

SECTION 27 10 00

STRUCTURED CABLING

PART 1: GENERAL

1.1 BUILDING COMMUNICATIONS ROOMS

There shall be multiple Building Communications Room(s) (IDFs) throughout each building for the distribution of all video and data to the units.

The IDF(s) will feed video and data to the units in the areas as shown in the InfiniSys drawing set.

The installing contractor is responsible for proper wire management. All cable shall be installed in the IDF(s) per the accompanying drawing set.

It is the responsibility of the low voltage contractor to verify that all duplex outlets designated are in place and are the correct surge-protected outlets. It is also the low voltage contractor's responsibility to report any deficiencies to the GC, Owner or Owner's Representative, and InfiniSys, Inc. at the earliest possible time.

A. Facilities Requirements

The General Contractor shall construct the IDF with the minimum dimensions shown on the InfiniSys drawing set. The IDF walls shall be covered with $\frac{3}{4}$ " plywood over any building materials required by code. The plywood shall be 8 ft high, start at 6" AFF and must meet all national, state and local codes for fire rating.

Once the IDFs are constructed, the low voltage contractor shall roughly designate the various provider areas per the InfiniSys drawings, using a can of spray-paint to outline and label the areas.

No piping, ductwork, mechanical equipment, or power cabling should pass through the equipment room.

B. Secure Access Requirements

General Contractor shall provide single or double 36" x 80" lockable doors. The doors must be able to be securely locked, using a high security deadbolt style lock, and be common keyed across the site. Access shall be restricted to authorized personnel.

Each IDF must allow secure 24/7 access for each of the service providers who have equipment or facilities within it.

C. Ventilation/ HVAC Requirements

The General Contractor shall provide sufficient HVAC or ventilation to maintain a temperature of 40-100 degrees Fahrenheit. For ventilation, the General Contractor shall provide for a minimum of 110-200 CFM of air circulation. This shall be thermostatically controlled to start if temperature exceeds 85°F in the IDF. If a ventilation fan cannot maintain a maximum room temperature of 100° F with the full load of all electronic equipment, supplemental cooling may be required.

D. Lighting Requirements

4-bulb 4' or 4-bulb 8' LED lighting fixtures are required to provide illumination for installation and maintenance, providing 50 foot-candles at 3 feet above the floor.

E. Electrical Requirements

All duplex outlets are to be Pass & Seymour Surge Protective Receptacles with Isolated Ground unless otherwise specified. This ground shall be tied to the electrical service ground. Use Pass & Seymour part #IG5262-WSP for 15-amp circuits and Pass & Seymour part #IG5362-WSP for 20-amp circuits.

Required duplex outlets and circuits are as follows:

- Comcast – TBD
- Nexgen - One (1) 20A 120 VAC surge protected duplex outlet on one (1) circuit
- Other services – One (1) 20A 120 VAC surge protected duplex outlet on one (1) circuit
- One (1) convenience outlet on the lighting circuit (minimum).

F. Grounding Requirements

General Contractor shall provide solid copper grounding busbar to be installed with insulated standoffs, (1/4" thick x 2" high x 10" long). This busbar is drilled with rows of holes according to NEMA standards for attachment of bolted compression fittings. Telecommunications equipment, frames, cabinets, and voltage protectors shall be grounded to this busbar.

All grounding shall be in accordance with Article 250 of NEC 2020.

1.2 UNIT DISTRIBUTION PANEL

A composite Unit Distribution Panel (UDP) (Primex P4200KND) shall be installed in each unit by the low voltage contractor. The rough-in boxes are 42" high x 14" wide x 3.5" deep and are made to mount between wall studs. The boxes shall be mounted in a closet, as shown on the InfiniSys drawings. The boxes shall be located so that they are not on a fire-rated wall, and do not interfere with planned closet poles or shelving.

The boxes must be firmly mounted so that they will be flush with the outer finished surface of the surrounding wall, with 1.5" minimum clearance all around for the door.

The panel shall contain one Primex 8-port Network Interface Module.

For video service, the service provider shall provide and install the video splitters required.

A. Electrical Requirements

The Electrical Contractor must install a box with an AC surge protected duplex outlet such as the Pass & Seymour 5262-WSP in the bottom of each UDP, as shown on the InfiniSys drawing set.

1.3 CLUBHOUSE BUILDING COMMUNICATIONS GATEWAY

The Clubhouse IDF shall house the incoming connections for telephone, data, and video services and shall be used for the distribution of all low voltage signals in the Clubhouse.

The installing contractor is responsible for proper wire management. All cable shall be installed in the Clubhouse IDF per the accompanying drawing set.

1.4 CLUBHOUSE WIRING

The Clubhouse wiring will meet or exceed the before mentioned requirements for inside and home-run wiring.

There are multiple types of outlet configurations in the Clubhouse to distribute the Voice, Data, and Video. The low voltage contractor shall refer to supplied drawing set and bill of materials for details and locations.

1.5 ELECTROMAGNETIC INTERFERENCE

A. Appropriate Separation from EMI

All low voltage wiring and components shall have appropriate separation from sources of electromagnetic interference (EMI) such as lights, electric sub-meters, and power cables.

B. Building Communications Gateways

The IDF(s) shall be at least six feet from an electrical room or any electrical service equipment including elevator or compactor equipment. If this is not possible, the General Contractor shall install a wire lath (or foil-backed plywood) wall grounded to the building multi-point ground the between IDF and the electrical equipment.

