

**System No. C-AJ-1149**

ANSI/UL 1479 (ASTM E84)	CANULC S115
F Rating — 2 Hr	FT Rating — 2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 2 Hr
L Rating At 400 F — 4 CFM/sq ft	FTH Rating — 0 Hr
W Rating — Class 1 (See Item 4)	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — 4 CFM/sq ft

**SECTION A-A**

- Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall may also be constructed of any UL Classified Concrete Block. Max diam of opening is 12 in. (305 mm). See Concrete Blocks (CB) category in the Fire Resistance Directory for names of manufacturers.
- Through Penetrants — One metallic pipe, conduit or tubing to be installed within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in. (point contact) to max 1-1/4 in. (32 mm). The following types and sizes of metallic pipe, conduit or tubing may be used:
  - A. Steel Pipe — Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe
  - B. Iron Pipe — Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe
  - C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 3 in. (76 mm) diam steel conduit
  - D. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing
  - E. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe
- Packing Material — Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation for nom 4 in. diam (and smaller) pipes, conduits or tubing and a min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation for pipe greater than nom 4 in. diam. Firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material.
- Fill, Void or Cavity Material — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact between pipe and concrete, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. W Rating applies only when CFS-S SIL GS, CFS-S SIL SL (Rons only), CP605, CP604 sealant or FS-ONE MAX Intumescent Sealant is used. For W Rating when FS-ONE MAX is used, packing material to be a min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation. HLT CONSTRUCTION CHEMICALS, DIV OF HLT INC — CP605, CP604, CFS-S SIL GS, CFS-S SIL SL (Rons only), CP605 or FS-ONE Sealant or FS-ONE MAX Intumescent Sealant.

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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**System No. W-L-1054**

ANSI/UL 1479 (ASTM E84)	CANULC S115
F Rating — 1 and 2 Hr (See Items 1 and 2)	F Rating — 1 and 2 Hr (See Items 1 and 2)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating at Ambient — Less Than 1 CFM/sq ft	FH Rating — 1 and 2 Hr (See Items 1 and 2)
L Rating at 400 F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 1 CFM/sq ft
	L Rating at 400 F — Less Than 1 CFM/sq ft

**SECTION A-A**

- Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/wood wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
  - A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of min 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (408 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw attached to the steel studs at each end. The framed opening in the wall shall be 4 to 5 in. (102 to 152 mm) wider and 4 to 5 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
  - B. Gypsum Board — 5/8 in. (16 mm) thick, 4 ft (122 mm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and steel orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls. The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.

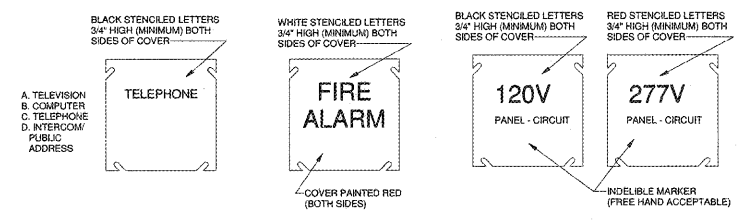
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**System No. W-L-1054**

- Through Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (61 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipe, conduits or tubing may be used:
  - A. Steel Pipe — Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe
  - B. Iron Pipe — Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe
  - C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 3 in. (76 mm) diam steel conduit
  - D. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing
  - E. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe
- Fill, Void or Cavity Material — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point of contact between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe/wall interface on both surfaces of wall. HLT CONSTRUCTION CHEMICALS, DIV OF HLT INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant \*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

