EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM

WESLEY HOMES BUILDING D

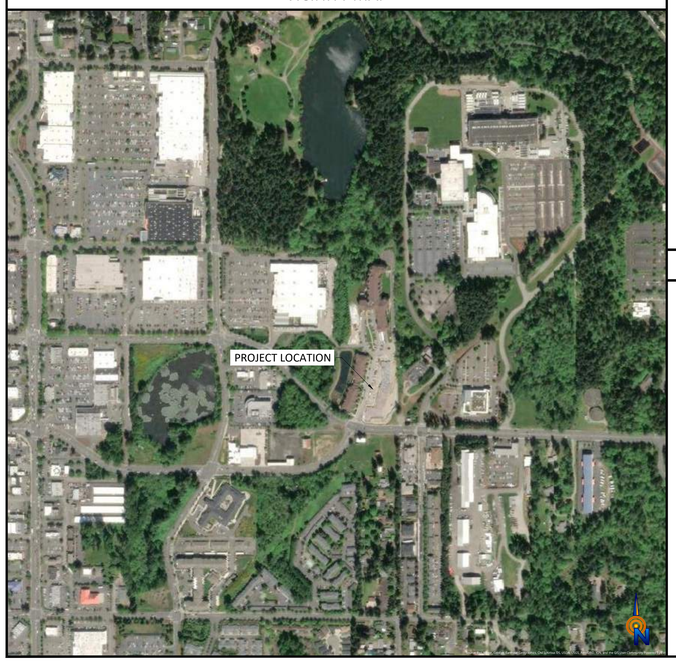
PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

SYSTEM INFORMATION

City of Puyallup

	Frequencies				
Ch.	DL	UL	System Name	City	County
1	853.62500	808.62500			
2	853.40000	808.40000			
3	772.13125	802.13125			
4	771.88125	801.88125	Digital City of Puyallup	Puyallup	Pierce
5	771.60625	801.60625			
6	771.30625	801.30625			
7	771.05625	801.05625			
1	853.57500	808.57500			
2	853.50000	808.50000			
3	857.18750	812.18750	Analog City of Puyallup	Puyallup	Pierce
4	853.37500	808.37500			
5	853.35000	808.35000			

VICINITY MAP



SCOPE OF WORK

TO PROVIDE AN EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM THAT MEETS STATE AND LOCAL CODES AND REQUIREMENTS.

THIS IS ACCOMPLISHED BY AMPLIFYING THE EXISTING OUTDOOR NETWORK AND DISTRIBUTING THE COVERAGE THROUGHOUT THE BUILDING USING A SERIES OF SPLITTERS AND COUPLERS INTERCONNECTED WITH COAXIAL CABLE.

APPLICABLE CODES

INTERNATIONAL BUILDING CODE (IBC)	2022 EDITION
INTERNATIONAL ELECTRICAL CODE (IEC)	2022 EDITION
INTERNATIONAL FIRE CODE (IFC)	2022 EDITION
NFPA 1225	2022 EDITION
NFPA 70	2022 EDITION
NFPA 72	2022 EDITION

PROJECT / BUILDING INFORMATION

STORIES:	4
BUILDING HEIGHT:	##'-#" +/-
BUILDING AREA:	104,685 SQ FT +/-
CONSTRUCTION TYPE:	###
OCCUPANCY:	R2
SPRINKLERS:	FULLY SPRINKLERED

CODE REFERENCE GUIDE

IFC	GENERAL FIRE, SECTION 510 EMERGENCY RESPONDER RADIO COVERAGE
FCC 47 CFR PART 90.219	TITLE 47-TELECOMMUNICATION CHAPTER I-FEDERAL COMMUNICATIONS COMMISSION SUBCHAPTER D-SAFETY AND SPECIAL RADIO SERVICES PART 90-PRIVATE LAND MOBILE
NFPA 1225	RADIO SERVICES SUBPARTi GENERAL TECHNICAL STANDARDS STANDARD FOR EMERGENCY SERVICES COMMUNICATIONS

RF DESIGNER

RF ENGINEER / ERCES PROJECT MANAGER & COMMISSIONED BY

SYMBOL LEGEND

- DONOR ANTENNA
- OMNI ANTENNA
- COUPLER/TAPPER
- POLYPHASER
- BDA — BI-DIRECTIONAL AMPLIFIER
- BBU — BATTERY BACKUP UNIT

CABLE LEGEND

	ICA12-50JPLLR - (1/2" PLENUM COAX)
ARMORED	ICA12-50JPLLR-ARMR - (1/2" PLENUM COAX)
	LCF12-50J - (1/2" OUTDOOR COAX)
2HR — 2HR	2HB12-50JPLR - (1/2" 2HR COAX)
3MF — 3MF	3' N-MALE - N-FEMALE JUMPER
3MM — 3MM	3' N-MALE - N-MALE JUMPER
LMR400	LMR-400-DB

ABBREVIATIONS

A	ANTENNA
AHJ	AUTHORITY HAVING JURISDICTION
ANN	ANNUNCIATOR PANEL
ATT	ATTENUATOR
B	BIAS-T
BBU	BATTERY BACKUP UNIT
BDA	BI-DIRECTIONAL AMPLIFIER
BOM	BILL OF MATERIAL
C	COAXIAL CABLE
DA	DONOR ANTENNA
dBm	DECIBEL MILLIWATTS
DAS	DISTRIBUTED ANTENNA SYSTEM
DC	DONOR CABLE
DI	DIPLEXER
DL	DOWNLINK
DS	DONOR SITE
DU	DUPLEXER
EPO	EMERGENCY POWER OFF BUTTON
ERCES	EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM
FTR	FILTER
FPP	FIBER PATCH PANEL (PROVIDED BY OTHERS)
GND	GROUND
HE	HEAD END
J	JUMPER
N.C.	NORMALLY CLOSED
MHz	MEGAHERTZ
NF	N-FEMALE
NM	N-MALE
N.O.	NORMALLY OPEN
PP	POLYPHASER
RF	RADIO FREQUENCY
RSSI	RECEIVED SIGNAL STRENGTH INDICATOR
Rx	RECEIVE
S	SPLITTER / COUPLER / TAPPER
Tx	TRANSMIT
UL	UPLINK

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

SHEET INDEX

- ● SHEET ISSUED
- ○ SHEET ISSUED W/O REVISIONS
- △ SHEET ISSUED W/ REVISIONS
- ▲ NEW SHEET

Read Permit Conditions prior to calling for inspection.

City of Puyallup Fire REVIEWED FOR COMPLIANCE
DDrake
12/31/2025
3:17:49 PM

THE APPROVED CONSTRUCTION PLANS AND ALL ENGINEERING MUST BE POSTED ON THE JOB AT ALL INSPECTIONS IN A VISIBLE AND READILY ACCESSIBLE LOCATION.

Approval of submitted plans is not an approval of omissions or oversight by this office or noncompliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable building codes and regulations of the local government.

STRUCTURED COMMUNICATIONS
P.O. Box 1368
Snohomish, WA 98291
425.321.5343

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PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FCC LIC. NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 0.0

PLAN NAME
COVER SHEET

PLOT DATE
11/18/2025

BILL OF MATERIALS

SYMBOL LEGEND	Type	Manufacturer	Model	Description	Qty
	Antenna	Ventev	M3020050O11206	Indoor Omni-Directional Ceiling Mounted Antenna	18
	Antenna	Ventev	VHG-VL3015-ODNF	(N.America)(Passive) Outdoor High Isolation Narrow Beam Antenna, 758-869MHz, N-Female	1
	Attenuator	Comba	AT05H-NMNF20	(N.America)(Passive) AT05H Series 20dB Attenuator	1
3MM 3MM	Cable	Ventev	JS-NMNM3F-141	3' N-Male to N-Male Semi-rigid .141 Low loss and Lo Pimm Jumper	16
	Cable	RFS	ICA12-50JPL	ClearFillLine - 1/2in Low Loss Air Dialectric Cable - Plenum Rated/ Indoor/ Outdoor Usage/ Color Blue	500 feet
ARMORED	Cable	RFS	ICA12-50JPLLR-ARMR	ClearFillLine - 1/2in Armored Low Loss Air Dialectric Cable - Plenum Rated/ Indoor Usage/ Color Red	800 feet
2HR 2HR	Cable	RFS	2HB12-50JPLR	Dragonskin - 1/2in Air Dialectric Cable - Plenum Rated/ Indoor/ Outdoor Usage/ Color Red	50 feet
LMR400	Cable	Times Microwave Systems	3' LMR-400 NM-NM	3' LMR-400 JUMPER (N-Male - Male) Flexible Low Loss Communications Coax Jumper	1
	Cable	RFS	LCF12-50J	CELLFLEX - 1/2in Low Loss Flexible Cable - Standard Jacket/ Outdoor Usage	50 feet
	Connector	RFS	NM-LCF12-D01	Connector - LCF12-50 - N Male Connectors	44
	Connector	RFS	NF-LCF12-D01	Connector - LCF12-50 - N Female Connectors	2
	Miscellaneous	Tessco Technologies	415105	Universal Ground Bar	2
P	Miscellaneous	PolyPhaser	IS-50NX-C2	Type N F/F Coaxial RF Surge Protector, 125MHz - 1GHz, DC Block, 375W, 220uJ, 50kA, Blocking Cap, Bracket Up, Hole Mount	1
	Miscellaneous	Commscope	SG12-12B2U	SureGround® Grounding Kit for 1/2 in coaxial cable	1
	Miscellaneous	Generic	N type adaptor (F-F)	N-type adaptor (Female - Female)	1
BBU	Power Supply	Comba	BBUV3-LFP48030	CriticalPoint g (V3 / NG) Battery Backup Unit (Optional dedicated Battery Backup Solution for Comba BDA V3 platform) 100-240VAC input, 48 VDC output, 30 Amp-Hour Power System, UL50E Type 4 / NEMA 4 Enclosure	1
BDA	Repeater	Comba	RX78V3-A2727P0-S1	CriticalPoint™ (V3 / NG) Public Safety Bi-Directional Amplifier 2W / Fiber DAS Master Unit	1
	Splitter	Comba	DC-R05-ON300C(XH)	(N.America)(Passive) 5 dB Directional Coupler, 698-2700 MHz, N-Female Connectors	7
	Splitter	Comba	DC-R08-ON300C(XH)	(N.America)(Passive) 8 dB Directional Coupler, 698-2700 MHz, N-Female Connectors	3
	Splitter	Comba	DC-R10-ON300C(XH)	(N.America)(Passive) 10 dB Directional Coupler, 698-2700 MHz, N-Female Connectors	3
	Splitter	Comba	DC-R07-ON300C(XH)	(N.America)(Passive) 7 dB Directional Coupler, 698-2700 MHz, N-Female Connectors	3
	Splitter	Comba	DC-R06-ON300C(XH)	(N.America)(Passive) 6 dB Directional Coupler, 698-2700 MHz, N-Female Connectors	1

NOTE:
1. JUMPER QUANTITIES AT PASSIVE DEVICES ARE SUGGESTED. INSTALLER MAY CHOOSE TO INSTALL MORE THAN OR LESS THAN QUANTITY STATED IN BOM ABOVE.

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FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 0.1

PLAN NAME
BILL OF MATERIALS

PLOT DATE

PROJECT NOTES

RESPONSIBILITIES OF THE INSTALLER / SCOPE OF WORK

GENERAL

1. **IMPORTANT:** PROOF OF AUTHORIZATION TO OPERATE BY THE LICENSE HOLDER MUST BE OBTAINED AND STORED AT THE BDA LOCATION PRIOR TO ACTIVATION.
2. DRAWINGS AND DESIGN ARE NOT FINALIZED UNTIL APPROVED BY THE AHJ. CONTRACTOR ASSUMES ALL RISK AND LIABILITY IF INSTALLATION AND/OR CONSTRUCTION OF ANY PART OF THESE DRAWINGS IS DONE PRIOR TO APPROVAL BY THE AHJ.
3. APPLY AND PAY FOR ALL NECESSARY PERMITS.
4. INSTALL THE ERCES/DAS TO MEET OR EXCEED THE REQUIREMENTS OF ALL APPLICABLE CODES AND GUIDELINES SET FORTH BY THE STATE, COUNTY, CITY AND AHJ. THIS INCLUDES BUT IS NOT LIMITED TO NFPA 1225, "STANDARD FOR EMERGENCY SERVICES COMMUNICATIONS SYSTEMS.
5. PROCURE ALL EQUIPMENT (PASSIVE AND ACTIVE) INCLUDING BUT NOT LIMITED TO; CONDUIT, JUNCTION BOXES, SUPPORT SYSTEMS, WIRE, ALARM WIRE, FIBER (IF APPLICABLE), AND WATERPROOFING MATERIAL.
6. PROPERLY INSTALL ALL CABLES AND CONNECTORS, WEATHERPROOF WHEN APPLICABLE.
7. TEST AND PROVIDE A REPORT FOR ALL CABLE SEGMENTS TO ENSURE RF LOSSES MEET MANUFACTURER SPECIFICATIONS PRIOR TO COMMISSIONING.
8. PER 2022 NFPA 1225 18.12.3 COMPONENT REQUIREMENTS, ALL CABLES SHALL BE INSTALLED IN ACCORDANCE WITH CHAPTERS 7 & 8 OF NFPA 70.
9. PER NFPA 1225 18.12.3.3 BACKBONE CABLES AND BACKBONE CABLE COMPONENTS INSTALLED IN BUILDINGS THAT ARE FULLY PROTECTED BY AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13 SHALL NOT BE REQUIRED TO HAVE A FIRE RESISTANCE RATING.
10. PROVIDE SIGNAGE OUTSIDE ALL ROOMS HOUSING ACTIVE ERCES EQUIPMENT, REFERENCE STANDARD DETAILS.
11. ENSURE ALL ROOMS HOUSING ACTIVE EQUIPMENT HAVE PROPER VENTILATION AND AIR CONDITIONING.
12. SIZE ALL WIRE GAUGE FOR BDA POWER, RELAY, EPO, AND ALARMING CONNECTIONS.
13. UL LISTING TYPE 4, 4X OR 2524 OF INSTALLED SYSTEM PROVIDED BY OTHERS IF ENFORCED BY THE AHJ.

ALARMING

1. A DEDICATED ANNUNCIATOR SHALL BE PROVIDED WITHIN THE FIRE COMMAND CENTER TO ANNUNCIATE THE STATUS OF ALL RF-EMITTING DEVICES AND ACTIVE SYSTEM COMPONENT LOCATIONS PER 2022 NFPA 1225 18.14.2.1.
2. THE ANNUNCIATOR SHALL PROVIDE VISUAL AND LABELED INDICATIONS OF THE FOLLOWING FOR EACH SYSTEM COMPONENT AND RF-EMITTING DEVICE PER NFPA 1225 18.14.2.2
   - 2.1. NORMAL AC POWER - BBU
   - 2.2. LOSS OF NORMAL AC POWER - BBU
   - 2.3. BATTERY CHARGER FAILURE - BBU
   - 2.4. LOW BATTERY CAPACITY (TO 70% DEPLETION) - BBU
   - 2.5. DONOR ANTENNA MALFUNCTION - BDA(s)
   - 2.6. ACTIVE RF EMITTING DEVICE MALFUNCTION - BDA(S) AND/OR REMOTE
   - 2.7. ACTIVE SYSTEM COMPONENT MALFUNCTION - BDA(S) AND/OR REMOTE
3. PER NFPA 72 12.4.4 A 2HR FIRE RATED CIRCUIT INTEGRITY CABLE IS REQUIRED BETWEEN THE ANN AND THE ERCES EQUIPMENT WHEN NOT LOCATED IN THE SAME 2HR FIRE RATED ROOM (IF APPLICABLE).

FIRE ALARM MONITORING

1. PER 2022 IFC 510.4.2.5 SYSTEM MONITORING. THE IN-BUILDING, TWO-WAY EMERGENCY RESPONDER COMMUNICATIONS 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:
   - 1.1. LOSS OF NORMAL AC POWER SUPPLY
   - 1.2. SYSTEM BATTERY CHARGER(S) FAILURE
   - 1.3. MALFUNCTION OF THE DONOR ANTENNA(S)
   - 1.4. FAILURE OF ACTIVE RF-EMITTING DEVICE(S)
   - 1.5. LOW-BATTERY CAPACITY OF 70-PERCENT REDUCTION OF OPERATING CAPACITY
   - 1.6. FAILURE OF CRITICAL SYSTEM COMPONENTS
   - 1.7. THE COMMUNICATIONS LINK BETWEEN THE FIRE ALARM SYSTEM AND THE IN-BUILDING, TWO-WAY EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM.
   - 1.8. OSCILLATION OF ACTIVE RF-EMITTING DEVICE(S)

ROOF

1. PER 2022 IFC 510.5.1 MOUNTING OF THE DONOR ANTENNA(S): TO MAINTAIN PROPER ALIGNMENT WITH THE SYSTEM DESIGNED DONOR SITE, DONOR ANTENNAS SHALL BE PERMANENTLY AFFIXED ON THE BUILDING OR WHERE APPROVED, MOUNTED ON A MOVABLE SLED WITH 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 CALIFORNIA BUILDING CODE FOR WEATHER PROTECTION OF THE BUILDING ENVELOPE.
2. CORRECTLY POSITION DONOR ANTENNA(S) AZIMUTH (SEE DESIGN).
3. INSTALL NEMA 4 BOX TO MAST PER MANUFACTURER SPECIFICATIONS WHEN APPLICABLE AND ENSURE ALL PENETRATIONS ARE WEATHERPROOF.
4. GROUND DONOR CABLE(S) USING GROUNDING KIT(S) NO MORE THAN 50' FROM ROOF PENETRATION.
5. PROVIDE AND INSTALL WEATHERPROOF ROOF PENETRATION.
6. PROPERLY PROTECT DONOR CABLE(S) ON ROOF USING CONDUIT AND CONDUIT SUPPORTS.
7. CONTRACTOR TO PROVIDE BUILDING GROUND AT DONOR ANTENNA LOCATION.

HEADEND / REMOTE LOCATION

1. INSTALL AND GROUND POLYPHASERS PER MANUFACTURER SPECIFICATIONS.
2. GROUND (OUTDOOR RATED COAX) DONOR CABLE(S) USING GROUNDING KIT(S) NO MORE THAN 50' FROM ROOF PENETRATION.
3. LIGHTNING PROTECTION MUST COMPLY WITH NFPA 780, PER NFPA 1225 12.10
4. MOUNT AND INSTALL ALL PASSIVE EQUIPMENT AND ACTIVE DEVICES (BDA, BBU, ANN, ANTENNAS, SPLITTERS, & CABLE) PER MANUFACTURER SPECIFICATIONS AND APPLICABLE BUILDING CODES, INCLUDING PROPER GROUNDING OF EQUIPMENT WHERE REQUIRED.
5. PROPERLY INSTALL ALL CABLES (COAX AND JUMPERS) AND PASSIVE EQUIPMENT.
6. SECURE ALL FLOOR MOUNTED EQUIPMENT TO MEET ALL APPLICABLE BUILDING CODES.
7. PROVIDE A DEDICATED 20 AMP POWER SOURCE WITH BREAKER LOCK TO POWER, CHARGE AND MAINTAIN THE HARD WIRED BBU.
8. FIRESTOP ALL PENETRATIONS.

RISER

1. IF A NON-ACCESSIBLE RISER IS BEING USED, ENSURE THAT A 2HR FIRE RATED ACCESS PANEL IS INSTALLED AND ALL COMPONENTS (SPLITTERS), CABLES AND CONNECTIONS ARE ACCESSIBLE VIA THE ACCESS PANEL.
2. FIRESTOP ALL PENETRATIONS.

INFRASTRUCTURE (HORIZONTAL)

1. VERIFY ALL CABLES OUTSIDE OF RISER AND/ OR HE ROOM ARE ROUTED IN CONDUIT AND MEET A LEVEL 1 SURVIVABILITY AS NOTED ABOVE.
2. ENSURE ALL CABLES DO NOT EXCEED A MINIMUM 5" BEND RADIUS OR MINIMUM BEND RADIUS SPECIFIED BY THE MANUFACTURER.
3. ENSURE EACH CABLE SEGMENT HAS LESS THAN 15 BENDS.
4. FREE AIR MOUNT ALL PASSIVE DEVICES (SPLITTER) IN JUNCTION BOXES, AND VERIFY ALL CABLE ENTERING AND EXITING JUNCTION BOX IS PROPERLY CONNECT TO EACH PASSIVE DEVICE. NM-NF JUMPERS ARE PROVIDED ON BOM TO ENSURE PROPER INSTALLATION.
5. WHEN CONNECTING MULTIPLE PASSIVE DEVICES IN A SINGLE JUNCTION BOX VERIFY THAT AN NM-NM JUMPER IS USED TO INTERCONNECT ALL DEVICES AND COAX ENTER AND EXITING BOX MEETS INSTALLATION REQUIREMENT NOTED ABOVE.
6. WHEN PASSIVE DEVICES ARE USED IN HARD LID CEILINGS AN ACCESS PANEL MUST BE PROVIDED. CONTRACTOR TO SIZE AND LOCATE.
7. MOUNT ANTENNAS TO CEILING, OR JUNCTION BOX WHEN APPLICABLE. ANTENNA MUST NOT BE IMPEDED TO ENSURE PROPER FUNCTION OF THE SYSTEM.
8. DISTANCE FROM COAX TO THE ANTENNA JUMPER MIGHT BE GREATER THAN THE ANTENNA JUMPER LENGTH. ENSURE THAT THE CABLES ARE NOT STRETCHED THUS COMPROMISING THE FUNCTIONALITY. AN NM-NF JUMPER IS INCLUDED ON THE BOM FOR THIS PURPOSE.
9. INSTANCES WHERE AN ANTENNA DIRECTLY CONNECTS TO A SPLITTER OR COUPLER A JUMPER IS REQUIRED TO COMPLETE THE CONNECTION. THESE JUMPERS ARE INCLUDED ON THE BOM. VERIFY ALL THESE CONNECTIONS ARE PROPERLY MADE. ALSO SEE PASSIVE COMPONENT RF PATH (ERCES 0.0) TO ENSURE RF PATH IS CORRECT.

