



**WEAVER GENERAL CONSTRUCTION COMPANY**

3679 S. Huron St., Suite 404

Englewood, CO 80110

Phone: (303) 789-4111 FAX: (303) 789-4310

**SUBMITTAL TRANSMITTAL**

October 25, 2011

**WGC Submittal No: 13100-001**

**PROJECT:** Harold Thompson Regional WRF  
Birdsall Rd.  
Fountain, CO 80817  
Job No. 2908

**ENGINEER:** GMS, Inc.  
611 No. Weber St., #300  
Colorado Springs, CO 80903  
719-475-2935 Roger Sams

**OWNER:** Lower Fountain Metropolitan  
Sewage Disposal District  
901 S. Santa Fe Ave.  
Fountain, CO 80817  
719-382-5303 James Heckman

**CONTRACTOR:** McDade Woodcock, Inc.  
7222 Commerce Center Drive, #245  
Colorado Springs, CO 80909  
719-264-1236

**SUBJECT:** Lightning Protection

**SPEC SECTION:** 13100

**PREVIOUS SUBMISSION DATES:**

**DEVIATIONS FROM SPEC:** \_\_\_ YES  X  NO

**CONTRACTOR'S STAMP:** This submittal has been reviewed by Weaver General Construction and approved with respect to the means, methods, techniques, & safety precautions & programs incidental thereto. Weaver General Construction also warrants that this submittal complies with contracted documents and comprises on deviations thereto:

|  |                                 |
|--|---------------------------------|
| <p><b>Contractor's Stamp:</b></p> <p>Date: 10/25/11<br/> Reviewed by: H.C. Myers<br/> ( X ) Reviewed Without Comments<br/> ( ) Reviewed With Comments</p> <p><b>ENGINEER'S COMMENTS:</b> _____</p> | <p><b>Engineer's Stamp:</b></p> |
|--|---------------------------------|

# McDade-Woodcock, Inc.

TRANSMITTAL  
No. 00003

7222 Commerce Center Dr. Suite 245  
Colorado Springs, CO 80919

Phone: 719-264-1236  
Fax: 719-264-1450

**PROJECT:** Harold D. Thompson WRF

**DATE:** 10/17/2011

**TO:** Weaver General Construction

**REF:** Electrical Submittal  
13100-001  
Lightning Protection

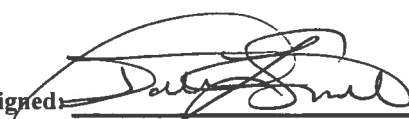
**ATTN:** Wes Weaver

| WE ARE SENDING:                                   | SUBMITTED FOR:   | ACTION TAKEN:  |
|---|--|--|
| <input checked="" type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval           | <input type="checkbox"/> Approved as Submitted           |
| <input type="checkbox"/> Letter                   | <input type="checkbox"/> Your Use                      | <input type="checkbox"/> Approved as Noted               |
| <input type="checkbox"/> Prints                   | <input type="checkbox"/> As Requested                  | <input type="checkbox"/> Returned After Loan             |
| <input type="checkbox"/> Change Order             | <input checked="" type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit                        |
| <input type="checkbox"/> Plans                    |  | <input checked="" type="checkbox"/> Submit               |
| <input type="checkbox"/> Samples                  | <b>SENT VIA:</b>                                       | <input type="checkbox"/> Returned                        |
| <input type="checkbox"/> Specifications           | <input checked="" type="checkbox"/> Attached           | <input type="checkbox"/> Returned for Corrections        |
| <input type="checkbox"/> Other:                   | <input type="checkbox"/> Separate Cover Via            | <input checked="" type="checkbox"/> Due Date: 11/11/2011 |

| ITEM | PACKAGE | SUBMITTAL | DRAWING | REV. | ITEM NO. | COPIES | DATE       | DESCRIPTION   | STATUS |
|------|---------|-----------|---------|------|----------|--------|------------|---|--------|
|      |         |           |         |      | 001      | 1      | 10/17/2011 | Electrical Submittal<br>13100-001<br>Lightning Protection | OUT    |

**Remarks:** Electrical Submittal for Review and Approval  
Via Email Only  
(Please advise if CD or Hard Copies are needed)

CC:

Signed:   
Janelle L. Smith



McDADE-WOODCOCK, INC.

**HAROLD D. THOMPSON RWRF**  
**HEADWORKS BUILDING**

**McDADE-WOODCOCK INC.**  
**PROJECT NUMBER - 1402**

**ELECTRICAL SUBMITTAL**

**LIGHTNING PROTECTION**

**13100-001**

**CORPORATE**

2404 Claremont Ave. NE  
Albuquerque, NM 87107

Mailing Address  
P.O. Box 11592  
Albuquerque, NM 87192

Ph 505-884-0155  
Fax 505-884-6073

**DENVER**

10700 E. Geddes Avenue  
Suite 170  
Englewood CO 80112

Ph 303-803-1809  
Fax 303-803-1818

**COLORADO SPRINGS**

7222 Commerce Center Drive  
Suite 245  
Colorado Springs, CO 80919

Mailing Address  
P.O. Box 7349  
Colorado Springs, CO 80933

Ph 719-264-1236  
Fax 719-264-1450

**Owner:**

**Lower Fountain Metropolitan  
Sewage District  
901 S. Santa Fe Avenue  
Fountain, CO 80817**

**General Contractor:**

**Weaver General Construction Co.  
3679 S. Huron St. – Suite 404  
Englewood, CO 80110**

**Electrical Contractor:**

**McDade-Woodcock, Inc.  
7222 Commerce Center Dr.  
#245  
Colorado Springs, CO 80919**

**Engineer:**

**GMS Inc.  
611 N. Weber St., Suite 300  
Colorado Springs, CO 80903**



McDADE-WOODCOCK, INC.

