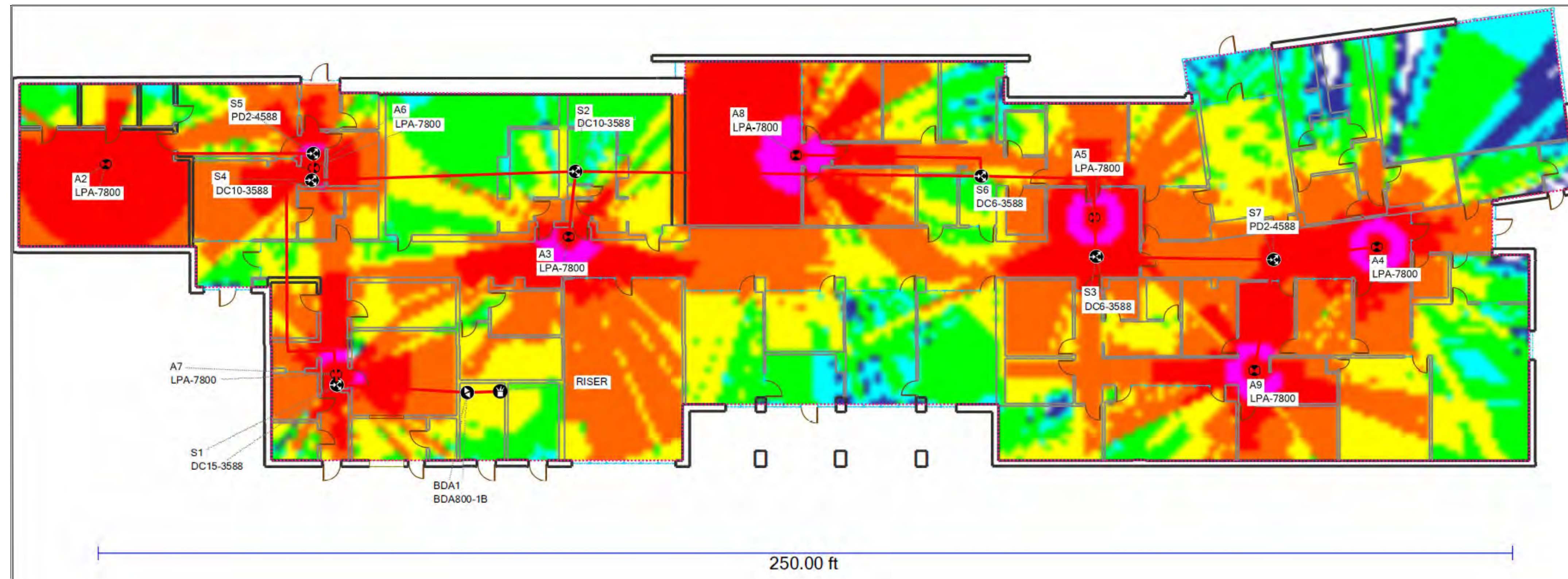


System Performance Narrative

- The Signal Booster System shall amplify all signals within the required frequency band and provide the necessary radio system coverage into interior portions of the building including all basement levels as well as any partially underground areas of the building. The Signal Booster System shall consist of an exterior antenna, a bi-directional amplifier system with a backup power supply mounted in a suitable location in the building, and an in-building antenna and/or radiating cable system as necessary to provide the stated signal level. The bi-directional amplifier must have capabilities of channelization to prevent amplification of unwanted signals. Broadband amplifiers will not be approved. The Signal Booster must be capable of both Phase 1 FDMA and Phase 2 TDMA radio transmissions. The Signal Booster System shall be designed to operate in the 769-765 and 799-806 MHz band as well as the 806-861MHz band. The Signal Booster System shall be designed to provide a minimum -109 dBm RF signal level or a transmitted signal BER (bit error rate) not to exceed 5%, and a minimum of 10 dB above the RF noise floor, at any point within the building.
- The Signal Booster System shall employ technology that maintains maximum required output power while preventing excessive emissions per FCC requirements. All equipment must be FCC type accepted and approved for digital signal amplification. RF filtering shall be employed as necessary to reduce the emission of non-desired signals. Signal levels cannot extend beyond the building area where coverage is poor to prevent interference.
- Systems shall employ a backup battery system that will sustain the system for a minimum of 12 hours.

