PROJECT RENDER

SHEET INDEX

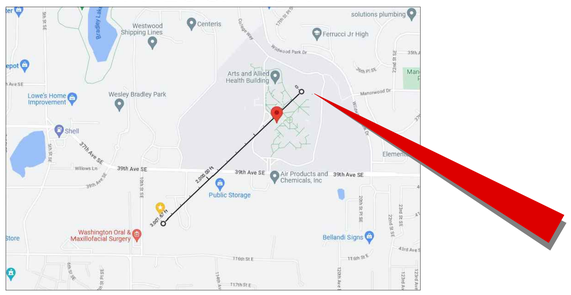
CODE REQUIREMENTS

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE BUILDING/DWELLING, STRUCTURAL, PLUMBING, MECHANICAL, ELECTRICAL, AND FIRE/LIFE SAFETY CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THE LOCAL GOVERNING AUTHORITIES CODES.

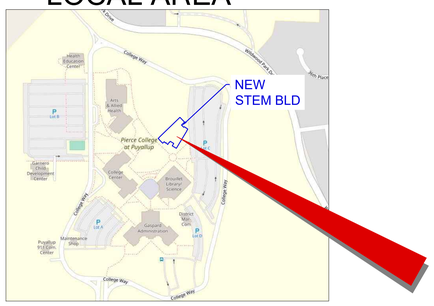
GENERAL NOTES

1. ANY INFRASTRUCTURE REQUIRED FOR CONNECTING ERRCS COMPONENTS TO THE FIRE ALARM SYSTEM, TO INCLUDE BUT NOT LIMITED TO LOCAL JUNCTION BOXES AND SUPERVISORY PANELS, TO BE PROVIDED BY OTHERS.
2. SYSTEM SHALL BE POWERED BY DUAL SOURCES. PRIMARY POWER SHALL BE FROM A DEDICATED 120V/20A CIRCUIT HARDWIRED INTO THE BATTERY BACKUP UNIT (BBU). SECONDARY POWER SHALL BE FROM THE BBU WITH 12 HOUR RUNTIME.
3. BIDIRECTIONAL AMPLIFIER (BDA) AND ASSOCIATED EQUIPMENT ARE SUPPLIED AS NEMA 4/3R AND SHALL BE WALL OR FLOOR MOUNTED.
4. SYSTEM HEADEND EQUIPMENT AND UPS TO BE CONNECTED TO THE BUILDING FIRE ALARM SYSTEM TO MONITOR THE SYSTEM PER 510.4.2.5 (THIS SHEET).
5. MINIMUM BEND RADIUS ON ALL CONDUIT IS 6 TIMES DIAMETER.
6. MINIMUM BEND RADIUS ON FREE-AIR COAX IS 7"

CITY LOCATION



LOCAL AREA



WASHINGTON STATE IFC SECTION 510:

SECTION 510 EMERGENCY RESPONDER RADIO COVERAGE

510.1 Emergency responder radio coverage in new buildings.
All new buildings shall have approved radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where approved by the building official and the fire code official , a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an approved radio coverage system.

2. Where it is determined by the fire code official that the radio coverage system is not needed.

3. In facilities where emergency responder radio coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the fire code official shall have the authority to accept an automatically activated emergency responder radio coverage system.

510.2 Emergency responder radio coverage in existing buildings.
Existing buildings shall be provided with approved radio coverage for emergency responders as required in Chapter 11.

510.3 Permit required.
A construction permit for the installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in Section 105.7.5. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

510.4 Technical requirements.
Equipment required to provide emergency responder radio coverage shall be listed in accordance with UL 2524. Systems, components and equipment required to provide the emergency responder radio coverage system shall comply with Sections 510.4.1 through 510.4.2.8.

510.4.1 Radio signal strength.
The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in Sections 510.4.1.1 and 510.4.1.2.

510.4.1.1 Minimum Signal Strength Into Building
The minimum inbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The inbound signal level shall be a minimum of -95 dBm throughout the coverage area and sufficient to provide not less than a delivered audio quality (DAQ) of 3.0 or an equivalent signal-to-interference-plus-noise ratio (SINR) applicable to the technology for either analog or digital signals.

510.4.1.2 Minimum Signal Strength Out of the Building
The minimum outbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The outbound signal level shall be sufficient to provide not less than a DAQ of 3.0 or an equivalent SINR applicable to the technology for either analog or digital signals.

510.4.1.3 System Performance
Signal strength shall be sufficient to meet the requirements of the applications being utilized by public safety for emergency operations through the coverage area as specified by the fire code official in Section 510.4.2.2.

510.4.2 System design.
The emergency responder radio coverage system shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.8 and NFPA 1221.

510.4.2.1 Amplification systems and components.
Buildings and structures that cannot support the required level of radio coverage shall be equipped with systems and components to enhance the public safety radio signals and achieve the required level of radio coverage specified in Sections 510.4.1 through 510.4.1.3. Public safety communications enhancement systems utilizing radio-frequency-emitting devices and cabling shall be approved by the fire code official. Prior to installation, all RF-emitting devices shall have the certification of the radio licensing authority and be suitable for public safety use.

510.4.2.2 Technical criteria.
The fire code official shall maintain a document providing the specific technical information and requirements for the emergency responder communications coverage system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, the effective radiated power of radio sites, the maximum propagation delay in microseconds, the applications being used and other supporting technical information necessary for system design.

510.4.2.3 Standby Power
Emergency responder radio coverage systems shall be provided with dedicated standby batteries or provided with 1-HOUR standby batteries and connected to the facility generator power system in accordance with Section 1203. The standby power supply shall be capable of operating the emergency responder radio coverage system at 100-percent system capacity for a duration of not less than 12 hours.

510.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be a National Electrical Manufacturer's Association (NEMA) 4, IP656-type waterproof cabinet or equivalent.

2. Battery systems used for the emergency power source shall be contained in a NEMA 3R or higher-rated cabinet, IP656-type waterproof cabinet or equivalent.

3. Equipment shall have FCC or other radio licensing authority certification and be suitable for public safety use prior to installation.

4. Where a donor antenna exists, isolation shall be maintained between the donor antenna and all inside antennas to not less than 20 dB greater than the system gain under all operating conditions.

5. Bi-directional amplifiers (BDAs) active RF emitting devices used in emergency responder radio coverage systems shall have oscillation prevention built-in oscillation detection and control circuitry.

6. The installation of amplification systems or systems that operate on or provide the means to cause interference on any emergency responder radio coverage networks shall be coordinated and approved by the fire code official.

510.4.2.5 System Monitoring
The emergency responder radio enhancement system shall be monitored by a listed fire alarm control unit, or where approved by the fire code official, shall sound an audible signal at a constantly attended on-site location. Automatic supervisory signals shall include the following:

Loss of normal AC power supply.
System battery charger(s) failure.
Malfunction of the donor antenna(s).
Failure of active RF-emitting device(s).
Low-battery capacity at 70-percent reduction of operating capacity.
Failure of critical system components.
The communications link between the fire alarm system and the emergency responder radio enhancement system.
RF oscillation alarm.

510.4.2.6 Additional Frequencies and Change of Frequencies
The emergency responder radio coverage system shall be capable of modification or expansion in the event frequency changes are required by the FCC or other radio licensing authority, or additional frequencies are made available by the FCC or other radio licensing authority.

510.4.2.7 Design Documents
The fire code official shall have the authority to require "as-built" design documents and specifications for emergency responder communications coverage systems. The documents shall be in a format acceptable to the fire code official.

510.4.2.8 Radio Communication Antenna Density
Systems shall be engineered to minimize the near-far effect. Radio enhancement system designs shall include sufficient antenna density to address reduced gain conditions.
Exceptions:

Class A narrow band signal booster devices with independent AGC/ALC circuits per channel.
Systems where all portable devices within the same band use active power control features.

510.5 Installation requirements.
The installation of the public safety radio coverage system shall be in accordance with NFPA 1221 and Sections 510.5.1 through 510.5.5.

510.5.1 Approval prior to installation.
Amplification systems capable of operating on frequencies licensed to any public safety agency by the FCC shall not be installed without prior coordination and approval of the fire code official.

510.5.2 Minimum qualifications of personnel.
The minimum qualifications of the system designer and lead installation personnel shall include:

1. A valid FCC-issued general radio operators license; and

2. Certification of in-building system training issued by a nationally recognized organization, school or a certificate issued by the manufacturer of the equipment being installed.

These qualifications shall not be required where demonstration of adequate skills and experience satisfactory to the fire code official is provided.

510.5.3 Acceptance test procedure.
Where an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to verify that two-way coverage on each floor of the building is not less than 95 per-cent. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.

2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system or equipment approved by the fire code official.

3. Failure of more than one test area shall result in failure of the test.

4. In the event that two of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of not more than two non-adjacent test areas shall not result in failure of the test. If the system fails the 40 area test, the system shall be altered to meet the 95 percent coverage requirement.

5. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. Failure in the selected test location shall be considered to be a failure of that test area. Additional test locations shall not be permitted.

6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building *owner* so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building *owner* shall be required to rerun the acceptance test to reestablish the gain values.

7. As part of the installation, a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at the time of installation and at subsequent annual inspections.

8. Systems incorporating Class B signal-booster devices or Class B broadband fiber remote devices shall be tested using two portable radios simultaneously conducting subjective voice quality checks. One portable radio shall be positioned not greater than 10 feet (3048 mm) from the indoor antenna. The second portable radio shall be positioned at a distance that represents the farthest distance from any indoor antenna. With both portable radios simultaneously keyed up on different frequencies within the same band, subjective audio testing shall be conducted and comply with DAQ levels as specified in Sections 510.4.1.1 and 510.4.1.2.

510.5.4 FCC compliance.
The emergency responder radio coverage system installation and components shall also comply with all applicable federal regulations including, but not limited to, FCC 47 CFR Part 90.219.

510.5.5 Mounting of the donor antenna(s).
To maintain proper alignment with the system designed donor site, donor antennas shall be permanently affixed on the highest possible position on the building or where approved by the fire code official. A clearly visible sign stating "movement or repositioning of this antenna is prohibited without approval from the fire code official." The antenna installation shall be in accordance with the applicable requirements in the International Building Code for weather protection of the building envelope.

510.6 Maintenance.
The emergency responder radio coverage system shall be maintained operational at all times in accordance with Sections 510.6.1 through 510.6.4.