**HAROLD D. THOMPSON RWRF**  
**HEADWORKS BUILDING**

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**TABLE OF CONTENTS**

**TAB 1: Technical Data**

**CORPORATE**

2404 Claremont Ave. NE  
Albuquerque, NM 87107

Mailing Address  
P.O. Box 11592  
Albuquerque, NM 87192

Ph 505-884-0155  
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10700 E. Geddes Avenue  
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P.O. Box 7349  
Colorado Springs, CO 80933

Ph 719-264-1236  
Fax 719-264-1450





3788 INTERPARK DRIVE  
COLORADO SPRINGS, CO 80907  
(719) 488-2315 • (303) 762-0282  
FAX: (719) 488-3612  
WWW.MRLIGHTNING.COM  
EMAIL: INFO@MRLIGHTNING.COM

## PROJECT

*HEADWORKS BUILDING  
HAROLD D. THOMPSON RWRF  
FOUNTAIN, COLORADO*

## SUBMITTAL

*SPECIFICATION SECTION 13100  
"LIGHTNING PROTECTION"*

## CONTRACTOR

*MCDADE WOODCOCK  
7222 COMMERCE CENTER DRIVE, #245  
COLORADO SPRINGS, CO 80919  
(719) 264-1236  
ATTN: PATRICK DANENBERG*

## LIGHTNING PROTECTION CONTRACTOR

*MR. LIGHTNING  
3788 INTERPARK DRIVE  
COLORADO SPRINGS, CO 80907  
(719) 488-2315  
ATTN: ALLEN SCOTT COREY*

STANDARD OF EXCELLENCE



## Certification of Lightning Protection Equipment Conformance

East Coast Lightning Equipment, Inc. has been listed with Underwriters Laboratories (UL) as a manufacturer of lightning protection equipment, including lightning conductors, air terminals and fittings since January of 1984. All of the products we sell comply with UL requirements. All products are designed for incorporation into UL Master Labeled lightning protection installations. Our file number with UL is E93753. Our Manufacturer listing mark is 50MO.

East Coast Lightning Equipment, Inc. is a Manufacturer Member of the Lightning Protection Institute (LPI). We are represented on their Board of Directors. We have on staff a certified LPI Master Installer and Systems Designer. All of our products comply with LPI's materials requirements.

Similarly, our products comply with the lightning protection requirements of the National Fire Protection Association as established by NFPA Standard 780.

Through our seats on the Underwriters Laboratory's Industrial Advisory Committee for Lightning Protection and the NFPA's Technical Committee for Lightning Protection Systems we maintain compliance with current code requirements.

## Certification of Warranty

East Coast Lightning Equipment, Inc. warrants that our components meet product testing and inspection for quality of workmanship prior to being shipped from our facility. Our components are guaranteed against defects in material and/or workmanship for one year.

Our lightning protection equipment, including lightning conductors, air terminals and fittings are inspected by UL quarterly. Thus assuring compliance with the most current material requirements of the Underwriters Laboratory's (UL), the Lightning Protection Institute (LPI), and the National Fire Protection Association (NFPA).



**Get grounded.**

**EAST COAST LIGHTNING EQUIPMENT**

7.4 Lightning conductors subject to mechanical damage or displacement shall be protected with molding or tubing. Metal pipe or tubing used around a conductor shall be bonded to the conductor at both ends of the pipe or tubing. A downspout shall not be used as a protector. See 9.3.5.

7.5 A copper lightning protection component shall not be installed directly on aluminum surfaces or external galvanized steel surfaces. See 7.2.

7.6 An aluminum lightning protection component shall not be installed directly on copper roofing material or other copper surface or below the run off from a copper surface. See 7.2.

7.7 Aluminum components shall not be used where they come into direct contact with earth. Bimetallic fittings shall be used for the connection of aluminum down conductors to copper or copper-clad conductors. Where so used, bimetallic fittings shall not be installed less than 18 inches (460 mm) above earth level. See 7.2.

7.8 Bimetallic fittings shall be used when joining metals that are not galvanically compatible. See 7.2.

7.9 Aluminum conductors and components shall not be:

- a) Embedded in concrete or masonry;
- b) In direct contact with a surface coated with an alkaline base paint; or
- c) Installed in wet locations, for example inside eave troughs or downspouts.

## 8 Strike Termination Devices

### 8.1 General

8.1.1 A metal body that is 3/16 inch (4.8 mm) thick or greater that is subject to a direct lightning strike may serve as a strike termination device and shall be connected to the lightning protection system. The connections shall be main-size and provide a two-way path to ground as is required for air terminals.

8.1.2 Strike termination devices shall be installed to provide a zone of protection in accordance with Section 8.2 for each part of a structure that is exposed to direct lightning strikes.

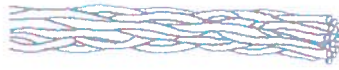
8.1.3 Air terminals are not required for parts of a structure located within a zone of protection.

8.1.4 Strike termination devices that are a permanent part of the structure and that are 3/16 inch (4.8 mm) thick or more shall be connected to the lightning protection system using main-size conductors and a main size bonding plate/connector as described 12.10 and shall have a two-way path to ground as is required for air terminals.

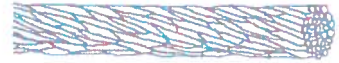
8.1.4 revised October 4, 2010

8.1.5 An air terminal shall be placed not more than 2 feet (610 mm) from the ends of each ridge, edge, or outside corner of roofs. See Figure 8.2.

