

**CABLE AND SUPPORT TIES
DESCRIPTION AND USE**

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GENERAL

Purpose This practice describes the methods to **use when** applying cable ties.

GENERAL, continued

| | |
|---|---|
| Use | Use cable ties to contain wires and secure cables. |
| IF.. | THEN.. |
| Containing loose wires and wire bundles | Contain wires loosely without forming an indentation in the wire form. NOTE: Do not use ties to contain jumpers on double-sided distributing frames as this impedes jumper pulling to trace and/or make regrades more difficult. Also, cross talk/induction is greatly reduced. |
| Securing cables | Secure cable ties firmly around the cable(s) with caution not to damage the cable. NOTE: The tie should just begin to place an indentation in the cable sheath. |
| Securing power cables | Do not over-tighten the cable ties. Most installations will require the use of lacing cord. There are many restrictions on the use of cable ties on power cables (see GTE Practice 256-050-206 Cabling Methods - Central Office Running and Securing Power Cable). |
| Securing wire splice bundles in pedestal housing | See "Splice Bundle Usage - Pedestal Terminal Housings," on Page 8. |
| Note: Using cable ties does not preclude using lacing cord. | |
| CAUTION: Do not use long-nose pliers or diagonal cutters to tighten cable ties. These tools are not intended for tightening cable ties and using them to do so is unsafe. | |
| References | For information on central office switchboard cable securing and stitching methods, see GTE Practice 256-050-204, Cabling Methods - Central Office Securing Switchboard Cable. Central office power cable running and securing methods are covered in GTE Practice 256-050-206 Cabling Methods - Central Office Running and Securing Power Cable. For information on OSP plastic cable support ties, refer to Telops Practices 627-201-200, Aerial Cable - Cable Supports and Spacers Description and Installation; 627-201-201, Installation Locating Supports and Spacers; and 627-201-203, Installation Locating Supports and Spacers at Load Cases. Note: The support tie practices cannot cover every possibility for using cable ties, so use good judgment to decide the location and the quantity of cable ties. |

DESCRIPTION

Acceptable
Cable Ties

Acceptable types of cable ties are the Thomas and Betts cable ties or equivalent. The cable ties must be made of nylon and vary in length and width to correspond with different uses and locations.

Nylon cable ties are self-locking. When the tail of the cable tie has **been** run through the eye of the tie, it cannot be released. The stipple (ribbed) finish on one side of the cable tie provides firm gripping power.

PROCEDURES

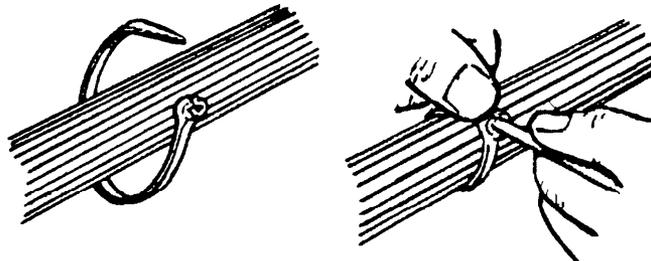
Hand Method

To install the cable tie by hand, follow the steps in the chart below:

| STEP | INSTALLING THE CABLE TIE BY HAND |
|------|----------------------------------|
|------|----------------------------------|

| | |
|---|--|
| 1 | Place the cable tie around the wire bundle with the ribbed side against the wires. |
|---|--|

| | |
|---|---|
| 2 | Draw the tail of the cable tie through the "eye." |
|---|---|



| | |
|---|--|
| 3 | Pull the tail of the cable tie by hand to: |
|---|--|

- Loosely secure a wire bundle.

OR

- Snugly secure cables.

The cable tie will lock. Do **not** tighten excessively since damage to the conductors may result.

(continued)

PROCEDURES, continued

Hand Method,
continued

| STEP | INSTALLING THE CABLE TIE BY HAND |
|------|----------------------------------|
|------|----------------------------------|

| | |
|---|---|
| 4 | Cut off the excess cable tie as close as possible to the "eye." |
|---|---|

NOTE: Dispose of cut off cable ties promptly and do not leave them on the floor until the end of shift clean-up. Nylon cable ties on waxed tile floors can cause a slipping accident.

WARNING: When the excess cable tie is cut, a sharp edge sometimes remains at the "eye," which is a safety hazard. Trim the sharp edge and rapidly touch the sharp edge of the severed end with a hot soldering iron before rotating.

| | |
|---|--|
| 5 | Rotate the cable tie on the bundle/cable so the "eye" is in an inconspicuous or out-of-the-way position. |
|---|--|

Placing
Cable Ties

Observe all precautions when applying cable ties to prevent injury to personnel and to maintain a neat appearance.

Uniformly place the cable ties and do **not overuse** ties: when adding new cables and/or wires to existing bundles, remove the old ties.

To secure cable ties, use:

- The hand method.