510.6.1 Testing and proof of compliance. The owner of the building or owner's authorized agent shall have the emergency responder radio coverage system inspected and tested annually or where structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:

1. In-building coverage test as described in Section 510.5.3 or as required by the fire code official.

2. Signal boosters shall be tested to verify that the gain is the same as it was upon initial installation and acceptance or set to optimize the performance of the system.

3. Backup batteries and power supplies shall be tested under load of a period of 1 hour to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.

4. Other active components shall be checked to verify operation within the manufacturers specification.

5. At the conclusion of the testing, a report, which shall verify compliance with Section 510.5.3, shall be submitted to the fire code official.

510.6.2 Additional frequencies.
The building owner shall modify or expand the emergency responder radio coverage system at their expense in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

510.6.3 Nonpublic Safety System
Where other nonpublic safety amplification systems installed in buildings reduce the performance or cause interference with the emergency responder communications coverage system, the nonpublic safety amplification system shall be corrected or removed.

510.6.4 Field Testing
Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage.
(As amended 6/4/20220, effective 7/1/2023)

SHOP DRAWING

DAS ConneXion

P. O. Box 485 - 608 Chestnut St.
Clarkston, WA 99403
Tel: 800-905-3345
Fax: 425-529-9662
e-mail: info@dasconnexion.net

System Designer:
Manny Marcel
FCC GROL: PG-1-17584
Commscope: G619658US2015
ADRF Tech PSR78-040416
DAC Connexion: 081417
iBwave Lev 1: 042619

PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM

1601 39th AVE SE
PUYALLUP, WA 98374

Revisions		
C	Cust. Req. Changes	3/1/24
B	Cust. Req. Changes	6/14/23
A	Cust. Req. Changes	4/18/23
No.	Revision/Issue	Date

Date Issued: 06/14/2023
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Chk By:
Size: E1 - 30x42
Scale:
Do Not Scale Drawing

PIERCE - STEM
ERRCS PLAN
INFO 1

Dwg: DAS-1.10
Rev: C

LEGENDS / EQUIPMENT LIST

	Antenna - Directional Outdoor	Westell	CSI-AY/746-896/11	Directional Outdoor Yagi Antenna - 756-896 Mhz. 11 dBi Gain	1
	Antenna - Indoor Omnidirectional	DAS Connexion	OMNI	Omnidirectional In-Building Antenna System - 140-960z MHz and 1710–2700 MHz - KSR-195 Pigtail - N-Female	11
	Directional Coupler / Tapper	DAS Connexion	SPL-04YXX	Directional Coupler or Tapper, 140-960 MHz, 3-Type N Female connectors, 500 watt max. power, indoor. Specify db coupling	10
	Splitter	DAS Connexion	SPL-YXX	Splitter, 140-960 MHz, 3-Type N Female connectors, 500 watt max. power, indoor. Specify db coupling	N/A
	Bi-Directional Amplifier	Comba	RX78V3-A3327P0-S0	Class A Public Safety Dual Band Digital Repeater, 700/800 MHz, Nema 4 Enclosure, NFPA Compliant	1
	UPS / Power Supply	Comba	BBUV3-LPF48060	Battery Backup Unit for Public Safety, 60AH, NEMA Compliant	1
	Surge Arrestor	DAS Connexion	CSP1NB90	Lightning and Surge Protector	1
Not Shown	Coax Grounding Kit	Commscope	SG12-12B2U	1/2" Coax grounding kit for Donor Coax	1
-R	Donor Cable	DAS Connexion	LDF4RK-50A	HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/2 in, black PE jacket	20'
	Cable	DAS Connexion	AL4RPV-50	HELIAX® Plenum Rated Air Dielectric Coaxial Cable, corrugated aluminum, 1/2 in, off white PVC jacket	900'
	Cable	DAS Connexion	CA50-NMNM18-RG142	18" Coax Jumper	6
Not Shown	Connector	DAS Connexion	CON-NMS-001	Type N Male for 1/2" Cable	A/R
Not Shown	Signs	DAS Connexion	51057	Sign Package for Project	1

SOUTH SOUND 911
FREQUENCY LIST
ORTING SIMULCAST

FREQUENCY
769.3313
769.8563
770.1063
770.3563
770.3563
770.6063
770.8563
771.7813
773.4563
773.9813
774.4813
774.7313

DONOR SIGN

WARNING

MOVEMENT OR REPOSITIONING OF THIS ANTENNA IS PROHIBITED WITHOUT APPROVAL FROM THE FIRE CODE OFFICIAL.

H/E ROOM SIGN

EMERGENCY RESPONDER ENHANCEMENT COVERAGE SYSTEM EQUIPMENT

EXTERIOR SIGN

EMERGENCY RESPONDER ENHANCEMENT COVERAGE SYSTEM EQUIPMENT LOCATED IN ROOM 120

BATTERY CALCULATIONS

	SYSTEM BATTERY STANDBY CALCULATION 48V DC			
QTY	MODEL NO.	DESCRIPTION	WATTAGE	AMPS @ 48V
1	RX78V3**	COMBA CLASS A BI DRIRECTIONAL AMPLIFIER	100	2.08
		TOTAL CURRENT DURING AC POWER LOSS		2.08
		DESCIPTION		CURRENT
		TOTAL CURRENT DURING AC POWER LOSS		2.08
		X HOUR STANDBY		50.00
		TOTAL BATTERY REQUIREMENT *		50.00
1	BBUV3-LPF48060	BATTERY SUPPLIED (Amp-Hours)		60.00
		EXCESS BATTERY BACKUP		10.00
* Bat Req(ah) = ((BDA Watts)/48v)*24hr				

EQUIPMENT LICENSING

FRN: 0027004969
FCC ID: PX8RX-7W22-A(B)
Full Company Details: Comba Telecom Inc.
Address:
Comba Telecom Inc.
568 Gibraltar Drive
Milpitas, CA 95035
United States
Issued 11/16/17

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PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM

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PUYALLUP, WA 98374

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A	Cust. Req. Changes	4/18/23
No.	Revision/Issue	Date

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Chk By:
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PIERCE - STEM
ERRCS PLAN
INFO 2

Dwg: DAS-1.20
Rev: C

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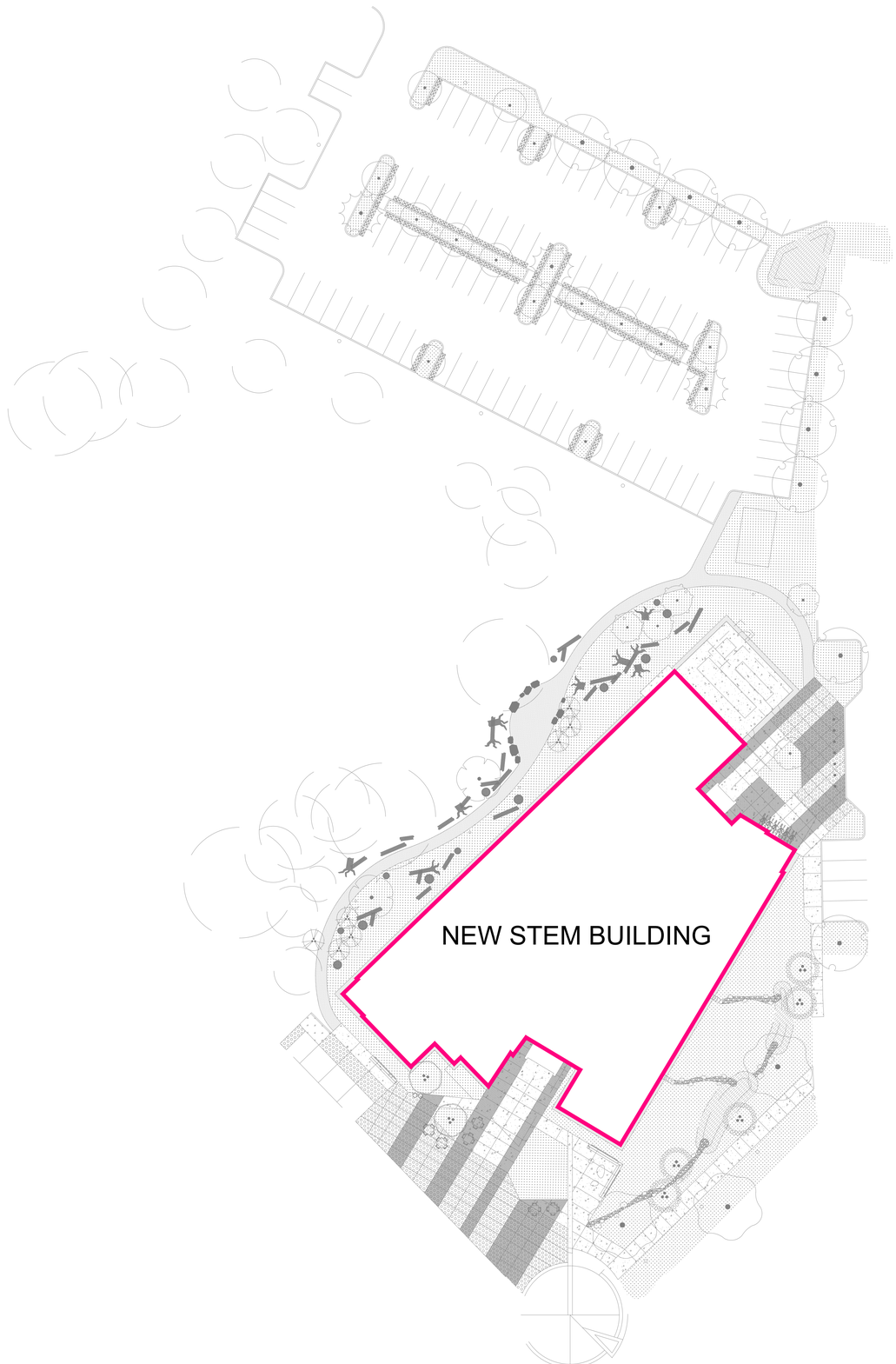

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Chk By:	
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PIERCE - STEM
ERRCS PLAN
SITE PLAN