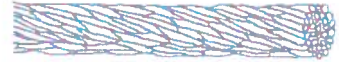


Copper and Tinned Conductor~~G14~~

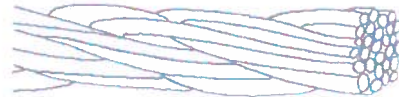
~~14 strands of 17 gauge (1.15mm) secondary bonding copper cable.  
92 pounds per thousand feet (137 grams/meter).  
28,729 circular mils (14.5mm<sup>2</sup>) of conductivity.~~

~~G14T~~~~As above with tinned copper strands.~~~~C29~~

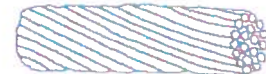
~~29 strands of 17 gauge (1.15mm) basket weave copper cable.  
192 pounds per thousand feet (286 grams/meter).  
59,450 circular mils (30mm<sup>2</sup>) of conductivity.  
Exceeds Class I requirements.~~

~~G29L~~~~As above with leaded copper strands.~~~~G29T~~~~As above with tinned copper strands.~~~~G32~~

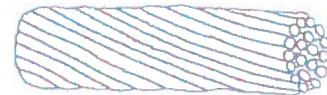
~~32 strands of 17 (1.15mm) gauge basket weave copper cable.  
217 pounds per thousand feet (323 grams/meter).  
65,667 circular mils (33mm<sup>2</sup>) of conductivity.  
Exceeds Class I requirements.~~

~~G32L~~~~As above with leaded copper strands.~~~~G32T~~~~As above with tinned copper strands.~~~~G385~~

~~28 strands of .066 gauge (1.68mm) rope lay copper cable.  
385 pounds per thousand feet (573 gram/meter).  
121,968 circular mils (61.5mm<sup>2</sup>) of conductivity.  
Exceeds Class II requirements.~~

~~G385T~~~~As above with tinned copper strands.~~~~G1/0-19~~

~~19 strands of .0837 gauge (2.13mm) concentric lay copper cable.  
326 pounds per thousand feet.  
105,600 circular mils of conductivity.  
Exceeds Class II requirements.~~

~~G1/0-19T~~~~As above with tinned copper strands.~~~~G4/0-19~~

~~19 strands of .1055 gauge (2.68mm) concentric lay copper cable.  
653 pounds per thousand feet (972 grams/meter).  
211,475 circular mils (107mm<sup>2</sup>) of conductivity.  
Exceeds Class II requirements.~~

~~G4/0-19T~~~~As above with tinned copper strands.~~

Get grounded.  
**EAST COAST LIGHTNING EQUIPMENT**

## Blunt Air Terminals-AT

Class I -1/2" (12.7mm) diameter, threaded base, UL listed.

|          |        |   |
|----------|--------|---|
| ALUMINUM | AT10AB | <del>1/2" x 10" (12.7mm x 254mm)</del>  |
|          | AT12AB | <del>1/2" x 12" (12.7mm x 305mm)</del>  |
|          | AT15AB | <del>1/2" x 15" (12.7mm x 381mm)</del>  |
|          | AT18AB | <del>1/2" x 18" (12.7mm x 458mm)</del>  |
|          | AT24AB | <del>1/2" x 24" (12.7mm x 610mm)</del>  |
|          | AT36AB | <del>1/2" x 36" (12.7mm x 915mm)</del>  |
|          | AT48AB | <del>1/2" x 48" (12.7mm x 1220mm)</del> |

Class II -5/8" (15.9mm) diameter, threaded base, UL listed.

|          |         |   |
|----------|---------|---|
| ALUMINUM | AT110AB | <del>5/8" x 10" (15.9mm x 254mm)</del>  |
|          | AT112AB | <del>5/8" x 12" (15.9mm x 305mm)</del>  |
|          | AT115AB | <del>5/8" x 15" (15.9mm x 381mm)</del>  |
|          | AT118AB | <del>5/8" x 18" (15.9mm x 458mm)</del>  |
|          | AT124AB | <del>5/8" x 24" (15.9mm x 610mm)</del>  |
|          | AT136AB | <del>5/8" x 36" (15.9mm x 915mm)</del>  |
|          | AT148AB | <del>5/8" x 48" (15.9mm x 1220mm)</del> |

Class I -3/8" (9.5mm) diameter, threaded base, UL listed.

|        |        |  |
|--------|--------|--|
| COPPER | AT10CB | <del>3/8" x 10" (9.5mm x 254mm)</del>  |
|        | AT12CB | <del>3/8" x 12" (9.5mm x 305mm)</del>  |
|        | AT15CB | <del>3/8" x 15" (9.5mm x 381mm)</del>  |
|        | AT18CB | <del>3/8" x 18" (9.5mm x 458mm)</del>  |
|        | AT24CB | <del>3/8" x 24" (9.5mm x 610mm)</del>  |
|        | AT36CB | <del>3/8" x 36" (9.5mm x 915mm)</del>  |
|        | AT48CB | <del>3/8" x 48" (9.5mm x 1220mm)</del> |

Class II -1/2" (12.7mm) diameter, threaded base, UL listed.

|        |         |   |
|--------|---------|---|
| COPPER | AT110CB | <del>1/2" x 10" (12.7mm x 254mm)</del>  |
|        | AT112CB | <del>1/2" x 12" (12.7mm x 305mm)</del>  |
|        | AT115CB | <del>1/2" x 15" (12.7mm x 381mm)</del>  |
|        | AT118CB | <del>1/2" x 18" (12.7mm x 458mm)</del>  |
|        | AT124CB | <del>1/2" x 24" (12.7mm x 610mm)</del>  |
|        | AT136CB | <del>1/2" x 36" (12.7mm x 915mm)</del>  |
|        | AT148CB | <del>1/2" x 48" (12.7mm x 1220mm)</del> |