Mandatory language for all design submittals utilizing Radio systems

Heat Map from BDA Signal Strength Testing



Provide specific component information (i. e. Manufacture Name, Part Number, etc.)

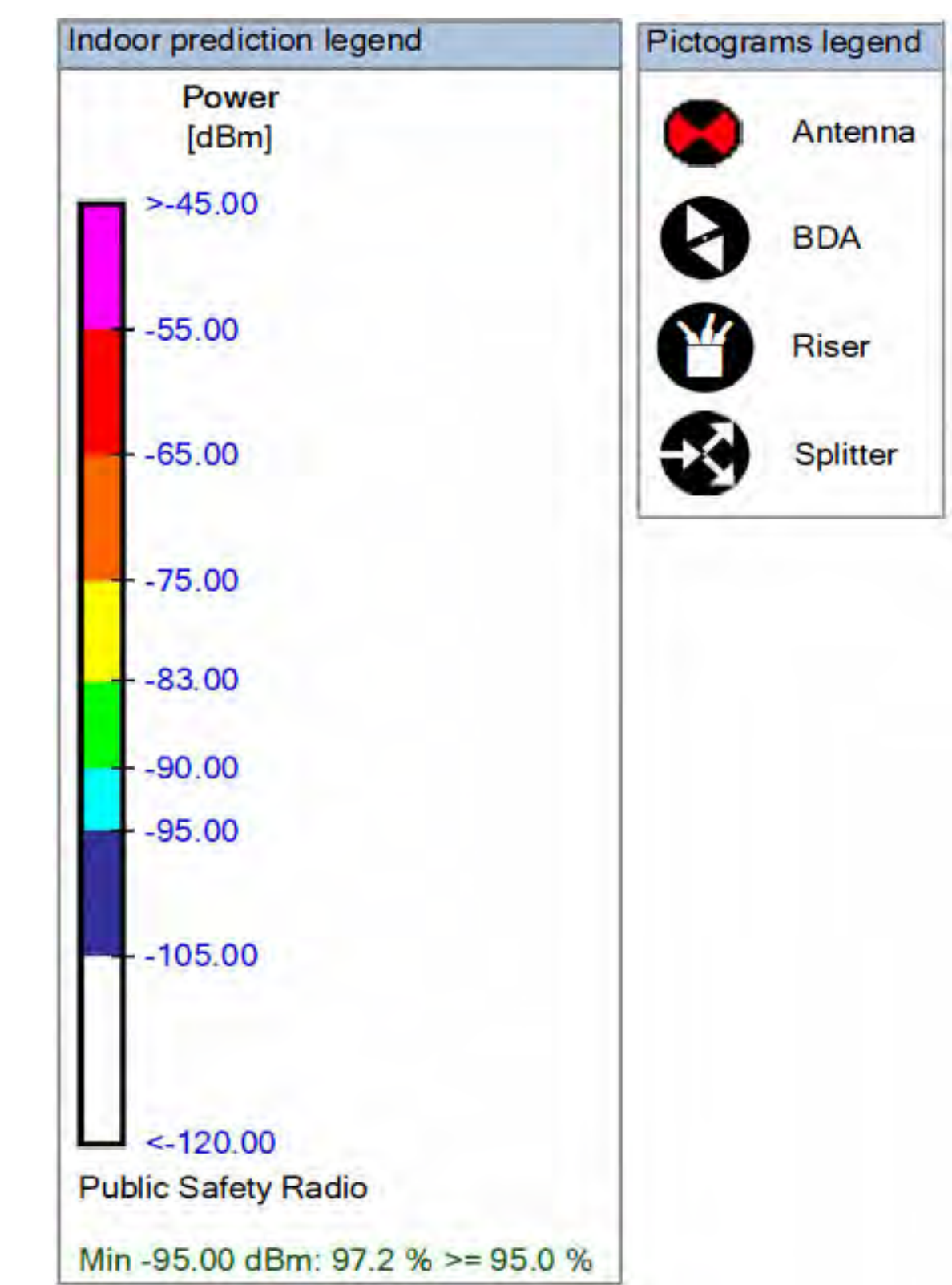
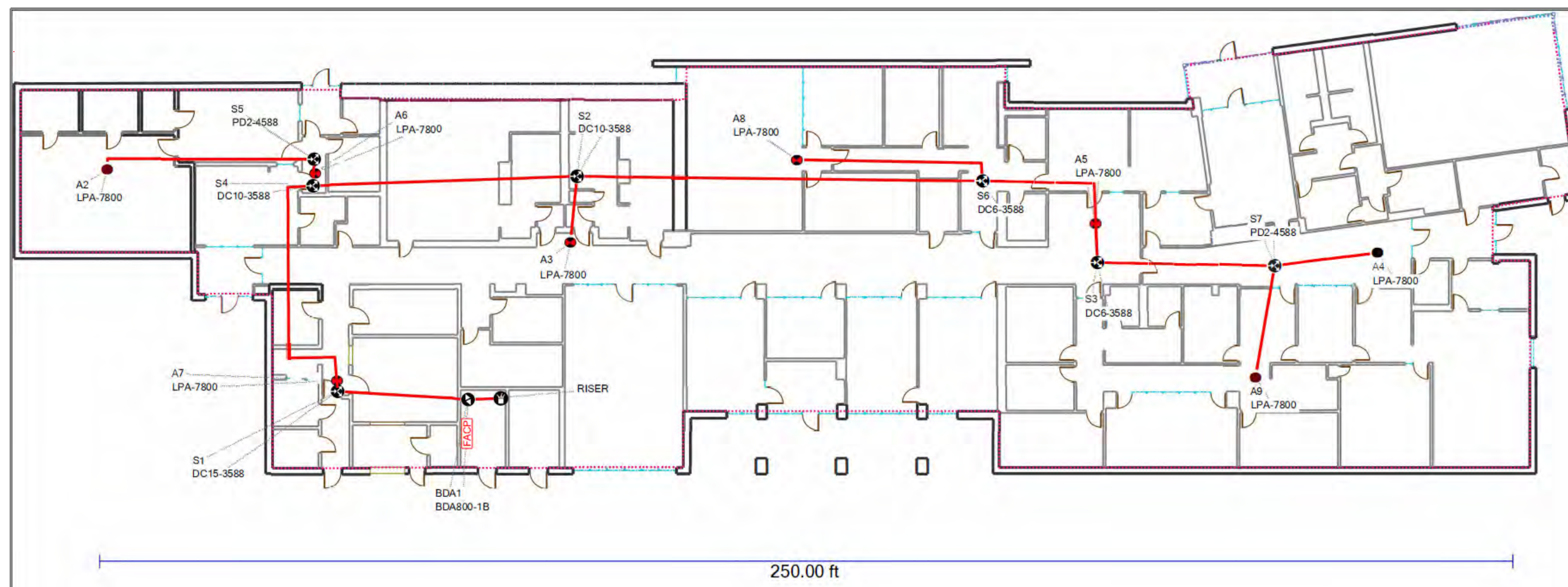
System Components	Description
	Bi-Directional Amplification Panel
	24vdc Battery Backup Panel
	Annunciator
	Interior DAS Antenna
	Directional Coupler
	2-Way Power Divider/Combiner
	Coaxial Surge Protector
	Outside Directional Donor Antenna
	Antenna EOL Sensor
	CAP-11A Plenum Coaxial Cable RED