GENERAL NOTES

1. PRIOR TO THE SUBMISSION OF PRE-CONSTRUCTION DRAWINGS, THE CONTRACTORS SHALL VISIT THE JOB SITE AND BE RESPONSIBLE FOR ALL FIELD CONDITIONS AND CONFIRM THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF A HETNET WIRELESS REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
2. THE CONTRACTOR SHALL RECEIVE AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
3. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER GUIDELINES UNLESS SPECIFICALLY INDICATED OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
4. THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK, USING THE BEST SKILLS AND ATTENTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND FOR COORDINATING ALL PORTIONS OF THE WORK WITH THE SITE REPRESENTATIVE AND WITH THE LANDLORD'S AUTHORIZED REPRESENTATIVE.
5. PENETRATIONS OF ROOF MEMBRANES SHALL BE PATCHED/FLASHED AND MADE WATERTIGHT.
6. CABLE LENGTHS ARE CRITICAL TO SYSTEM PERFORMANCE, INSTALLATION THAT DEVIATES FROM THE DESIGN REQUIRES APPROVAL FROM HETNET WIRELESS.
7. ANTENNA PLACEMENT AND CABLE ROUTING IS SCHEMATIC ONLY. ACTUAL ANTENNA PLACEMENT TO BE WITHIN 10' RADIUS OF DESIGN DRAWING AS LONG AS THE ANTENNA FUNCTION IS NOT BEING IMPEDED BY STRUCTURE NOT ALREADY ACCOUNTED FOR IN THE DESIGN MODEL. HETNET WIRELESS SHALL BE NOTIFIED IF THE RELOCATED ANTENNA POSITION EXCEEDS THE 10' RADIUS.
8. ALL PENETRATIONS THROUGH A FIRE RATED WALL SHALL BE SEALED AS SPECIFIED BY THE MANUFACTURER OF THE FIRE RATED SLEEVE.
9. A SECONDARY POWER SOURCE IS REQUIRED BY CODE, SOME AHJ MAY REQUIRE A SECONDARY POWER SOURCE EVEN IF EMERGENCY GENERATOR POWER IS AVAILABLE.
10. ANNUAL TESTING AND MAINTENANCE REQUIRED PER IFC 510.
11. PER NFPA 1225 CHAPTER 21 AND NFPA 72 CHAPTER 7.2.1(15) COMPLETE RECORDS TO ENSURE OPERATIONAL CAPABILITY OF ALL DISPATCHING SYSTEM FUNCTIONS SHALL BE MAINTAINED, INCLUDING AS-BUILT DRAWINGS AND ACCEPTANCE TEST RECORDS.
12. THE DESIGN OF THE ERCES AS PROVIDED ON THE PLANS COMPLIES WITH THE CALIFORNIA FIRE CODE, ALL APPLICABLE NFPA STANDARDS AND MEETS ALL LOCAL REQUIREMENTS FOR EMERGENCY RESPONDER RADIO COMMUNICATIONS.
13. CONTRACTOR IS REQUIRED TO LABEL ALL DEVICES AND CABLES PER RISER DIAGRAM AND FLOOR PLANS. CABLES TO BE LABELED AT EACH END OF THE SEGMENTS. SEE STANDARD DETAILS FOR REFERENCE.

CABLE AND COMPONENT TESTING

1. PERFORM AND RECORD A TEST OF EVERY INSTALLED CABLE SEGMENT USING AN RF FDR. (CABLE SEGMENTS SHALL BE TEMPORARILY TERMINATED AT ONE END IN A 50-OHM RESISTIVE LOAD TERMINATION FOR THESE TESTS).
2. TEST ALL CABLES SEGMENTS (AS DEFINED BELOW) AT FREQUENCY SWEEPS REFLECTIVE OF COMMON SPECTRUM BANDS IN THAT FREQUENCY RANGE (I.E, 136-174 MHZ COVERS THE VHF BAND).
3. TEST EVERY SEGMENT OF CABLE THAT HAS NO MORE THAN A PAIR OF CONNECTORS INDIVIDUALLY WITH A TERMINATION AT ONE END.
4. THE RETURN LOSS AT ANY CONNECTOR ALONG A LENGTH OF CABLE SEGMENT SHALL NOT BE GREATER THAN 20dB. INSPECT THE FDR TRACE FOR ANY LOCATIONS OTHER THAN CONNECTORS WHERE RETURN LOSS IS BELOW NOMINAL VALUE. IF APPARENT CAUSE IS IN PROXIMITY TO EXTERNAL METAL DEVICES, CORRECT THE ROUTING OF THE CABLE AND RE-TEST. IF STRETCHING,TEARING OF CABLE OR ITS MATERIALS OCCURS REPLACE THE SECTION OF CABLE AND RE-TEST.
5. A COPY OF THE CABLE TEST REPORTS SHALL BE KEPT ON-SITE AND INCLUDED IN THE AS-BUILT RECORDS.

ELECTRICAL NOTES

1. BACK BOXES, PULL BOXES, CONDUIT, AND PULL STRINGS IN CONDUIT ARE TO BE PROVIDED BY ELECTRICAL CONTRACTOR. CONDUIT ROUTE MAY REQUIRE MODIFICATION DUE TO CONSTRUCTION FIELD CONDITIONS.
2. A LICENSED ELECTRICIAN SHALL SIZE AND INSTALL THE CONNECTIONS FROM THE POWER SOURCE TO THE EQUIPMENT PER MANUFACTURER'S GUIDELINES AND ALL APPLICABLE CODES.

PATHWAY NOTES

1. ALL CABLE PATHWAYS SHALL MEET CURRENT REQUIREMENTS SET FORTH BY STATE, CITY, AND LOCAL ORDINANCES.
2. ALL HORIZONTAL CABLE MUST BE PLACED IN CONDUIT UNLESS OTHERWISE NOTED. CONDUIT SIZING DONE BY INSTALLER.
3. CONDUIT SHALL BE PLACED IN PARALLEL WITH WALLS UNLESS OTHERWISE NOTED.
4. CONDUIT RUNS SHALL NOT CONTAIN LB'S.
5. CONDUIT RUNS SHALL HAVE ADEQUATE PULL BOXES ON EXTENDED RUNS.
6. REAM ALL CONDUIT ENDS. FIT STUBBED CONDUITS WITH AN INSULATED BUSHING. DEBURR SHARP EDGES THAT MAY DAMAGE CABLE DURING INSTALLATION OR SERVICE. EQUIP ALL CONDUIT WITH PULL CORD WITH A MINIMUM TEST RATING OF 200LBS.
7. CONTRACTOR SHALL MAINTAIN PROPER BEND RADIUS FOR ALL CONDUIT RUNS UNLESS NOTED OTHERWISE.
8. PULL BOXES AND JUNCTION BOXES SHALL BE SIZED AND PROVIDED BY THE INSTALLER.

CABLING NOTES

1. DO NOT USE METAL STAPLES OR OTHER METHODS THAT KINK OR DEFORM CABLE JACKET. CABLE HANGERS DESIGNED FOR THE SIZE OF THE COAX SHALL BE USED.
2. NO SPLICES ARE PERMITTED.
3. ALL EXPOSED CONNECTION HARDWARE SHALL BE PROTECTED FROM PLASTER, PAINT AND OTHER SUCH MATERIALS.
4. ALL LOW-VOLTAGE WIRING SHOULD BE RUN AT LEAST ONE STUD BAY APART (12" MINIMUM) FROM ANY PARALLEL HIGH-VOLTAGE WIRING, AND CROSS AT RIGHT ANGLES WHENEVER NECESSARY. WHERE THERE IS SUFFICIENT CLEARANCE TO MEET THAT REQUIREMENT, THE CABLING MUST BE ARRANGED TO PROVIDE THE MAXIMUM POSSIBLE SEPARATION, OVER AS MUCH DISTANCE AS POSSIBLE (UNDER NO CIRCUMSTANCES SHALL THE LATERAL DISTANCE BE LESS THAN 4" WITHOUT SUPPLEMENTAL SHIELDING). THE ONLY EXCEPTION IS WHERE CABLES CROSS AT RIGHT ANGLES, WHERE A 2" MINIMUM SEPARATION MUST BE MAINTAINED.
5. PROTECTING CABLING FROM DAMAGE IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. ALL CABLING MUST BE RUN WHERE IT IS UNLIKELY TO BE DAMAGED AFTER INSTALLATION, NAIL PLATES SHOULD BE INSTALLED WHERE CABLING PASSES THROUGH WALL STUDS. WHERE STEEL FRAMING IS USED, PLASTIC BUSHINGS MUST BE INSTALLED WHEREVER CABLES PASS THROUGH METAL STRUCTURAL MEMBERS. CABLES MUST NOT TOUCH ANY EDGES OF METAL FRAMING.
6. ALL CABLING MUST BE PROPERLY SUPPORTED AND SECURED IN A WAY THAT WILL NOT COMPRESS OR DEFORM THE CABLES.
7. THIS DESIGN INCLUDES JUMPERS IN THE BOM THAT DESPITE NOT BEING ILLUSTRATED IN THE DRAWINGS ARE TO BE INSTALLED IMMEDIATELY BEFORE AND AFTER EACH SPLITTER, COUPLER AND/OR TAPPER WHERE APPLICABLE.
8. IF APPLICABLE, SINGLE MODE FUSION SPLICED FIBER PROVIDED BY OTHERS. SC/APC CONNECTORS PROVIDED IN BOM.
9. COMMUNICATION AND SIGNAL CIRCUITS SHALL BE IDENTIFIED BY A DISTINCTIVE COLOR ON COVERS OR DOORS. THE WORDS "EMERGENCY COMMUNICATIONS-SIGNAL CIRCUIT" SHALL BE CLEARLY MARKED ON ALL TERMINAL AND JUNCTION LOCATIONS.
10. CONTRACTOR, AT THEIR DISCRETION, MAY USE SHORTER JUMPERS WHEN FEASIBLE TO DO SO.

FUNCTIONS & CAPABILITIES

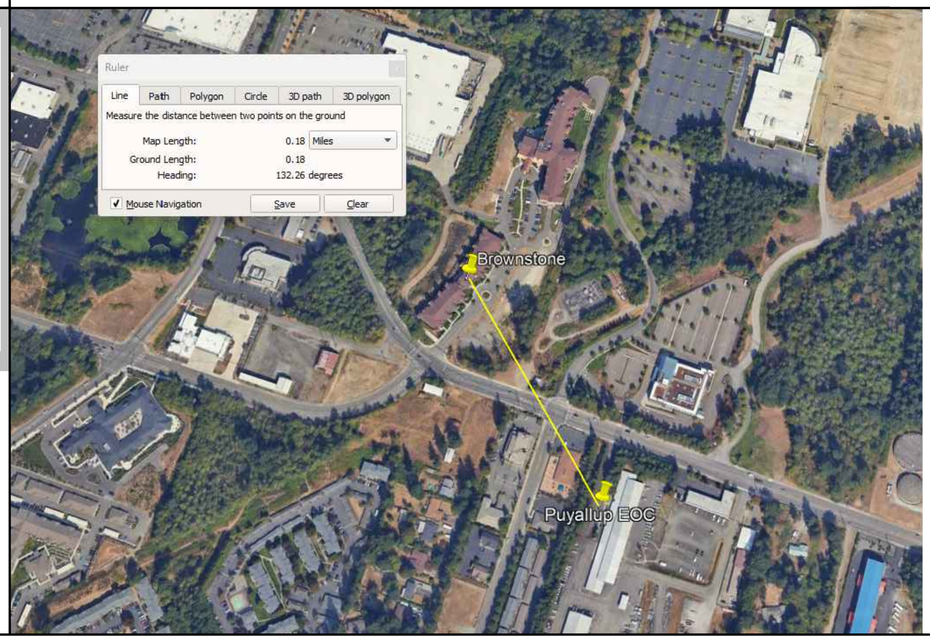
1. THE ERCES PROVIDES A METHOD TO AMPLIFY AND DISTRIBUTE EMERGENCY SERVICE PROVIDER RADIO SYSTEM TRANSMISSIONS WITHIN BUILDINGS.
2. WHEN REQUIRED, CONTRACTORS SHALL HAVE AN FCC-CERTIFIED TECHNICIAN WHO IS QUALIFIED WITH A GENERAL RADIO/TELEPHONE OPERATOR LICENSE (GROL/PG), OR EQUIVALENT, TO REVIEW DESIGN PLANS, PERFORM THE INSTALLATION, AND TEST THE SYSTEM.
3. CONTRACTORS SHALL PROVIDE AND INSTALL ALL RACKS, FIBER TRAYS, BI-DIRECTIONAL AMPLIFIERS, BACK-UP BATTERY SYSTEMS, AUTO DIALERS, REMOTE HUB/UNITS, ROOF ANTENNAS, MULTI-BAND DIRECTIONAL AND OMNI-DIRECTIONAL ANTENNAS, POWER SUPPLIES PLENUM RATED COAXIAL CABLE, PLENUM RATED RISER COAXIAL CABLE, POWER CONDITIONERS, CONNECTORS, SPLITTERS, COUPLERS, FIBER OPTIC CABLE, FIBER OPTIC MATERIALS AND CONNECTORS, GROUNDING, AS NEEDED TO PROVIDE A COMPLETE SYSTEM AS DEPICTED ON THE PLANS.
4. ENCASE ALL ACTIVE DEVICES IN A NEMA 4 DUST/WATER PROOF CABINET IF NOT ALREADY NEMA 4 RATED.
5. EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEMS SHALL BE PROVIDED WITH AN APPROVED SECONDARY SOURCE OF POWER. THE SECONDARY POWER SUPPLY SHALL BE CAPABLE OF OPERATING THE EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM FOR A PERIOD OF AT LEAST 12 HOURS. WHEN PRIMARY POWER IS LOST, THE POWER SUPPLY TO THE EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM SHALL AUTOMATICALLY TRANSFER TO THE SECONDARY POWER SUPPLY.
6. INSTALLING CONTRACTOR TO HAVE FIRE DEPARTMENT APPROVED CERTIFIED TECHNICIAN WHO WILL REVIEW CONSTRUCTION PLANS IN ORDER TO ENSURE THAT SUCH PLANS MEET THE AFOREMENTIONED RADIO COMMUNICATION CRITERIA, INCLUDING THE LOCATION OF ALL NECESSARY CONDUIT.
7. PER 2022 NFPA 1225 18.8.2 THE SYSTEM SHALL ADHERE TO THE MAXIMUM ACCEPTABLE PROPAGATION DELAY STANDARD PROVIDED BY THE AHJ.
8. PER 2022 NFPA 1225 18.8.4 GENERAL BUILDING AREAS SHALL BE PROVIDED WITH 95% FLOOR AREA RADIO COVERAGE.
9. PER 2022 NFPA 1225 18.9.1 A MINIMUM DOWNLINK SIGNAL SHALL BE SUFFICIENT SUFFICIENT TO PROVIDE A MINIMUM OF DAQ 3.4 FOR EITHER ANALOG OR DIGITAL SIGNALS. IF LOCAL AHJ REQUIREMENT HAS A MORE STRINGENT DAQ REQUIREMENT IT SHALL SUPERSEDE NFPA 1225.
10. PER 2022 NFPA 1225 18.9.2 THE UPLINK SIGNAL SHALL BE SUFFICIENT TO PROVIDE A MINIMUM OF DAQ 3.4 FOR EITHER ANALOG OR DIGITAL SIGNALS. IF LOCAL AHJ REQUIREMENT HAS A MORE STRINGENT DAQ REQUIREMENT IT SHALL SUPERSEDE NFPA 1225.

DONOR SITE INFORMATION

DL DONOR CALCULATIONS

Radio System Name:	Puyallup
Frequency Band:	700 & 800
Highest Frequency:	853.625
Donor Site:	Puyallup EOC
Latitude:	47°9'14.55"N
Longitude:	122°16'50.48"W
Azimuth:	136.04°
Distance To Site:	0.19 Miles
Free Space Path Loss:	80.72 dB
Donor Site Power:	400 Watts
Donor Site Power:	56.02 dBm
Calculated Receive Level:	-24.7 dBm
Design Signal Level:	-32.7 dBm

DONOR SITE MAP



STRUCTURED COMMUNICATIONS
P.O. Box 1368
Snohomish, WA 98291
425.321.5343

WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FCC LIC. NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 0.2

PLAN NAME
NOTES & DONOR INFORMATION

PLOT DATE

11/18/2025 3 OF 27 SHEETS

BDA - CLASS A

Comba

CriticalPoint™ Version 3 / Next Generation Public Safety Solution

Public Safety 700/800MHz Class A/B 27/33dBm Bi-directional Amplifier and Battery Backup Unit

Features

Public Safety Standards Compliance

- Compliance with IFC / NFPA / UL2524
- FCC Class A: PX8RX78V2F-A / Class B: PX8RX78V2F-B
- UL 2524 Standard Certified – SGS Certificate No.: TBD
- ISED (IC): TBD
- UL50E Type 4 / NEMA 4 enclosure for BDA / BBU

Bi-directional Amplifier

- Supports P25 P1/P2, digital and conventional analog communications simultaneously
- Built-in cavity filtering to protect the unit from interference from FirstNet and other neighbor bands
- Up to 64 channels per band on single band models; up to 96 channels shared across bands on dual band models (maximum of 64 on individual band) (Class A)
- Channelized Auto Level Control (ALC) supported (Class A)
- Channelized Downlink and Uplink squelch supported (Class A)
- Uplink PA shutdown during no traffic periods to minimize noise being introduced to the network (Class A)
- Built-in mandatory isolation test to prevent BDA oscillation
- Auto shutdown with alarm upon oscillation detection
- Expandable to 700/800MHz V3/NG fiber system
- Web based GUI for intelligent configuration, SNMP supported
- Integrated Battery Charger Unit, Comba BBU V2 / BBU V3/NG supported
- License based switching between Class A or Class B, Single band or Dual band, 0.5W or 2W configurations
- NFPA / IFC / UL 2524 compliant dry contact alarms, with LED displays
- External Comba Annunciator Panel supported

Specifications - BDA

BDA		700MHz	800MHz
Passband (Downlink / Uplink)	MHz	Configuration S0 – 700MHz: 758-775 / 788 – 805, 800MHz: 851-861 / 806-816 Configuration S1 – 700MHz: 769-775 / 799 – 805, 800MHz: 851-851 / 806-816 Configuration C0 – 700MHz: 768-776 / 798 – 806, 800MHz: 851-869 / 806-824	
Total Output Power, Uplink	dBm	27	
Total Output Power, Downlink	dBm	27 / 33	27 / 33
Maximum System Gain (Uplink / Downlink)	dB	90	90
Gain Adjustment Range (1dB step) *	dB	60-90 / 35-65 / 10-40 (Under different gain limit modes)	60-90 / 35-65 / 10-40 (Under different gain limit modes)
Pass Band Ripple, p-p (Uplink / Downlink)	dB	S0: ≤3, S1: ≤7	S0: ≤3, S1: ≤7
Uplink Noise Figure	dB	<5 (90dB Uplink Gain), <9 (67dB Uplink Gain)	
Intermodulation	dBm	≤ -13	≤ -13
Spurious	dBm	FCC Compliance	FCC Compliance
Maximum RF Input Level without Damage	dBm	0	0
Maximum RF Input Level without Overdrive	dBm	-10	-10
Input VSWR		≤ 2	≤ 2
Impedance	Ω	50	50

Class A / Class B Specialized Filtering			
Number of Filters Downlink			64 per band
Number of Filter Uplink			96 Shared between 700/800MHz
Filter Bandwidth		KHz	12.5/25/75 (Class A) 75/100/150 (Class B Specialized Filtering) Additional 10MHz (LTE) for FirstNet
Filter	Bandwidth (kHz)	Delay(μs)	Out-of-Band Suppression
High rejection Filter Set	12.5	≤48	≥ 60dBc @ filter edge + 30KHz
	25	≤30	≥ 60dBc @ filter edge + 50KHz
	75	≤18	≥ 60dBc @ filter edge + 130KHz
	75 LD	≤15	≥ 60dBc @ filter edge + 200KHz
Low Delay Filter Set	12.5	≤30	≥ 60dBc @ filter edge + 65KHz
	25	≤27	≥ 60dBc @ filter edge + 75KHz
	37.5	≤26	≥ 60dBc @ filter edge + 75KHz
	50	≤26	≥ 60dBc @ filter edge + 100KHz
	75	≤15	≥ 60dBc @ filter edge + 200KHz
	100	≤14	≥ 60dBc @ filter edge + 200KHz
	150	≤13	≥ 60dBc @ filter edge + 205KHz

*Actual delay number is various according to version

Class B Wide Band		
Filter Bandwidth	MHz	0.6-10
Number of Filters		3
System Group Delay	μsec	≤ 14
Out-of-Band Suppression	dBc	≥ 60 @ filter edge + 1MHz

Mechanical - BDA

BDA				
Dimensions, H x W x D		mm / in	330 x 490 x 199 / 13.0 x 19.3 x 7.8	
Weight (without bracket)		kg / lbs	25 / 55.1	
Power Supply Input		VAC	100-240V / 50-60Hz / 0-4.5A	
Power Supply Output		VDC	40-60V (Typical: 53.5V) / 0-7.5A	
Maximum Charging Current		A	5	
Power Consumption	Single Band	W	27 dBm <75	33 dBm <90
	Dual Band		<85	<100
Enclosure Cooling			Convection	
RF Connectors * 2			N-Female (MT, DT), SMA-Female (FOU DL, FOU UL)	
Test Port * 2			SMA-Female (DT-Test, MT-Test)	
LED * 10			Dry Contact Alarm LED 1 - 8, ALM/RUN	
Communication port *2			RJ45 (LAN, OMT)	
Reserved knock outs			3/4-inch hole x 1, 1/2-inch hole x 3, 1-inch hole x2	
Operating Temperature		ºC	-40 to +55	
Operating Humidity			≤ 95%	
Environmental Class			UL50E Type 4 / NEMA 4	
MTBF		Hr	100,000	