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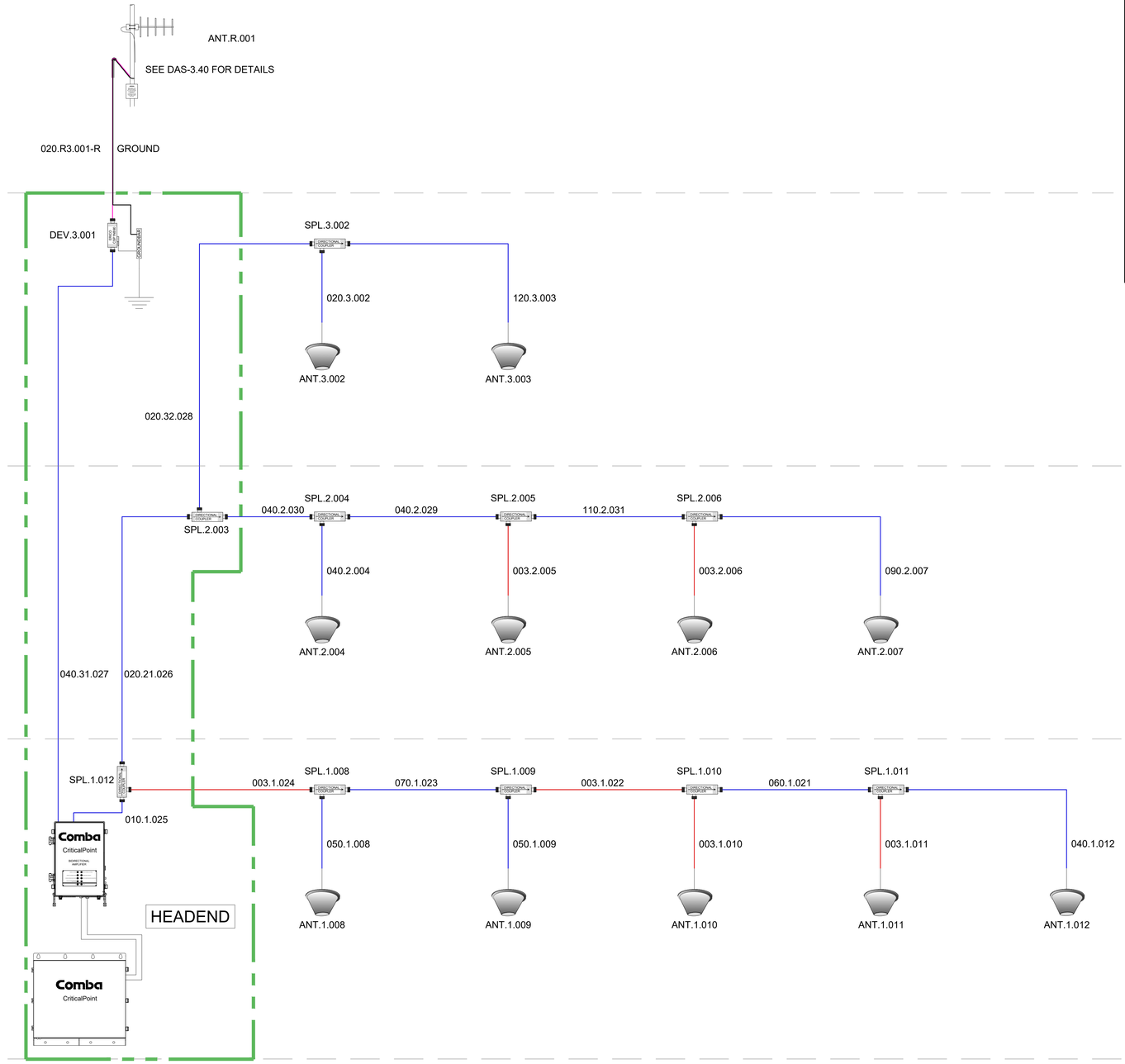
ROOF

LEVEL 3

LEVEL 2

LEVEL 1

LEVEL B



LEGEND

- ANTENNA - INDOOR
- ANTENNA - DONOR
- SURGE ARRESTOR
- DIRECTIONAL COUPLER
- SPLITTER
- 1 HOUR SURVIVABILITY RATING REQ'D.

CABLE NUMBERING:
nnn.n.nnn = length in feet, floor number, ser. no.

SUFFIXES: (R/DS)
R = EXTERIOR DONOR CABLE
DS=1-HOUR FIRE RATED COAXIAL CABLE

LEGEND LIST IS GENERIC: SOME MAY NOT BE USED ON THIS PROJECT.

SHOP DRAWING

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Chk By:
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ERRCS PLAN
RISER DIAGRAM

Dwg: DAS-1.40
Rev: C

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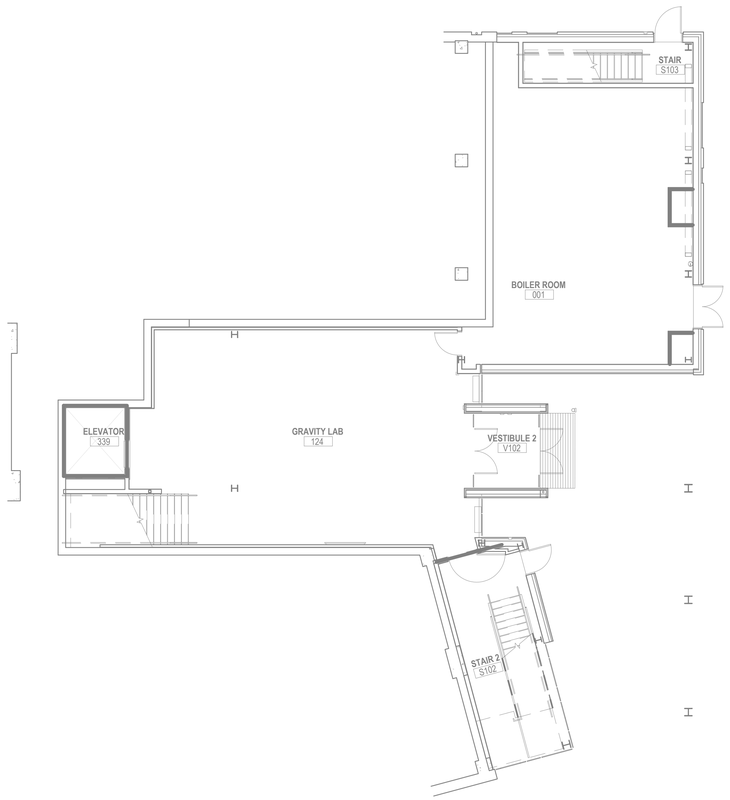

NO ERRCS ENHANCEMENT ON THIS LEVEL

2.00 ERRCS PLAN - LEVEL 0

SCALE:1" = 8'

SHOP DRAWING

DAS ConneXion

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Do Not Scale Drawing

PIERCE - STEM
ERRCS PLAN
LEVEL 0

Dwg:	Rev:
DAS-2.00	C

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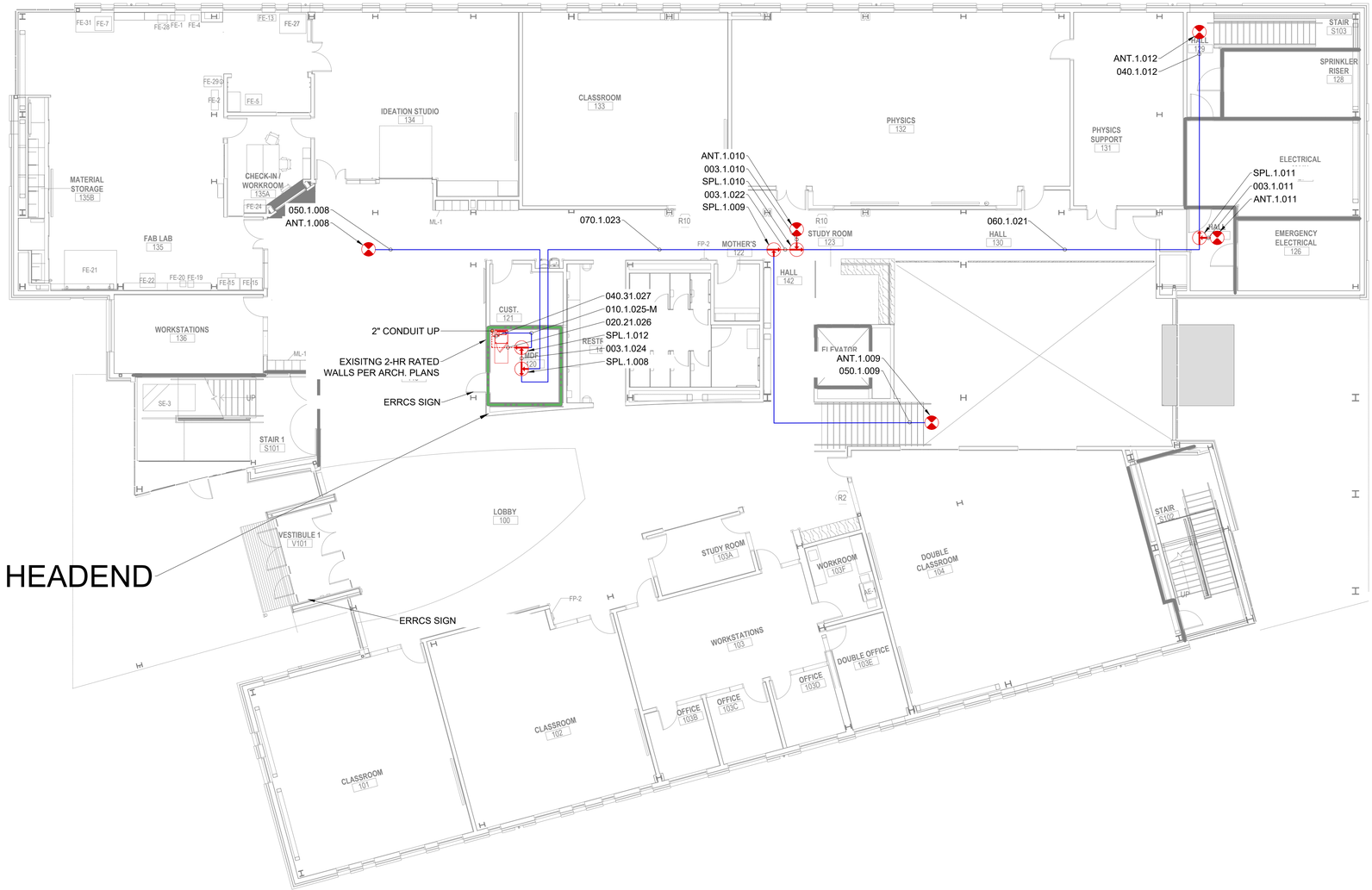
SHEET NOTES	LEGEND
1. ALL VERTICAL RISER PATHWAYS SHALL BE RUN IN 2" CONDUIT. 2. CONDUIT RUNS, WHERE USED, TO BE SIZED AS FOLLOWS, UNLESS OTHERWISE NOTED: HORIZONTAL RUNS - 1-1/4" VERTICAL RUNS - 2" 3. MINIMUM BEND RADIUS ON UNPROTECTED COAX IS 12" 4. MINIMUM BEND RADIUS ON ALL CONDUIT, WHERE USED, IS 6 TIMES CONDUIT DIAMETER. LB'S ARE NOT TO BE USED. 5. CABLE NUMBERING: nnn.n.nnn = length in feet, floor number, ser, no. SUFFIXES: (R/DS) R = EXTERIOR DONOR CABLE DS=1-HOUR FIRE RATED CABLE	ANTENNA ANTENNA, DIRECTIONAL ANTENNA - DONOR SA SURGE ARRESTOR SPLITTER / DIRECTIONAL COUPLER JUNCTION BOX, CEILING, 1NEMA 4, 2x12x4 1 HOUR SURVIVABILITY RATING REQ'D. LEGEND LIST IS GENERIC. SOME MAY NOT BE USED ON THIS PROJECT.