General Notes

- This design is based on preliminary empirical data and software simulation of indoor radio propagation. Signal surveys and isolation measurements shall be done once the system is installed. BOA settings shall be adjusted as required.
- The BDA and the Battery enclosure shall be installed on channel strut (i.e. Unistrut, Kindorf, etc.).
- Use NEMA 4-Type Approved Conduit Fittings Only.
- Only solid outer conductor cables shall be used coaxial cable jumpers.
- The enclosures grounded to the building ground system shall utilize a short direct path with the minimum number of bends.
- Grounding cables shall not reverse direction when connecting to terminating points and will always flow from the equipment down towards the grounding point.
- All conduits shall be grounded to the building ground.
- All electrical, fire alarm system interconnections and installation work shall be performed as per locally adopted national codes, standards, and ordinances.
- The installer shall verify equipment locations and fire survivability requirements.
- Where required, cable shall be installed in metallic raceways.
- The equipment installation and acceptance testing shall be performed by a factory-certified, FCC GROUL licensed technician.

Provide the minimum language to describe a complete scope of work as per the system design

BDA System Configuration for Review & Approval



BDA Public Safety Trunked Channels











Tower Transmit	Tower Receive
1. 859.6125	814.6125
2. 859.0375	814.0375
3. 858.6125	813.6125
4. 858.1875	813.1875
5. 857.6125	812.6125
6. 856.6125	811.6125
7. 854.2125	809.2125
8. 853.0625	808.0625
9. 852.0625	807.0625
10. 851.0625	806.0625

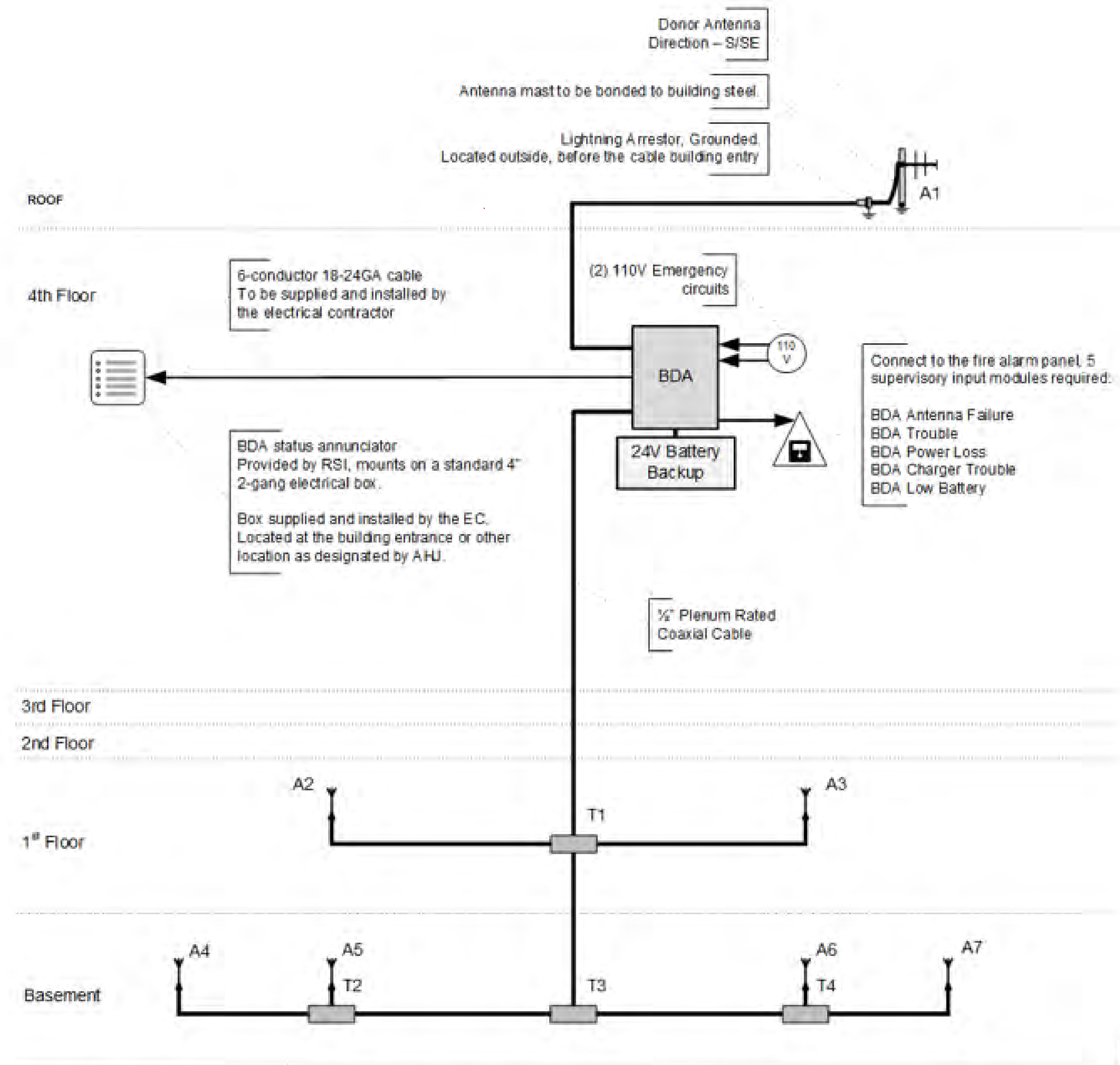
Provide all applicable information prescribed by the locally adopted national codes, standards and ordinances.