RX78V3 – A 33 27 P0 – S1

BDA Band Configuration	S0 = 700MHz NB, 800MHz NB, FirstNet, ESMR S1 = 700MHz NB, 800MHz NB, High Rejection Duplexers C0 = Canada Version
BDA Power Supply	P0 = AC input with internal Charger
BDA UL Power	27 = 27dBm
BDA DL Power	33 = 33dBm 27 = 27dBm
BDA Class	A = Class A B = Class B
BDA Authorized Band	07 = 700MHz single band 08 = 800MHz single band 78 = 700MHz and 800MHz dual band

BDA Part Numbers	Band	Class	DL PWR	Duplexer Configuration
RX78V3-A3327P0-XX	700/800MHz	Class A	33dBm	XX=S1/S0/C0
RX07V3-A3327P0-XX	700MHz	Class A	33dBm	XX=S1/S0/C0
RX08V3-A3327P0-XX	800MHz	Class A	33dBm	XX=S1/S0/C0
RX78V3-A2727P0-XX	700/800MHz	Class A	27dBm	XX=S1/S0/C0
RX07V3-A2727P0-XX	700MHz	Class A	27dBm	XX=S1/S0/C0
RX08V3-A2727P0-XX	800MHz	Class A	27dBm	XX=S1/S0/C0
RX78V3-B3327P0-XX	700/800MHz	Class B	33dBm	XX=S1/S0/C0
RX07V3-B3327P0-XX	700MHz	Class B	33dBm	XX=S1/S0/C0
RX08V3-B3327P0-XX	700MHz	Class B	33dBm	XX=S1/S0/C0
RX78V3-B2727P0-XX	700/800MHz	Class B	27dBm	XX=S1/S0/C0
License Part Numbers	**Configuration**			
RX78V3-L-2733AASS	27dBm to 33dBm upgrade license	27dBm to 33dBm upgrade license, for Single Band, Class A units		
RX78V3-L-2733AADD		27dBm to 33dBm upgrade license, for Dual Band, Class A units		
RX78V3-L-2733BBSS		27dBm to 33dBm upgrade license, for Single Band, Class B units		
RX78V3-L-2733BBDD		27dBm to 33dBm upgrade license, for Dual Band, Class B units		
RX78V3-L-3333AASD	Single Band to Dual Band upgrade license	Single band to Dual Band upgrade license, for 33dBm, Class A units		
RX78V3-L-3333BBSD		Single band to Dual Band upgrade license, for 33dBm, Class B units		
RX78V3-L-2727AASD		Single band to Dual Band upgrade license, for 27dBm, Class A units		
Not Available		Single band to Dual Band upgrade license, for 27dBm, Class B units		
RX78V3-L-3333BASS	Class B to Class A upgrade license	Class B to Class A upgrade license, for 33dBm, Single Band units		
RX78V3-L-3333BADD		Class B to Class A upgrade license, for 33dBm, Dual Band units		
RX78V3-L-2727BASS		Class B to Class A upgrade license, for 27dBm, Single Band units		
RX78V3-L-2727BADD		Class B to Class A upgrade license, for 27dBm, Dual Band units		

BBU

Comba

CriticalPoint™ Version 3 / Next Generation Public Safety Solution

Public Safety 700/800MHz Class A/B 27/33dBm Bi-directional Amplifier and Battery Backup Unit

Features

Public Safety Standards Compliance

- Compliance with IFC / NFPA / UL2524
- FCC Class A: PX8RX78V2F-A / Class B: PX8RX78V2F-B
- UL 2524 Standard Certified – SGS Certificate No.: TBD
- ISED (IC): TBD
- UL50E Type 4 / NEMA 4 enclosure for BDA / BBU

Battery Backup Unit

- Optional dedicated Battery Backup Solution for BDA V3/NG platform
- Supports Lithium Iron Phosphate (LiFePO4) batteries
- Supports 12 hours backup power with 30AH battery option
- Supports 24 hours backup power with 60AH battery option
- Provides connections for EPO (Emergency Power Off) switch
- Provides AC convenience outlet inside BBU

Battery Backup Unit

BBU		
Dimensions, H x W x D	mm / in	605 x 500 x 272.9 / 23.8 x 19.7 x 10.7
Weight (without battery)	Kg / lbs	26 / 57.3
LiFePO4 Output	VDC	Per Battery
LiFePO4 Battery Communication Port		Serial port (RS485)
Knockouts		3/4-inch hole x 4, 1/2-inch hole x 6
Operating Temperature	ºF (ºC)	32 to 104 (0 to 40)
Operating Humidity		≤ 95%
Enclosure Environmental Class		UL50E Type 4 / NEMA 4

Battery				
Battery Type		(Lithium Iron Phosphate) LiFePO4		
System Required Quantity	pcs	1	1	1
Amp/Hour (Discharge at XC)		30AH	60AH	100AH
Nominal Voltage		51.2V	51.2V	51.2V
Battery Weight	lb(kg)	52.9 (24)	79.8 (36.2)	123.5 (56)
Battery Electrolyte Counts		0.456 Gallons / 4.6 lbs	0.913 Gallons / 9.1 lbs	1.758 Gallons / 17.6 lbs

BBU Part Numbers	Battery Type	Capacity	Backup Hours
88UV3-LFP48030	Lithium iron phosphate	30AH	>12H for 110W
88UV3-LFP48B60	Lithium iron phosphate	60AH	>24H for 110W, 12H for 220W
88UV3-LFP48100	Lithium iron phosphate	100AH	>48H for 110W, 24H for 220W

MIN. BBU REQUIRMENTS BY TOTAL WATTAGE DRAW

Watts (Total)	V	Battery Run Time (Hrs.)	Watts (Hrs)	Battery Efficiency	Min. Draw (Amps)
100	48	24	2400	100.00%	2.08

BBU PERFORMANCE SIZED

Battery (Ah)	V	Battery Strings	Total Battery (Ah)	Runtime (Hrs)	Actual Runtime (Hrs)
30	48	1	30	14.40	14.40

MOUNTING INFORMATION

NOTE:
1. REFER TO COMBA OPERATIONAL MANUAL.

1 INSTALLATION

1.1 BDA V3 WALL MOUNTING

- Remove the mounting bracket from the BDA.
- Drill four holes on the wall/plywood using the position of four holes on the mounting rack as a guide.
- Install the Mounting Rack to the wall.
- Hang the equipment and secure the enclosure to the mounting rack.

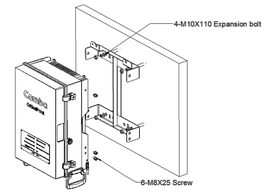


Figure 1: BDA V3 Wall Mounting

1.2 BBU V3 WALL MOUNTING

- Drill four holes on the wall/plywood using the position of holes from battery backup unit as a guide.
- Install the battery backup unit (without battery) to the wall.

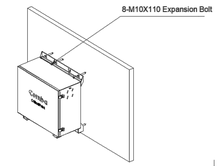


Figure 2: BBU V3 Wall Mounting

ALARMING INFORMATION

ANNUNCIATOR ALARMING NOTES

1. INSTALLER SHALL REFERENCE BBU, BDA, AND ANN INSTALLATION GUIDES FOR ALL ALARMING CONTACTS.
2. INSTALLER IS RESPONSIBLE FOR ALL ALARMING CONNECTIONS TO THE ANN.
3. FIRE ALARM CONTRACTOR SHALL BRIDGE THE ALARMING FROM THE ANN TO MAIN FIRE ALARM A SEPARATE PERMIT IS REQUIRED.
4. FIRE ALARMING SHALL COMPLY WITH NFPA 72.
5. PER NFPA 1221 9.6.13.2, THE DEDICATED MONITORING PANEL (ANN) MUST BE LOCATED IN THE FIRE COMMAND CENTER (IF APPLICABLE).
6. A DEDICATED ANNUNCIATOR SHALL BE PROVIDED WITHIN THE FIRE COMMAND CENTER TO ANNUNCIATE THE STATUS OF ALL RF-EMITTING DEVICES AND ACTIVE SYSTEM COMPONENT LOCATIONS PER 2022 NFPA 1225 18.14.2.1.
7. THE ANNUNCIATOR SHALL PROVIDE VISUAL AND LABELED INDICATIONS OF THE FOLLOWING FOR EACH SYSTEM COMPONENT AND RF-EMITTING DEVICE, PER NFPA 1225 18.14.2.2:
   - 7.1. NORMAL AC POWER - BBU
   - 7.2. LOSS OF NORMAL AC POWER - BBU
   - 7.3. BATTERY CHARGER FAILURE - BBU
   - 7.4. LOW BATTERY CAPACITY (TO 70% DEPLETION) - BBU
   - 7.5. DONOR ANTENNA MALFUNCTION - BDA(s)
   - 7.6. ACTIVE RF EMITTING DEVICE MALFUNCTION - BDA(S) AND/OR REMOTE
   - 7.7. ACTIVE SYSTEM COMPONENT MALFUNCTION - BDA(S) AND/OR REMOTE
8. PER NFPA 72 12.4.4 A 2HR FIRE RATED CIRCUIT INTEGRITY CABLE IS REQUIRED BETWEEN THE ANN AND THE ERCES EQUIPMENT WHEN NOT LOCATED IN THE SAME 2HR FIRE RATED ROOM (IF APPLICABLE).

STRUCTURED COMMUNICATIONS
P.O. BOX 1368
SNOHOMISH, WA 98291
425.321.5343

WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FEDERAL COMMUNICATIONS COMMISSION USA

FCC LIC NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 0.3

PLAN NAME
EQUIPMENT INFORMATION-1

PLOT DATE

11/18/2025

INDOOR ANTENNA

ventev

698-960/1710-2700 MHz 2/5 dBi LTE Omnidirectional Antenna with N-Style Female Connector

Ventev's 698-960/1710-2700 MHz 2/5 dBi high gain ceiling mount antenna is designed for indoor wireless networks operating in the LTE, Cellular or 2.4GHz frequency range. This antenna is ideal for any indoor voice and data wireless system. Includes an N-style Female connector and a ceiling mount.

Every Ventev antenna is RoHS compliant and covered by Ventev's two-year TerraNet warranty program.

For more information or to purchase, contact Ventev: 800.851.4965 or sales@ventev.com.

SPECIFICATIONS

SKU: 399611

Model Number: M3020050O11206

Frequency Range: 698-960 MHz / 1710-2700 MHz

Gain: 2 / 5 dBi

Vertical Beamwidth: 85°±15° / 45°±15°

Polarization: Vertical

Maximum Input Power: 100 W

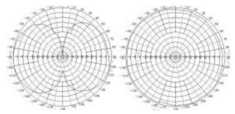
Connector Type: N-Female

Dimensions: 6.69 X 2.83"

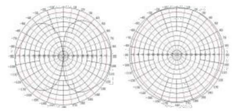
Weight: .53 lbs.

Mounting Method(s): ceiling

RADIATION PATTERNS



E-Plane: 700-960MHz H-Plane: 700-960MHz



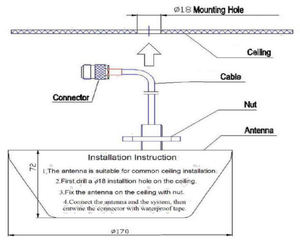
E-Plane: 1710-2700MHz H-Plane: 1710-2700MHz

Terrawave by Ventev

ventev

698-960/1710-2700 MHz 2/5 dBi LTE Omnidirectional Antenna with N-Style Female Connector

MOUNT INFORMATION



Installation Instructions

1. Drill a .71" installation hole on the ceiling.
2. Fix the antenna on the ceiling with nut.
3. Connect antenna and the system. It is recommended to cover the connector with waterproof tape for further protection.

www.ventev.com/infra sales@ventev.com 800.851.4965

OUTDOOR ANTENNA

High Gain Directional Antenna

698-960 MHz, 30° Azimuth, 1x Port

ventev
Connect, Protect, and Enable™

Ventev's high gain directional panel antenna offers a narrow beam (30º HBW) pattern with higher front-to-back ratio and lower VSWR providing efficient performance. The antenna covers 698 to 960 MHz supporting cellular 700, 850, SMR 800, GSM 900 bands and ideal for donor applications in DAS networks. Suitable for outdoor applications, the rugged design offers UV protected radome and broader operating temperature range. The antenna ships with a 2-point heavy-duty hot-dipped galvanized pole bracket that offers up to 25º of down-tilt.

Specifications

SKU	606328
Manufacturer Part Number	VHG-VL3015-ODNF
Operating Frequency Range	698-806/806-960 MHz
Gain	15/16 dBi
Polarization	Vertical
Vertical Beamwidth	29º ± 3º/26º ± 3º
Horizontal Beamwidth	29º ± 3º/26º ± 3º
VSWR	≤ 1.5
Nominal Impedance	50 Ohms
Max Input Power	100 W
Front-to-Back Ratio	≥ 30 dB
PIM, IM3, 2 x 20 W (43dBm)	≤ -153
Number of Ports	1
RF Connector	N Female
Connector Position	Back of Antenna
Application	Outdoor
Operating Temperature	-40 to 140º F
Dimensions	27.6 x 27.6 x 5.3 in.
Weight	32.6 lbs. / 42.5 lbs. with bracket
Radome	White Fiberglass
Mounting Hardware	Heavy-duty hot-dipped galvanized bracket included; 2-3.5 in. OD pole bracket allows 25º down-tilt
Lightning Protection	DC Grounding
Wind Load	134 mph

Radiation Patterns

698-806 MHz

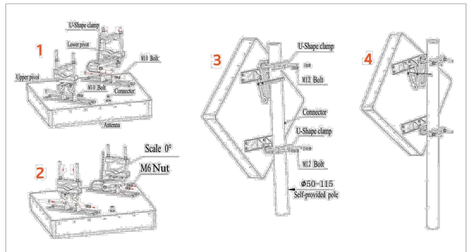
806-960 MHz

Features & Benefits

- High gain narrow beam directional antenna covering 698-960MHz frequency range.
- Supports cellular 700/SMR800/ cellular 850/GSM900 MHz bands.
- Rugged design suitable for outdoor deployments.
- Ideal for donor applications.
- 2-point heavy duty pole mount bracket with adjustable down-tilt included.

All product specifications are subject to change without notice or obligation.

Installation Diagrams

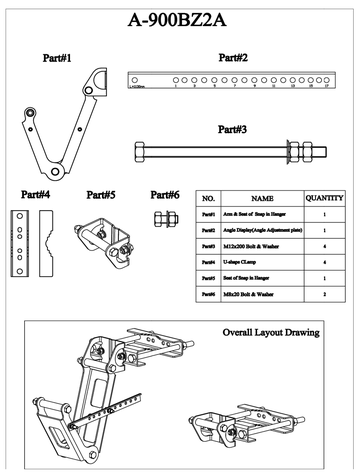


Installation Instructions

1. First install the M10 bolt and u-shape clamp on the upper and lower brackets of the antenna and pre-tighten the M10 nuts.
   Then fasten the brackets to the back of antenna with M10 bolt, torquing the nut to 47N·m.
2. Tighten the scale to the upper bracket with the M6 nut, fix the scale to 0 degree position, torquing the nut to 8N·m. (Above steps must be completed under the tower before installing the antenna).
3. Installing the antenna vertically to the support pole using M12 bolt, torquing the nut to 86N·m.
4. Loosening the scale fixing nut on the upper bracket, adjust the mechanical downtilt angle of antenna to the suitable angle based on the scale display, then tightening the scale and all nuts on the bracket.

All product specifications are subject to change without notice or obligation.

Accessory Diagrams



POLYPHASER

PolyPhaser
an INFINITE brand

Type N F/F Coaxial RF Surge Protector, 125MHz - 1GHz, DC Block, 375W, 220uJ, 50kA, Blocking Cap, Bracket Up, Hole Mount

IS-50NX-C2

Features

- Surge current of 50kA
- Max Power 375W
- Frequency range from 125 MHz to 1000 MHz
- N Female to N Female connectors
- VSWR <1.1:1
- Multi-strike capability
- CE & RoHS compliant

Applications

- HF, UHF and VHF radios
- Ham radios
- Remote industrial monitoring

Description

RF surge protector (also known as lightning arrester or surge arrestor) IS-50NX-C2 from PolyPhaser, integrating a RF blocking capacitor with a gas tube (GT or GDT). This RF surge protector component is manufactured in a coaxial in-line design with wide operating frequency range. All PolyPhaser RF surge protector products are available in stock with same day shipping.

Electrical Specifications

Surge Protector Type: Blocking Cap and Gas Tube
DC Handling: DC Block

Description	Minimum	Typical	Maximum	Units
Frequency Range	125		1,000	MHz
Impedance		50		Ohms
VSWR			1.1:1	
Insertion Loss			0.1	dB
Input Power, CW 375W @ 125 to 220MHz 125W @ 220 to 700MHz 50W @ 700 to 1000MHz			375	Watts
Surge Current IEC 61000-4-5 8/20µs WAVEFORM			50	kA
Turn On Voltage		600 ±20%		Volts
Throughput Energy @ 3kA, 8/20µs WAVEFORM			220	uJ

Mechanical Specifications

Size
Length: 2.45 in [62.23 mm]
Width/Diameter: 1.75 in [44.45 mm]
Height: 1.5 in [38.1 mm]
Weight: 0.3 lbs [136.08 g]

Configuration
Input Connector: N Female
Output Connector: N Female

Environmental Specifications

Temperature
Operating Range: -50 to +50 deg C
Storage Range: -55 to +85 deg C
Ingress Protection (IP) Rating: None
Vibration: 1G up to 100Hz

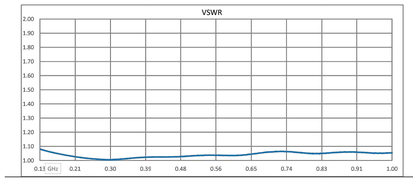
Compliance Certifications

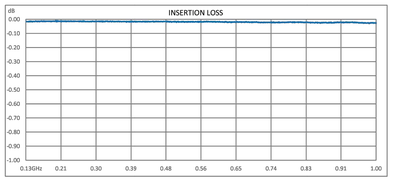
RoHS
CE

Plotted and Other Data

Notes:

Typical Performance Data





PolyPhaser protects and increases the reliability of global RF communications networks, including transportation, telecommunications, defense, security and industrial applications, with superior RF surge protection technologies including DC Block, DC Pass and Ultra Low PIM. Backed by responsive service and expert technical support PolyPhaser continually expands its product offering and services to serve engineers' urgent needs for RF components in mission critical communication networks.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: Type N F/F Coaxial RF Surge Protector, 125MHz - 1GHz, DC Block, 375W, 220uJ, 50kA, Blocking Cap, Bracket Up, Hole Mount IS-50NX-C2

URL: https://www.polyphaser.com/type-n-surge-protector-1ghz-blocking-cap-gas-tube-is-50nx-c2-p.aspx

COUPLER

Comba
keeps you connected

Wideband Directional Coupler

DC-Rxx-ON300C(XH)

Low PIM(-153dBc), 698-2700MHz, N-Female, 300W

- Wideband design covering 698-2700MHz
- Available 5, 6, 7, 8, 10, 13, 15, 20, 30 & 40dB values
- Suitable for indoor/outdoor environment
- High Reliability and Low Insertion Loss

Electrical Specification

Product Model	DC-R05-ON300C (XH)	DC-R06-ON300C (XH)	DC-R07-ON300C (XH)	DC-R08-ON300C (XH)	DC-R10-ON300C (XH)	DC-R13-ON300C (XH)	DC-R15-ON300C (XH)	DC-R20-ON300C (XH)	DC-R30-ON300C (XH)	DC-R40-ON300C (XH)
Frequency (MHz)	698-2700									
Coupling (dB)	5.0	6.0	7.0	8.0	10.0	13.0	15.0	20.0	30.0	40.0
Coupling Tolerance (dB)	± 0.8	± 0.8	± 0.8	± 0.8	± 0.8	± 1.0	± 1.0	± 1.2	± 1.5	± 1.5
Loss (dB)	≤ 2.1	≤ 1.7	≤ 1.4	≤ 1.2	≤ 0.7	≤ 0.5	≤ 0.4	≤ 0.3	≤ 0.2	≤ 0.2
Isolation (dB)	≥ 25	≥ 26	≥ 27	≥ 28	≥ 30	≥ 33	≥ 35	≥ 40	≥ 45	≥ 55
VSWR @ Input port	≤ 1.25									
PIM (dBc)	<-153 @ 2 x 43dBm									
Average Power, max (W)	300									
Peak Power, max (W)	1000									
Impedance (ohm)	50									

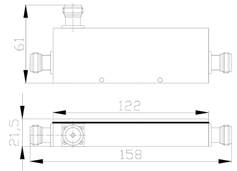
Mechanical Specification

Dimension (in/mm)	6.2x2.4x0.8 / 158x61x21.5
Weight (lb/kg)	0.75 / 0.34
Connector	N-Female

Environment & Compliance

Application	Outdoor / Indoor
Operating Temperature	-40°C to +80°C
Environment	IP65
Relative Humidity	Up to 95%
RoHS	Compliant

Outline Drawing



DS-Control
1-0-0/ 0316

Comba Telecom Inc. 235 Charcot Avenue, San Jose, CA 95131. http://www.combausa.com/
Tel: +1 866 802 7961, combausa@comba-telecom.com, Fax: +1 408 526 0181

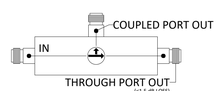
Page 1 of 1

PART IDENTIFICATION SCHEDULE

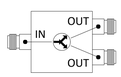
L#- #
- COMPONENT ID (A = ANTENNA, S = SPLITTER, C = COAX)
- LEVEL ASSIGNED

PASSIVE DEVICE MODEL NUMBERS
DC-R05-ON300C(XH) - (5dB DIRECTIONAL COUPLER)
DC-R06-ON300C(XH) - (6DB DIRECTIONAL COUPLER)
DC-R07-ON300C(XH) - (7DB DIRECTIONAL COUPLER)
DC-R08-ON300C(XH) - (8B DIRECTIONAL COUPLER)
DC-R10-ON300C(XH) - (10B DIRECTIONAL COUPLER)

PASSIVE COMPONENT RF PATH



TAPPER/COUPLER



2-WAY SPLITTER

STRUCTURED COMMUNICATIONS
P.O. Box 1368
Snohomish, WA 98291
425.321.5343

WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FEDERAL COMMUNICATIONS COMMISSION USA

FCC LIC NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

EQUIPMENT INFORMATION-2

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 0.4

PLAN NAME
EQUIPMENT INFORMATION-2

PLOT DATE

11/18/2025 5 OF 27 SHEETS

2HR CABLE

2HB12-50JPLR*

dragonskin

Radio Frequency Systems

DRAGONSKIN™ 1/2" FIRE-RESISTANT UL 2196 CERTIFIED STANDALONE COAXIAL CABLE, MEETS NFPA 72 & NFPA 1221 SURVIVABILITY, MAINTAINS IN-BUILDING COMMUNICATIONS DURING FIRES, MADE IN THE USA

Standalone coaxable cable that is certified to meet the UL 2196 Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables.

