**BELL SYSTEM PRACTICES**
**Outside Plant Construction and Maintenance**

**SECTION G32.114.1**
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**AT&T Co Standard**

# DROP AND BLOCK WIRING

## METHODS OF MAKING ATTACHMENTS TO BUILDINGS

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## 1. GENERAL

1.01 This section covers methods of making drop and block wire attachments to various types of building surfaces. This section and the two related Sections G32.114.2 and G32.114.3 replace Section G32.115, Issue 3.

1.02 In order to obtain secure attachments and to avoid damage to building surfaces it is essential that the specific instructions covered in this section of the practices for each type of surface be followed. Of particular importance are the clearance and lead holes for wall fasteners and fixtures as means for preventing wall damage.

## 2. METHODS OF MAKING ATTACHMENTS TO BUILDING SURFACES

### Masonry or Substantial Brick Veneer

2.01 In general, the same methods apply in making attachments to masonry and substantial brick veneer. Veneering may be considered substantial where its thickness is at least 3-3/4 inches (as observed at an outside corner), the bricks are joined firmly by the mortar and indications are that no trouble will result from making attachments in the manner specified for masonry. If there is any question as to whether the veneering is substantial, follow the methods specified in Paragraph 2.02 for thin-wall brick veneer. On masonry and substantial brick veneer, drill holes for all attachments as close to the center of bricks as practicable and exercise care to avoid damaging and loosening the bricks. In the case of face brick or ornamental types of brick, holes for intermediate and last attachments may be drilled in the seam to avoid breakage, if secure attachments can be obtained.

### Thin-Wall Brick Veneer

2.02 Thin-wall brick veneer is considered as veneering having a thickness of less than 3-3/4 inches (as observed at an outside corner) or veneering having bricks that loosen or crack easily when drilled. On such surfaces, make the first attachment on substantial wood trim, where practicable. Where suitable woodwork is not available, make the first attachment on the brick veneer surface by drilling a clearance hole in the seam to permit a wood screw to be passed through the brick portion of wall and screwed into the sheathing, wood backing or studding. The length of wood screw selected should provide a penetration of at least one inch into the wood backing or preferably the studding. A greater penetration, however, is desirable if conditions permit using a longer screw. For intermediate and last attachments, drill holes in center of brick if secure attachment can be obtained and no cracking or loosening of bricks will result. Otherwise, make intermediate and last attachments on wood trim or in the seams, if secure attachments can be obtained. On slab type of veneering (approx. 1 inch thick), it will usually be necessary to secure intermediate and last attachments to the wood backing in the manner specified above for the first attachment.

### Stucco on Wood

2.03 On stucco on wood buildings, attach to substantial wood trim where practicable. Where required to install fixtures on stucco finished walls, drill a clearance hole for wood screw or screw-type fixture preferably by means of an in-

stallers drill in a ratchet brace as specified in Paragraph 2.09 or with an L Masonry Drill, using care to avoid cracking the stucco. Locate screws in studding where practicable.

**Woodwork**

2.04 On woodwork, drill lead holes for fasteners and screw-type fixtures as specified in Paragraph 2.09 to avoid splitting the wood and to obtain maximum holding power. Locate fasteners in studding where practicable.

**Rigid Composition Shingles**

2.05 **General:** On buildings finished with rigid composition shingles, make attachments to substantial wood trim where practicable. If suitable woodwork is not available, locate attachments on the shingles as outlined in Paragraphs 2.06 to 2.08 and provide clearance holes through the shingles for the wood screws or screw-type fixtures as specified in Paragraph 2.09.

2.06 **Precautions:** Because of the brittleness of rigid composition shingles, the following precautions shall be observed:

(a) Place ladder lightly against the shingles, preferably at points where the shingles overlap. Where it is felt that additional precaution is necessary, secure a board across the top of the ladder as outlined in Section G83.620.2.

(b) Use only well sharpened drills.

(c) Never employ drills which require the use of a hammer.

(d) Do not apply excessive pressure to the brace when drilling clearance holes through the shingles.

(e) Wood screws should not be tightened excessively as the pressure on the shingle might cause it to break.

2.07 **Locating Clearance Holes:** In general, wood screws are required in making attachments through composition shingles. Where one screw is required to attach the drop wire fixture, locate the clearance hole through the shingles, as follows:

(a) **Rectangular Shaped Shingles Installed with the Long Dimension Horizontal:** Locate the hole midway between the vertical edges of the shingle and approximately 3/4 inch above the bottom edge.

(b) **Rectangular Shaped Shingles Installed with the Long Dimension Vertical:** Locate the hole at the midpoint of the visible shingle height and approximately 3/4 inch from either vertical edge.

(c) **Shingles Installed in Diamond Formation:** Locate the hole near a nail hole and approximately 3/4 inch from either exposed edge of the shingle.