Provide as necessary to comply with locally adopted national codes, standards and ordinances.

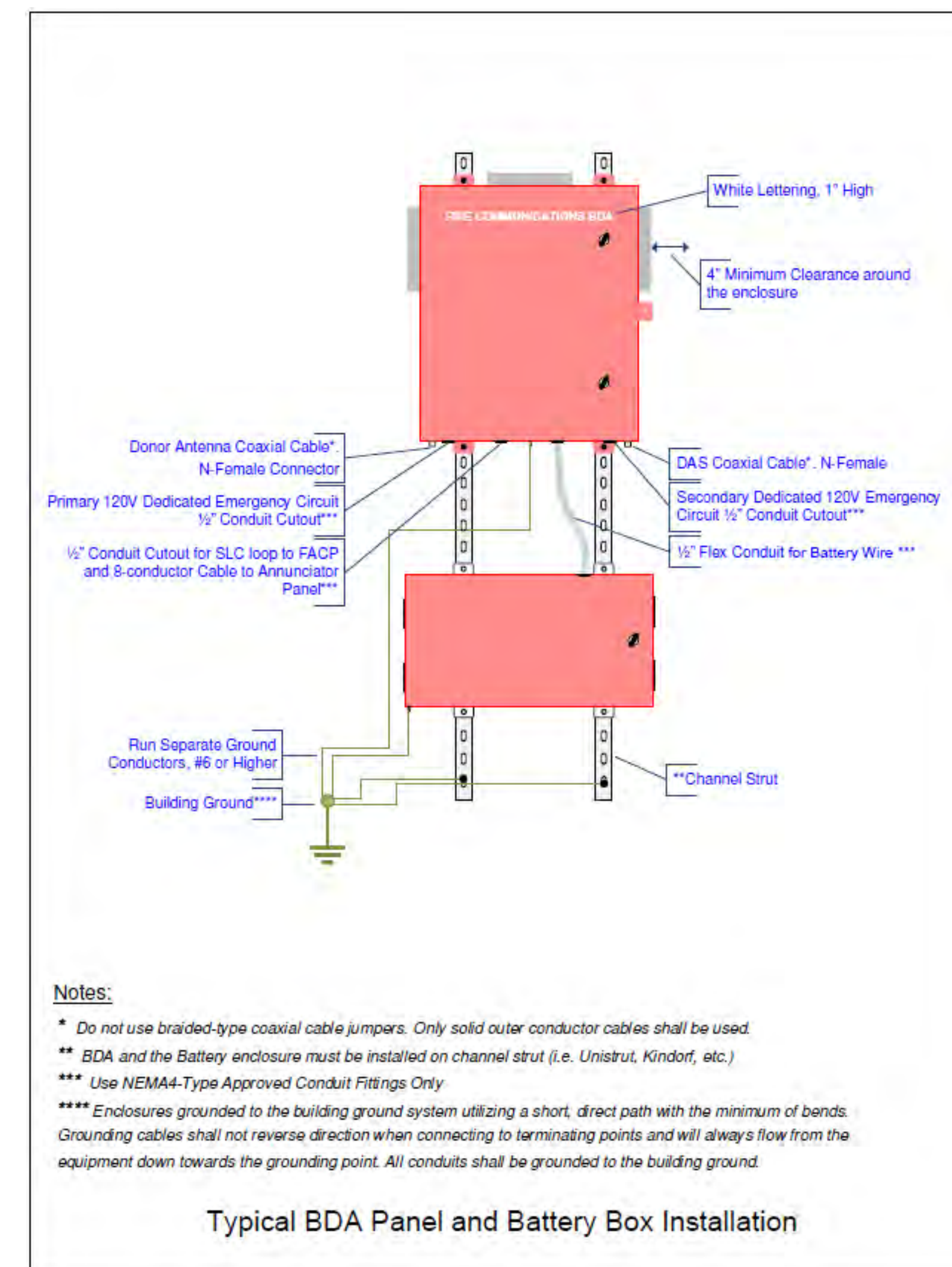
- DL Gain: Contact RSI for final settings
- UL Gain: Contact RSI for final settings
- ULSQL TH Level: -75dBm
- UL/DL Power Limit Set: +28m
- Frequency Band: PS 700/800MHz Class B
- Required Donor - DAS Isolation: >90dB
- Number of Channels: 10