PRODUCT DATASHEET

FEATURES/BENEFITS

FIRST UL LISTED STANDALONE COMMUNICATIONS CABLE MEETING NFPA 72 AND 1221 SURVIVABILITY STANDARD
VERIFIES THE CABLE SURVIVES 2 HOURS AT TEMPERATURES UP TO 1,850 DEGREES F AND THE WATER SPRAY TEST WITHOUT CONDUIT OR ADDITIONAL WRAPPING

ENABLES CELLULAR AND PUBLIC SAFETY RADIO COMMUNICATIONS TO AND FROM ALL FLOORS OF A BURNING BUILDING
ENSURES EMERGENCY RESPONDERS AND BUILDING OCCUPANTS HAVE RELIABLE ACCESS TO COMMUNICATIONS DURING SEVERE FIRES

NO CONDUIT OR CABLE WRAPPING REQUIRED
REDUCES CABLE SIZE AND WEIGHT, SIMPLIFIES INSTALLATION

CATVP PLENUM-CERTIFIED
MEETS CERTIFICATION FOR USE IN THE ENVIRONMENTAL AIR HANDLING SPACE IN BUILDINGS

COAXIAL CABLE FEATURES SOLID INNER AND OUTER CONDUCTORS
VIRTUALLY ELIMINATES INTERMODULATION

MAINTAINS MINIMUM BENDING RADIUS AT ALL TIMES
ACCELERATES INSTALLATIONS, ESPECIALLY IN SMALLER SPACES AND OLDER BUILDINGS

USES STANDARD RFS CONNECTORS AND INSTALLATION TECHNIQUES
ELIMINATES THE NEED FOR SPECIALIZED PARTS OR EXPERTISE

TECHNICAL FEATURES

APPLICATIONS		
APPLICATIONS		Ideal for public safety applications with the most stringent fire codes
STRUCTURE		
Cable Type		Air-Dielectric, Corrugated
Size		1/2"
Inner Conductor	mm (in)	4.8 (0.19) Copper Wire
Dielectric	mm (in)	11.81 (0.465)
Outer Conductor	mm (in)	13.8 (0.54) Corrugated Copper
Jacket	mm (in)	18 (0.71) PVC, Plenum-Rated / Color Red
ELECTRICAL SPECIFICATIONS		
Impedance	Ω	50 +/-2
Maximum Frequency	GHz	1 [RFS will extend it to a higher frequency during the next phase]
Velocity	%	85
Capacitance	pF/m (pF/ft)	70.6 [21.5]
Inductance	µH/m (µH/ft)	0.19 [0.058]
Peak Power Rating	kW	40
RF Peak Voltage	Volts	2000
Jacket Spark	Volt RMS	8000
Inner Conductor dc Resistance	Ω/1000 m (Ω/1000 ft)	0.96 [0.29]
Outer Conductor dc Resistance	Ω/1000 m (Ω/1000 ft)	1.31 [0.4]
Maximum Return Loss	dB [VSWR]	N [1.5]
MECHANICAL SPECIFICATIONS		
Cable Weight, Nominal	kg/m (lb/ft)	0.51 [0.34]
Minimum Bending Radius, Single Bend	mm [in]	178 [7]
Minimum Bending Radius, Repeated Bends	mm [in]	254 [10]
Bending Moment	Nm [lb*ft]	8.7 [6.4]
Tensile Strength	N [lb]	890 [200]
Clamp Spacing	m [ft]	0.81 [2.0]
Crush Strength	kg/cm [lb/in]	31.25 [175.0]

*Patent-Pending

Version 7 | Revision Date: 9.04.2021

2HB12-50JPLR*

dragonskin

Radio Frequency Systems

DRAGONSKIN™ 1/2" FIRE-RESISTANT UL 2196 CERTIFIED STANDALONE COAXIAL CABLE, MEETS NFPA 72 & NFPA 1221 SURVIVABILITY, MAINTAINS IN-BUILDING COMMUNICATIONS DURING FIRES, MADE IN THE USA

ATTENUATION AND POWER RATING

FREQUENCY [MHz]	ATTENUATION [DB/100FT]	ATTENUATION [DB/100M]	AVERAGE POWER [KW]
150	0.93	3.05	2.39
450	1.73	5.68	1.27
700	2.25	7.39	0.97
800	2.44	8.01	0.90
900	2.63	8.64	0.83
1000	2.79	9.16	0.78

Attenuation at 101°C (195°F) Tolerance +/- 3% max, Additional 3dB dB (800 MHz) per ft of DragonSkin being affected by fire.

ATTENUATION CALCULATIONS

PUBLIC SAFETY BAND	LINK BUDGET AT LENGTH [DB]*	DESIGN GOAL COMPLIANT	LINK BUDGET AT LENGTH [DB]*	DESIGN GOAL COMPLIANT	LINK BUDGET AT LENGTH [DB]*	DESIGN GOAL COMPLIANT	LINK BUDGET AT LENGTH [DB]*	DESIGN GOAL COMPLIANT
	0' AFFECTED BY FIRE		10' AFFECTED BY FIRE		30' AFFECTED BY FIRE		50' AFFECTED BY FIRE	
700 MHz	30	YES	CALCULATION SUM(0.0225*10)+1.85+[-5 X 2]		CALCULATION SUM(0.0225*30)+1.85*[+[-5 X 2]		CALCULATION SUM(0.0225*50)+1.85*[+[-5 X 2]	
			26.9	YES	22.8	YES	18.6	YES
800 MHz	30	YES	CALCULATION SUM(0.024a*10)+1.85+[-5 X 2]		CALCULATION SUM(0.024a*30)+1.85*[+[-5 X 2]		CALCULATION SUM(0.024a*50)+1.85*[+[-5 X 2]	
			26.9	YES	22.7	YES	18.5	YES
450 MHz	30	YES	CALCULATION SUM(0.0375*10)+1.85+[-5 X 2]		CALCULATION SUM(0.0375*30)+1.85*[+[-5 X 2]		CALCULATION SUM(0.0375*50)+1.85*[+[-5 X 2]	
			27.0	YES	22.9	YES	18.9	YES

Compliance/Design Parameters: Composite signal +30 dBm at DL Port, Minimum signal strength of -95 dBm in 90% of the area/ 100% of Critical Areas. Loss at Length is LHA Budget value at the input of the antenna considering no other loss (e.g. splitters, couplers, etc).
*Link Budget at Length Calculation = BDA Output - Connector Loss [-5 x 2]- (1.85 dB Insertion Loss x # of 10 ft sections) + Standard DragonSkin Attenuation[x (number of ft affected by fire)

TESTING AND ENVIRONMENTAL

SPECIFICATIONS	
Fire Performance	Flame Retardant, Plenum-rated, CATVP, UL2196 [2hours].
Flame Retardant Jacket Specifications	Meets/Exceeds Steiner Tunnel Test Method NFPA-262. NEC820-53 (a), CATVP, UL2196 [2hours].
Regulatory Compliance	NEC Article 820 CATVP Cable to UL1655, Circuit integrity UL Listed to UL2196, CATVP- NFPA-262, NFPA130, NFPA 72, NFPA 1221 2019 (section 5.5.11), Canadian CSA C.22.2/FT6, UL #40316, E235351, UL System FHIT 1250
Installation Temperature	-20 to 60 [-4 to 140] °C [°F]
Storage Temperature	-40 to 75 [-40 to 167] °C [°F]
Operation Temperature	-40 TO 1,010 [-40 TO 1,850] °C [°F]

*Patent-Pending. All values nominal unless tolerances provided; information contained in the present datasheet is subject to confirmation at time of ordering. Contact RFS for inquiries outside of North America. © 2021 Radio Frequency Systems. DragonSkin™ is a trademark and RFS® is a registered trademark of Radio Frequency Systems.

VEX FILES: DOWNLOAD

www.rfsworld.com

Revision 7 | Revision Date: 9.04.2021

OUTDOOR CABLE

Product Data Sheet LCF12-50J

1/2" CELLFLEX® Low-Loss Foam-Dielectric Coaxial Cable

RFS

Product Description

CELLFLEX® 1/2" low loss flexible cable

Application: OEM jumpers, Main feed transitions to equipment, GPS lines

1/2" CELLFLEX® Low-Loss Foam Dielectric Coaxial Cable

Features/Benefits

- **Low Attenuation**
  The low attenuation of CELLFLEX® coaxial cable results in highly efficient signal transfer in your RF system.
- **Complete Shielding**
  The solid outer conductor of CELLFLEX® coaxial cable creates a continuous RFI/EMI shield that minimizes system interference.
- **Low VSWR**
  Special low VSWR versions of CELLFLEX® coaxial cables contribute to low system noise.
- **Outstanding Intermodulation Performance**
  CELLFLEX® coaxial cable's solid inner and outer conductors virtually eliminate intermods. Intermodulation performance is also confirmed with state-of-the-art equipment at the RFS factory.
- **High Power Rating**
  Due to their low attenuation, outstanding heat transfer properties and temperature stabilized dielectric materials, CELLFLEX® cable provides safe long term operating life at high transmit power levels.
- **Wide Range of Application**
  Typical areas of application are: feedlines for broadcast and terrestrial microwave antennas, wireless cellular, PCS and ESMR base stations, cabling of antenna arrays, and radio equipment interconnects.

Technical Features

Structure			
Inner conductor:	Copper-Clad Aluminum Wire	[mm (in)]	4.8 (0.19)
Dielectric:	Foam Polyethylene	[mm (in)]	11.3 (0.444)
Outer conductor:	Annularly Corrugated Copper	[mm (in)]	13.8 (0.54)
Jacket:	Polyethylene, PE	[mm (in)]	15.9 (0.62)
Mechanical Properties			
Weight, approximately		[kg/m (lb/ft)]	0.32 (0.15)
Minimum bending radius, single bending		[mm (in)]	70 (3)
Minimum bending radius, repeated bending		[mm (in)]	125 (5)
Bending moment		[Nm (lb-ft)]	6.5 (4.79)
Max. tensile force		[N (lb)]	1100 (247)
Recommended / maximum clamp spacing		[m (ft)]	0.6 / 1.0 (2.0 / 3.25)
Electrical Properties			
Characteristic impedance		[Ω]	50 +/- 1
Relative propagation velocity		[%]	88
Capacitance		[pF/m (pF/ft)]	76.0 (23.2)
Inductance		[µH/m (µH/ft)]	0.190 (0.058)
Max. operating frequency		[GHz]	5.8
Jacket spark test RMS		[V]	8000
Peak power rating		[kW]	38
RF Peak voltage rating		[V]	1950
DC-resistance inner conductor		[Ω/km (Ω/1000ft)]	1.57 (0.48)
DC-resistance outer conductor		[Ω/km (Ω/1000ft)]	2.30 (0.70)
Recommended Temperature Range			
Storage temperature		[°C (°F)]	-70 to +85 (-94 to +185)
Installation temperature		[°C (°F)]	-40 to +60 (-40 to +140)
Operation temperature		[°C (°F)]	-50 to +85 (-58 to +185)
Other Characteristics			
Fire Performance:	Halogene Free		
VSWR Performance:	Standard	[dB (VSWR)]	Contact RFS for your VSWR performance specification for your required frequency band.
Other Options:	Phase stabilized and phase matched cables and assemblies are available upon request.		

Frequency [MHz]	Attenuation [dB/100m]	[dB/100ft]	Power [kW]
0.5	0.149	0.0454	38.0
1.0	0.211	0.0643	38.0
1.5	0.258	0.0786	32.9
2.0	0.298	0.0910	28.5
10	0.671	0.204	12.7
20	0.951	0.290	8.93
30	1.17	0.356	7.25
88	1.81	0.552	4.63
90	1.83	0.557	4.57
100	2.10	0.638	3.93
108	2.24	0.684	3.79
150	2.66	0.810	3.19
174	2.87	0.875	2.96
200	3.08	0.940	2.76
300	3.81	1.16	2.23
400	4.43	1.35	1.92
450	4.71	1.44	1.80
500	4.98	1.52	1.71
512	5.04	1.54	1.69
600	5.55	1.69	1.52
700	5.99	1.81	1.43
750	6.17	1.88	1.38
800	6.39	1.95	1.33
824	6.49	1.98	1.31
894	6.79	2.07	1.25
900	6.80	2.07	1.25
925	6.90	2.10	1.23
960	7.04	2.15	1.21
1000	7.20	2.19	1.18
1250	8.12	2.48	1.05
1400	8.67	2.64	0.980
1500	8.97	2.73	0.947
1700	9.61	2.93	0.884
1800	9.91	3.02	0.857
2000	10.5	3.20	0.809
2100	10.8	3.29	0.787
2200	11.1	3.38	0.765
2400	11.6	3.54	0.732
2500	11.9	3.62	0.714
2600	12.2	3.70	0.695
2700	12.4	3.78	0.684
3000	13.3	4.05	0.641
3600	14.4	4.38	0.590
4000	15.5	4.72	0.548
5000	17.6	5.37	0.483
6000	19.6	5.97	0.433
7000	21.4	6.54	0.397
8000	23.2	7.07	0.366
8800	24.6	7.49	0.345

Attenuation at 20°C (68°F) cable temperature
Mean power rating at 40°C (104°F) ambient temperature

ARMORED CABLE

PRODUCT DATASHEET

ICA12-50JPLLR-ARMR

PlenumShield Armored 1/2" ClearFill®Line Aluminum Plenum-Rated Air-Dielectric Coaxial Cable for In-Building Applications

PlenumShield Armored ClearFill®Line 1/2" low-loss air dielectric cable, Plenum-rated, CMP

PlenumShield, Armor Dimension 23.11mm (0.91in)

FEATURES / BENEFITS

- **Complaint with NFPA 72 section 12.4.2 Pathway Survivability Level 1**
- **Supports Multiple RF Signals**
- **Complete Shielding**
  The solid outer conductor of the ClearFill®Line coaxial cable creates a continuous RFI/EMI shield that minimizes system interference.
- **Outstanding Intermodulation Performance**
  RFS Technologies coaxial cable's solid inner and outer conductors virtually eliminate intermods. Intermodulation performance is also confirmed with state-of-the-art equipment at the RFS Technologies factory.
- **Wide Range of Applications**
  Typical areas of application are feedlines for plenum-space installations within occupied buildings or structures.

Technical features

APPLICATIONS					
Applications		Public Safety	In-building DAS, BDA	Wireless Communication	Cable Solutions
STRUCTURE					
Size		1/2			
Inner Conductor Diameter	mm (in)	4.8 (0.19)			
Inner Conductor Material		Copper-Clad Aluminum Wire			
Dielectric Diameter	mm (in)	11.8 (0.464)			
Dielectric Material		Extruded Polyethylene			
Outer Conductor Diameter	mm (in)	13.8 (0.54)			
Outer Conductor Material		Corrugated Aluminum			
Jacket Diameter	mm (in)	15.93 (0.627)			
Jacket Material		PVC, Plenum Rated / Color Red Water-resistant			
Armor	mm(in)	23.11 (0.91)			
Cable Type		PlenumShield, Air-Dielectric, Corrugated, Armored Cable			
TESTING AND ENVIRONMENTAL					
Fire Performance		Flame Retardant, Plenum-rated, CMP			
Flame Retardant Jacket Specifications		Meets/Exceeds Steiner Tunnel Test Method UL 910, NEC 820-53 (a) CMP, NFPA-262			
Regulatory Compliance		NEC Article 800 Communication Circuits ETL Listed to UL444 Canadian CSA C.22.2/FT6		NFPA 72 section 12.4.2 Pathway Survivability Level 1	
Installation Temperature	°C(°F)	-20 to 60 (-4 to 140)			
Storage Temperature	°C (°F)	-40 to 85 (-40 to 185)			
Operation Temperature	°C(°F)	-40 to 85 (-40 to 185)			

ELECTRICAL SPECIFICATIONS		
Impedance	Ω	50 +/- 1
Maximum Frequency	GHz	6
Velocity	%	88
Capacitance	pF/m (pF/ft)	75 (22.86)
Inductance	uH/m (uH/ft)	0.19 (0.058)
Peak Power Rating	kW	40
RF Peak Voltage	Volts	2000
Jacket Spark	Volt RMS	8000
Inner Conductor dc Resistance	Ω/1000 m (Ω/1000 ft)	1.48 (0.45)
Outer Conductor dc Resistance	Ω/1000 m (Ω/1000 ft)	2.29 (0.7)
Return Loss (VSWR) Performance		24 (1.13) @ 698-960 MHz 24 (1.13) @ 1395-1432 MHz 24 (1.13) @ 1700-2155 MHz 20 (1.22) @ 2300-2700 MHz 18 (1.29) @ 3550-4200 MHz 18 (1.29) @ 5150-6000 MHz
Temperature & Power		High Power Rating

MECHANICAL SPECIFICATIONS		
Cable Weight, Nominal	kg/m (lb/ft)	0.34 (0.23)
Minimum Bending Radius, Repeated Bends	mm (in)	304.8 (12)
Recommended / Maximum Clamp Spacing	m (ft)	0.5 / 0.9 (1.8 / 3)

ATTENUATION @ 20°C (68°F) AND POWER RATING @ 40°C (104°F)

Frequency, MHz	dB per 100m	dB per 100ft	Power, kW
0.5	0.16	0.05	40
1	0.23	0.07	32.80
1.5	0.29	0.09	26.80
2	0.33	0.10	23.20
10	0.74	0.23	10.30
20	1.06	0.32	7.22
30	1.30	0.40	5.89
50	1.68	0.51	4.55
88	2.25	0.69	3.40
100	2.41	0.73	3.18
108	2.51	0.76	3.05
150	2.98	0.91	2.57
174	3.22	0.98	2.38
200	3.46	1.05	2.21
300	4.29	1.31	1.79
400	5	1.52	1.53
450	5.32	1.62	1.44
500	5.63	1.72	1.36
512	5.71	1.74	1.34
600	6.22	1.90	1.23
700	6.76	2.06	1.14
750	7.02	2.14	1.09
800	7.28	2.22	1.06
824	7.40	2.25	1.04
894	7.74	2.36	0.99
900	7.76	2.37	0.99
925	7.88	2.40	0.98
960	8.05	2.45	0.96
1000	8.23	2.51	0.93
1250	9.32	2.84	0.83
1400	9.93	3.03	0.78
1500	10.30	3.15	0.75
1700	11.10	3.38	0.70
1800	11.50	3.49	0.67
2000	12.20	3.71	0.63
2100	12.50	3.81	0.62
2200	12.80	3.92	0.61
2300	13.20	4.02	0.59
2400	13.50	4.12	0.57
2500	13.80	4.22	0.56
2600	14.20	4.31	0.55
2700	14.50	4.41	0.54
3000	15.40	4.69	0.51
3500	16.90	5.14	0.46
3600	17.10	5.22	0.46
4000	18.30	5.56	0.43
4500	19.60	5.97	0.40
5000	20.90	6.36	0.38
5500	22.10	6.74	0.36
6000	23.30	7.11	0.34

INDOOR CABLE

Product Data Sheet ICA12-50JPL

1/2" ClearFill®Line Plenum-Ratec Air-Dielectric Coaxial Cable for In-Building Applications

RFS

Product Description

ClearFill®Line 1/2" low loss air dielectric cable, Plenum-rated, CMP

Application: Plenum In-Building

1/2" Plenum-Rated In-Building Cable

Features/Benefits

- **Supports Multiple RF Signals**
- **Complete Shielding**
  The solid outer conductor of the ClearFill®Line coaxial cable creates a continuous RFI/EMI shield that minimizes system interference.
- **Outstanding Intermodulation Performance**
  RFS coaxial cable's solid inner and outer conductors virtually eliminate intermods. Intermodulation performance is also confirmed with state-of-the-art equipment at the RFS factory.
- **Wide Range of Applications**
  Typical areas of application are: feedlines for plenum-space installations within occupied buildings or structures.

