSTRUCTED FROM 16 GAUGE COLD ROLLED STEEL. HINGES SHALL BE FORMED STEEL TYPE OR EQUIVALENT AND SWING FROM SIDE. FRONT PANEL SHALL HAVE LOUVERS TO AID IN THE DISSIPATION OF HEAT. UNIT SHALL HAVE THUMB LATCH LOCKING DEVICE. UNIT SHALL HAVE A POLYESTER POWDER ENAMEL OR EQUIVALENT TYPE FINISH (GRAY IN COLOR). MOUNT CABINET WITH LOUVERS HORIZONTAL.

2. CABINET SHALL BE EQUIPPED WITH 2 SETS OF UNIVERSAL MOUNTING RAILS WITH EIA STANDARD HOLE PATTERN FOR MOUNTING UP TO FOUR (4) 19" RACK MOUNT DEVICES. CABINET SHALL PROVIDE HINGED MOUNTING FOR 19" PATCH PANEL TO ALLOW FRONT ACCESS TERMINATION. UNIT SHALL PROVIDE GROUND STUDS FOR PROPER GROUNDING OF DOOR AND BASE, AND SHALL BE CAPABLE OF RECEIVING AN OPTIONAL FAN FOR EXTRA HEAT DISSIPATION.

3. CABINET SHALL CONTAIN A MULTIMEDIA OUTLET BOX WITH SC–SC FIBER CONNECTOR ADAPTER PLATE.

4. CONTRACTOR SHALL TERMINATE FIBER WITH SC STYLE CONNECTORS.

5. CABINET SHALL BE MOUNTED TO WALL WITH FOUR (4) 1/4" BOLTS INTO WALL ANCHORS. USE TOGGLE BOLTS FOR HOLLOW WALL PARTITIONS AND LEAD ANCHORS FOR SOLID MASONRY WALLS. BOLTS SHALL PASS THROUGH THE CABINET AND INTO THE WALL ANCHOR.

6. CONTRACTOR TO SUPPLY CAT5e CABLE FROM REBOX TO DEVICES IN RACEWAY OR BOX. CABLE SHALL BE ROUTED TO CABINET AS FOLLOWS:

7. NEW CONSTRUCTION – (REBOX MUST BE FED WITH A MINIMUM OF ONE (1) 2" DIAMETER CONDUIT. ROUGHED IN WALL TO A DOUBLE GANG OUTLET BOX) CABINET SHALL HAVE A GROMMETED 4"x4" OPENING IN BACK AND BE MOUNTED DIRECTLY OVER THE OUTLET BOX IN SUCH A MANNER TO ALLOW FOR THE INSTALLATION OF THE STATION COPPER CABLES. THE FIBER CABLE MUST HAVE ONE (1) 1" DIAMETER CONDUIT FOR THE MULTIMEDIA OUTLET BOX.
NOTES: (HUB CABINET SURFACE MOUNTED)

1. CABINET SHALL BE CONSTRUCTED FROM 16 GAUGE COLD ROLLED STEEL. HINGES SHALL BE FORMED STEEL NICE OR EQUIVALENT AND SWING FROM SIDE. FRONT PANEL SHALL HAVE LOUVERS TO AID IN THE DISSIPATION OF HEAT. UNIT SHALL HAVE THUMB LATCH LOCKING DEVICE. UNIT SHALL HAVE A POLYESTER POWDER ENAMEL OR EQUIVALENT TYPE FINISH. MOUNT CABINET WITH LOUVERS HORIZONTAL.

2. CABINET SHALL BE MOUNTED TO WALL WITH FOUR (4) 1/4" BOLTS INTO WALL ANCHORS. USE TOGGLE BOLTS FOR HOLLOW WALL PARTITIONS AND LED ANCHORS FOR SOLID MASONRY WALLS. BOLTS SHALL PASS THROUGH THE 1/2" PLYWOOD CABINET BACKBOARD, THE CABINET AND INTO THE WALL ANCHOR.

3. CABINET SHALL HAVE 1/2" PLYWOOD BACKBOARD TO MOUNT EQUIPMENT. CABINET SHALL HAVE SEALED RUBBER CABLE ENTRY GROMMETS WHERE REQUIRED. OWNER TO SUPPLY AND INSTALL ELECTRONICS ONLY.

4. CABINET SHALL CONTAIN A UTS INFORMATION OUTLET WITH SC–SC FIBER CONNECTOR ADAPTER PLATE.

5. CONTRACTOR SHALL TERMINATE FIBER WITH PRE–POLISHED, CRIMP–ON, SC STYLE CONNECTORS.

6. CABINET SHALL HAVE A 12 PORT VERTICAL CAT5e PATCH PANEL.

7. CONTRACTOR SHALL PROVIDE CAT5e 24" LONG STRANDED FACTORY MANUFACTURED PATCH CORDS ONE PER CABLE TERMINATED.

8. CONTRACTOR TO SUPPLY CAT5e CABLE FROM HUB CABINET TO ALL NEW OUTLETS.

9. HUB CABINET SHALL BE FED FROM SURFACE MOUNTED METAL RACEWAY FOR EXISTING WALL RENOVATION CONSTRUCTION.

NOTES:

1. CABINET SHALL HAVE 1/2" PLYWOOD BACKBOARD TO MOUNT EQUIPMENT.

2. CABINET SHALL CONTAIN A UTS INFORMATION OUTLET WITH SC–SC FIBER CONNECTOR ADAPTER PLATE.

3. CONTRACTOR SHALL TERMINATE FIBER WITH PRE–POLISHED, CRIMP–ON, SC STYLE CONNECTORS.

4. CABINET SHALL HAVE A 12 PORT VERTICAL CAT5e PATCH PANEL AND A VERTICAL PATCH CORD MANAGER.

5. CONTRACTOR SHALL PROVIDE CAT5e 24" LONG STRANDED FACTORY MANUFACTURED PATCH CORDS FOR EACH TERMINATED CABLE.

6. CONTRACTOR TO SUPPLY CAT5e CABLE FROM HUB CABINET TO ALL NEW DEVICES.

#250 KCMIL AL FROM TELECOMMUNICATION BONING BACKBONE TO ELECTRICAL SERVICE GROUND ROD IN MAIN ELECTRICAL ROOM

PLYWOOD, SHEETROCK WALLBOARD, & STUD SHOWN; ACTUAL MATERIAL MAY DIFFER. USE APPROPRIATE ANCHOR TO MATCH WALL CONSTRUCTION.

STANDOFF INSULATOR 1-1/2" FACE DIA. W/ 3/8"-16 THREAD INSERTS

3/8"-16 BRASS CAP SCREW WITH LOCK WASHER

TO METAL FRAME OF BUILDING

TO TELECOMMUNICATION BONING BACKBONE

BRASS HARDWARE WITH LOCK WASHERS EACH SIDE

SCALE: NONE

WAKE COUNTY PUBLIC SCHOOL SYSTEM
1429 Rock Quarry Road, Suite 116
Raleigh, NC 27610
(919) 888-3608