Class II -5/8" (15.9mm) diameter, threaded base, UL listed.

|        |         |   |
|--------|---------|---|
| COPPER | AT210CB | <del>5/8" x 10" (15.9mm x 254mm)</del>  |
|        | AT212CB | <del>5/8" x 12" (15.9mm x 305mm)</del>  |
|        | AT215CB | <del>5/8" x 15" (15.9mm x 381mm)</del>  |
|        | AT218CB | <del>5/8" x 18" (15.9mm x 458mm)</del>  |
|        | AT224CB | <del>5/8" x 24" (15.9mm x 610mm)</del>  |
|        | AT236CB | <del>5/8" x 36" (15.9mm x 915mm)</del>  |
|        | AT248CB | <del>5/8" x 48" (15.9mm x 1220mm)</del> |

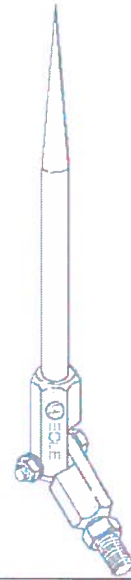
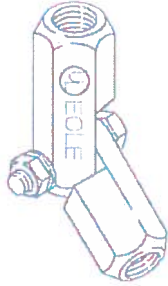
All air terminals are available in any length to twelve feet (365.75cm).



### Cast Swivel Couplings-SC

For male to female or female to female connections.  
 Cast bronze or aluminum with stainless steel fasteners.  
 Available with 3/8" (9.5mm), 1/2" (12.7mm) or  
 5/8" (15.9mm) threads, in combinations to meet  
 your requirements.

Female to female 3" x 3/4" (76mm x 19mm).  
 Female to male 4" x 3/4" (102mm x 19mm).



**BRASS**

- SC3/8F-3/8FB
- SC3/8F-3/8MB
- SC3/8F-1/2FB
- SC3/8F-1/2MB
- SC1/2F-3/8MB
- SC1/2F-1/2FB
- SC1/2F-1/2MB

**ALUMINUM**

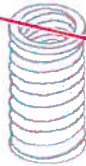
- SC1/2F-5/8FB
- SC1/2F-5/8MB
- SC5/8F-1/2MB
- SC5/8F-5/8FB
- SC5/8F-5/8MB

**ALUMINUM**

- SC1/2F-1/2FA
- SC1/2F-1/2MA
- SC1/2F-5/8FA
- SC1/2F-5/8MA
- SC5/8F-1/2MA
- SC5/8F-5/8FA
- SC5/8F-5/8MA

**NOTE:** Cast Swivel Couplings are also available tinned.

### Air Terminal Bushing



**AD1B** Brass thread size reducer bushing.  
 Converts 1/2" to 3/8". Approximately  
 1/2" (1.127cm) diameter x 3/4" (1.9cm).  
 Approximately .31 oz.

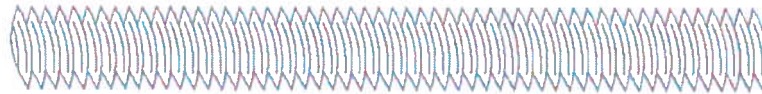
### Air Terminal Coupling



~~ATC3/8B Slender, cylindrical brass coupling for connecting  
 3/8" air terminal to 3/8" threaded rod or solid rod  
 section. 1-1/2" x 1/2" (38.1mm x 12.7mm).~~

~~ATC1/2B As above for 1/2" air terminal to 1/2" threaded rod.  
 1-1/2" x 5/8" (38.1mm x 15.8mm).~~

### Threaded Rod-TR



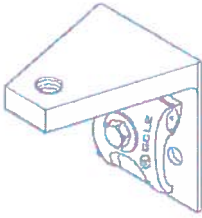
- ~~TR1S 3/8" Stainless Steel 3/8"-16 x 6' (183cm)~~
- ~~TR2S 1/2" Stainless Steel 1/2"-13 x 6' (183cm)~~

Threaded rod is available cut to any length that you require.



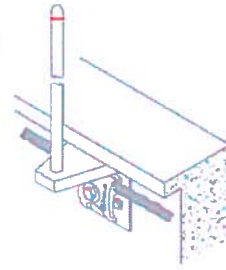
**Get grounded.**  
**EAST COAST LIGHTNING EQUIPMENT**

## Bolt Bases—BB



**BB700B** ~~2 1/2" Off Set Side Mount~~  
 Cast bronze base with a 1-way bolt pressure cable holder. ~~2 1/2" offset, 5/16-18 stainless steel washer, 2 3/8" x 3" x 3 1/8" (6cm x 7.6cm x 7.9cm). Approximately 1 lb 7.2 oz (658 grams).~~

Use suffix ~~3/8, 1/2 or 5/8~~ to denote air terminal thread size.



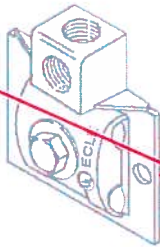
**BB700A** ~~Aluminum~~  
 Approximately ~~9.22 oz. (233 grams).~~

Use suffix ~~1/2 and 5/8~~ to denote air terminal thread size.



**BB8B** ~~Cable To Threaded Rod~~  
 Hex brass 2-bolt splicer for cable to threaded rod or air terminal. ~~5/16-18 stainless steel bolt, 2 7/8" x 3/4" hex (7.3cm x 2.15cm); approximately 5 oz. (142 grams). Use suffix 3/8, 1/2 or 5/8 to denote air terminal thread size.~~

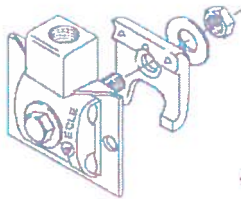
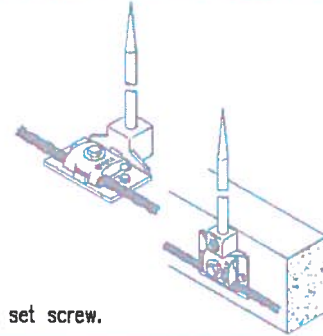
**BB8A** ~~Aluminum~~  
 Approximately ~~2 oz. (57 grams), 1/2" or 5/8" thread size.~~ Also available with socket head set screws.