2.01 ERRCS PLAN - LEVEL 1

SCALE:1" = 8'

SHOP DRAWING

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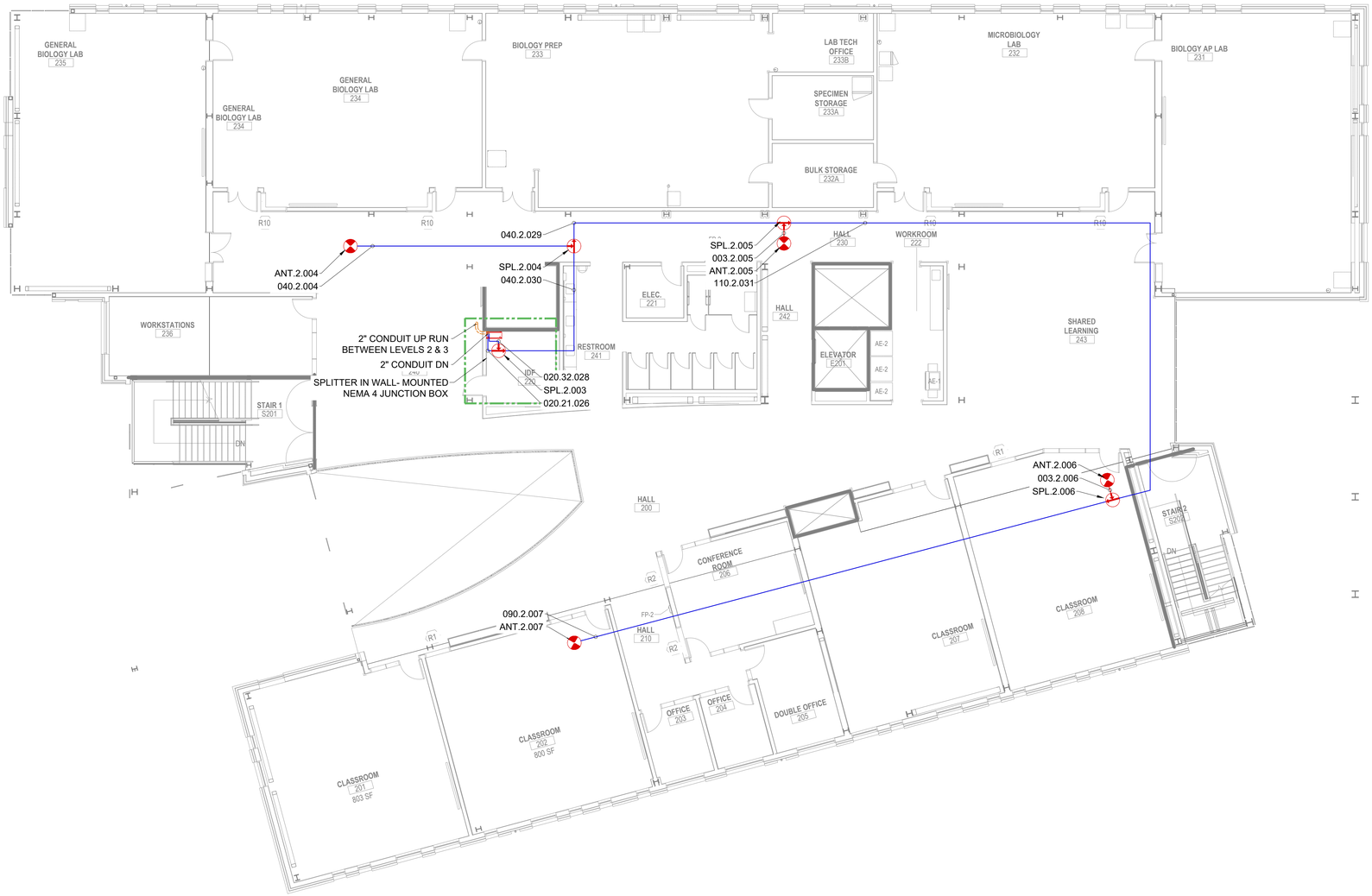
PIERCE - STEM
ERRCS PLAN
LEVEL 1

Dwg:	Rev:
DAS-2.01	C

3/1/2024 11:7:51 PM

SHEET NOTES	LEGEND
1. ALL VERTICAL RISER PATHWAYS SHALL BE RUN IN 2" CONDUIT. 2. CONDUIT RUNS, WHERE USED, TO BE SIZED AS FOLLOWS, UNLESS OTHERWISE NOTED: HORIZONTAL RUNS - 1-1/4" VERTICAL RUNS - 2" 3. MINIMUM BEND RADIUS ON UNPROTECTED COAX IS 12" 4. MINIMUM BEND RADIUS ON ALL CONDUIT, WHERE USED, IS 6 TIMES CONDUIT DIAMETER. LB'S ARE NOT TO BE USED. 5. CABLE NUMBERING: nnn.n.nnn = length in feet, floor number, ser, no. SUFFIXES: (R/DS) R = EXTERIOR DONOR CABLE DS=1-HOUR FIRE RATED CABLE	ANTENNA ANTENNA, DIRECTIONAL ANTENNA - DONOR SA SURGE ARRESTOR SPLITTER / DIRECTIONAL COUPLER JUNCTION BOX, CEILING, 1NEMA 4, 2x12x4 1 HOUR SURVIVABILITY RATING REQ'D. LEGEND LIST IS GENERIC. SOME MAY NOT BE USED ON THIS PROJECT.



2.02 ERRCS PLAN - LEVEL 2

SCALE: 1" = 8'

SHOP DRAWING

DAS ConneXion

P. O. Box 485 - 608 Chestnut St.
Clarkston, WA 99403
Tel: 800-905-3345
Fax: 425-529-9662
e-mail: info@dasconnexion.net

System Designer:
Manny Marcel
FCC GROL: PG-1-17584
Commscope: G619658US2015
ADRF Tech PSR78-040416
DAC Connexion: 081417
iBwave Lev 1: 042619

PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM

1601 39th AVE SE
PUYALLUP, WA 98374

Revisions		
C	Cust. Req. Changes	3/1/24
B	Cust. Req. Changes	6/14/23
A	Cust. Req. Changes	4/18/23
No.	Revision/Issue	Date

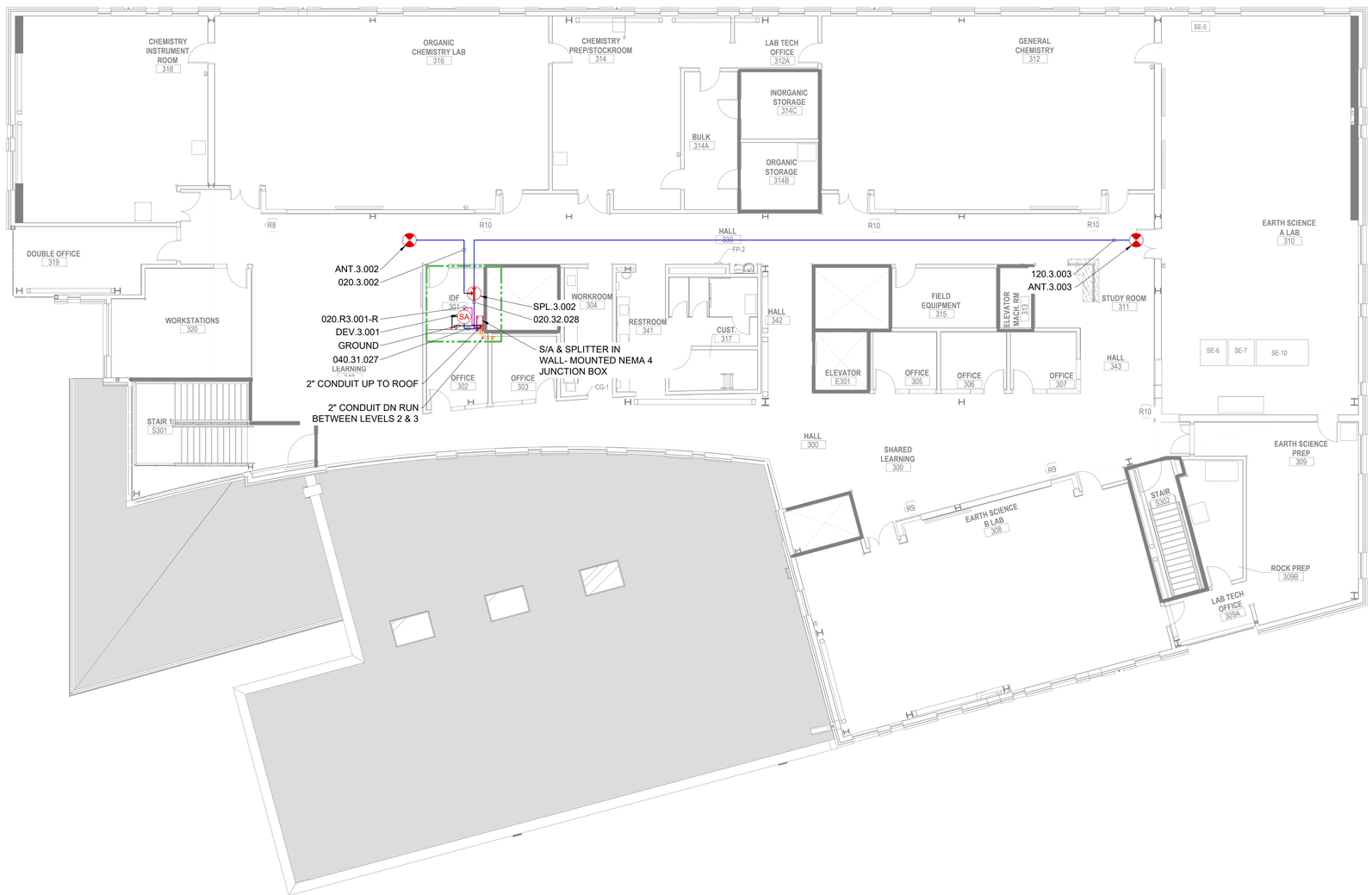
Date Issued:	06/14/2023
Dwn By:	MM
Chk By:	
Size:	E1 - 30x42
Scale:	1/8" = 1'-0"
Do Not Scale Drawing	