C. Low voltage Wiring

Where low voltage wiring is close to electrical equipment, it should be protected by grounded metallic conduit.

PART 2: PRODUCTS

Not Used

PART 3: EXECUTION

3.1 BUILDING ROUGH-IN

For Comcast video/data service, Comcast shall provide and the low voltage contractor shall install one riser-rated RG-6 quad shield cable from the UDP to the specified IDF.

For NexGen video/data service, the low voltage contractor shall provide and install one riser-rated RG-6 quad shield cable and one riser-rated Cat-6 cable from the UDP to the specified IDF.

3.2 UNIT ROUGH-IN

There are multiple types of outlet configurations in each unit. The low voltage contractor shall refer to supplied drawing set for details and locations.

The low voltage contractor shall install one single quad shielded Series 6 cable for video from the UDP in each unit to each Multimedia Outlet with a video port.

The low voltage contractor shall install one single 4-pair Category 6 cable for data from the UDP in each unit to each Multimedia Outlet with a data port.

After installing the rough-in box, cabling shall be run from each outlet to the box, as shown on the drawings. Data cables shall run down the left side of the box, and video cables shall run down the right side of the box. If necessary, the cabling from the IDF may enter the bottom left side of the box, staying clear of the AC connection.

3.3 UNIT TRIM-OUT

There are multiple types of outlet configurations in the units to distribute the Data and Video. The low voltage contractor shall refer to supplied drawing set and bill of materials for details and locations.

3.4 CLUBHOUSE AREA VIDEO

The video circuit terminations for all video outlets shall be located in the Clubhouse IDF.

The low voltage contractor shall install one single Quad-shield RG-6 cable from the video backboard to each wallplate with a single cable port. Additional cabling may be installed to each outlet for data and telephone.

Video cabling shall be terminated and tested by the video service provider.

3.5 CLUBHOUSE DATA

The data circuit terminations for all data outlets shall be located in the Clubhouse IDF.

The low voltage contractor shall install a 7' two-post 19" rack in the MDF for all resident and management data terminations. The NVR and camera terminations shall also be placed in this rack. All data circuit terminations for all management information systems shall be terminated on 110 modular jack panels (Hubbell P6E24U for Cat-6 or equivalent) and labeled accordingly.

The low voltage contractor shall terminate all data circuits for the Business Center and any other *resident-accessible* data ports on separate 24-port 110 modular jack panels (Hubbell P6E24U for Cat-6 or equivalent).

The low voltage contractor shall install a single 4-pair Category 6 cable from the modular jack panels to each wallplate with a single data port. Additional cabling may be installed to the same outlet for data and video.

3.6 CLUBHOUSE WIRELESS DATA

The chosen data service provider shall install wireless access points for both the resident accessible network as well as the management accessible network throughout the Clubhouse per the accompanying drawing set. The access points are required to be the latest 802.11 standard and support multiple SSIDs.

The access points shall be ceiling mounted per the accompanying drawing set. Access Points that are in outdoor locations shall use either a hardened access point or a Hyperlink Technologies Nema Enclosure or equivalent as per the accompanying drawing set. Multiple access points for the resident accessible network shall be hard-wired back to the resident accessible network patch panel.

The low voltage contractor is responsible for installing and terminating a single Cat-6 cable to each wireless access point location.

3.7 SAFETY AND ACCESS SYSTEMS

Per the accompanying drawing set, the low voltage contractor shall install a single 4-pair Category 6 or Quad-shield RG-6 cable from the specified IDF to various locations throughout the site as needed for access, safety, or emergency equipment.

3.9 TESTING

A. Data Cable Testing

All Data cabling shall be tested and certified after installation, using a Fluke DTX CableAnalyzer™ or approved equivalent network cable tester.

All cables must be tested for proper wiremapping, opens, shorts, crossed and split pairs, and maximum cable length, as well as proper location and identification. Simple continuity testing is not an acceptable alternative, except during pre-wiring.

B. Video Cable Testing

All Video cabling shall be tested after installation by the Video Low voltage contractor, using a Progressive Electronics (Greenlee) Model 402K CATV Test Kit or InfiniSys-approved equivalent CATV tester (about \$140.00 MSRP). All cables must be tested from the video splitters in the UDP to the video jacks on each outlet. See InfiniSys Test Procedures drawings for detailed testing requirements.

All cabling between the UDPs and the video distribution enclosures in the IDF(s) shall be toned, tested, and clearly labeled.

C. Fiber Testing

Multimode Fiber should be tested using an OptiFiber® Pro OTDR or comparable equipment at 850nm and 1300nm in both directions. The cable attenuation should be 3.5dB/km at 850nm and 1.5dB/km at 1300nm.

Single-mode Fiber should be tested using an OptiFiber® Pro OTDR or comparable equipment at 1310nm and 1550nm in both directions. The cable attenuation should be no more than .5dB/km at both 1310nm and 1550nm for inside plant and outside plant.

There should be no more than .25dB loss per connector and no more than .02dB loss per fusion splice.

D. Test Documentation Requirements

Every outlet and every cable in every unit must be tested in accordance with the above procedures. The Low voltage contractor performing these tests shall provide written and signed documentation certifying acceptable test results. Separate comparable documentation shall be provided for each IDF. The low voltage contractor shall provide three sets of all testing

documentation to the general contractor. The low voltage contractor shall re-test and certify any units at no charge, if signed form and documentation is not provided as above.

END OF SECTION