Technical Features

Structure			
Inner conductor:	Copper-Clad Aluminum Wire	[mm (in)]	4.8 (0.19)
Dielectric:	Extruded Polyethylene	[mm (in)]	11.8 (0.464)
Outer conductor:	Corrugated Copper	[mm (in)]	13.8 (0.54)
Jacket:	Plenum Rated / color blue	[mm (in)]	15.93 (0.627)
Mechanical Properties			
Weight, approximately		[kg/m (lb/ft)]	0.37 (0.25)
Minimum bending radius, single bending		[mm (in)]	125 (5)
Minimum bending radius, repeated bending		[mm (in)]	254 (10)
Bending moment		[Nm (lb-ft)]	4.1 (3)
Max. tensile force		[N (lb)]	1112 (250)
Recommended / maximum clamp spacing		[m (ft)]	0.5 / 0.9 (1.8 / 3)
Electrical Properties			
Characteristic impedance		[Ω]	50 +/- 1
Relative propagation velocity		[%]	91
Capacitance		[pF/m (pF/ft)]	76 (23.2)
Inductance		[µH/m (µH/ft)]	0.19 (0.058)
Max. operating frequency		[GHz]	6
Jacket spark test RMS		[V]	8000
Peak power rating		[kW]	40
RF Peak voltage rating		[V]	2000
DC-resistance inner conductor		[Ω/km (Ω/1000ft)]	1.48 (0.45)
DC-resistance outer conductor		[Ω/km (Ω/1000ft)]	1.9 (0.58)
Recommended Temperature Range			
Storage temperature		[°C (°F)]	-40 to 85 (-40 to 185)
Installation temperature		[°C (°F)]	-20 to 60 (-4 to 140)
Operation temperature		[°C (°F)]	-40 to 85 (-40 to 185)
Other Characteristics			
Fire Performance:	Flame Retardant, Plenum Rated		
Regulatory Compliance:	NEC Article 800 Communication Circuits ETL Listed to UL444 Canadian CSA C.22.2/FT6		
VSWR Performance:	24.3 (1.13) @ 806-960 MHz+/or >24.3 (1.13) @ 1700-2155 MHz	18 (1.226) in other specified bands	
Other Options:			

Frequency [MHz]	Attenuation [dB/100m]	[dB/100ft]	Power [kW]
0.5	0.148	0.0452	40.0
1.0	0.210	0.0641	34.3
1.5	0.258	0.0785	27.9
2.0	0.298	0.0908	24.2
10	0.671	0.204	10.7
20	0.954	0.291	7.55
30	1.17	0.358	6.15
88	1.82	0.555	4.75
90	2.04	0.622	3.50
100	2.09	0.638	3.93
108	2.27	0.692	3.17
150	2.70	0.822	2.67
174	2.92	0.889	2.47
200	3.14	0.957	2.30
300	3.89	1.19	1.85
400	4.64	1.38	1.59
450	4.64	1.45	1.49
500	5.13	1.56	1.41
512	5.19	1.58	1.39
600	5.66	1.73	1.28
700	6.12	1.86	1.17
750	6.40	1.95	1.13
800	6.64	2.02	1.09
824	6.73	2.05	1.07
894	7.06	2.15	1.02
900	7.08	2.16	1.02
925	7.19	2.19	1.01
960	7.34	2.24	0.986
1000	7.51	2.29	0.964
1250	8.52	2.60	0.851
1400	9.08	2.77	0.788
1500	9.44	2.88	0.749
1700	10.2	3.08	0.713
1800	10.5	3.20	0.693
2000	11.2	3.40	0.660
2100	11.5	3.50	0.633
2200	11.8	3.59	0.618
2300	12.1	3.69	0.603
2400	12.4	3.78	0.588
2500	12.7	3.87	0.575
2600	13.0	3.96	0.562
2700	13.3	4.05	0.549
3000	14.1	4.31	0.513
3500	15.3	4.73	0.474
3600	15.6	4.81	0.465
4000	16.8	5.13	0.436
4500	18.1	5.51	0.408
5000	19.3	5.88	0.383
5500	20.4	6.23	0.364
6000	21.6	6.58	0.344

Attenuation at 20°C (68°F) cable temperature
Mean power rating at 40°C (104°F) ambient temperature

STRUCTURED COMMUNICATIONS
P.O. Box 1368
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425.321.5343

WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS

707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FEDERAL COMMUNICATIONS COMMISSION USA

FCC LIC. NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

City of Puyallup
Development & Permitting Services
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Building | Planning | Engineering | Public Works | Fire | Traffic
EQUIPMENT INFORMATION-3

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 0.5

PLAN NAME
EQUIPMENT INFORMATION-3

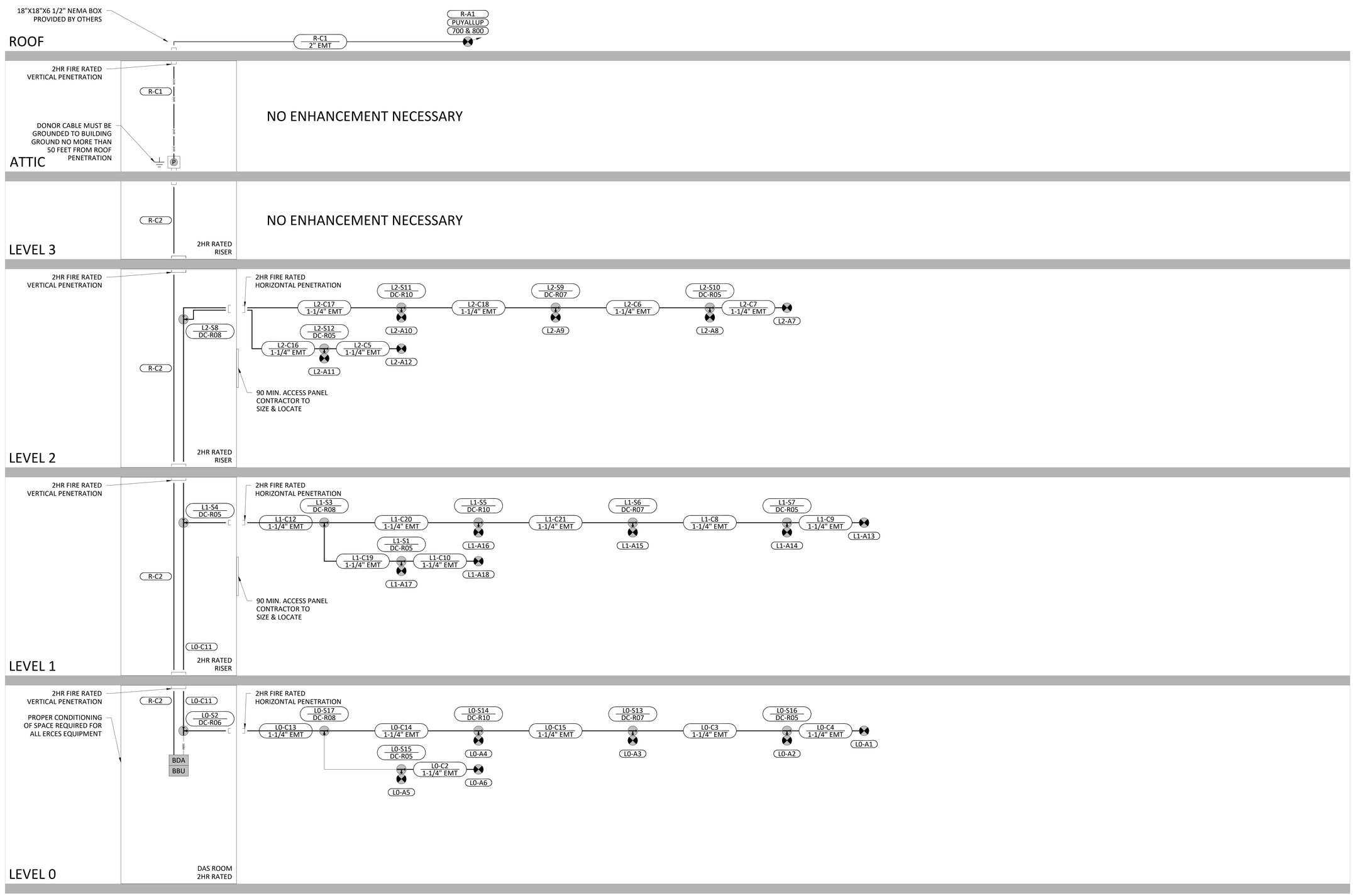
PLOT DATE

11/18/2025

NOTE:
1. RISER CONDUIT NOT SHOWN FOR CLARITY.
2. CONDUIT REQUIRED IN RISERS AND PARKING AREAS.
3. ALL HORIZONTAL CABLING INSTALLED ABOVE TEN FEET WILL BE RUN USING OPEN CABLING METHODS. NO METALLIC RACEWAYS (CONDUITS).
4. DONOR ANTENNA SURGE PROTECTOR TO BE INSTALLED INTERNALLY TO THE BUILDING.
5. DONOR ANTENNA FEED LINE SHALL BE EQUIPPED WITH A GROUND ATTACHMENT WHICH SHALL BE GROUNDED TO THE BUILDING MASTER GROUND AT THE BUILDING SERVICE ENTRANCE POINT WHENEVER POSSIBLE.
6. DONOR ANTENNA MOUNTING STRUCTURES SHALL BE GROUNDED TO THE MASTER BUILDING GROUND BUS.
7. ALL ACTIVE DEVICES SHALL BE GROUNDED PURSUANT TO NFPA 780.
8. ALL ACTIVE DEVICES SHALL BE GROUNDED TO THE MASTER BUILDING GROUND BUS.
9. ALL GROUND CONNECTIONS SHALL BE MADE WITH STRANDED COPPER WIRE NO SMALLER THAN #2 AWG.

CABLE LEGEND	
	ICA12-50JPLLR - (1/2" PLENUM COAX)
ARMORED — ARMORED	ICA12-50JPLLR-ARMR - (1/2" PLENUM COAX)
	LCF12-50J - (1/2" OUTDOOR COAX)
2HR — 2HR — 2HR — 2HR	2HB12-50JPLR - (1/2" 2HR COAX)
3MF — 3MF — 3MF — 3MF	3' N-MALE - N-FEMALE JUMPER
3MM — 3MM — 3MM — 3MM	3' N-MALE - N-MALE JUMPER
LMR400 — LMR400	LMR-400-DB

SYMBOL LEGEND			
	DONOR ANTENNA	BDA	BI-DIRECTIONAL AMPLIFIER
	OMNI ANTENNA	BBU	BATTERY BACKUP UNIT
	COUPLER/TAPPER		
P	POLYPHASER		



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Building | Planning | Engineering | Public Works | Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 1.0

PLAN NAME
RISER

PLOT DATE
11/18/2025

NOTE:
1. EMT NOT SHOWN FOR CLARITY.
2. EMT TO BE RAN IN CONCRETE SLAB

LEVEL 0 OVERALL

SCALE: 1/16" = 1'-0"

0' 10' 20' 30' 50'

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WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/16" = 1'-0"

DRAWN BY J.T.

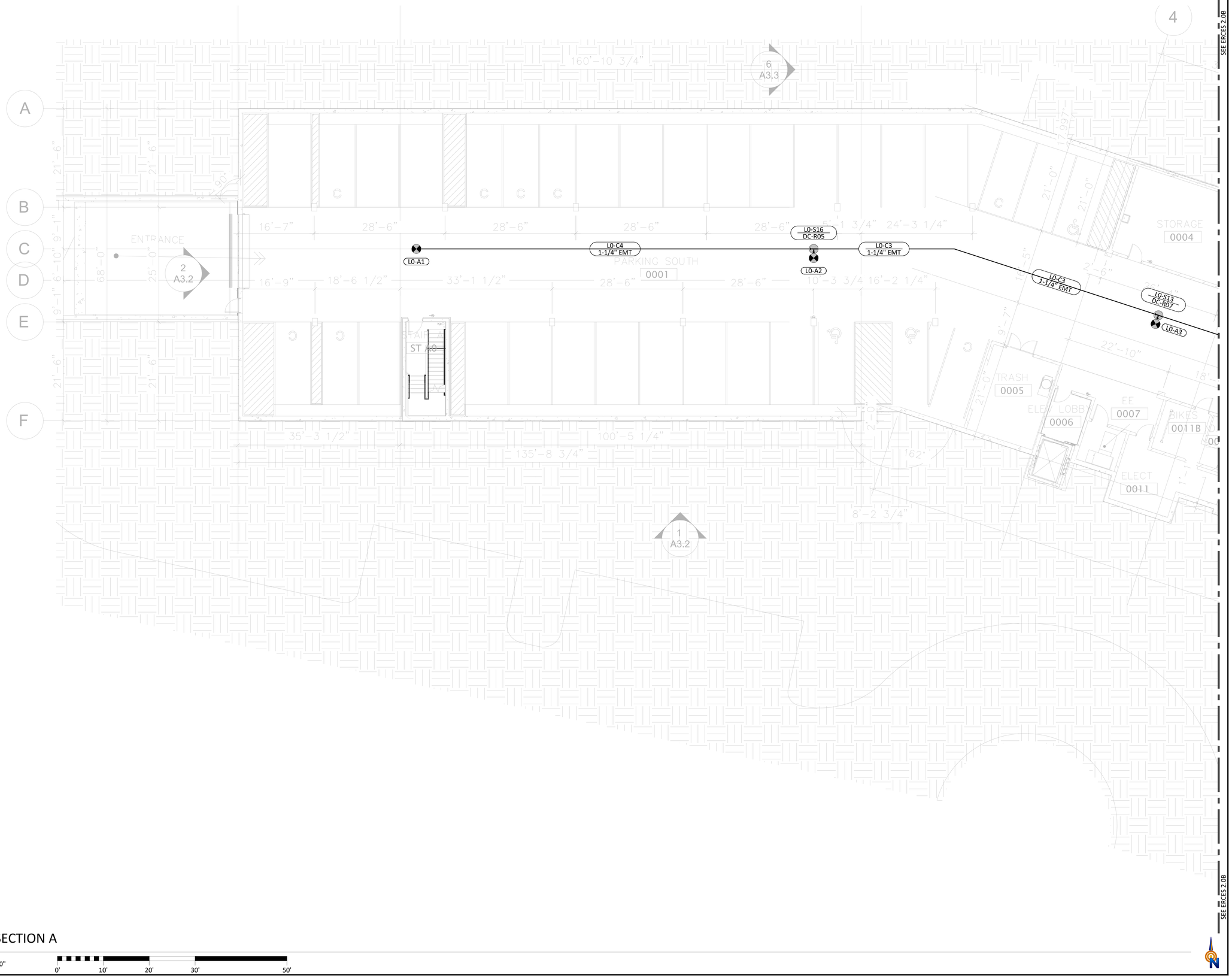
SHEET TITLE

ERCES 2.0

PLAN NAME
LEVEL 0 OVERALL

PLOT DATE
11/18/2025

NOTE:
1. EMT NOT SHOWN FOR CLARITY.
2. EMT TO BE RAN IN CONCRETE SLAB



LEVEL 0 SECTION A

SCALE: 1/8" = 1'-0"

0' 10' 20' 30' 50'

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WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/8" = 1'-0"

DRAWN BY J.T.

SHEET TITLE

ERCES 2.0A

PLAN NAME
LEVEL 0 SECTION A

PLOT DATE
11/18/2025

NOTE:
1. EMT NOT SHOWN FOR CLARITY.
2. EMT TO BE RAN IN CONCRETE SLAB

LEVEL 0 SECTION B

SCALE: 1/8" = 1'-0"

0' 10' 20' 30' 50'

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SCALE 1/8" = 1'-0"

DRAWN BY J.T.

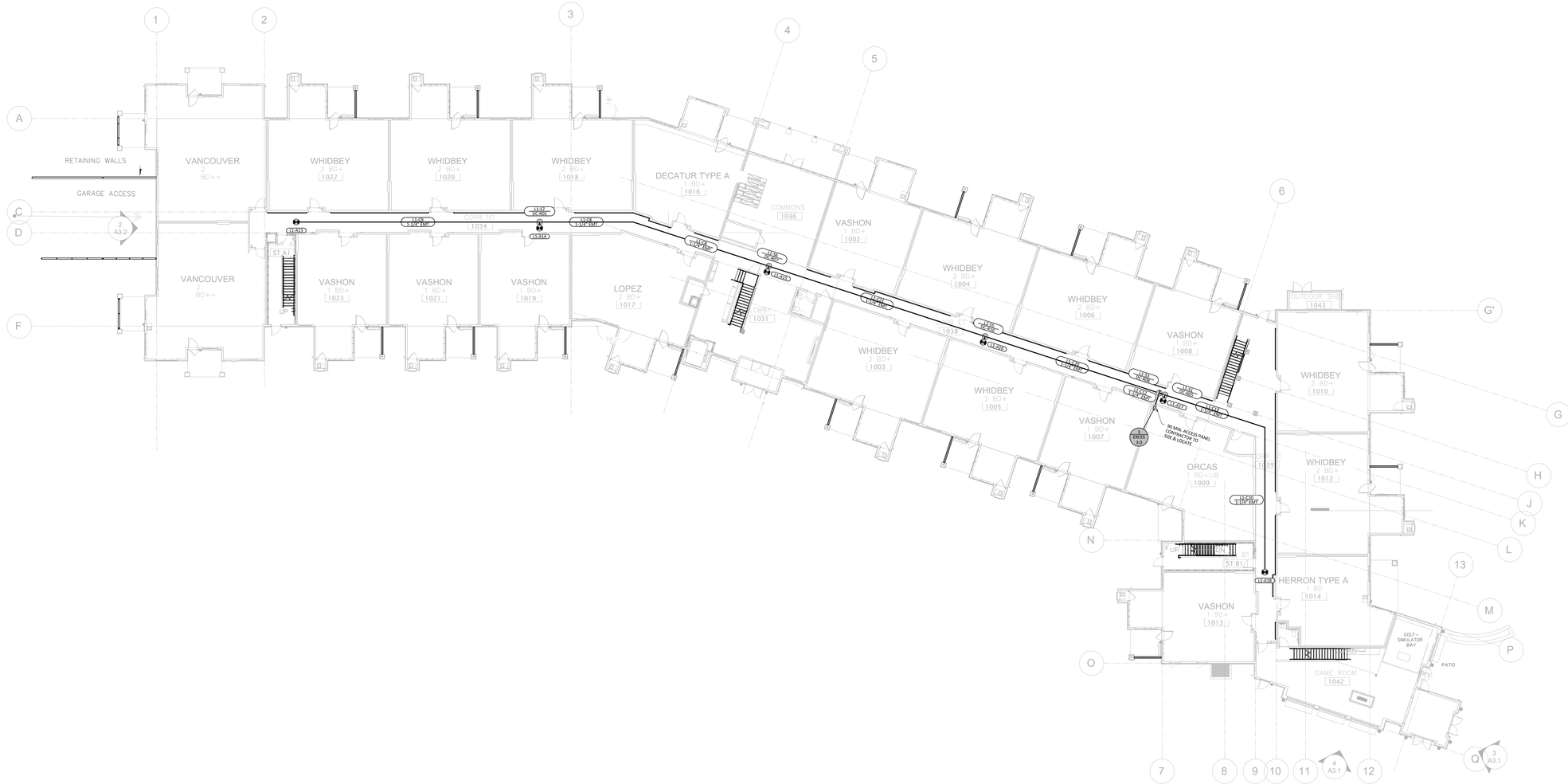
SHEET TITLE

ERCES 2.0B

PLAN NAME
LEVEL 0 SECTION B

PLOT DATE
11/18/2025

NOTE:
1. EMT NOT SHOWN FOR CLARITY.



LEVEL 1 OVERALL

SCALE: 1/16" = 1'-0"

0' 10' 20' 30' 50'

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SCALE 1/16" = 1'-0"

DRAWN BY J.T.

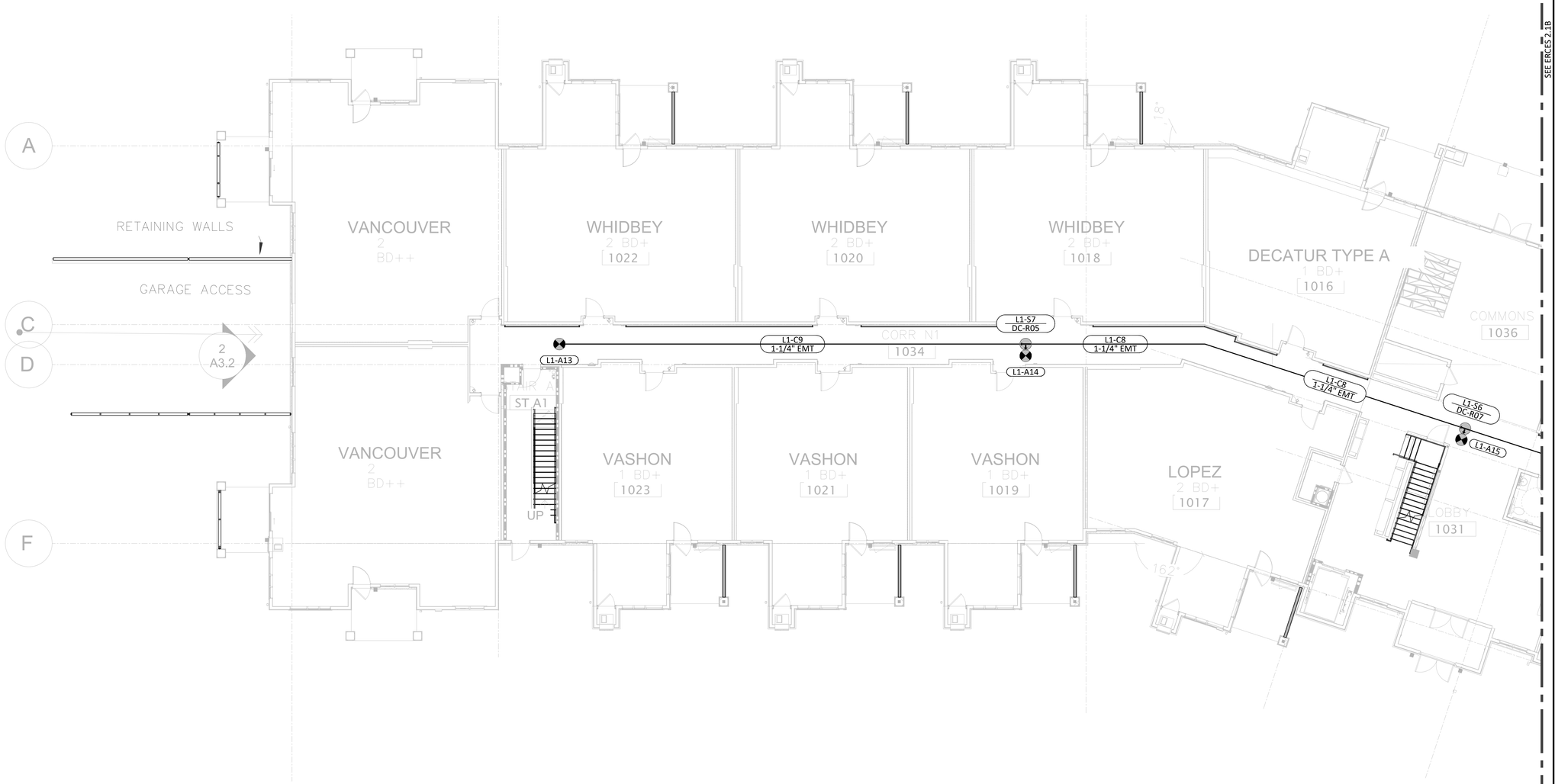
SHEET TITLE

ERCES 2.1

PLAN NAME
LEVEL 1 OVERALL

PLOT DATE
11/18/2025

NOTE:
1. EMT NOT SHOWN FOR CLARITY.



