

RFP C000522-PR – NETWORK CABLING SERVICES PERIODIC RECRUITMENT  
Exhibit B

Additional Standards for Work Performed

**Conduit /Cable Trays/ Firestopping**

1. New construction outlets consist of one (1) 4-11/16" square by 2-1/8" deep flush mounted box.
2. Each outlet box shall have a EMT conduit stubbed above the drop ceiling or extended into the hallway cable tray. Conduits' sizes are as follows:  
For Outlets with 3 or less cables, use a 1" EMT conduit  
For Outlets with 3-6 cables, use a 1.25" EMT conduit
3. For all other sizes, calculate fill ratio at 40% for proper sized conduit
4. Existing surface-mounted construction typically consists of surface-mounted raceway including base, cover, end fitting, entrance end fitting, and (2) 1" EMT conduits stubbed out top of entrance end fitting to above ceiling or out to nearest hallway distribution system. Size of the raceway is site dependent based on number of conductors to be installed.
5. Where ceilings are accessible, the raceway and entrance end fitting shall extend above the ceiling and the conduits installed above the ceiling in the room to the nearest hallway distribution system.
6. Where ceilings are partially accessible, or if the drawings and/or specifications indicate installation of access panels, the raceway shall extend above the ceiling and the conduits installed above the ceiling in the room to the nearest hallway distribution system.
7. Where ceilings are inaccessible or no ceilings exist, the raceway shall extend up as close to the ceiling as practical to allow installation of conduits as high as possible to the nearest hallway distribution system.
8. Provide conduits secured to wall above corridor ceilings as shown on the drawings or as specified herein for installation of telecommunications cables.
9. Corridor conduits shall be 4" EMT, furnished in 10-foot lengths wherever possible, with no sharp edges, reamed as necessary, evenly supported at two locations per 10-foot section spacing. Conduits shall be sized and quantified to account for handling cables in all conduits at 40%. Verify size prior to installation. Bushings and/or connectors on ends of EMT are required.
10. All conduits shall be installed stacked and attached to walls unless conditions exist which prohibit this type of installation. When this condition exists, mount conduits side-by-side supported with 3/8" rod attached to building structure utilizing UNISTRUT channel to form a trapeze. Double nut the top and bottom at the UNISTRUT. Utilize conduit clamp to secure conduits to UNISTRUT.
11. Grounding of conduits is not required per NEC #250-33, Exception, shall be painted conduit above suspended ceilings or in mechanical, electrical or telecommunication rooms. Color to match that of surface installed upon or as directed by NYS ITS Representative. Coordinate with other trades prior to painting.
12. Complete wall mounted or suspended aluminum cable tray system and necessary accessories shall be provided as shown on plans. Install entire cable tray system in accordance with manufacturer's minimum installation practices and all local governing codes.
13. Coordinate installation of cable tray with other trades to allow a minimum of 12" above, 12" in front, and 12" below of clearance from piping, conduits, ductwork, etc. Allowance must be provided for access to the tray with reasonable room to work. Obstructions to the tray must be minimized and cannot block more than 6 feet of the tray at any point in the run.

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14. Cable tray shall not be loaded beyond 60% of manufacturer's recommended load capacity.
15. Install cable tray dropouts where large quantities of cables exit the distribution system.
16. Cable tray must be sized to facilitate sufficient growth capacity for migration cable plant to coexist in same tray as existing cable plant, wherever possible.
17. Cable tray shall be a minimum width of 2" high x 12" wide. Cable tray may be sized upwards if fill ratio requirements need to be met based on cable quantities.
18. All open pathway/trays shall be installed a minimum of (12) inches away from any light fixture or other source of EMI (Electromagnetic Interference).
19. All pathways shall be grounded per NEC Article 250.
20. Provide external grounding strap at expansion joints, sleeves, and crossover and at other locations where pathway/tray continuity is interrupted.
21. Support all pathways from building construction. Do not support pathways from ductwork, piping, or equipment hangers
22. Install cable tray level and straight unless noted on the construction drawings
23. Station conduit is defined as conduit that rises within the walls or is exposed from a raceway and extends up into the drop ceiling or over to the hallway distribution system.
24. Provide station conduits above the drop ceiling or extend over to the hallway distribution systems consisting of 1" EMT minimum or appropriate size as shown on the drawings or as specified for installation of telecommunications cables.
25. Provide an insulating press fit bushing on all telecommunications conduits including interconnecting nipples and stub to distribution system. To prevent conflicts with other cables or conduits to cable tray, the conduit shall be stubbed not less than 6" above or below conduit/cable tray center line. Where space permits, every effort shall be made to bend station conduits down such that the flow of installed cables promotes the minimum length back to the TR and the least amount of bends in the cables. Bushings must be rated to be used in an environmental air handling space (Plenum).
26. The use of 90 degree electrical pulling elbows is prohibited.
27. Do not include more than two 90-degree bends between pulling points when installing station conduit runs. If the path of the station conduits requires more than 180 degrees of total bends, installation of an appropriate-sized junction box is required. See section 2.4 for junction box requirements.
28. Place an appropriate-sized junction box in each individual station conduit run that exceeds 100 feet in length.
29. The use of a third bend in a conduit is only acceptable if:
  - i. The total conduit run is reduced by 15%.
  - ii. The conduit size is increased to the next trade size.
  - iii. One of the bends is located within 12" of the cable feed end.
30. If the station conduit route exceeds the 180 degree of total bends limitation, an appropriate-sized junction box is required within a straight section of the conduit run.

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31. Each station conduit run requires a separate junction box. The sharing of a junction box by multiple conduits is prohibited.
32. A junction box shall not be used in place of a bend. All junction boxes in station conduit paths shall be installed within a straight section of the conduit run.

**Fire stopping**

33. In all buildings, floor/ceiling assemblies, stairs, and elevator penetrations must be sealed with a 2-hour firestop assembly at a minimum, unless otherwise noted.
34. Communication pathways requiring fire stopping shall utilize removable/re-usable fire stopping putties for ease of Moves, Adds, and Changes.
35. All fire stopping penetrations shall conform to the recommended practices listed in UL1479 or ASTM.