PIERCE - STEM
ERRCS PLAN
LEVEL 2

Dwg:	Rev:
DAS-2.02	C

3/1/2024 1:17:52 PM

SHEET NOTES	LEGEND
1. ALL VERTICAL RISER PATHWAYS SHALL BE RUN IN 2" CONDUIT. 2. CONDUIT RUNS, WHERE USED, TO BE SIZED AS FOLLOWS, UNLESS OTHERWISE NOTED: HORIZONTAL RUNS - 1-1/4" VERTICAL RUNS - 2" 3. MINIMUM BEND RADIUS ON UNPROTECTED COAX IS 12" 4. MINIMUM BEND RADIUS ON ALL CONDUIT, WHERE USED, IS 6 TIMES CONDUIT DIAMETER. LB'S ARE NOT TO BE USED. 5. CABLE NUMBERING: nnn.n.nnn = length in feet, floor number, ser, no. SUFFIXES: (R/DS) R = EXTERIOR DONOR CABLE DS=1-HOUR FIRE RATED CABLE	ANTENNA ANTENNA, DIRECTIONAL ANTENNA - DONOR SA SURGE ARRESTOR SPLITTER / DIRECTIONAL COUPLER JUNCTION BOX, CEILING, 1NEMA 4, 2x12x4 1 HOUR SURVIVABILITY RATING REQ'D. LEGEND LIST IS GENERIC. SOME MAY NOT BE USED ON THIS PROJECT.



2.03 ERRCS PLAN - LEVEL 3

SCALE:1" = 8'

SHOP DRAWING

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Clarkston, WA 99403
Tel: 800-905-3345
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Manny Marcel
FCC GROL: PG-1-17584
Commscope: G619658US2015
ADRF Tech PSR78-040416
DAC Connexion: 081417
iBwave Lev 1: 042619

PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM

1601 39th AVE SE
PUYALLUP, WA 98374

Revisions		
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No.	Revision/Issue	Date

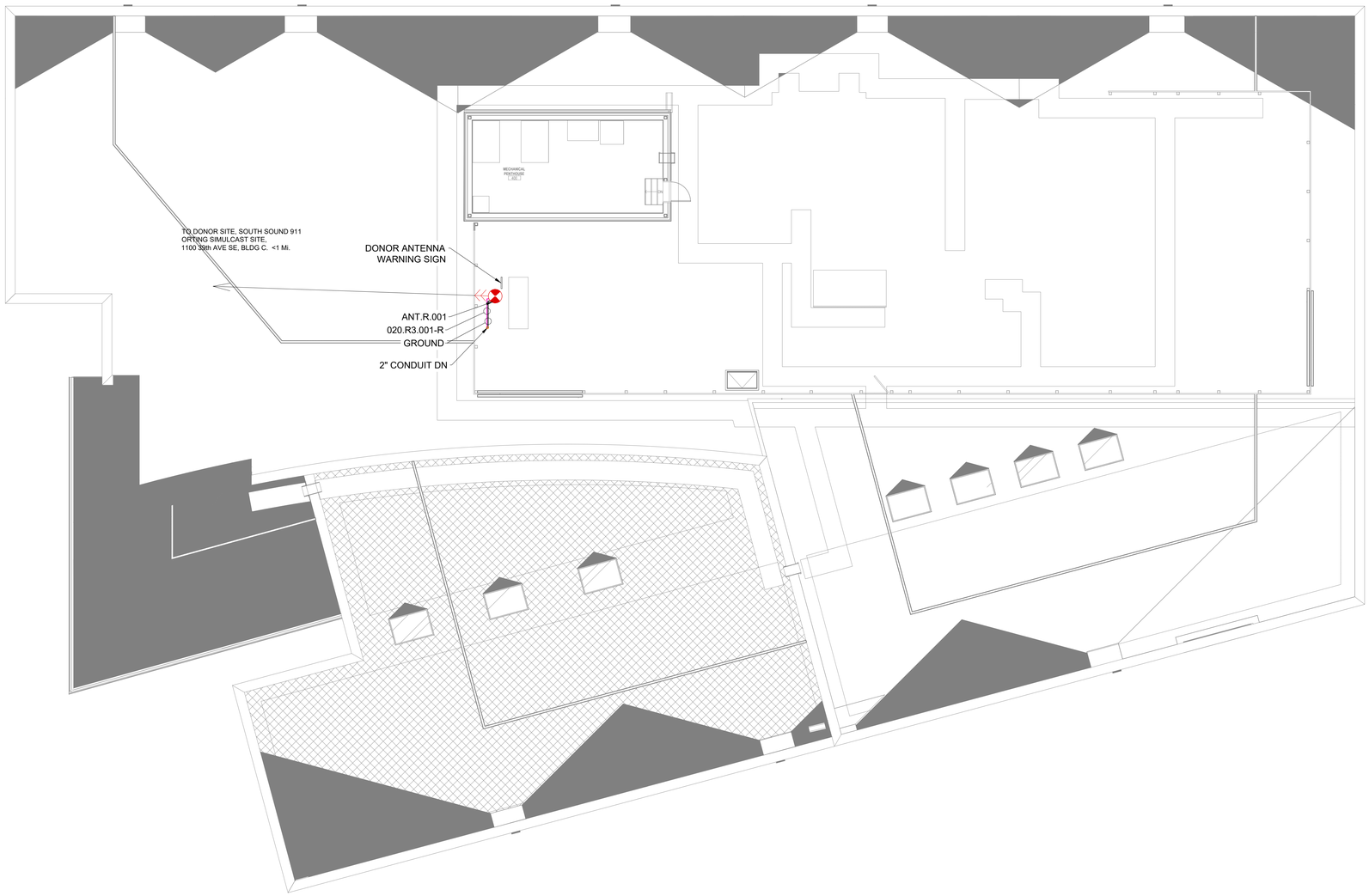
Date Issued: 06/14/2023
Dwn By: MM
Chk By:
Size: E1 - 30x42
Scale: 1/8" = 1'-0"
Do Not Scale Drawing

PIERCE - STEM
ERRCS PLAN
LEVEL 3

Dwg: DAS-2.03
Rev: C

3/1/2024 1:17:54 PM

SHEET NOTES	LEGEND
1. VERTICAL RISER SHALL BE RUN IN 2" CONDUIT. 2. COAX RUN IN 2" VERTICAL CONDUIT WITH WEATHERHEAD. SEE DETAILS AND COORDINATE WITH ROOFING CONTRACTOR. 3. ANTENNA SHALL BE MOUNTED ON A 1-1/2 - 2" MAST, MOUNTED TO THE WALL WITH 2-WALL MOUNT BRACKETS. 4. MINIMUM BEND RADIUS ON ALL CONDUIT IS 6 TIMES CONDUIT DIAMETER. 5. FINAL DIRECTION OF ANTENA TBD WITH FIRE DEPARTMENT. 6. COAX AND ANTENNA SHALL BE GROUNDED PER NEC 2008	ANTENNA - DONOR SURGE ARRESTOR 1 HOUR SURVIVABILITY RATING REQ'D. OUTDOOR RATED RISER COAX GROUND CONDUCTOR CABLE NUMBERING: nnn.n.nnn = length in feet, floor number, ser, no. SUFFIXES: (003 and 010 only, nnn.n.nnnR/M/F) R = EXTERIOR DONOR CABLE M = 4.3-10-Male TO N-Male F = 4.3-10-Male TO N-Female LEGEND LIST IS GENERIC. SOME MAY NOT BE USED ON THIS PROJECT.



2.04 ERRCS PLAN - ROOF
SCALE:1" = 8'

N

SHOP DRAWING

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Commscope: G619658US2015
ADRF Tech PSR78-040416
DAC Connexion: 081417
iBwave Lev 1: 042619

PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM

1601 39th AVE SE
PUYALLUP, WA 98374

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No.	Revision/Issue	Date

Date Issued: 06/14/2023
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Chk By:
Size: E1 - 30x42
Scale: 1/8" = 1'-0"
Do Not Scale Drawing