OR

- A tie wrap installation tool similar to the TY-RAPTM part nos. WT-2, WT-3, and WT-193 (material codes 579185, 579186, and 579187, respectively).

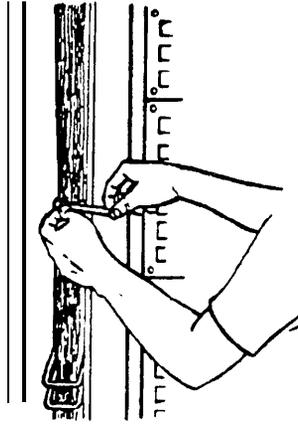
NOTE: Determine which tool to use by the ease of installation access to the cable/wire and the tension adjusting capabilities. Do **not** over-tighten.

NOTE: Wear safety glasses when placing and trimming cable ties.

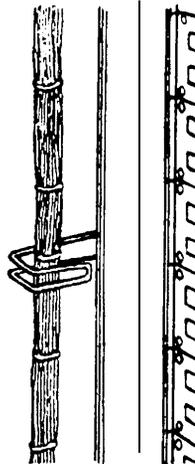
CENTRAL OFFICE APPLICATIONS

Hand Method

The hand method of applying cable ties is used with loose wires when extra tension is not necessary, but neatness is important.

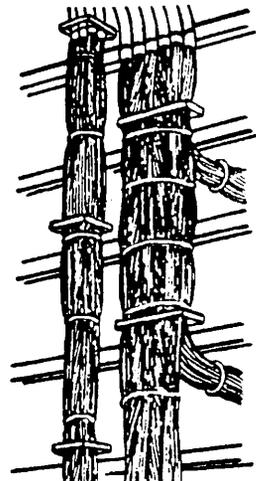


When the loose wires are wrapped with cable ties, the completed form should be neatly controlled.



Protecting Loose Wires

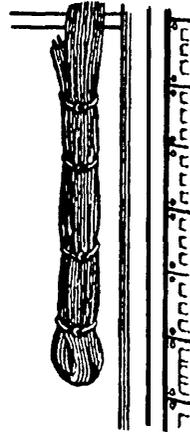
To protect loose wires when there is a large group of cables in a limited amount of space, attach cable ties to contain the wire.



CENTRAL OFFICE APPLICATIONS. continued

Preparing Cable
for Phenolic
Tubing

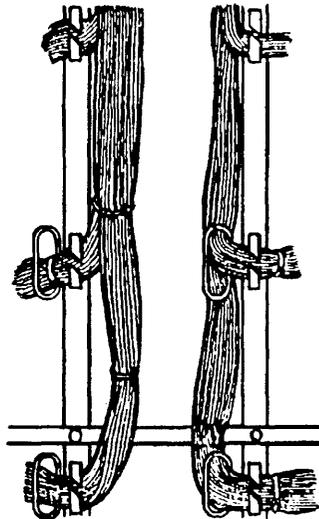
Prepare cable for phenolic tubing, described in GTE Practice 256-050 series, as shown below.



If the cable tie eye prohibits the insertion of the wire into tubing, lacing cord may be used in place of cable ties.

Frame Wires
Breaking Into
Fanning Rings

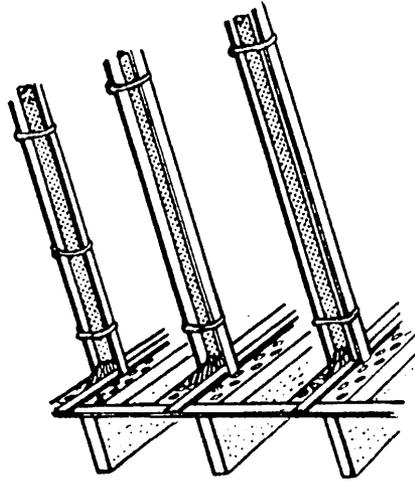
When many wires and/or permanent jumper! are breaking into fanning rings, hold them in neat form by loosely applying cable ties.



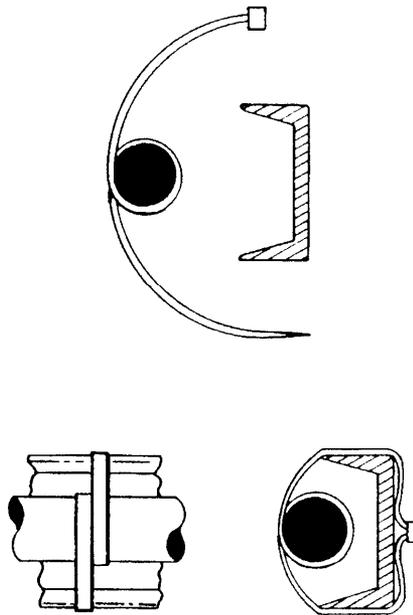
CENTRAL OFFICE APPLICATIONS, continued

Adding Cable to Distributing Frames

Cables running along the transverse bars on the distributing frame may be held by cable ties.