2.08 Where more than one wood screw is required to attach the drop wire fixture, observe Paragraph 2.07 and the following points in locating the clearance holes through the composition shingles:

(a) **House Bracket:** The distance between the edge of the shingle and the nearest hole in the bracket should be approximately 3/4 inch.

(b) **S or L Corner Bracket:** The bracket should be located so as to bear evenly on the shingles with the hole nearer the porcelain knob located approximately 3/4 inch from the edge of the shingle.

(c) **W Leader Bracket:** The bracket should be located so as to bear evenly on the shingles with at least one of the holes located approximately 3/4 inch from the edge of the shingle.

**Clearance and Lead Holes**

2.09 Clearance holes for fasteners or screw-type fixtures which pass entirely through surfaces such as the seams of bricks, stucco, hollow tile and rigid composition shingles, and lead holes in wood shall be provided in accordance with the information in the following table and associated notes:

| Fastener or Fixture | Size of Clearance Hole or Drill | Size of Drill for Lead Hole |
|---|---|---|
| 3/16 inch Toggle Bolt | 1/2 inch or 5/8 inch. | — |
| 1/4 inch Toggle Bolt | 5/8 inch or 3/4 inch. | — |
| 5/16 inch Toggle Bolt | 5/8 inch or 7/8 inch. | — |
| S and L Insulated Screw Eyes | 3/16 inch x 5-1/2 inch Installers Drill or No. 12 or 3/16 inch Carbon Steel Twist Drill. | 3/32 inch Drill Point or No. 42 or 3/32 inch Carbon Steel Twist Drill. |
| A and C Bridle Rings | — | 1/8 inch Drill Point or No. 30 or 1/8 inch Carbon Steel Twist Drill. |
| E Bridle Ring | | 3/32 inch Drill Point or No. 42 or 3/32 inch Carbon Steel Twist Drill. |

| Fastener or Fixture | Size of Clearance Hole or Drill | Size of Drill for Lead Hole |
|---|---|---|
| 5/8 inch and 7/8 inch Drive Rings | — | 3/32 inch Drill Point or No. 42 or 3/32 inch Carbon Steel Twist Drill. Do not drill lead hole in poles. |
| 1-1/4 inch Drive Ring | — | 11/64 inch Drill Point |
| 5/16 inch Angle Screw | 5/16 inch x 7-1/2 inch Installers Drill or 5/16 Inch Carbon Steel Twist Drill. | 11/64 inch Drill Point or No. 18 or 11/64 inch Carbon Steel Twist Drill. |
| 3/8 inch Angle Screw | 3/8 inch x 8 inch Installers Drill or 3/8 inch Carbon Steel Twist Drill. | 1/4 inch x 6-1/2 inch Installers Drill or 1/4 inch Carbon Steel Twist Drill. |
| No. 10 Wood Screw | 3/16 inch x 5-1/2 inch Installers Drill or No. 12 or 3/16 inch Carbon Steel Twist Drill. | 3/32 inch Drill Point or No. 42 or 3/32 inch Carbon Steel Twist Drill. |
| No. 14 Wood Screw | 1/4 inch x 6-1/2 inch Installers Drill or 1/4 inch Carbon Steel Twist Drill. | 1/8 inch Drill Point or No. 30 or 1/8 inch Carbon Steel Twist Drill. |
| No. 18 Wood Screw | 5/16 inch x 7-1/2 inch Installers Drill or 5/16 inch Carbon Steel Twist Drill. | 11/64 inch Drill Point or No. 18 or 11/64 inch Carbon Steel Twist Drill. |

Notes:
1. Installers Drills are bit stock twist drills and are used in the ratchet brace.
2. Carbon Steel Twist Drills are straight shank drills and are used in the Hand Drill.
3. Drill Points are used in the Automatic Drill and will drill lead holes approximately 1-1/2 inches deep. Where deeper holes are required use Twist Drills in the Hand Drill.
4. Use L Masonry Drills for drilling the seam between bricks.

5. Use L Masonry Drills or Star Faced Stone Drills in drilling holes for Toggle Bolts. Two sizes of holes are listed to cover the different types of approved Toggle Bolts. Drill the smaller hole if it will accommodate the Toggle Bolt.
6. Apply paraffin, wax or soap to the threads of wood screws or screw-type fixtures to facilitate turning them into wood.

## 3. LOCATING STUDS IN WOOD FRAME BUILDINGS

3.01 Studs in buildings of wood frame construction may usually be located by one of the following methods:

Buildings Finished with Clapboards.

(a) By location of heads of nails used in fastening clapboards to studding.

Buildings Finished with Shingles or Stucco.

(b) By sounding.

(c) By locating studs in cellar or attic.

(d) By location of heads of nails used in fastening trim to studding.