PIERCE - STEM
ERRCS PLAN
ROOF

Dwg:	Rev:
DAS-2.04	C

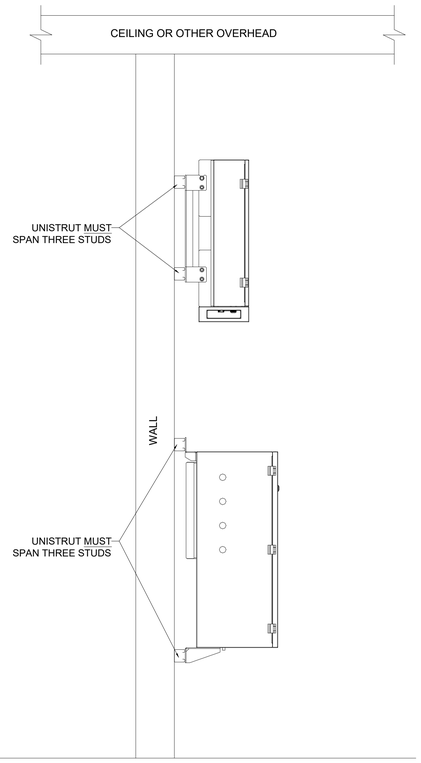
3/1/2024 1:17:55 PM

H/E ROOM SIGN

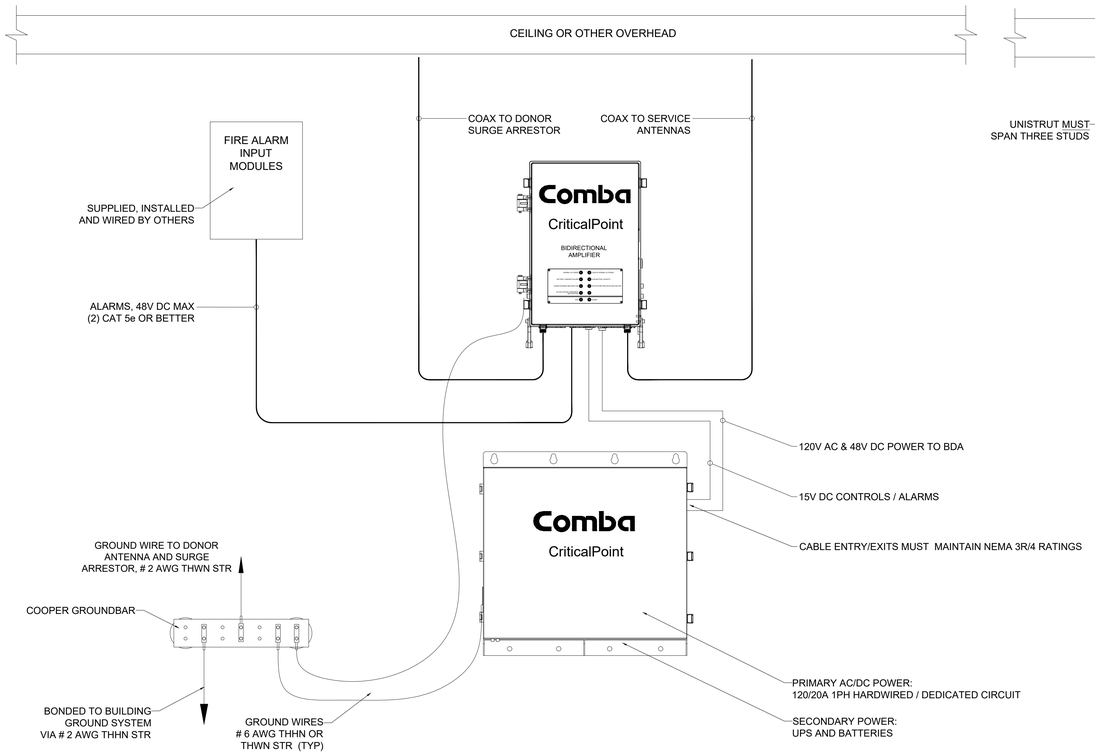
EMERGENCY RESPONDER ENHANCEMENT COVERAGE SYSTEM EQUIPMENT

NOTES:

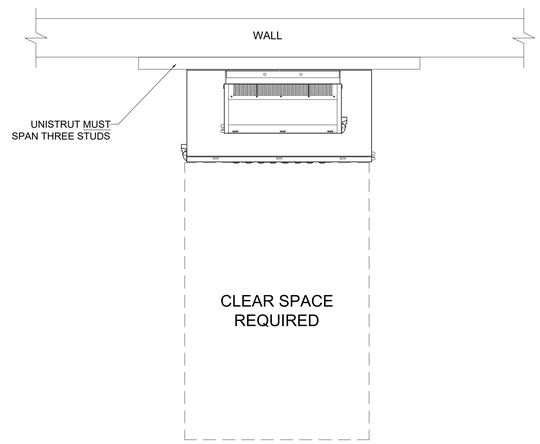
1. FIRESTOP ALL PENETRATIONS IN / OUT OF 2-HR RATED ROOMS OR PATHWAYS.
2. UNISTRUT MOUNTS MUST SPAN 3 STUDS.
3. MINIMUM 36" MUST BE CLEAR IN FRONT OF EQUIPMENT.
4. DRAWINGS ARE NOT TO SCALE.
5. DRAWINGS ARE TYPICAL EXAMPLES. ACTUAL EQUIPMENT MAY DIFFER.
6. INSTALL TO LOCAL CODES AND REGULATIONS.
7. CONSULT MANUFACTURER'S INSTALLATION AND OPERATION MANUALS FOR DETAILS.
8. INSTALL APPROPRIATE SIGN ON DOOR TO ROOM OR ON EQUIPMENT AS APPLICABLE.



BBU CABINET AND BDA SIDE VIEW



BBU CABINET AND BDA FRONT VIEW



BBU CABINET AND BDA PLAN VIEW

TYPICAL HEADEND ROOM LAYOUT

HEADEND EQUIPMENT MUST BE IN A 1-HOUR FIRE RATED ROOM

SHOP DRAWING

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System Designer:
Manny Marcel
FCC GROL: PG-1-17584
Commscope: G619658US2015
ADRF Tech PSR78-040416
DAC Connexion: 081417
iBwave Lev 1: 042619

PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM

1601 39th AVE SE
PUYALLUP, WA 98374

Revisions		
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No.	Revision/Issue	Date

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Chk By:
Size: E1 - 30x42
Scale: None
Do Not Scale Drawing

PIERCE - STEM
ERRCS PLAN
HEADEND DETAILS

Dwg: DAS-3.20
Rev: C

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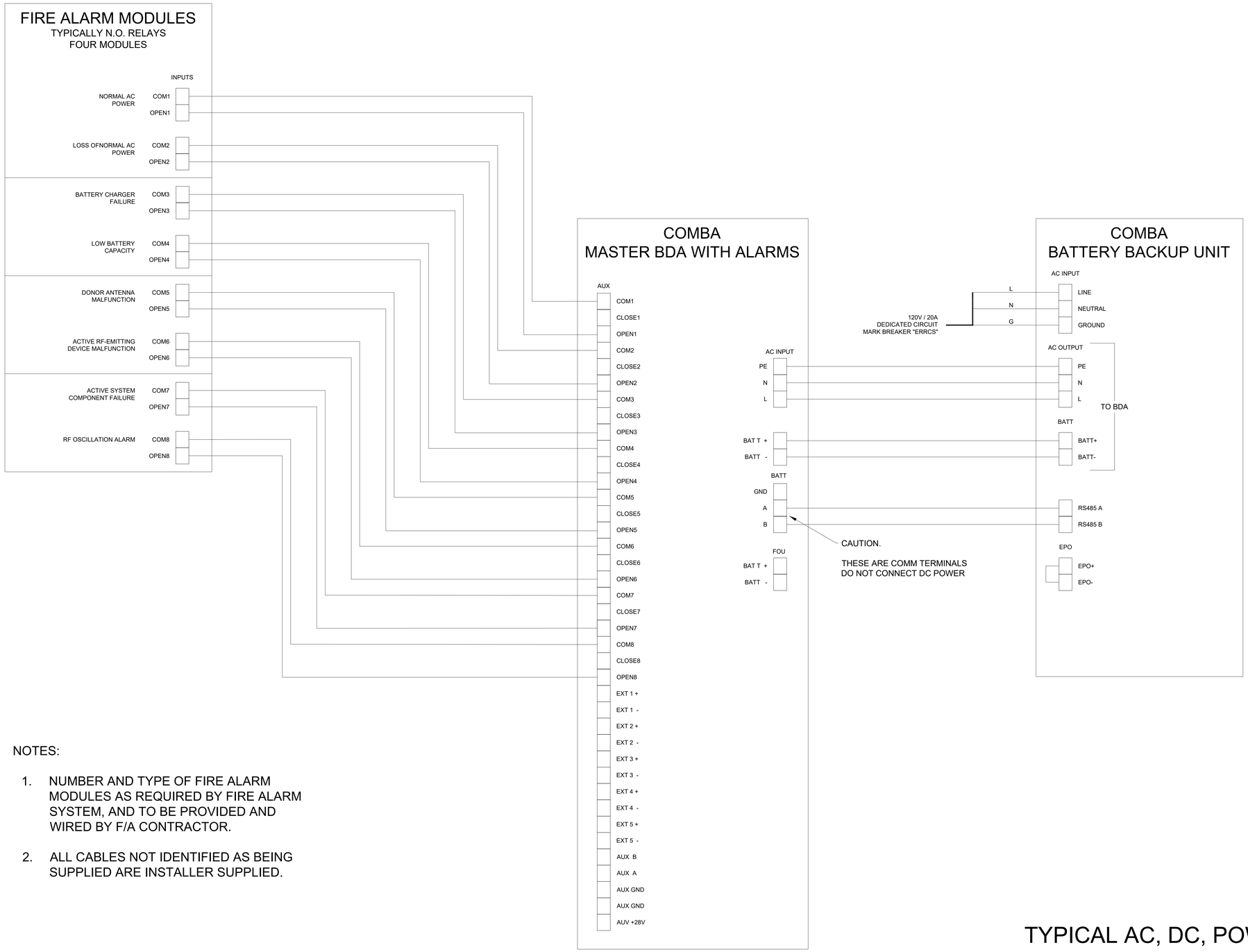

NOTES:

1. NUMBER AND TYPE OF FIRE ALARM MODULES AS REQUIRED BY FIRE ALARM SYSTEM, AND TO BE PROVIDED AND WIRED BY F/A CONTRACTOR.

2. ALL CABLES NOT IDENTIFIED AS BEING SUPPLIED ARE INSTALLER SUPPLIED.

TYPICAL AC, DC, POWER AND ALARM WIRING EXAMPLES

DRAWINGS ARE NOT TO SCALE.

