## PART 1 GENERAL

## 1.1 SUMMARY

## Provide all services, labor, materials, tools, and equipment required for the complete and proper installation of communication conduits, backboxes, and hardware as called for in these specifications and related drawings. The communication, conduits, backboxes, and hardware (called technology rough-in) will be installed by the electrical contractor.

## Backboxes are defined as the communications metallic box (single gang, double gang, 4 square, handy-box, or device box) with appropriate cover that is mounted in the wall and the conduit is attached for cabling. The backbox is used to mount the Communication Location (CL) and voice/data jacks.

## 1.2 SYSTEM DESCRIPTION

## Provide adequate pathways, for the distribution of communication wiring, “homerunning” the cabling from the Telecommunications Room (TR) to the Communication Location (CL), without “daisy-chaining” boxes together.

## The conduit and backboxes must support the cabling manufacturer’s requirements for conduit fill ratios and cabling bend radiuses.

## The pathways shall be sized according to the number of cables served using 40% fill ratio.

## Pathways may consist of horizontal conduit, vertical conduit, or cable trays.

## Pathways will be designed with cable trays from the TR through major access areas of the building. Then individual conduits will be installed from within 3 feet of the cable tray to each CL backbox.

## Pathways including raceways, conduit sleeves, and conduit nipples shall be provided as applicable through floors, ceilings, and walls for wireless access point (WAP) communication cabling. Such pathways shall be installed to maintain the fire rating of the given surface being penetrated.

## Conduit shall be provided for WAP communication cabling above new hard ceiling surfaces to the WAP equipment outlet (EO) locations. No j-hooks systems or cable tray systems shall be provided as the pathways for communication cables above hard ceilings. Where an existing hard ceiling exists and is to remain, conduit shall be provided surface mounted to the ceiling.

## Conduit sizing for communication cabling is represented in the following table:

|  |
| --- |
| 1. **CONDUIT SIZING**
 |
| 1. No. of Cables
 | 1. 1
 | 1. 5
 | 1. 8
 | 1. 14
 | 1. 18
 | 1. 26
 | 1. 40
 | 1. 60
 |
| 1. Conduit Size
 | 1. ½”
 | 1. ¾”
 | 1. 1”
 | 1. 1¼”
 | 1. 1½”
 | 1. 2”
 | 1. 2½”
 | 1. 3”
 |

##  I. Elevators

1. Elevator outlets shall be installed in metal boxes and grounded in accordance with code requirements.

2. The elevator CL shall be located inside the elevator equipment room but outside the elevator panel for testing purposes. There will be a conduit installed from the elevator CL to the elevator panel.

##  J. Energy management and control systems

##  1. CLs in mechanical rooms for automated building systems shall be run in EMT conduit from the closet cable tray to a CL located next to the automated building system panel.

## 1.3 SUBMITTALS

## Product Data: Submit manufacturers’ product information for backboxes and supports.

1.4 QUALITY ASSURANCE

1. Comply with section 270000.

## Comply with section 260000 (Electrical).

## 1.5 DELIVERY, STORAGE, AND HANDLING

## Comply with section 270000.

## Comply with section 260000 (Electrical).

## PART 2 – PRODUCTS

## 2.1 MANUFACTURERS

## Conduits: Comply with Division 26 – Electrical.

## Backboxes: Comply with drawings for size of backboxes.

## 2.2 MATERIALS AND FABRICATION

## Comply with section 260000 (Electrical).

## PART 3 – EXECUTION

## 3.1 EXAMINATION

1. Comply with section 260000 (Electrical).

3.2 INSTALLATION

1. Comply with section 260000 (Electrical).
2. When installing exposed conduit that is attached to walls or ceilings, ensure that the conduit runs perpendicular to the walls or ceilings. Angular or large conduit sweeping installations will not be acceptable.
3. When installing conduits, terminate the free ends of the conduits with bushings to ensure that communication cabling is not stripped by the sharp edges of the cut conduit.
4. Install no more than the equivalent of two 90-degree bends between CLs and cable trays.
5. Provide pull line in empty conduits and surface raceway.

3.3 ADJUSTMENTS

1. Comply with section 260000 (Electrical).

END OF SECTION 270529.33