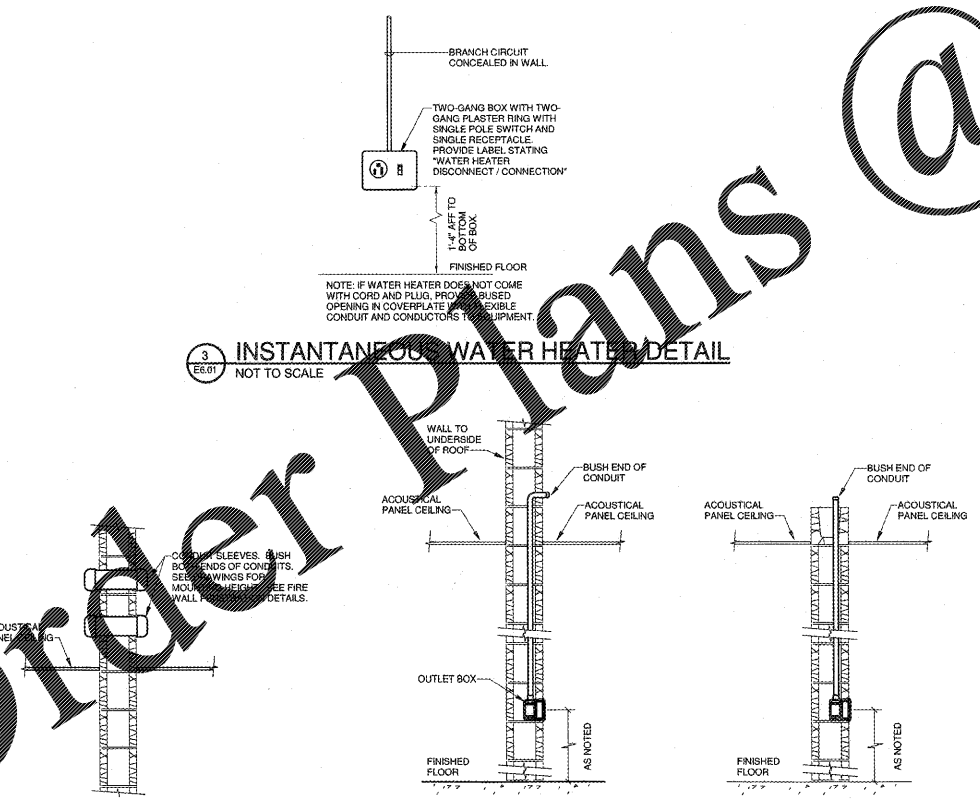
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**FIRE STOPPING DETAILS**  
NOT TO SCALE



**LOW-VOLTAGE FIRE ALARM POWER SYSTEMS**

**JUNCTION BOX MARKING REQUIREMENTS**  
NOT TO SCALE



**SLEEVE DETAIL**  
12" = 1'-0"

**LOW VOLTAGE OUTLET DETAIL**  
12" = 1'-0"

**ELECTRICAL CONDUIT / WIRE LEGEND**

SYMBOL	LEGEND INFORMATION
	CONDUIT AND WIRE CONCEALED IN WALL, ABOVE CEILING, OR BELOW SLAB. DEFAULT BRANCH CIRCUIT IS 20/2, #12S, 3/4" C. NUMBER BESIDE WIRE INDICATES LARGER WIRE SIZE FOR VOLTAGE DROP OR LOAD REQUIREMENTS. SIZE CONDUIT PER NEC. EQUIPMENT GROUND REQUIRED IN PVC CONDUIT. CONDUIT AND WIRE CAN BE EXPOSED IN JOIST AREA IF NO CEILING IS PRESENT.
	INDICATES CONDUIT AND WIRE CONCEALED BELOW GRADE OR SLAB.

**ELECTRICAL ABBREVIATIONS**

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
EC	EMPTY CONDUIT. PROVIDE PULL CORD.
EWC	ELECTRIC WATER COOLER
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
NF	NON-FUSED
NL	NIGHT LIGHT. PROVIDE LOCK-ON DEVICE ON CIRCUIT BREAKER.
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR. SEE SPECIFICATIONS.
WG	WIRE GUARD
WP	WEATHERPROOF DEVICE OR COVER - NEMA 3R
PK	PLAN KEYED NOTE