SHOP DRAWING

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ADRF Tech PSR78-040416
DAC Connexion: 081417
iBwave Lev 1: 042619

PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM

1601 39th AVE SE
PUYALLUP, WA 98374

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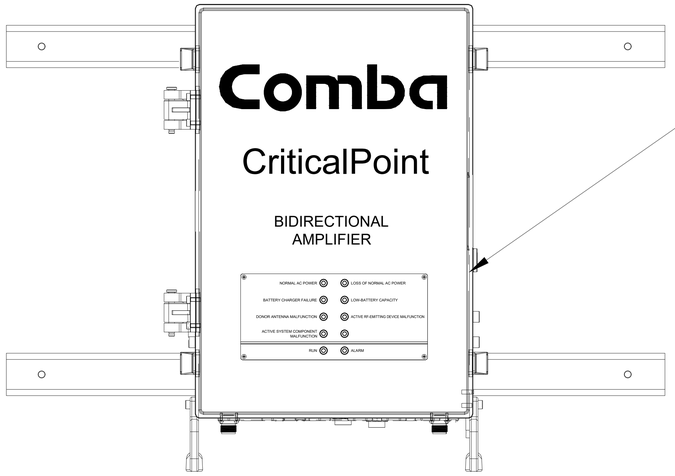
Chk By:
Size: E1 - 30x42
Scale: None
Do Not Scale Drawing

PIERCE - STEM
ERRCS PLAN
HEADEND WIRING

Dwg: DAS-3.21
Rev: C

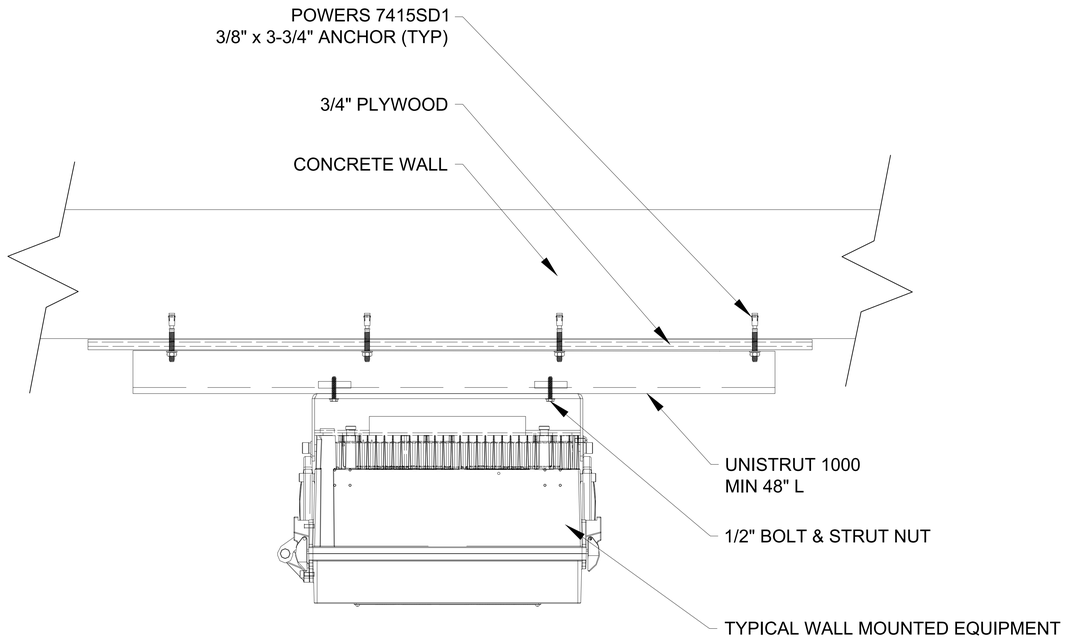


TYPICAL WALL MOUNTED EQUIPMENT
ALL EQUIPMENT SIMILAR

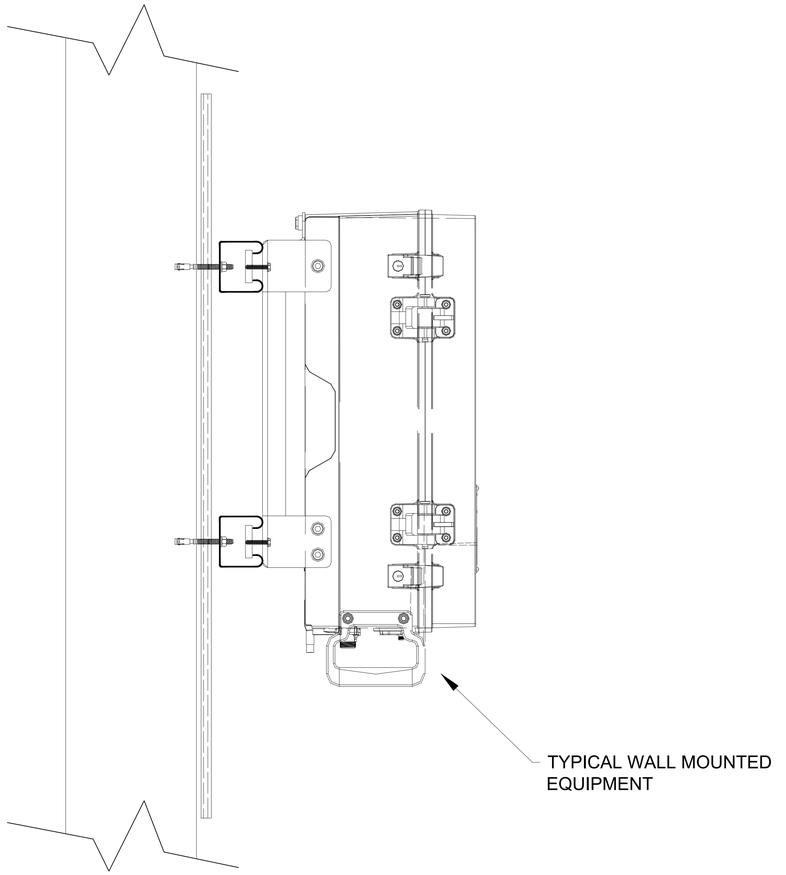
FRONT VIEW

NOTES:

1. FIRESTOP ALL PENETRATIONS IN / OUT OF 2-HR RATED ROOMS OR PATHWAYS.
2. UNISTRUT MOUNTS MUST SPAN 48".
3. MINIMUM 36" MUST BE CLEAR IN FRONT OF EQUIPMENT
4. DRAWINGS ARE NOT TO SCALE.
5. DRAWINGS ARE TYPICAL EXAMPLES. INSTALL TO LOCAL CODES AND REQUIREMENTS.



PLAN VIEW



SIDE VIEW

TYPICAL WALL MOUNTED EQUIPMENT DETAIL

SHOP DRAWING

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Clarkston, WA 99403
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System Designer:
Manny Marcel
FCC GROL: PG-1-17584
Commscope: G619658US2015
ADRF Tech PSR78-040416
DAC Connexion: 081417
iBwave Lev 1: 042619

PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM

1601 39th AVE SE
PUYALLUP, WA 98374

Revisions		
C	Cust. Req. Changes	3/1/24
B	Cust. Req. Changes	6/14/23
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No.	Revision/Issue	Date

Date Issued:	06/14/2023
Dwn By:	MM
Chk By:	
Size:	E1 - 30x42
Scale:	None
Do Not Scale Drawing	

PIERCE - STEM
ERRCS PLAN
MOUNTING EXAMPLES

Dwg:	Rev:
DAS-3.24	C

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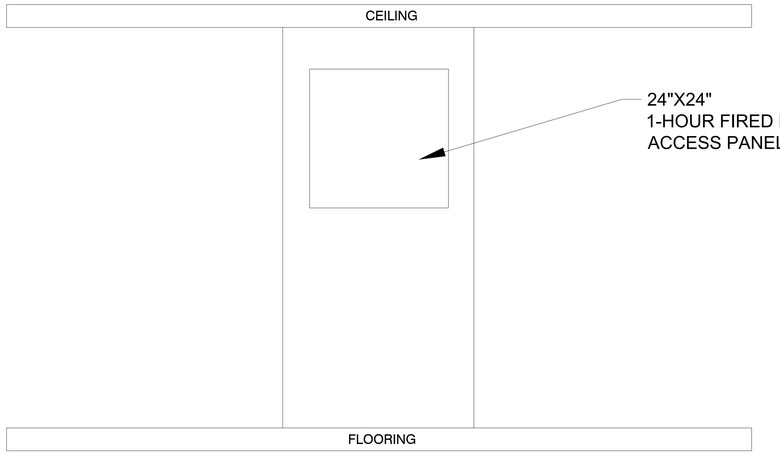
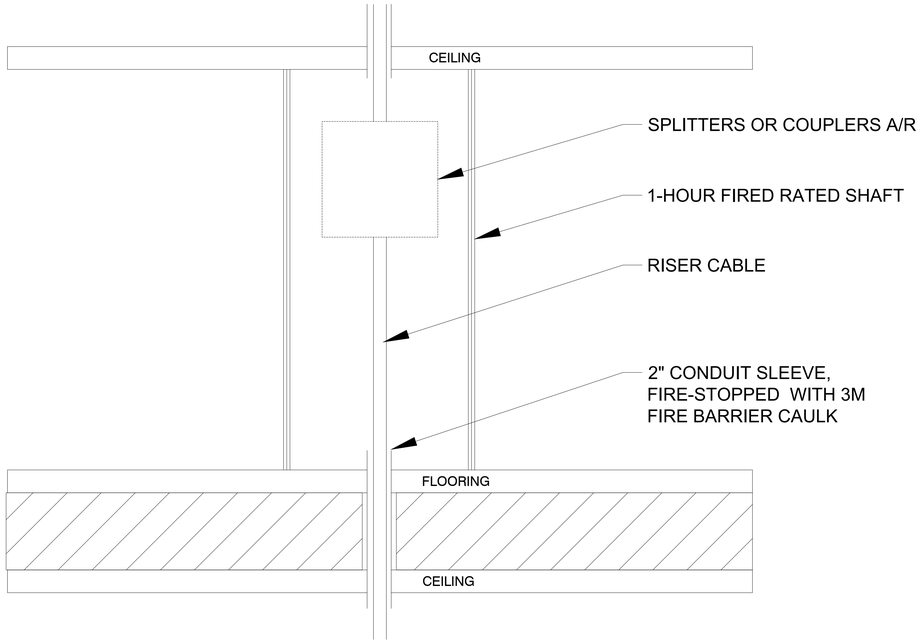


1-HOUR FIRE RATED SHAFT FRONT VIEW



1-HOUR FIRE RATED SHAFT INTERNAL VIEW

TYPICAL RISER FLOOR PENETRATION

SHOP DRAWING

DAS ConneXion

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PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM

1601 39th AVE SE
PUYALLUP, WA 98374

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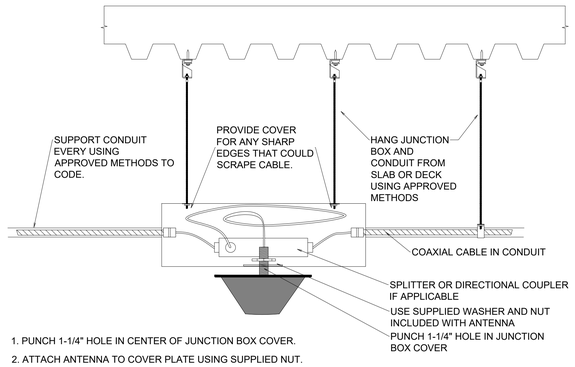
Dwn By: MM
Chk By:
Size: E1 - 30x42
Scale: None
Do Not Scale Drawing

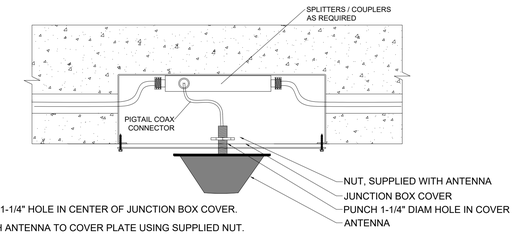
PIERCE - STEM
ERRCS PLAN
VERTICAL PATHWAY

Dwg:	Rev:
DAS-3.25	C



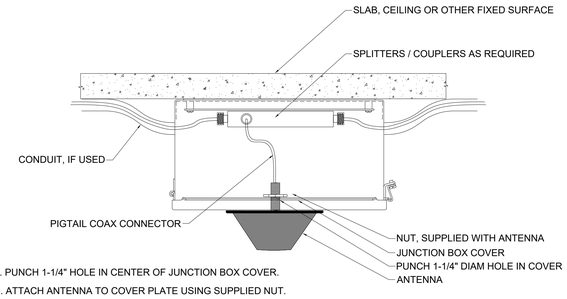
1. PUNCH 1-1/4" HOLE IN CENTER OF JUNCTION BOX COVER.
2. ATTACH ANTENNA TO COVER PLATE USING SUPPLIED NUT.
3. CONNECT COAX TO ANTENNA AND SPLITTER.
4. ATTACH COVER TOP JUNCTION BOX.