Smaller size cables requiring additional support to be held firmly along the transverse bars must be looped with the cable tie before being secured to the transverse bar.

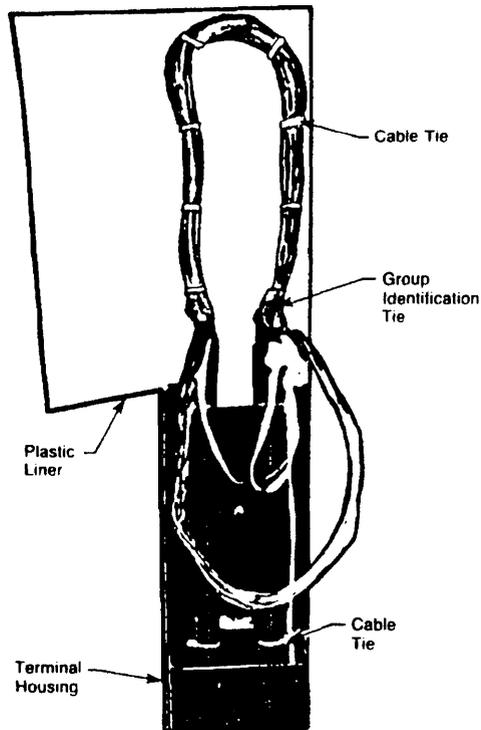


When adding additional cables to equipment and distributing frames, be consistent with the size of cable bundles secured by the cable ties. Also, when securing new cables to an existing bundle, remove the old ties when new ties are added.

OUTSIDE PLANT (OSP) APPLICATIONS

Splice Bundle
Usage - Pedestal
Terminal
Housings

White nylon cable ties are used to secure wire splice bundles in pedestal terminal housings for appearance and to prevent damage to conductors when securing the pedestal covers or side panels.



Most pedestal housings contain cable tie holders that are attached to the back panel and facilitate the installation of ties. (Refer to the Telops Practice 632-610 series for cable tie installation procedures).

CAUTION: Never use tools to tighten cable ties or damage to the conductors could occur. Place hand-tight only.

Group
Identification
Usage - Color-
Code Splices

All color-coded 25-pair cable groups must maintain a color code identity. Four-inch colored cable ties (ten standard colors) are the appropriate ties for group identification.

Group identification ties are placed around a 25-pair group as close to the cable butt as possible using the same colored ties as the group binder colors. The ties must be placed on the group prior to removing the binders so as not to lose appropriate identification (e.g., blue/white binders are replaced with a blue and white tie).

Note: For cables that are 100 pairs or fewer in size, only one tie per group is required as shown below:

- Group 1 - Blue tie.
- Group 2 - Orange tie.
- Group 3 - Green tie.

CAUTION: Do **not use** tools to tighten group identification ties; low insulation between conductors may occur.

OUTSIDE PLANT (OSP) APPLICATIONS. continued

Support Tie/
Cable Strap
Usage (Placing/
Splicing)

Cable straps are used to support cable and cable closures to the aerial messenger.

Cable straps (13.5 by 27 inches) are normally used to support aerial splice closures and cable to the aerial messenger. Supports and spacers are placed as described in Telops Practices 627-201-200, 627-201-201, and 627-201-203.

The cable straps are designed for lashing OSP cable and are more expensive than standard tie wraps. These cable straps can be used where a heavy duty tie wrap would normally be used, except for securing cable to the cable rack. The cable strap head is larger than that of a tie wrap and will interfere with the placement of cables.

NOTE: Usage in the central office **must** be restricted because of its design and cost. Try to use standard tie wraps where possible, or for temporary securing, the web strap with buckle (material code 587390).

The following chart lists GTE standard cable sizes and usage requirements for cable placing and splicing:

| ITEM | LENGTH (INCHES) | USAGE | PART NUMBER | MATERIAL CODE |
|------------------------------|--------------------|----------------------------------|-------------------|------------------|
| Cable Tie (10 Colors) | 4 | Group Identification | Various | Various |
| Cable Tie (Natural Color) | 7 | Splice Bundling | Various | Various |
| Cable Tie (Natural Color) | 14 | Splice Bundling | Various | Various |
| Cable Tie (Orange) | 7.3 | Cable Bundling and Support | TY525M-3 (100/PK) | 763535 |
| Cable Tie (Orange) | 8 | Cable Bundling and Support | TY523M-3 (100/PK) | 763534 |
| Cable Tie (Orange) | 14 | Cable Bundling and Support | TY528M-3 (100/PK) | 763536 |
| Cable Strap | 13.5 | Aerial Cable supports | CSS135 | 528560 |
| Cable Strap | 27 | Aerial Cable support | CSS270 | 528561 |
| Web Strap | Various | Various | R-2849 | 587390 |