**BB9B** ~~Dual Thread~~  
 A cast bronze base with a 2-way cable holder. Threaded for top or side mounting. ~~5/16-18 stainless steel bolt and washer, 2-13/16" x 2-15/16" (71.44mm x 74.61mm). Approximately 9.3 oz. (263 grams). Use suffix 3/8 or 1/2 to denote air terminal thread size.~~

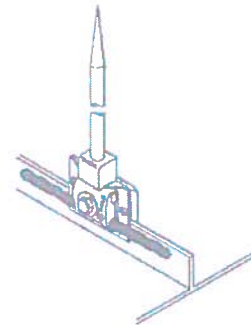
**BB9A** ~~Aluminum~~  
 Approximately ~~4 oz. (113 grams).~~ Only available with 1/2" thread size.

Use suffix "S" to request optional stainless steel set screw.



**BB10B** ~~Standing Seam Base~~  
 A cast bronze base with two-way bolt pressure cable connector. One-way bolt pressure clamp on backside joins the unit to a standing seam without penetration. Creates a strong and rigid base for parallel runs of cable. ~~Stainless steel bolt, nut and washer, 2 13/16" x 2 15/16" (71.44mm x 76.61mm); approximately 9.3 oz. (263 grams). Use suffix 3/8, 1/2 or 5/8 to denote air terminal thread size.~~

**BB10A** ~~Aluminum~~  
 Approximately ~~5 oz. (142 grams).~~ Use suffix ~~1/2 or 5/8~~ to denote air terminal thread size.

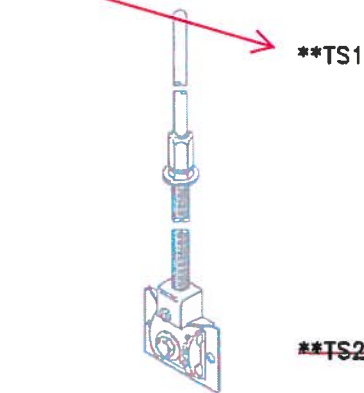


**NOTE:** Copper & bronze fittings are also available tinned.



Get grounded.  
**EAST COAST LIGHTNING EQUIPMENT**

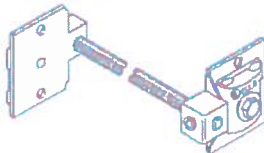
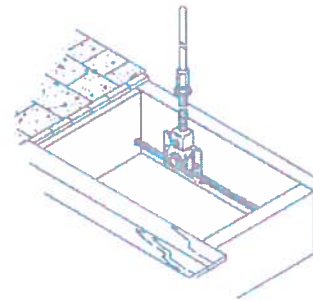
## Thru-Structure Assemblies-TS



**\*\*TS1**

### Thru-Roof Assembly

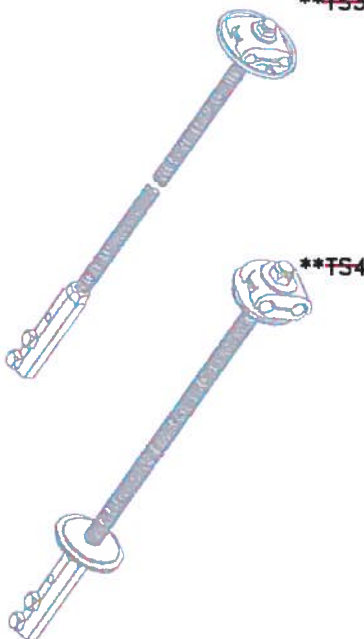
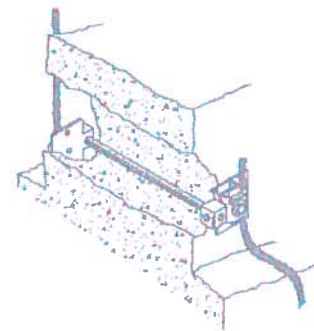
Supplied with 12" (30.5cm) threaded rod, stainless steel locking set screws, EPDM washer, stainless steel washer and nut, rod to air terminal coupling and 12" (30.5cm) air terminal.



**\*\*TS2**

### ~~Thru-Roof or Wall Assembly~~

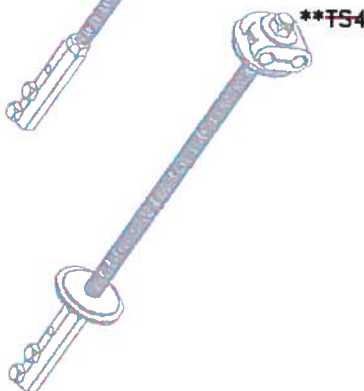
~~Supplied with 12" (30.5cm) threaded rod, stainless steel locking set screws and bolt pressure cable holder. The fittings are available in aluminum, bronze or one of each.~~



**\*\*TS3**

### ~~Thru-Roof or Wall Assembly~~

~~For right angle to straight top. Supplied with 12" (30.5cm) threaded rod, nut and EPDM washer. The fittings are available in aluminum, bronze or one of each.~~



**\*\*TS4**

### ~~Thru-Roof or Wall Assembly~~

~~For right angle to straight top. Supplied with 12" (30.5cm) threaded rod, 2 stainless steel fender washers, 2 EPDM washers, 2 nuts and a fully adjustable bolt pressure cable holder. The fittings are available in aluminum, bronze or one of each.~~

\*\*When ordering Thru-Structure Assemblies-specify material, threaded rod length and diameter. Many lengths and connectors are available for special connections. Call the factory with your specific needs.