PROJECT INFORMATION				DESIGN INFORMATION				SHEET NAME				SITE MAP				PROPRIETARY INFORMATION			
Name	Critical Infrastructure Building & Shelter			Building / Fire Code	2015 / 2015			FCC I. D. Number	SCCNUR05WL2							<p>These documents, including specifications, drawings, details and design concepts are the property of ABC Radio & Communications, LLC, and are furnished on a confidential basis, with the expressed understanding that it will not be sold, copied, transferred, or used for purposes other than intended. Any project design package and specifications provided by ABC Radio & Communications, LLC for the purpose of construction and coordination may not be changed without the express written consent of ABC Radio & Communications, LLC.</p> <p>ABC Radio and Communications, LLC</p> <p>Corporate Office 1234 Main Street Anywhere, Texas 75000 Office: 972-123-4567 Fax: 972-789-1234 Web Site: www.ABCcommunications.com</p>			
Project Address	1234 Main Street Anywhere, Texas 75000			NFPA - 70	2017			Jurisdiction Ordinances	Anywhere, Texas										
Permit #	20-12345			NFPA - 72	2019			Circuit Integrity Level	Level 2										
Status				NFPA - 1221	2019			Wiring Class	B X A										
DRAWING INFORMATION				CONTRACTOR INFORMATION								<p>Sheet 1 of 2</p>							
Title	Emergency Responder Communications System			Name	ABC Radio & Communications, LLC											Designed By	DBR		
Scale	1/8" = 1'			Company Address	1234 Main Street Anywhere, Texas 75000											License No.	12345		
Plot Size	42" X 30"			FCC	GROL # 12345											Date	08-20-2020		
Name				PHONE	972-123-4567			Revision											