LEVEL 1 SECTION A

SCALE: 1/8" = 1'-0"

0' 10' 20' 30' 50'

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SCALE 1/8" = 1'-0"

DRAWN BY J.T.

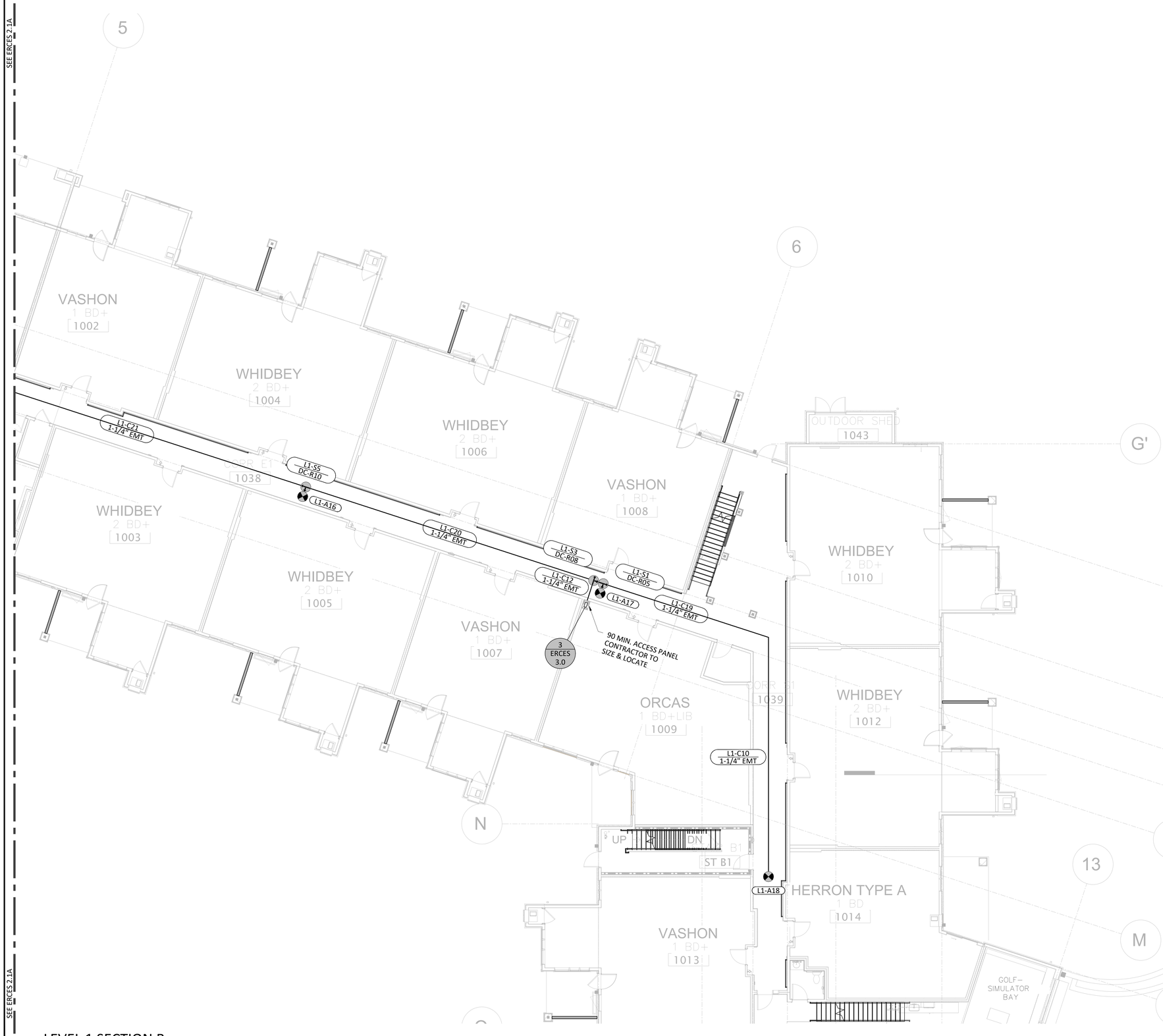
SHEET TITLE

ERCES 2.1A

PLAN NAME
LEVEL 1 SECTION A

PLOT DATE
11/18/2025

NOTE:
1. EMT NOT SHOWN FOR CLARITY.



LEVEL 1 SECTION B

SCALE: 1/8" = 1'-0"

0' 10' 20' 30' 50'

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WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/8" = 1'-0"

DRAWN BY J.T.

SHEET TITLE

ERCES 2.1B

PLAN NAME
LEVEL 1 SECTION B

PLOT DATE
11/18/2025

NOTE:
1. EMT NOT SHOWN FOR CLARITY.

LEVEL 2 OVERALL

SCALE: 1/16" = 1'-0"

0' 10' 20' 30' 50'

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FCC LIC NO.: PG00065757
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GRANT DATE: 03-05-20
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FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/16" = 1'-0"

DRAWN BY J.T.

SHEET TITLE

ERCES 2.2

PLAN NAME
LEVEL 2 OVERALL

PLOT DATE
11/18/2025

NOTE:
1. EMT NOT SHOWN FOR CLARITY.

LEVEL 2 SECTION A

SCALE: 1/8" = 1'-0"

0' 10' 20' 30' 50'

STRUCTURED COMMUNICATIONS
P.O. Box 1368
Snohomish, WA 98291
425.321.5343

WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FCC LIC. NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

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0	100% C.D.	11/18/25

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Building | Planning
Engineering | Public Works
Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/8" = 1'-0"

DRAWN BY J.T.

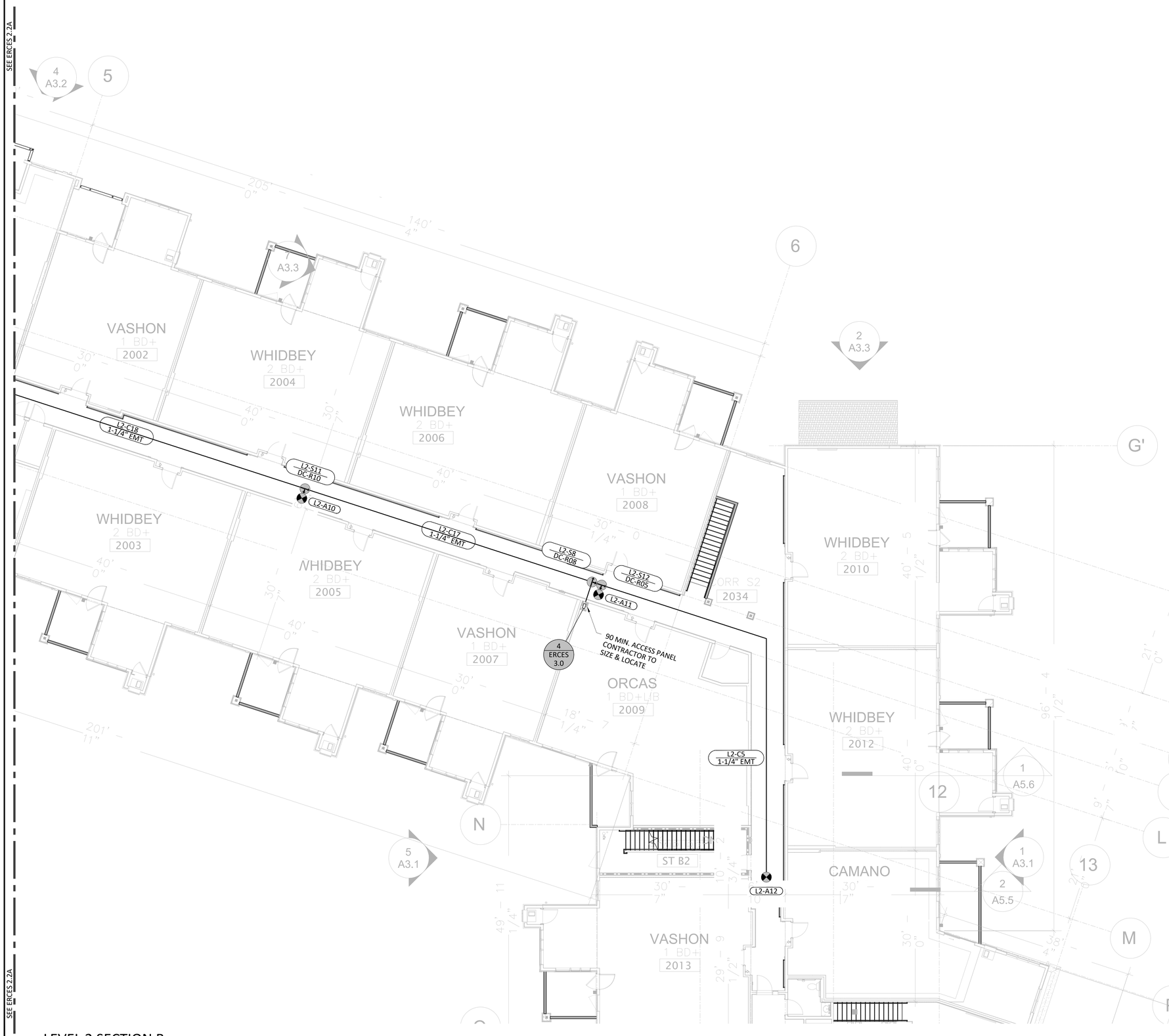
SHEET TITLE

ERCES 2.2A

PLAN NAME
LEVEL 2 SECTION A

PLOT DATE
11/18/2025

NOTE:
1. EMT NOT SHOWN FOR CLARITY.



LEVEL 2 SECTION B

SCALE: 1/8" = 1'-0"

0' 10' 20' 30' 50'

STRUCTURED COMMUNICATIONS
P.O. Box 1368
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WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/8" = 1'-0"

DRAWN BY J.T.

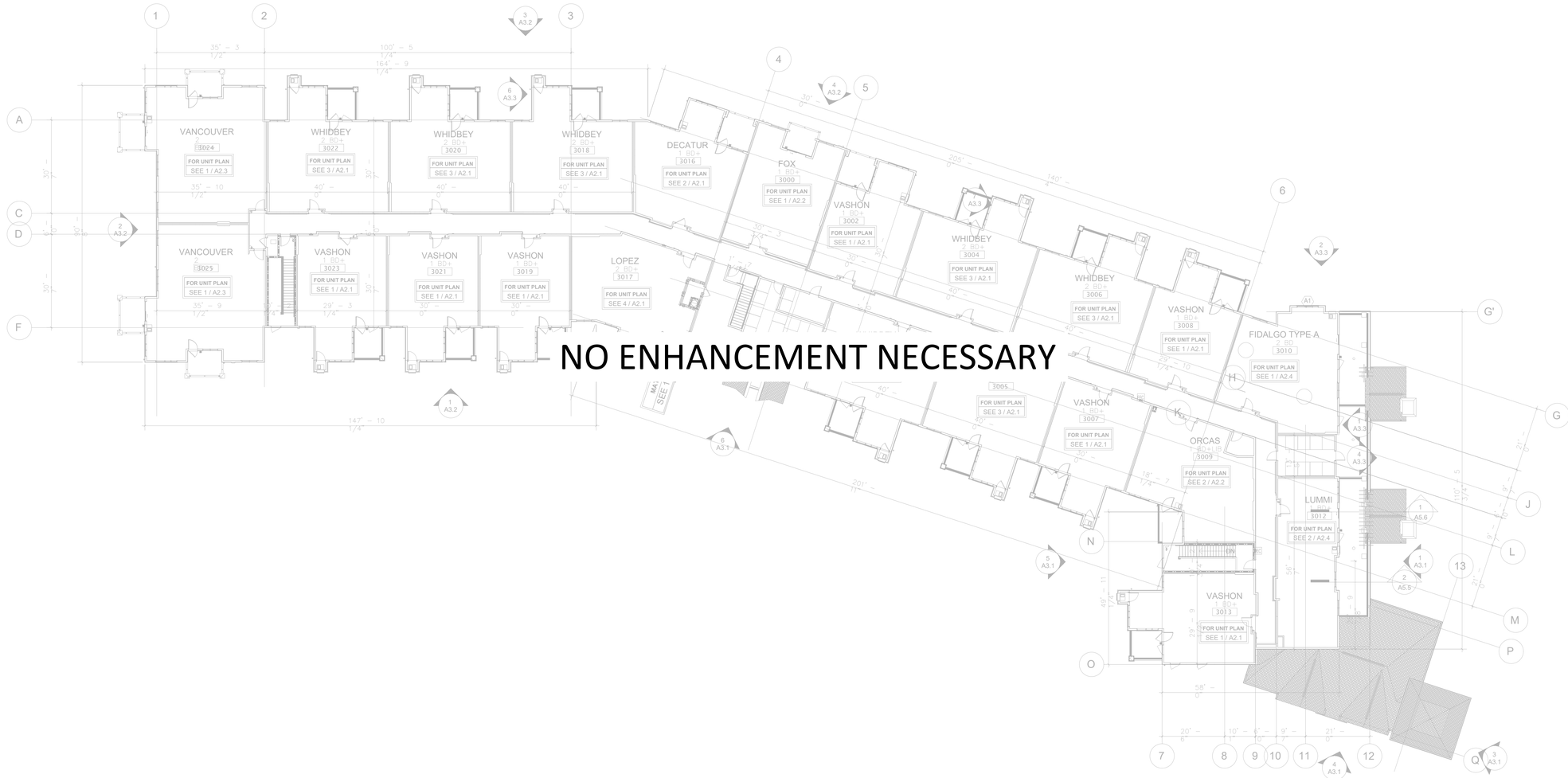
SHEET TITLE

ERCES 2.2B

PLAN NAME
LEVEL 2 SECTION B

PLOT DATE
11/18/2025

NOTE:
1. NO COMPONENTS ON THIS LEVEL. SHOWN FOR REFERENCE ONLY.



LEVEL 3 OVERALL

SCALE: 1/16" = 1'-0"

0' 10' 20' 30' 50'

STRUCTURED COMMUNICATIONS
P.O. Box 1368
Snohomish, WA 98291
425.321.5343

WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FCC LIC. NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/16" = 1'-0"

DRAWN BY J.T.

SHEET TITLE

ERCES 2.3

PLAN NAME
LEVEL 3 OVERALL

PLOT DATE
11/18/2025

NOTE:
1. NO COMPONENTS ON THIS LEVEL. SHOWN FOR REFERENCE ONLY.

NO ENHANCEMENT NECESSARY

LEVEL 3 SECTION A

SCALE: 1/8" = 1'-0"

0' 10' 20' 30' 50'

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WESLEY HOMES BUILDING D

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Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/8" = 1'-0"

DRAWN BY J.T.

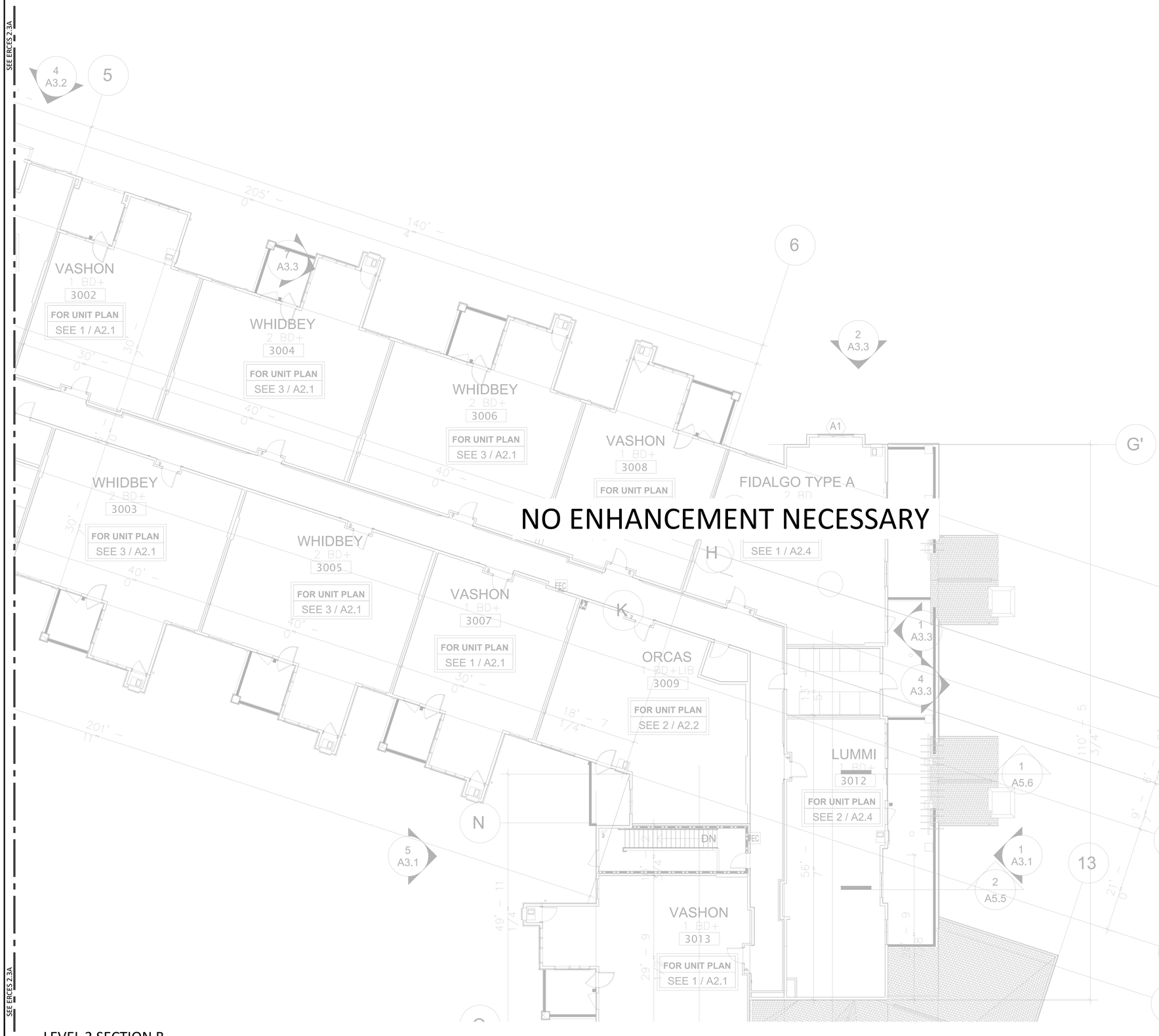
SHEET TITLE

ERCES 2.3A

PLAN NAME
LEVEL 3 SECTION A

PLOT DATE
11/18/2025

NOTE:
1. NO COMPONENTS ON THIS LEVEL. SHOWN FOR REFERENCE ONLY.



NO ENHANCEMENT NECESSARY

LEVEL 3 SECTION B

SCALE: 1/8" = 1'-0"

0' 10' 20' 30' 50'

STRUCTURED COMMUNICATIONS
P.O. Box 1368
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FCC

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Building | Planning
Engineering | Public Works
Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/8" = 1'-0"

DRAWN BY J.T.

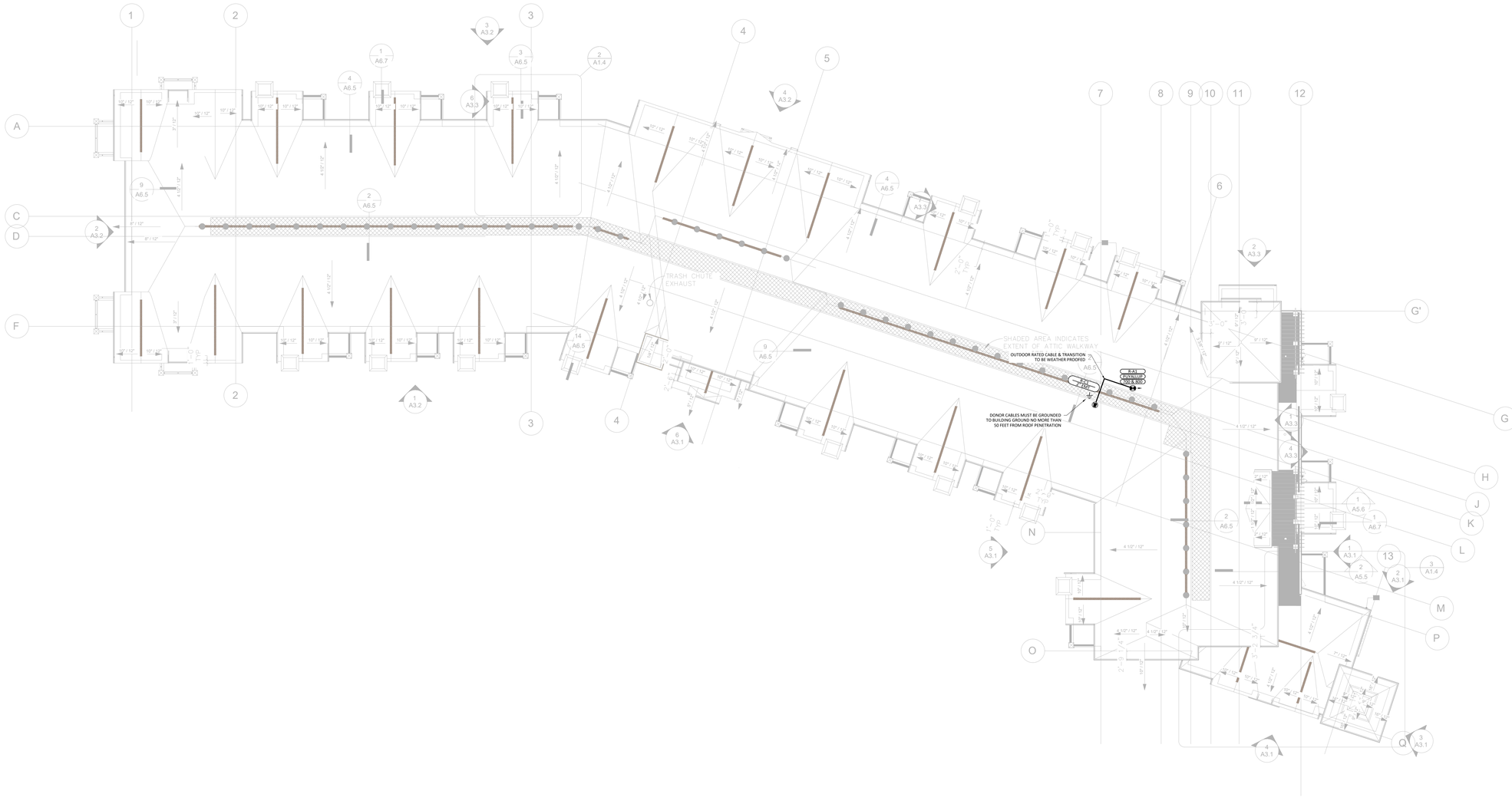
SHEET TITLE

ERCES 2.3B

PLAN NAME
LEVEL 3 SECTION B

PLOT DATE
11/18/2025

NOTE:
1. 2" CONDUIT NOT SHOWN FOR CLARITY.
2. 10' MINIMUM DISTANCE REQUIRED BETWEEN DONOR ANTENNAS.
3. DONOR ANTENNA(S) MUST HAVE DIRECT LINE OF SIGHT TO DONOR SITE. NOT DOING SO WILL COMPROMISE RADIO TRANSMISSION.