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## Conduit Caps – CC



### CC3B Conduit Cap to Threaded Rod

Cast bronze cap with bolt pressure cable holder machined to fit snugly over 1-1/2" Schedule 40 PVC conduit. Internally threaded brass hex stock adapter extends below. Stainless steel nut and washer. Overall height 2.8" (7cm). Approximately 12.8 oz. (363 grams). Specify 3/8 or 1/2 internal thread size when ordering.

### CC3A Aluminum

Approximately 4.8 oz. (136 grams).  
Specify 1/2 or 5/8 internal thread size when ordering.



### CC4B Conduit Cap to Cable

Cast bronze cap with bolt pressure cable holder machined to fit snugly over 1-1/2" Schedule 40 PVC conduit. Has brass hex stock bolt pressure cable holder extending below. Stainless steel bolts, nuts and washer. Overall height 4.2" (10.6CM). Approximately 15.2 oz. (431 grams).

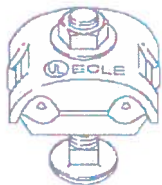
### CC4A Aluminum

Approximately 5.6 oz. (158 grams).



### Conduit Bushing

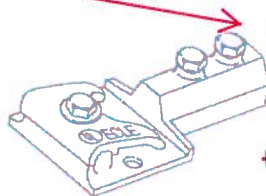
A brass conduit bushing to be used with 1/2" copper pipe cable guards. Has set screw for bending cable to copper pipe. 7/8" x 3/4" (2.22cm x 1.9cm); approximately 1.1 oz. (31.2 grams).



US PATENT NO. 424, 924

**BF100B Round-Round US PATENT NO. 424, 924**  
Cast bronze bolt pressure cable to cable, or cable to rod clamp. 1-1/2" stainless steel carriage bolt. Specifically designed for cable splices on single membrane roofs. 1-9/16" x 1-3/4" (39.7mm x 44.45mm); approximately 7.6 oz. (215 grams).

**BF100A Aluminum**  
Approximately 3 oz. (85 grams).



**BF2B Tee**  
Cast bronze pressure "tee" splicer. Stainless steel bolts and washer. 2-1/4" x 2" x 5" (5.7cm x 5.1cm x 12.7cm); approximately 10 oz. (284 grams).

**BF2A Aluminum**  
Approximately 3.5 oz. (99 grams).



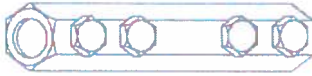
**NOTE:** Copper & bronze fittings are also available finned.



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## Bolt Fittings – BF

BF3B



**Straight**

~~4-bolt hex brass straight splicer.~~  
~~Stainless steel bolts.~~

~~3-1/2" x 3/4" (8.9cm x 1.9cm) hex;~~  
~~approximately 6 oz. (170 grams).~~

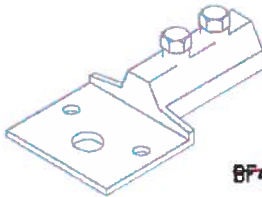


BF3A

**Aluminum**

~~Approximately 2 oz. (57 grams).~~

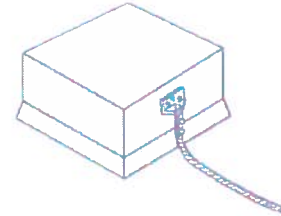
BF4B



**Bonding Lug**

~~Cast bronze primary cable to metal surface~~  
~~bonding lug. Has over four square inches~~  
~~of contact. Stainless steel bolts.~~

~~2-1/4" x 2" x 5" (5.7cm x 5.1cm x 12.7cm);~~  
~~approximately 9 oz. (255 grams).~~

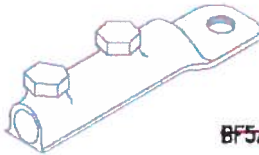


BF4A

**Aluminum**

~~Approximately 3 oz. (85 grams).~~

BF5B



**Mini Bonding Lug**

~~Cast bronze secondary cable to metal surface~~  
~~bonding lug. Stainless steel bolts.~~

~~3-1/2" x 9/16" (8.9cm x 1.4cm);~~  
~~approximately 3 oz. (85 grams).~~

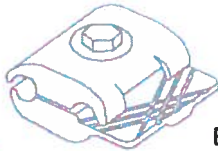


BF5A

**Aluminum**

~~Approximately 2 oz. (57 grams).~~

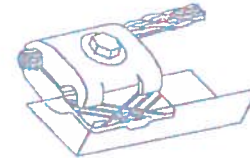
BF7B



**Round to Flat**

~~Cast bronze bolt pressure cable to flat surface~~  
~~clamp. Stainless steel bolt and washer.~~

~~1-9/16" x 2-1/4" (4cm x 5.7cm);~~  
~~approximately 7.3 oz. (207 grams).~~

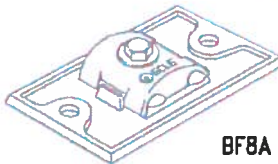


BF7A

**Aluminum**

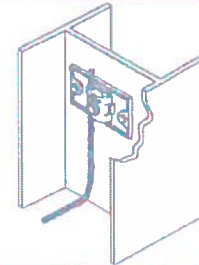
~~Approximately 3 oz. (85 grams).~~

BF8B



**2-Way Bonding Plate**

~~Cast bronze, 8-square-inch bonding plate with~~  
~~2-way bolt pressure cable holder. Stainless steel~~  
~~bolt and washer. 2-1/16" x 4" (52.38mm x~~  
~~101.6mm). Approximately 10.3 oz. (292 grams).~~