**ELECTRICAL LEGEND**

SYMBOL	LEGEND INFORMATION
	LIGHTING FIXTURE. MOUNT AS INDICATED OR SCHEDULED. SEE LIGHTING FIXTURE SCHEDULE.
	LIGHTING FIXTURE CONNECTED TO GENERATOR. MOUNT AS INDICATED OR SCHEDULED. SEE LIGHTING FIXTURE SCHEDULE.
	LIGHTING FIXTURE. MOUNT AS INDICATED OR SCHEDULED. SEE LIGHTING FIXTURE SCHEDULE.
	EXIT SIGN, WALL OR CEILING MOUNTED AS INDICATED, WITH BATTERY BACKUP AND ON CIRCUIT BREAKER WITH LOCK-ON DEVICE. NUMBER OF FACES AND CHEVRONS AS INDICATED. SEE LIGHTING FIXTURE SCHEDULE.
	WALL SWITCH, SINGLE POLE. MOUNT BOTTOM OF BOX AT 3'-8" AFF OR AS NOTED.
	WALL SWITCH, THREE-WAY. MOUNT BOTTOM OF BOX AT 3'-8" AFF OR AS NOTED.
	WALL SWITCH, FOUR-WAY. MOUNT BOTTOM OF BOX AT 3'-8" AFF OR AS NOTED.
	SWITCH, DIMMER, MATCH SWITCH TO DRIVER OR BALLAST OF FIXTURE. MOUNT BOTTOM OF BOX AT 3'-8" AFF OR AS NOTED.
	SWITCH, THREE-WAY DIMMER, MATCH SWITCH TO DRIVER OR BALLAST OF FIXTURE. MOUNT BOTTOM OF BOX AT 3'-8" AFF OR AS NOTED.
	SWITCH, KEYS. MOUNT BOTTOM OF BOX AT 3'-8" AFF. ON EQUIPMENT, OR AS NOTED.
	SWITCH, OCCUPANCY SENSOR. MOUNT BOTTOM OF BOX AT 3'-8" AFF. ON EQUIPMENT, OR AS NOTED.
	SPRING-WOUND TIMER SWITCH. 1 HOUR. MOUNT BOTTOM OF BOX AT 3'-8" AFF OR AS NOTED.
	LIGHTING CONTROL RELAY. FUNCTIONAL DEVICE. FRP/SP. INSTALLATIONS ARE NOT ALLOWED UNLESS APPROVED BY OWNER AND OWNER'S BUILDING CONTRACTOR. SEE DETAIL. SEE LIGHTING FIXTURE CONTROL DIAGRAM.
	FREQUENCY LIGHTING RELAY. ROOM LIGHTING OR APPROVED EQUIPMENT. SEE DETAIL.
	REMOTE CONTROL FAN. FUNCTIONAL DEVICE. FRP/SP OR APPROVED EQUAL. MOUNT ACCESSIBLE ABOVE CEILING.
	RECEPTACLE, DUPLEX. MOUNT BOTTOM OF BOX AT 1'-4" AFF OR AS NOTED.
	RECEPTACLE, DUPLEX, GFCI. MOUNT BOTTOM OF BOX AT 1'-4" AFF OR AS NOTED.
	RECEPTACLE, DUPLEX, GFCI, FOR WATER COOLER. VERIFY MOUNTING LOCATION WITH EQUIPMENT INSTALLER.
	RECEPTACLE, SPECIAL USE. SEE DRAWINGS FOR REQUIREMENTS.
	RECEPTACLE, DOUBLE DUPLEX. RECESSED IN FLOOR. SEE DRAWINGS FOR REQUIREMENTS.
	RECEPTACLE, SINGLE. MOUNT AT 1'-4" AFF OR AS NOTED.
	RECEPTACLE, TRIPLE DUPLEX. MOUNT AT 1'-4" AFF OR AS NOTED.
	DISCONNECT SWITCH. FRAME SIZE / POLES / FUSE RATING / NEMA RATING.
	MOTOR. SEE DRAWINGS FOR SIZE.
	OUTLET BOX OR JUNCTION BOX WITH COVER PLATE. SEE DRAWINGS FOR REQUIREMENTS.
	FIRE ALARM CONTROL PANEL.
	FIRE ALARM REMOTE ANNUNCIATOR PANEL.
	FIRE ALARM PULL STATION.
	FIRE ALARM WATER FLOW SWITCH.
	FIRE ALARM TAMPER SWITCH.
	FIRE ALARM SMOKE DETECTOR. CEILING MOUNTED.
	FIRE ALARM HEAT DETECTOR. CEILING MOUNTED.
	FIRE ALARM DUCT SMOKE DETECTOR WITH REMOTE TEST STATION.
	FIRE ALARM DUCT SMOKE DETECTOR REMOTE TEST STATION. MOUNT AT 8'-0" AFF.
	FIRE ALARM HORN / STROBE. SYNCHRONIZED.
	FIRE ALARM STROBE ONLY. SYNCHRONIZED.
	FIRE ALARM HORN, WEATHERPROOF.
	FIRE ALARM SYSTEM MAGNETIC DOOR HOLD OPEN DEVICE.
	FIRE ALARM SYSTEM RELAY / CONTROL MODULE AS REQUIRED.
	FIRE ALARM SYSTEM DUCT SMOKE DETECTOR AND RELAY FOR SMOKE DAMPER.
	AREA OF REFUGE COMMUNICATION STATION. SEE SPECIFICATIONS.
	FIRE ALARM MONITOR MODULE FOR ANSEL SYSTEM.
	JUNCTION BOX FOR HAND DRYER. HAND DRYER TO BE PROVIDED BY OWNER. VERIFY MOUNTING HEIGHT WITH OWNER AND MANUFACTURER'S INSTRUCTIONS PRIOR TO ROUGH-IN. PROVIDE BRANCH CIRCUIT.