ROOF

SCALE: 1/16" = 1'-0"

0' 10' 20' 30' 50'

STRUCTURED COMMUNICATIONS
P.O. Box 1368
Snohomish, WA 98291
425.321.5343

WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FEDERAL COMMUNICATIONS COMMISSION USA

FCC LIC NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/16" = 1'-0"

DRAWN BY J.T.

SHEET TITLE

ERCES 2.4

PLAN NAME
ROOF

PLOT DATE
11/18/2025

NOTE:
1. 2" CONDUIT NOT SHOWN FOR CLARITY.
2. 10' MINIMUM DISTANCE REQUIRED BETWEEN DONOR ANTENNAS.
3. DONOR ANTENNA(S) MUST HAVE DIRECT LINE OF SIGHT TO DONOR SITE. NOT DOING SO WILL COMPROMISE RADIO TRANSMISSION.

ROOF SECTION B

SCALE: 1/8" = 1'-0"

0' 10' 20' 30' 50'

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WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
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PUYALLUP, WA
PIERCE COUNTY

FCC

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City of Puyallup
Development & Permitting Services
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Building | Planning
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FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1/8" = 1'-0"

DRAWN BY J.T.

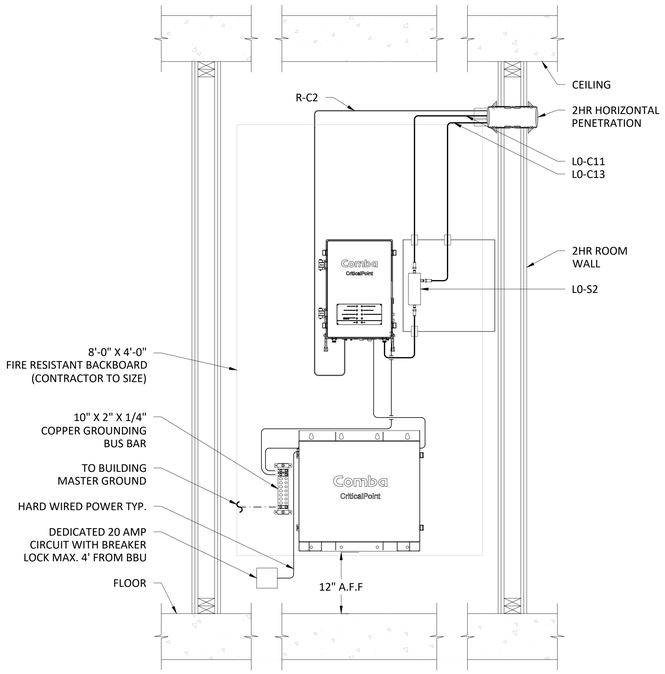
SHEET TITLE

ERCES 2.4B

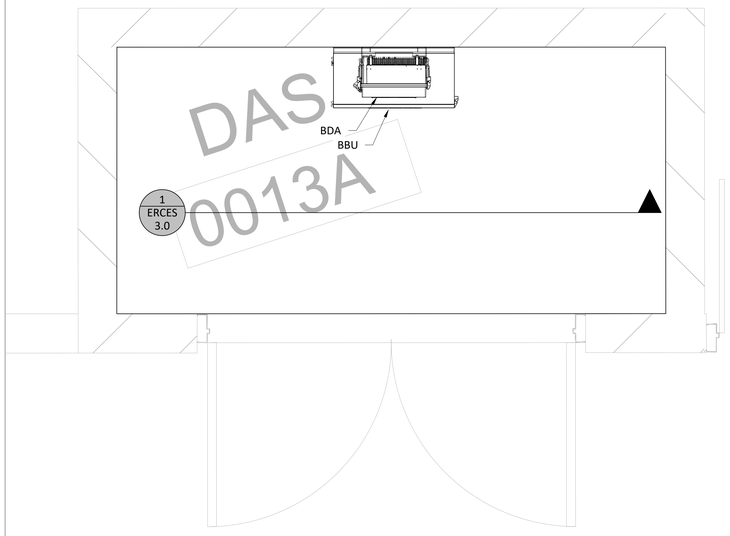
PLAN NAME
ROOF SECTION B

PLOT DATE
11/18/2025

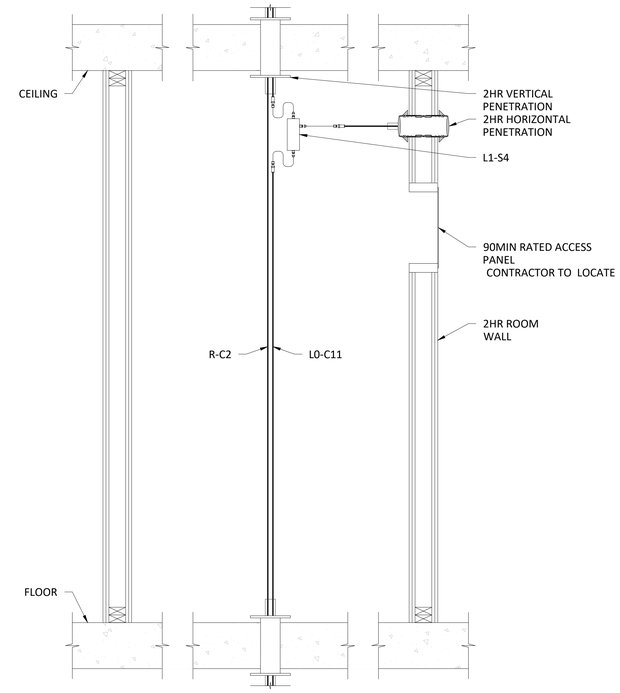
NOTE:
1. **IMPORTANT:** PROOF OF AUTHORIZATION TO OPERATE BY THE LICENSE HOLDER MUST BE OBTAINED AND STORED AT THE BDA LOCATION PRIOR TO ACTIVATION.
2. PROPER CONDITIONING OF SPACE REQUIRED FOR ALL ERCES EQUIPMENT.
3. 2" VERTICAL RISER EMT NOT SHOWN FOR CLARITY.
4. ALL ACTIVE DEVICES SHALL BE GROUNDED PURSUANT TO NFPA 780



1 LEVEL 0 DAS ROOM: 2HR FIRE RATED HEAD END ROOM

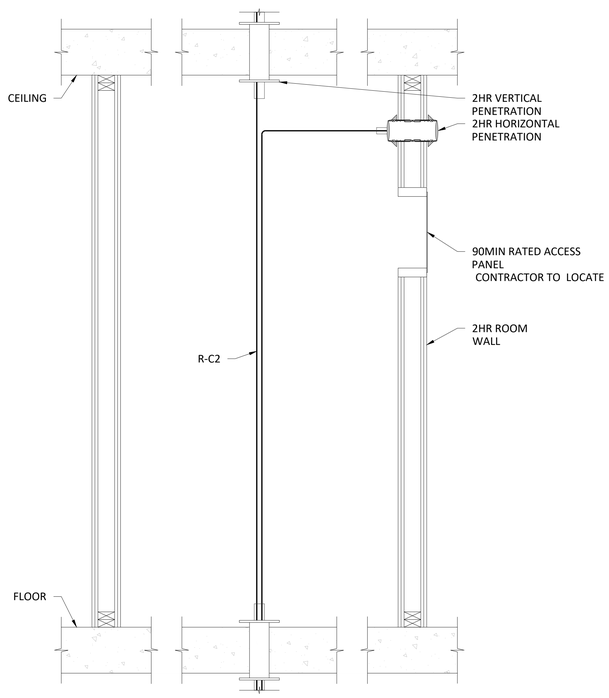


2 LEVEL 0 DAS ROOM: 2HR FIRE RATED HEAD END FLOORPLAN

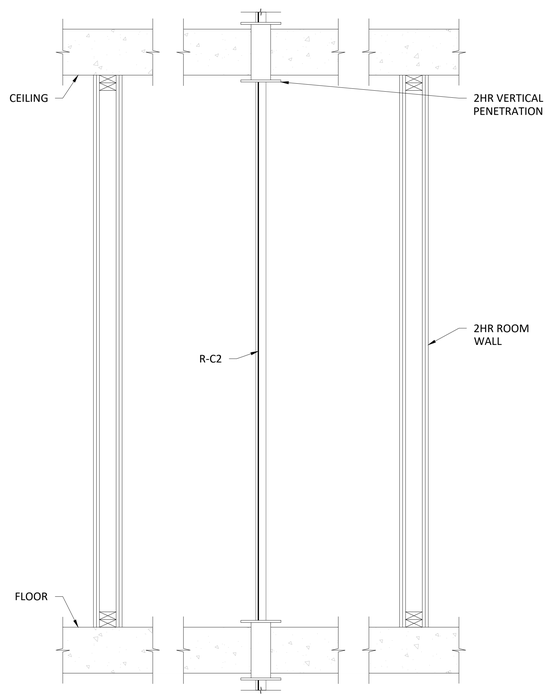


3 LEVEL 1 DAS SHAFT: 2HR FIRE RATED RISER

NOTE:
1. 2" VERTICAL RISER CONDUIT NOT SHOWN FOR CLARITY.



4 LEVEL 2 DAS SHAFT: 2HR FIRE RATED RISER



5 LEVEL 3 DAS SHAFT: 2HR FIRE RATED RISER

6

STRUCTURED COMMUNICATIONS
P.O. Box 1368
Snohomish, WA 98291
425.321.5343

WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FCC LIC NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE 1" = 1'-0"

DRAWN BY J.T.

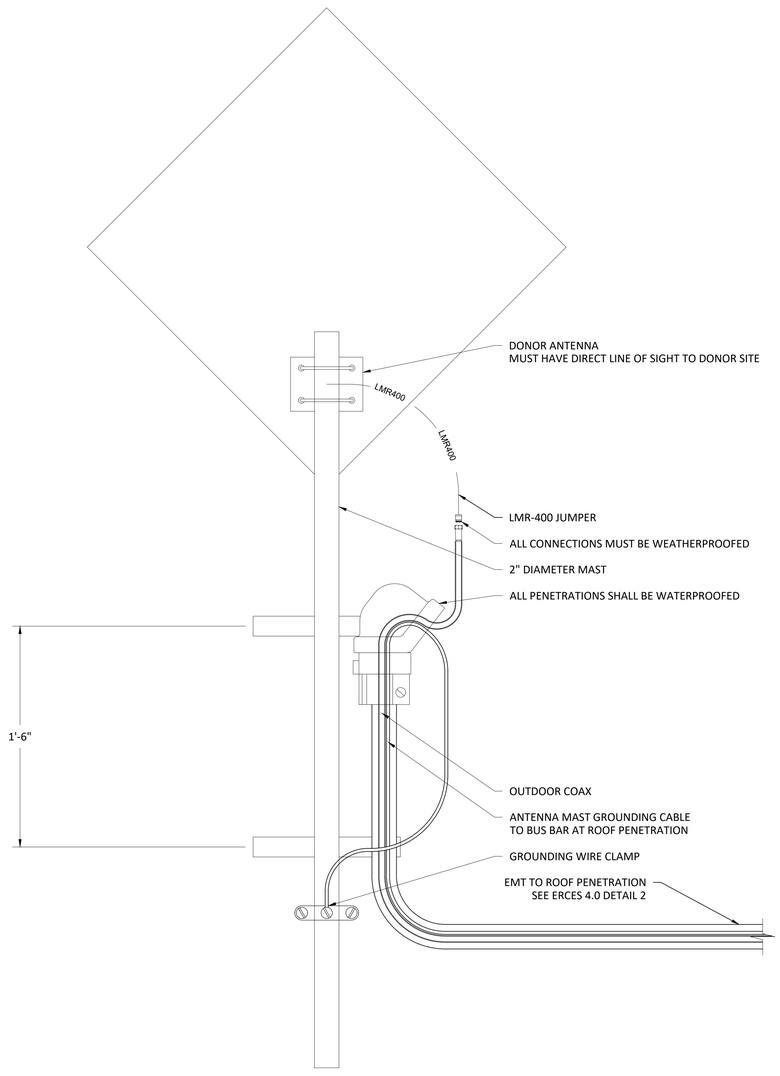
SHEET TITLE

ERCES 3.0

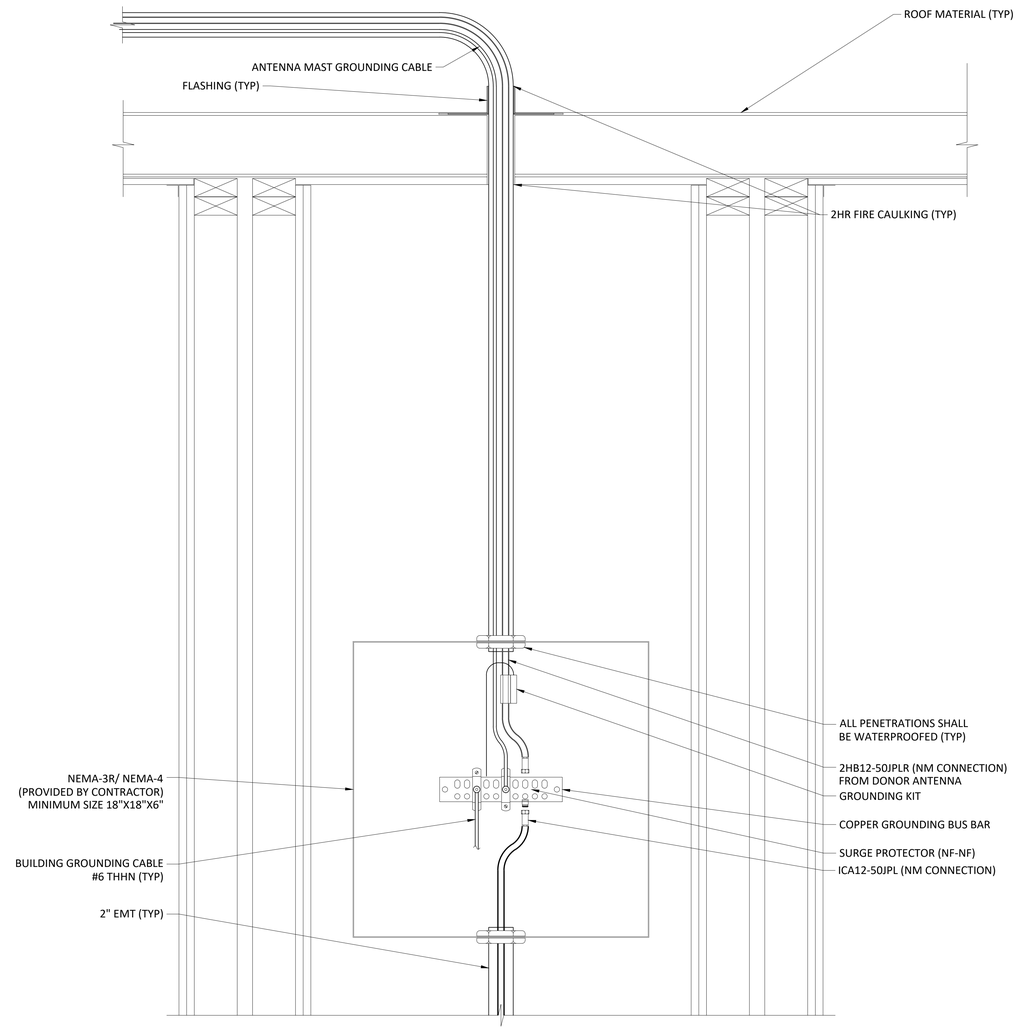
PLAN NAME
EQUIPMENT & RISER ROOM DETAILS

PLOT DATE
11/18/2025

NOTE:
1. DONOR ANTENNA MUST CLEAR PARAPET OF ANY OBSTRUCTION BY 3'. NOT DOING SO WILL COMPROMISE RADIO TRANSMISSION.
2. MOUNTING HARDWARE AND MAST PROVIDED BY OTHERS.
3. TO MAINTAIN PROPER ALIGNMENT WITH THE SYSTEM DESIGNED DONOR SITE, DONOR ANTENNAS SHALL BE PERMANENTLY AFFIXED ON THE BUILDING.



1 DONOR ANTENNA



2 ROOF PENETRATION

STRUCTURED COMMUNICATIONS
P.O. Box 1368
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425.321.5343

WESLEY HOMES BUILDING D

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City of Puyallup
Development & Permitting Services
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Building | Planning
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FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

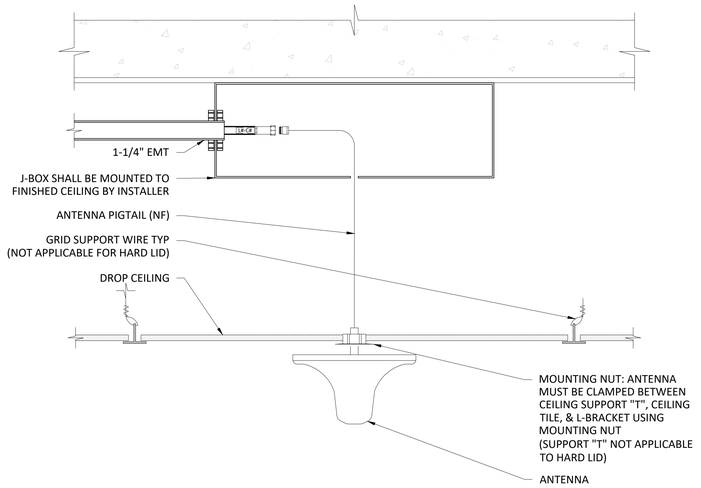
SHEET TITLE

ERCES 4.0

PLAN NAME
STANDARD DETAILS-1

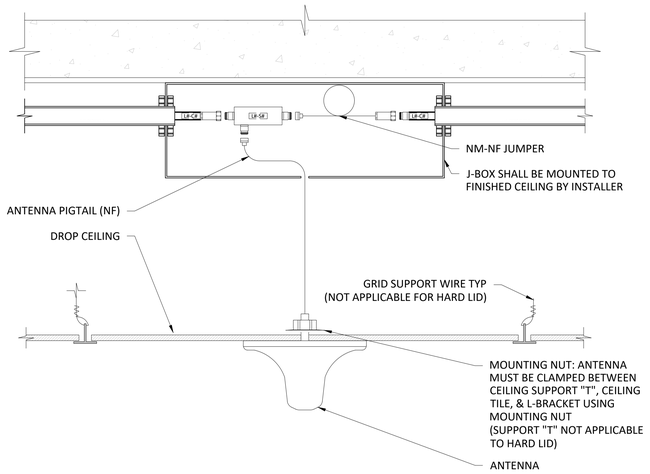
PLOT DATE
11/18/2025

NOTE:
1. J-BOX SHOWN IS 18"X18"X6".



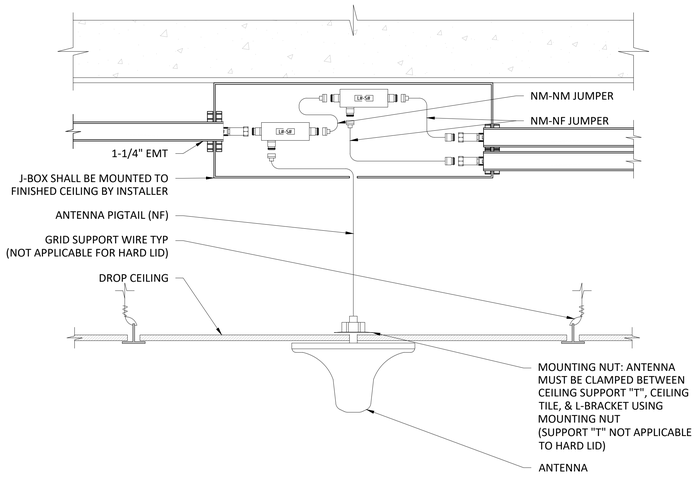
1 ANTENNA DROP CEILING/HARD LID MOUNT

NOTE:
1. USE PATHWAY ARROWS ON COUPLER TO ENSURE RF DIRECTION IS CORRECT.
2. J-BOX SHOWN IS 18"X18"X6".



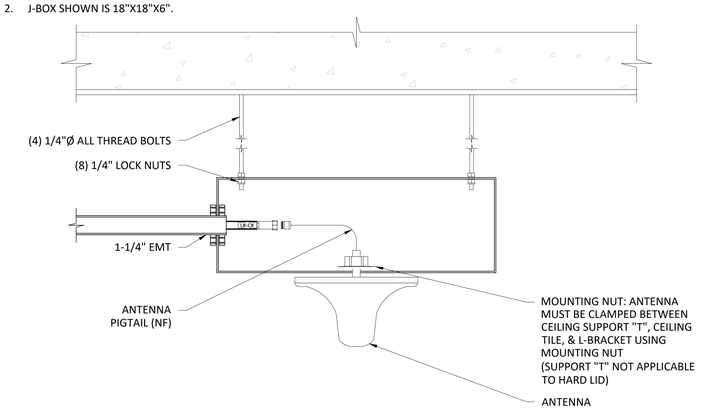
2 ANTENNA & COUPLER DROP CEILING/HARD LID MOUNT

NOTE:
1. USE PATHWAY ARROWS ON COUPLER TO ENSURE RF DIRECTION IS CORRECT.
2. J-BOX SHOWN IS 18"X18"X6".