BF8A

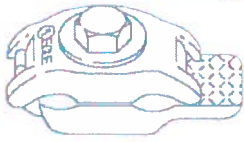
**Aluminum**

~~Approximately 3.8 oz. (108 grams).~~



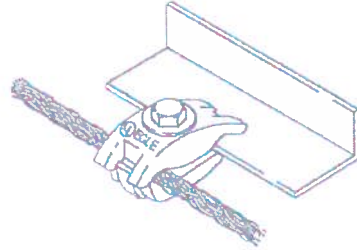
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### Bolt Fittings—BF



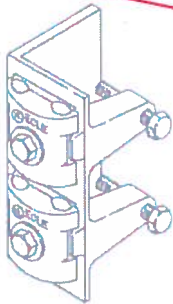
BF15B

Miniature Round to Flat  
Cast bronze miniature cable to flat  
surface clamp for secondary bonding.  
Stainless steel bolt and washer.  
3/4" x 2-1/4" (1.9cm x 5.7cm);  
approximately 3.5 oz. (99 grams).



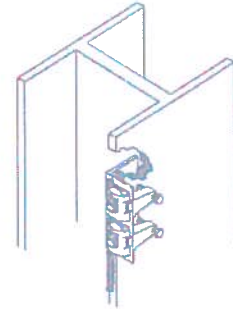
BF15A

Aluminum  
Approximately 1.5 oz. (43 grams).



BF18B

8 Square Inch Beam Clamp  
Cast bronze 8 square inch bonding plate with  
2 two-way bolt pressure cable holders. For  
primary bonding to beams and similar flat metal  
protrusions. 2 stainless steel bolts and washers.  
3-1/4" x 4" (82.6mm x 101.6mm);  
approximately 2 lbs. 2.1 oz. (967 grams).



BF18A

Aluminum  
Approximately 13.3 oz. (377 grams).

NOTE: Copper & bronze fittings are also available finned.

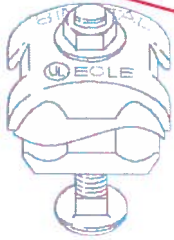


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**Bimetallic Fittings—BM**

For Connecting Aluminum and Copper

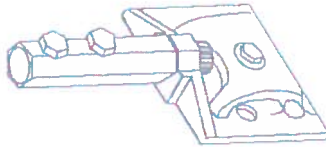


**BM100**

**Bimetallic Round to Round U.S. Patent No. 424, 924**  
 Cast bimetallic bolt pressure clamp for joining 2 dissimilar cables. Aluminum two-way cast top. Bronze two-way cast bottom. Specifically designed for cable splices on single membrane roofs. Stainless steel spacer plate. Stainless steel carriage bolt, nut and washer. 1-9/16" x 1-3/4" (39.69mm x 44.45mm); approximately 6 oz. (170 grams).



U.S. Patent No. 424, 924

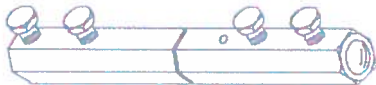
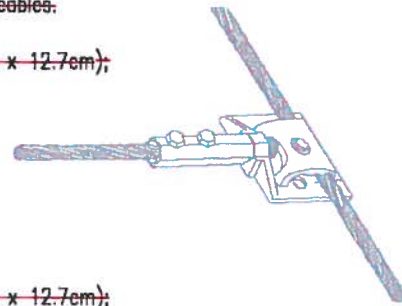


**BM2A**

**Bimetallic Tee Splicer**  
~~Bolt pressure aluminum casting with one way cap and hex brass top for copper cables. Stainless steel bolts and washer. 2-1/4" x 2" x 5" (5.7cm x 5.1cm x 12.7cm); approximately 10 oz. (284 grams).~~

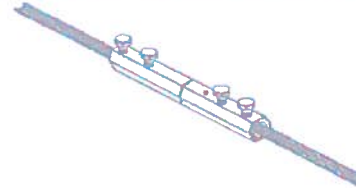
**BM2B**

**Bimetallic Tee Splicer**  
~~Bolt pressure bronze casting with one way cap and hex aluminum top for aluminum cables. Stainless steel bolts and washer. 2-1/4" x 2" x 5" (5.7cm x 5.1cm x 12.7cm); approximately 10 oz. (284 grams).~~



**BM3**

**Bimetallic 4-Bolt Straight Splicer**  
~~For joining aluminum and copper cables. Stainless steel bolts. 3-1/2" x 3/4" (8.9cm x 1.9cm) hex; approximately 6 oz. (170 grams).~~



**BM7A**

**Conduit Cap to Cable**  
~~Cast aluminum cap with bolt pressure cable holder machined to fit snugly over 1-1/2" Schedule 40 PVC conduit. Has brass hex stock cable holder extending below. Joined by stainless steel threaded stub and galvanic barrier. For joining aluminum roof cable to copper down conductor. 4-1/4" (10.8cm) overall height, 8 oz. (227 grams). Stainless steel stub, bolts, nut and washer.~~

**BM7B**

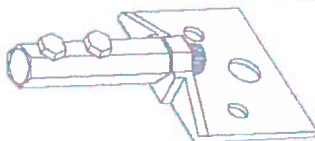
**Conduit Cap to Cable**  
~~As above for joining copper roof cable to aluminum down conductor. 4 oz. (113 grams).~~