	COMPUTER OUTLET. PROVIDE TWO-GANG BY 2 1/8" DEEP BOX WITH SINGLE-GANG PLASTER RING. MOUNT BOTTOM OF BOX AT 1'-4" AFF UNLESS NOTED OTHERWISE. PROVIDE (1) 1" CONDUIT TO ABOVE FINISHED CEILING. SEE DETAILS. PROVIDE (2) CATEGORY 6 CABLES TO IT RACK. ROUTE CABLES IN CONDUIT TO ABOVE CEILING, THEN ABOVE CEILING TO IT RACK. PROVIDE FIXED PORT FACE PLATE WITH (2) CATEGORY 6 JACKS.
	COMPUTER OUTLET. PROVIDE TWO-GANG BY 2 1/8" DEEP BOX WITH SINGLE-GANG PLASTER RING. MOUNT BOTTOM OF BOX AT 8'-0" AFF. PROVIDE (1) 1" CONDUIT TO ABOVE FINISHED CEILING. SEE DETAILS. PROVIDE (2) CATEGORY 6 CABLES TO IT RACK. ROUTE CABLES IN CONDUIT TO ABOVE CEILING, THEN ABOVE CEILING TO IT RACK. PROVIDE FIXED PORT FACE PLATE WITH (2) CATEGORY 6 JACKS.
	COMPUTER OUTLET. PROVIDE TWO-GANG BY 2 1/8" DEEP BOX WITH SINGLE-GANG PLASTER RING. MOUNT BOTTOM OF BOX AT 1'-4" AFF UNLESS NOTED OTHERWISE. PROVIDE (1) 1" CONDUIT TO ABOVE FINISHED CEILING. SEE DETAILS. PROVIDE (2) CATEGORY 6 CABLES TO IT RACK. ROUTE CABLES IN CONDUIT TO ABOVE CEILING, THEN ABOVE CEILING TO IT RACK. PROVIDE FIXED PORT FACE PLATE WITH (4) CATEGORY 6 JACKS.
	COMPUTER OUTLET. PROVIDE TWO-GANG BY 2 1/8" DEEP BOX WITH SINGLE-GANG PLASTER RING. MOUNT BOTTOM OF BOX AT 1'-4" AFF UNLESS NOTED OTHERWISE. PROVIDE (1) 1" CONDUIT TO ABOVE FINISHED CEILING. SEE DETAILS. PROVIDE (2) CATEGORY 6 CABLES TO IT RACK. ROUTE CABLES IN CONDUIT TO ABOVE CEILING, THEN ABOVE CEILING TO IT RACK. PROVIDE FIXED PORT FACE PLATE WITH (8) CATEGORY 6 JACKS.
	INTERCOM SYSTEM PUSHBUTTON. PROVIDE TWO-GANG BY 2 1/8" DEEP BOX WITH SINGLE-GANG PLASTER RING. MOUNT BOTTOM OF BOX AT 4'-0" AFF UNLESS NOTED OTHERWISE. PROVIDE (1) 1" CONDUIT TO ABOVE FINISHED CEILING. SEE DETAILS.
	INTERCOM SYSTEM SPEAKER. CEILING MOUNTED. IF NO CEILING, PROVIDE HOUSING AT MOUNT ABOVE BOTTOM OF JOISTS.
	OUTLET BOXES FOR AUDIO / VISUAL SYSTEM AND CONTROLS. PROVIDE 7"X14" DEEP BOX WITH DOUBLE-GANG PLASTER RING. MOUNT AT 2'-0" AFF. PROVIDE 1/2" EC FROM OUTLET BOX TO ABOVE FINISHED CEILING. SEE DETAIL. PROVIDE FACE PLATE WITH HDMI, VGA WITH 3.5MM AUDIO, AND USB JACKS. VERIFY REQUIREMENTS WITH OWNER. PROVIDE TWO-GANG BY 2 1/8" DEEP BOX WITH SINGLE-GANG PLASTER RING MOUNTED AT 4'-0" AFF. PROVIDE (1) 1/2" EC FROM OUTLET BOX TO ABOVE FINISHED CEILING. SEE DETAIL.
	PROJECTOR AND OUTLET. EPSON POWERLite 9500W WITH MOUNTING BRACKET. PROVIDE TWO-GANG BY 2 1/8" DEEP BOX WITH SINGLE-GANG PLASTER RING MOUNTED AT 8'-0" AFF. PROVIDE 2" EC FROM OUTLET BOX TO ABOVE FINISHED CEILING. SEE DETAILS. PROVIDE FACE PLATE WITH HDMI, VGA WITH 3.5MM AUDIO, AND USB JACKS. PROVIDE HDMI, VGA, AUDIO, AND USB TO Y. PROVIDE (2) BOGEN AC202Z CEILING MOUNTED SPEAKERS FOR EACH PROJECTOR. PROVIDE ALL NECESSARY HARDWARE, CABLES, ETC. FOR A COMPLETE INSTALLATION.

**ROBERTSON ROOF ARCHITECTS ENGINEERS**  
3450 Peachtree Ridge Drive, Atlanta, GA 30305  
770.674.2600 / www.rre.com

**Dawson County College and Career Academy**  
Dawsonville, Georgia  
FOR: Dawson County Schools  
Overall Squarefootage = 45,800 SF  
FTE = 1625

REVISIONS

**ELECTRICAL LEGEND AND DETAILS**

DATE: 04-24-2018  
PROJECT NUMBER: 17-303  
SHEET NUMBER: E6.01