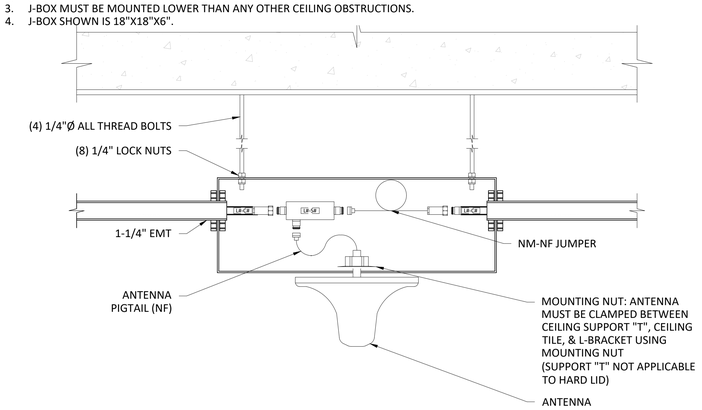
3 ANTENNA & TWO COUPLERS DROP CEILING/HARD LID MOUNT

NOTE:
1. THE LENGTH OF THREADED BOLTS SHOULD BE LONG ENOUGH THAT ANTENNA HAS GOOD LINE OF SIGHT TO AREA BEING COVERED.
2. J-BOX MUST BE MOUNTED LOWER THAN ANY OTHER CEILING OBSTRUCTIONS.
2. J-BOX SHOWN IS 18"X18"X6".



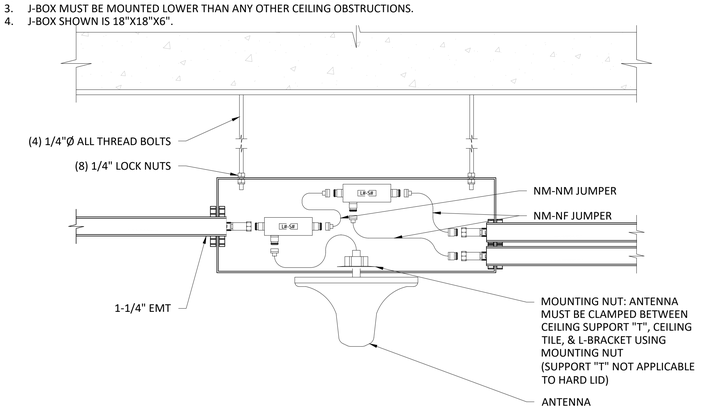
4 ANTENNA J-BOX MOUNT

NOTE:
1. THE LENGTH OF THREADED BOLTS SHOULD BE LONG ENOUGH THAT ANTENNA HAS GOOD LINE OF SIGHT TO AREA BEING COVERED.
2. USE PATHWAY ARROWS ON COUPLER TO ENSURE RF DIRECTION IS CORRECT.
3. J-BOX MUST BE MOUNTED LOWER THAN ANY OTHER CEILING OBSTRUCTIONS.
4. J-BOX SHOWN IS 18"X18"X6".



5 ANTENNA &COUPLER J-BOX MOUNT

NOTE:
1. THE LENGTH OF THREADED BOLTS SHOULD BE LONG ENOUGH THAT ANTENNA HAS GOOD LINE OF SIGHT TO AREA BEING COVERED.
2. USE PATHWAY ARROWS ON COUPLER TO ENSURE RF DIRECTION IS CORRECT.
3. J-BOX MUST BE MOUNTED LOWER THAN ANY OTHER CEILING OBSTRUCTIONS.
4. J-BOX SHOWN IS 18"X18"X6".

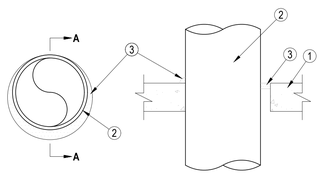


6 ANTENNA & TWO COUPLERS J-BOX MOUNT

CLASSIFIED UL C US
CLASSIFIED BY UNDERWRITERS LABORATORIES, INC TO UL 1479 AND CAN/ULC-S115

SYSTEM NO. C-AJ-1291

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F RATING — 2 HR	F RATING — 2 HR
T RATING — 0 HR	FT RATING — 0 HR
	FH RATING — 2 HR
	FTH RATING — 0 HR



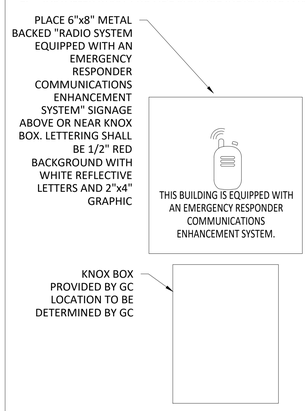
SECTION A-A

1. FLOOR OR WALL ASSEMBLY — MIN 2-1/2 IN. (64 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 30-7/8 IN. (784 MM).
   SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
2. THROUGH-PENETRANT — ONE METALLIC PIPE OR EMT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE OR EMT AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. TO MAX 7/8 IN. (22 MM). PIPE OR EMT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR EMTS MAY BE USED:
   A. STEEL PIPE — NOM 30 IN. (762 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   B. IRON PIPE — NOM 30 IN. (762 MM) DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
   C. COPPER PIPE — NOM 6 IN. (152 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
   D. COPPER TUBING — NOM 6 IN. (152 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
   E. EMT — NOM 6 IN. (152 MM) DIAM (OR SMALLER) STEEL EMT.
   F. EMT — NOM 4 IN. (102 MM) DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT).
3. FILL, VOID OR CAVITY MATERIAL* — SEALANT — MIN 1/2 IN. (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MIN 1/4 IN. (6 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.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

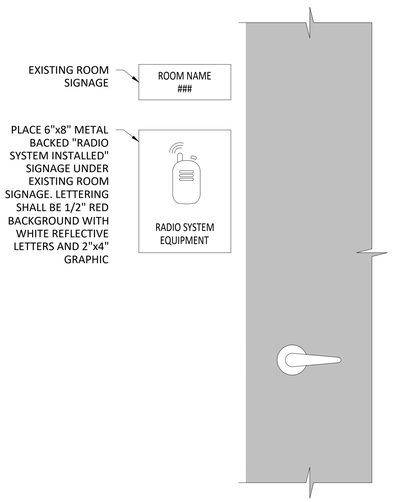
* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

7 2HR FIRE RATED PENETRATION

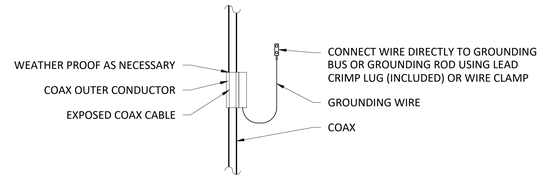
NOTE:
1. INSTALLER MUST PROVIDE SIGNAGE INDICATING A RADIO SYSTEM (ERCES) IS INSTALLED IN ACCORDANCE WITH THE CITY OF XXX.



8 ERCES SIGNAGE

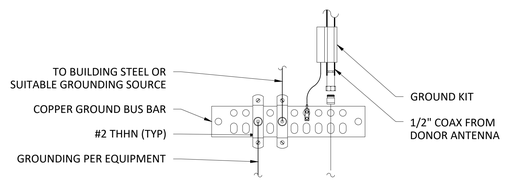


ROOM SIGNAGE



DONOR CABLE GROUNDING

NOTE:
1. GROUND HEAD END EQUIPMENT PER MANUFACTURER'S REQUIREMENTS



GROUNDING

STRUCTURED COMMUNICATIONS
P.O. Box 1368
Snohomish, WA 98291
425.321.5343

WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
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FCC

FEDERAL COMMUNICATIONS COMMISSION USA

FCC LIC. NO.: PG00065757
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GRANT DATE: 03-05-20
CONNOLLY, JULIA

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Development & Permitting Services
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Building | Planning
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FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

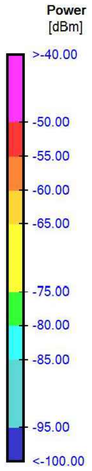
SHEET TITLE

ERCES 4.1

PLAN NAME
STANDARD DETAILS-2

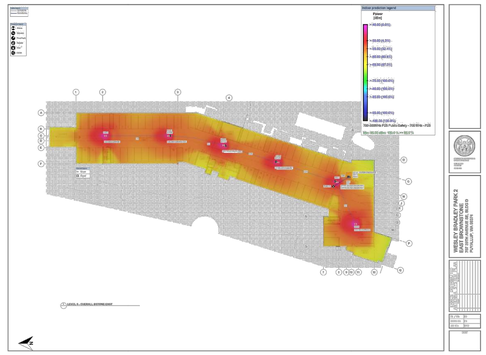
PLOT DATE
STANDARD DETAILS
11/18/2025

INDOOR PREDICTION LEGEND



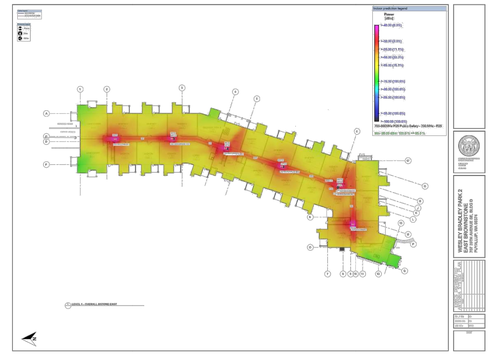
1. SYSTEM MEETS A MIN. OF -95 dBm @ 95% ON ALL FLOORS.
2. SYSTEM MEETS A MIN. OF -95 dBm IN ALL CRITICAL SPACES.
3. SYSTEM WAS DESIGNED TO MEET A MIN. DAQ OF 3.4.

700-800MHz P25 Public Safety - 700 MHz - P25 / Signal strength **Bradley Park Brownstone: Floor 0**



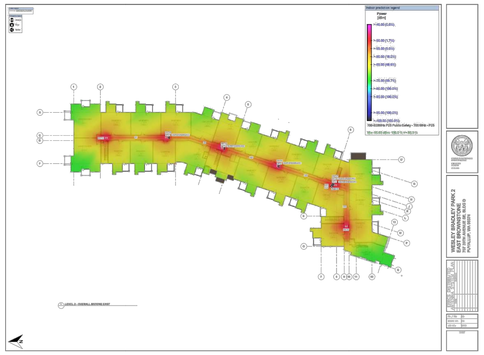
Created on 11/1/2025 Page 1 / 6

700-800MHz P25 Public Safety - 700 MHz - P25 / Signal strength **Bradley Park Brownstone: Floor 1**



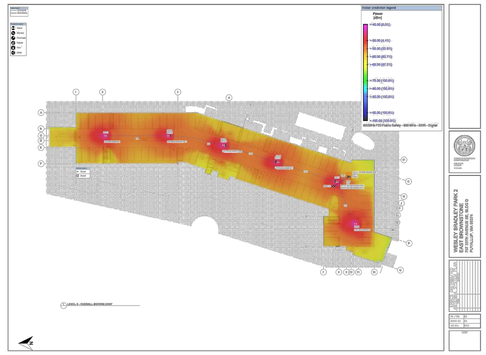
Created on 11/1/2025 Page 2 / 6

700-800MHz P25 Public Safety - 700 MHz - P25 / Signal strength **Bradley Park Brownstone: Floor 2**



Created on 11/1/2025 Page 3 / 6

800MHz P25 Public Safety - 800 MHz - SMR - Digital / Signal strength **Bradley Park Brownstone: Floor 0**



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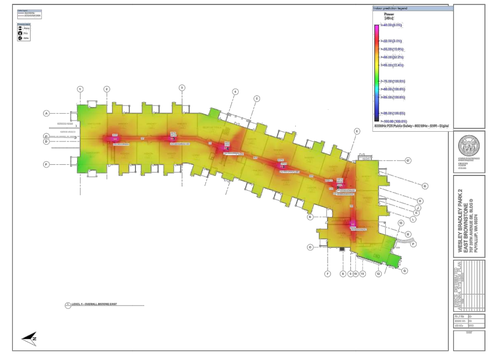
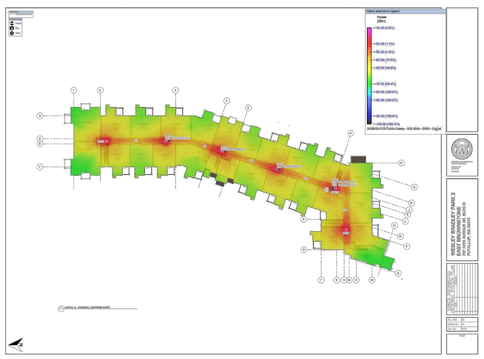
800MHz P25 Public Safety - 800 MHz - SMR - Digital / Signal strength **Bradley Park Brownstone: Floor 1**



Created on 11/1/2025 Page 5 / 6

800MHz P25 Public Safety - 800 MHz - SMR - Digital / Signal strength **Bradley Park Brownstone: Floor 2**



Created on 11/1/2025 Page 6 / 6

STRUCTURED COMMUNICATIONS
P.O. Box 1368
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WESLEY HOMES BUILDING D

PREPARED FOR STRUCTURED COMMUNICATIONS
707 39TH AVENUE SE
PUYALLUP, WA
PIERCE COUNTY

FCC

FCC LIC. NO.: PG00065757
FRN: 0029286614
GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 5.0

PLAN NAME
PROPAGATION

PLOT DATE
11/18/2025

ANTENNA ERP REPORT

Antenna ERP report

Antenna ID	Ant. Model	System ID	Antenna gain * (dBd)	Total loss/gain (dB)	Antenna ERP (dBm) Power/channel	Composite power	RSCP/RSRP
ANT1	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	8.04	-6.71	1.74	-
ANT1	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	7.47	-6.08	2.37	-
ANT1	IXD-360V03NN(05)	All systems	-	-	-	5.08	-
ANT2	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	6.41	-8.34	0.11	-
ANT2	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	5.96	-7.59	0.86	-
ANT2	IXD-360V03NN(05)	All systems	-	-	-	3.51	-
ANT3	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	7.43	-7.32	1.13	-
ANT3	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	7.08	-6.47	1.98	-
ANT3	IXD-360V03NN(05)	All systems	-	-	-	4.59	-
ANT4	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	6.66	-8.09	0.36	-
ANT4	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	6.4	-7.15	1.31	-
ANT4	IXD-360V03NN(05)	All systems	-	-	-	3.87	-
ANT5	IXD-360V03NN(05)	All systems	-	-	-	3.33	-
ANT5	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	6.06	-8.69	-0.23	-
ANT5	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	5.92	-7.63	0.82	-
ANT6	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	8.17	-6.58	1.87	-
ANT6	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	7.94	-5.61	2.84	-
ANT6	IXD-360V03NN(05)	All systems	-	-	-	5.39	-
ANT7	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	8.84	-5.91	2.54	-
ANT7	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	8.22	-5.33	3.12	-
ANT7	IXD-360V03NN(05)	All systems	-	-	-	5.85	-
ANT8	IXD-360V03NN(05)	All systems	-	-	-	4.26	-
ANT8	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	7.19	-7.56	0.89	-
ANT8	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	6.68	-6.87	1.58	-
ANT9	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	7.92	-5.63	2.82	-
ANT9	IXD-360V03NN(05)	All systems	-	-	-	5.45	-
ANT9	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	8.32	-6.43	2.02	-
ANT10	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	7.84	-6.91	1.54	-
ANT10	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	7.55	-6	2.46	-
ANT10	IXD-360V03NN(05)	All systems	-	-	-	5.03	-
ANT11	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	7.76	-6.99	1.47	-
ANT11	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	7.59	-5.96	2.49	-
ANT11	IXD-360V03NN(05)	All systems	-	-	-	5.02	-
ANT12	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	9.7	-5.05	3.4	-
ANT12	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	9.43	-4.12	4.33	-
ANT12	IXD-360V03NN(05)	All systems	-	-	-	6.9	-
ANT13	IXD-360V03NN(05)	All systems	-	-	-	3.04	-
ANT13	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	6.05	-8.7	-0.25	-
ANT13	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	5.4	-8.15	0.3	-
ANT14	IXD-360V03NN(05)	All systems	-	-	-	1.57	-
ANT14	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	4.51	-10.24	-1.79	-
ANT14	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	3.99	-9.56	-1.11	-
ANT15	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	5.68	-9.07	-0.62	-
ANT15	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	5.27	-8.28	0.17	-
ANT15	IXD-360V03NN(05)	All systems	-	-	-	2.8	-
ANT16	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	5.16	-9.59	-1.13	-
ANT16	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	4.86	-8.69	-0.24	-
ANT16	IXD-360V03NN(05)	All systems	-	-	-	2.35	-
ANT17	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	4.83	-8.72	-0.27	-
ANT17	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	5.02	-9.73	-1.28	-
ANT17	IXD-360V03NN(05)	All systems	-	-	-	2.26	-
ANT18	IXD-360V03NN(05)	800 MHz - SMR - Digital - Sector N/A	0.45	6.61	-6.94	1.52	-
ANT18	IXD-360V03NN(05)	700 MHz - P25 - Sector N/A	0.45	6.91	-7.84	0.61	-
ANT18	IXD-360V03NN(05)	All systems	-	-	-	4.09	-

Antenna ERP Statistics (Power / Channel)

System ID	Average (dBm)	Std. dev. (dB)	Minimum (dBm) Antenna ID	ERP	Maximum (dBm) Antenna ID	ERP
700 MHz - P25 - Sector N/A	-7.76	1.41	ANT14	-10.24	ANT12	-5.05
800 MHz - SMR - Digital - Sector N/A	-6.93	1.42	ANT14	-9.56	ANT12	-4.12

System legend

700-800MHz P25 Public Safety / P25 / 700 MHz / Phase 1 / Nb. of channels: 7 / Nb. of sources: 1

800MHz P25 Public Safety / Digital / 800 MHz - SMR / PS - NPSPAC / Nb. of channels: 7 / Nb. of sources: 1

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PUYALLUP, WA
PIERCE COUNTY

FCC

FCC LIC. NO.: PG00065757
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GRANT DATE: 03-05-20
CONNOLLY, JULIA

REVISION

NO.	DESCRIPTION	DATE
0	100% C.D.	11/18/25

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 5.1

PLAN NAME
ANTENNA ERP REPORT

PLOT DATE

UPLINK LINK BUDGET

ERRCS UL Link Calculations

UL Frequency:	802.13125	MHz
Distance To Site:	0.19	Miles
Path Loss To Site:	80.26	dB
BDA UL Rated P Out:	24	dBm
Qty Channels:	7	
Max P Out/Channel:	15.55	dBm
Test Radio Pwr Out	34.77	dBm
Distance - Test Radio To Near Antenna	5	Feet
Distance - Test Radio To Far Antenna	70	Feet
Maximum Signal Allowed At Site	-95	dBm

		DAS Loss Antenna To BDA - dB	Free Space Path Loss Radio To Antenna - dB	Power In To BDA - dBm	BDA Gain - dB	BDA Power Out - dBm	Feed Line Loss To Donor Ant - dB	Donor Antenna Gain dBd	Donor Ant ERP - dBm	UL RSSI At Site - dBM	BDA Compression Level - dB	UL Attenuator Required ?	Minimum Attenuator Value - dB
Near Ant =	Ant12	17.00	34.21	-16.44	50	15.55	22.00	13.85	7.40	-72.86	18.01	YES	22
Far Ant =	Ant14	22.00	57.13	-44.36	50	5.64	22.00	13.85	-2.51	-82.77	0.00		

Shaded cells are for user entry. DAS loss antenna to BDA taken from iBwave Design. Feed line loss to donor antenna from iBwave Design.
After entering basic information in left panel and shaded cells above (that call for entry), this spreadsheet calculates all path losses,
signal level to host radio site, attenuation between uplink amplifier and duplexer (if required).

ERRCS UL Link Calculations

UL Frequency:	808.60000	MHz
Distance To Site:	0.19	Miles
Path Loss To Site:	80.33	dB
BDA UL Rated P Out:	24	dBm
Qty Channels:	7	
Max P Out/Channel:	15.55	dBm
Test Radio Pwr Out	34.77	dBm
Distance - Test Radio To Near Antenna	5	Feet
Distance - Test Radio To Far Antenna	70	Feet
Maximum Signal Allowed At Site	-95	dBm

		DAS Loss Antenna To BDA - dB	Free Space Path Loss Radio To Antenna - dB	Power In To BDA - dBm	BDA Gain - dB	BDA Power Out - dBm	Feed Line Loss To Donor Ant - dB	Donor Antenna Gain dBd	Donor Ant ERP - dBm	UL RSSI At Site - dBM	BDA Compression Level - dB	UL Attenuator Required ?	Minimum Attenuator Value - dB
Near Ant =	Ant12	17.00	34.28	-16.51	50	15.55	22.00	13.85	7.40	-72.93	17.94	YES	22
Far Ant =	Ant14	22.00	57.20	-44.43	50	5.57	22.00	13.85	-2.58	-82.91	0.00		

Shaded cells are for user entry. DAS loss antenna to BDA taken from iBwave Design. Feed line loss to donor antenna from iBwave Design.
After entering basic information in left panel and shaded cells above (that call for entry), this spreadsheet calculates all path losses,
signal level to host radio site, attenuation between uplink amplifier and duplexer (if required).

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CONNOLLY, JULIA

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NO.	DESCRIPTION	DATE
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Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

FACILITY
WESLEY HOMES BUILDING D EMERGENCY RESPONDER COMMUNICATION ENHANCEMENT SYSTEM (ERCES)

SCALE NA

DRAWN BY J.T.

SHEET TITLE

ERCES 5.2

PLAN NAME
UPLINK LINK BUDGET

PLOT DATE