ANTENNA MOUNTING WITH ROD-HUNG JUNCTION BOX WITH CONDUIT



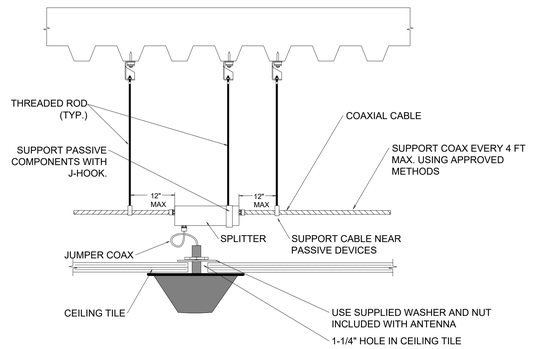
1. PUNCH 1-1/4" HOLE IN CENTER OF JUNCTION BOX COVER.
2. ATTACH ANTENNA TO COVER PLATE USING SUPPLIED NUT.
3. CONNECT COAX TO ANTENNA AND SPLITTER.
4. ATTACH COVER TOP JUNCTION BOX.

ANTENNA MOUNTING FOR CAST-IN PLACE JUNCTION BOX

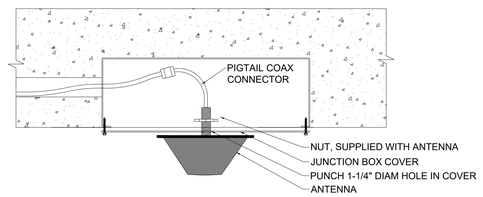


1. PUNCH 1-1/4" HOLE IN CENTER OF JUNCTION BOX COVER.
2. ATTACH ANTENNA TO COVER PLATE USING SUPPLIED NUT.
3. CONNECT COAX TO ANTENNA AND SPLITTER.
4. ATTACH COVER TOP JUNCTION BOX.

ANTENNA MOUNTING FOR SURFACE MOUNT JUNCTION BOX

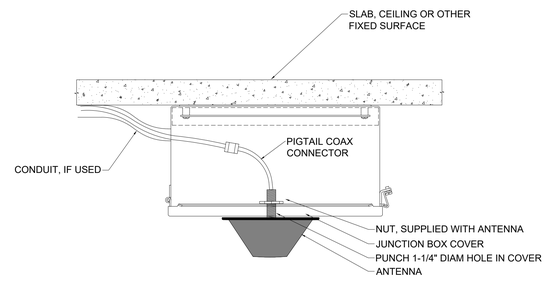


ANTENNA MOUNTING, ROD-HUNG WITHOUT JUNCTION BOX



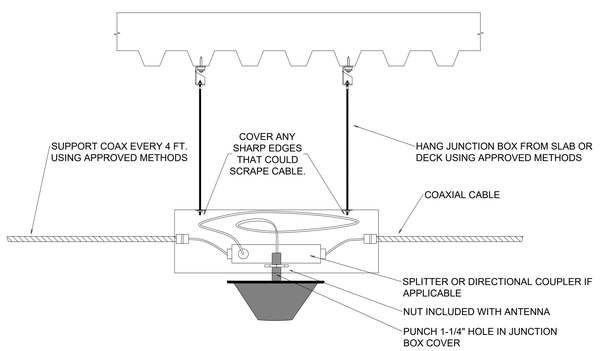
1. PUNCH 1-1/4" HOLE IN CENTER OF JUNCTION BOX COVER.
2. ATTACH ANTENNA TO COVER PLATE USING SUPPLIED NUT.
3. CONNECT COAX TO ANTENNA PIGTAIL.
4. ATTACH COVER TOP JUNCTION BOX.

ANTENNA MOUNTING FOR CAST-IN PLACE JUNCTION BOX

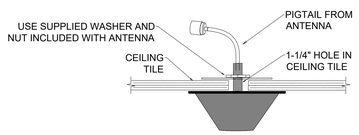


1. PUNCH 1-1/4" HOLE IN CENTER OF JUNCTION BOX COVER.
2. ATTACH ANTENNA TO COVER PLATE USING SUPPLIED NUT.
3. CONNECT COAX TO ANTENNA PIGTAIL.
4. ATTACH COVER TOP JUNCTION BOX.

ANTENNA MOUNTING FOR SURFACE MOUNT JUNCTION BOX



ANTENNA MOUNTING WITH ROD-HUNG JUNCTION BOX WITHOUT CONDUIT



ANTENNA MOUNTING FOR LAY-IN CEILING TILES

NOTES:

1. ALL ANTENNAS ARE PASSIVE (NOT ACTIVE) DEVICES.
2. SIZE AND SHAPE OF ANTENNA MAY CHANGE.
3. DRAWINGS ARE NOT TO SCALE.
4. ANTENNAS WHEN MOUNTED ON JUNCTION BOXES:
   - 4.1. ANTENNA ONLY - 12 X 12 X 4 MIN
   - 4.2. ANTENNA AND SPLITTER(S) - 16 X 16 X 6 MIN
5. LOCAL CODES AND CONDITIONS SHALL DETERMINE EXACT INSTALLATION.

SERVICE ANTENNA MOUNTING EXAMPLES

SHOP DRAWING

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EMERGENCY RESPONDER RADIO COVERAGE SYSTEM
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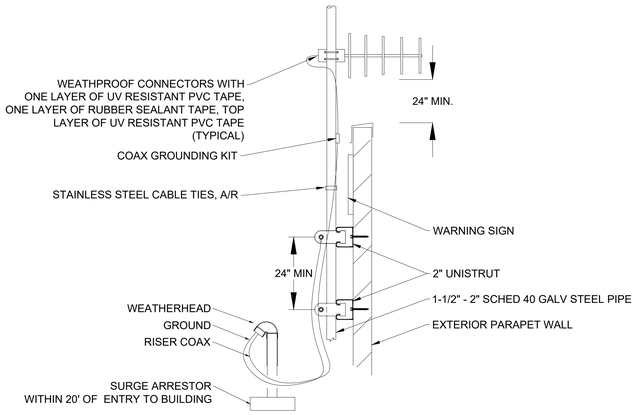
Do Not Scale Drawing	

PIERCE - STEM
ERRCS PLAN
ANTENNA MTG EXAMPLES

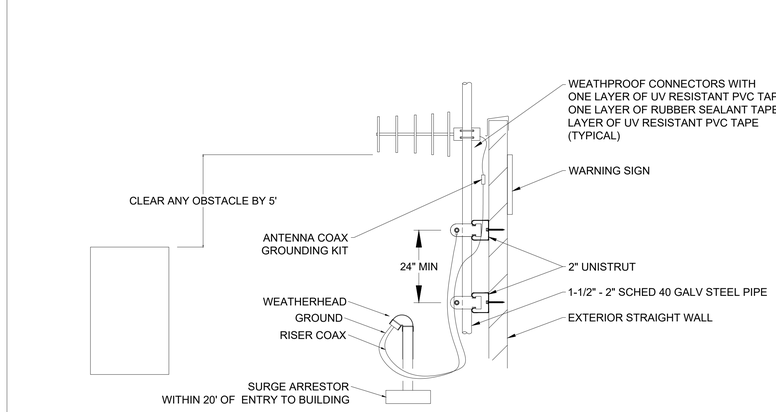
Dwg:	Rev:
DAS-3.30	C

NOTES:

1. ALL ANTENNAS ARE PASSIVE (NOT ACTIVE) DEVICES.
2. SIZE AND SHAPE OF ANTENNA MAY CHANGE.
3. DRAWINGS ARE NOT TO SCALE.
4. LOCAL CODES AND CONDITIONS SHALL DETERMINE EXACT INSTALLATION.
5. GROUND CONDUCTORS #2 AWG CU THHN STRANDED OR BETTER.
6. ALL CABLE/CONDUCTORS WITHIN 7' OF ROOF SHALL BE PROTECTED FROM PHYSICAL DAMAGE.



DONOR ANTENNA MOUNTING
ON PARAPET WALL



DONOR ANTENNA MOUNTING
ON SIDED OF STRAIGHT WALL

DONOR ANTENNA MOUNTING EXAMPLES

SHOP DRAWING

DAS ConneXion
P. O. Box 485 - 608 Chestnut St.
Clarkston, WA 99403
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System Designer:
Manny Marcel
FCC GROL: PG-1-17584
Commscope: G619658US2015
ADRF Tech PSR78-040416
DAC Connexion: 081417
iBwave Lev 1: 042619

PIERCE COLLEGE PUYALLUP - STEM BUILDING
EMERGENCY RESPONDER RADIO COVERAGE SYSTEM
1601 39th AVE SE
PUYALLUP, WA 98374

Revisions		
C	Cust. Req. Changes	3/1/24
B	Cust. Req. Changes	6/14/23
A	Cust. Req. Changes	4/18/23
No.	Revision/Issue	Date

Date Issued: 06/14/2023
Dwn By: MM
Chk By:
Size: E1 - 30x42
Scale: None
Do Not Scale Drawing

PIERCE - STEM
ERRCS PLAN
DONOR MTG EXAMPLES

Dwg:	Rev:
DAS-3.40	C

3/1/2024 1:18:02 PM