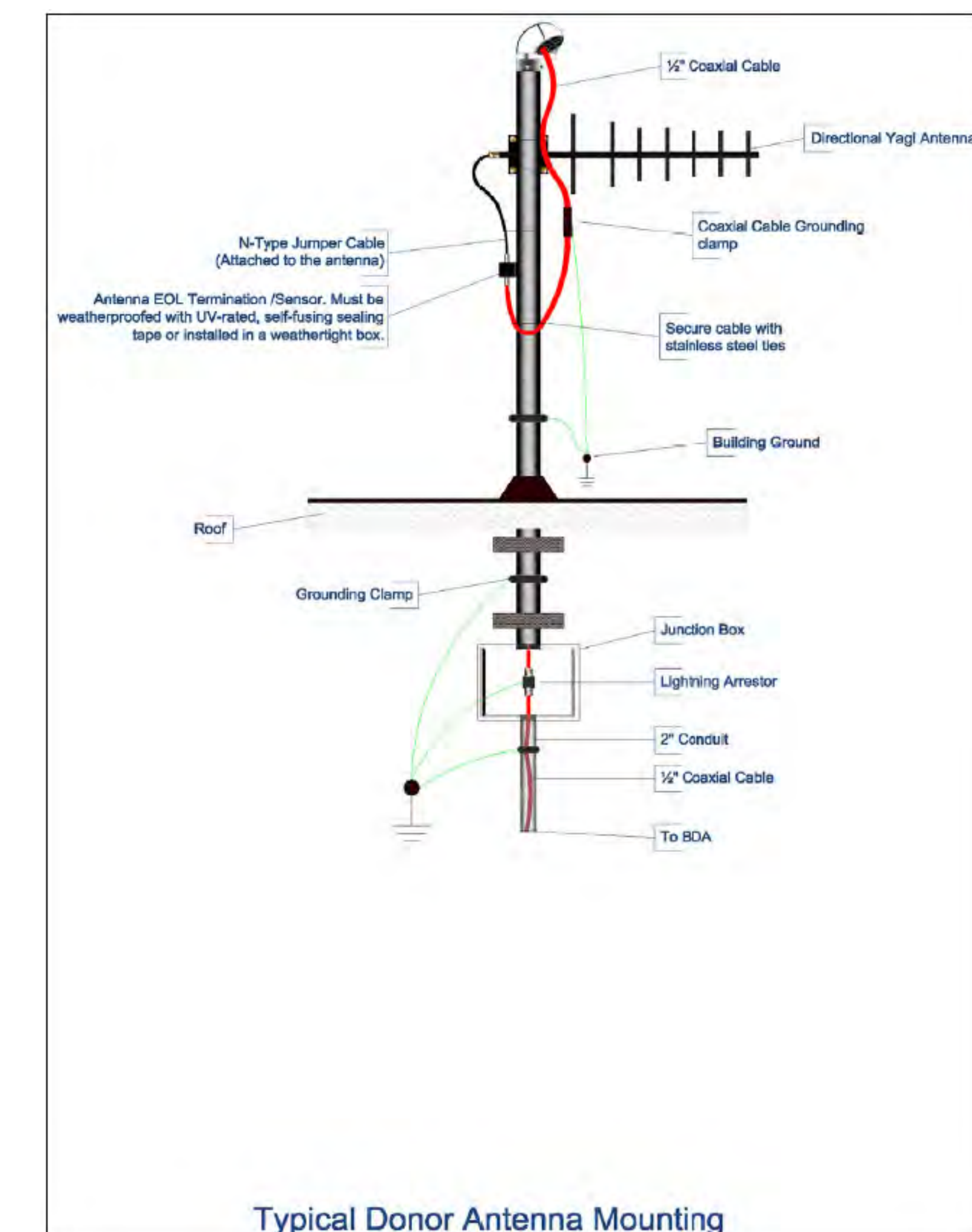
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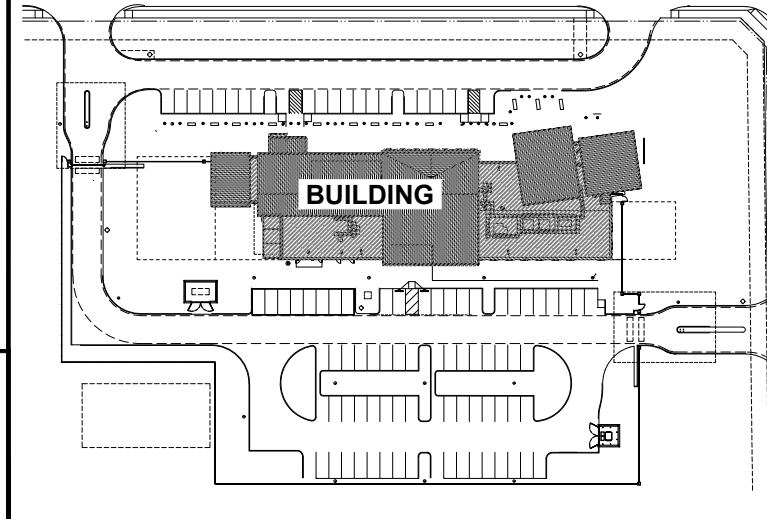

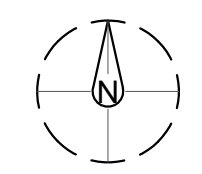
Typical BDA System Riser Diagram



Typical BDA Panel and Battery Box Installation



Typical Donor Antenna Mounting

PROJECT INFORMATION				DESIGN INFORMATION				SHEET NAME				SITE MAP				PROPRIETARY INFORMATION				
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