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**Bimetallic Fittings—BM**

For Connecting Aluminum and Copper

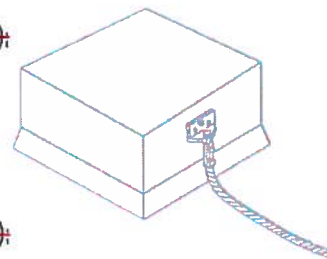


**BM4A**

**Bimetallic Bonding Lug**

**for Primary Conductors**

For bonding to aluminum from a copper cable run. Stainless steel bolts. ~~2 1/4" x 2" x 5" (5.7cm x 5.1cm x 12.7cm); approximately 6.3 oz. (179 grams).~~

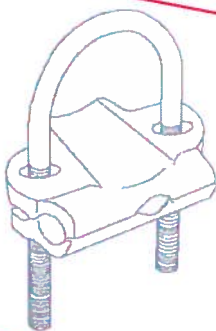


**BM4B**

**Bimetallic Bonding Lug**  
**for Primary Conductors**

For bonding copper or brass from an aluminum cable run. Stainless steel bolts. ~~2 1/4" x 2" x 5" (5.7cm x 5.1cm x 12.7cm); approximately 6.2 oz. (176 grams).~~

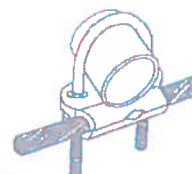
**U-Bolt Pipe Clamps—PC**



**PC1UB**

**Smallest U-Bolt Clamp**

Cast bronze pipe clamp. Fits rods or pipes with 1/2" to 1-1/4" (1.3cm to 3.2cm) O.D. Has 2-way bolt pressure cable holder. 5/16-18 stainless steel U-bolt, nuts and washers. ~~2-1/2" x 3-1/2" (6.35cm x 8.9cm); approximately 9 oz. (255 grams).~~



**PC1UT**

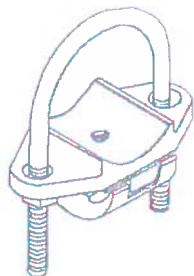
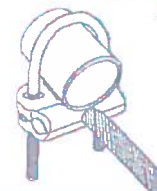
**Tinned**

~~Approximately 9 oz. (255 grams).~~

**PC1UA**

**Aluminum**

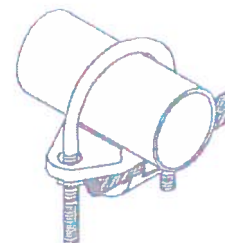
~~Approximately 5 oz. (142 grams).~~



**PC2UB**

**2" U-Bolt Clamp**

Cast bronze pipe clamp. Fits up to 2" (5.1cm) O.D. pipe. Has 2-way bolt pressure cable holder with cover that can be turned 90 degrees. 5/16-18 stainless steel U-bolt, nuts and washers. ~~Approximately 8.5 oz. (241 grams).~~



**PC2UT**

**Tinned**

~~Approximately 8.5 oz. (241 grams).~~

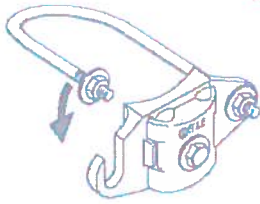
**PC2UA**

**Aluminum**

~~Approximately 4.2 oz. (119 grams).~~



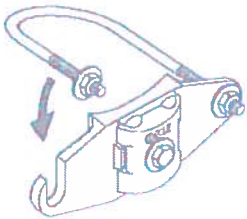
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**U-Bolt Pipe Clamps-PC**

**PC3UB 3" U-Bolt Clamp**  
 Cast bronze pipe clamp. Fits up to 3" (7.6cm) O.D. pipe. Has 2-way bolt pressure cable holder with cover that can be turned 90 degrees. 5/16-18 stainless steel U-bolt, nuts and washers. Approximately 13 oz. (369 grams).

**PC3UT Tinned**  
 Approximately ~~13 oz. (369 grams)~~.

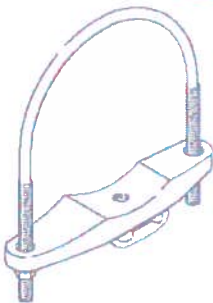
**PC3UA Aluminum**  
 Approximately ~~6 oz. (170 grams)~~.



**PC4UB 4" U-Bolt Clamp**  
 Cast bronze pipe clamp. Fits up to 4-1/2" (114.3mm) O.D. pipe. Has 2-way bolt pressure cable holder with cover that can be turned 90 degrees. 5/16-18 stainless steel U-bolt, nuts and washers. Approximately 26.4 oz. (748 grams).

**PC4UT Tinned**  
 Approximately ~~26.4 oz. (748 grams)~~.

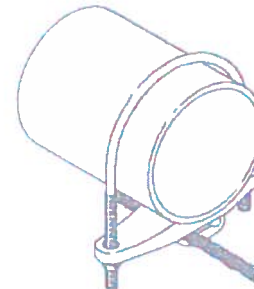
**PC4UA Aluminum**  
 Approximately ~~11.86 oz. (335 grams)~~.



**PC6UB 6" U-Bolt Clamp**  
 Cast bronze pipe clamps. Fits up to 6.75" (171.45mm) O.D. pipe Two-way bolt pressure cable holder with cover that can be turned 90 degrees. Stainless steel U-bolt, nuts and washers. Approximately 2 lbs. 5.4 oz. (1060 grams).

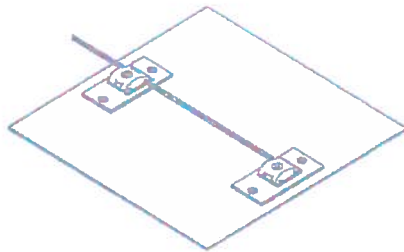
**PC6UT Tinned**  
 Approximately ~~2 lbs. 5.4 oz. (1060 grams)~~.

**PC6UA Aluminum**  
 Approximately ~~14 oz. (397 grams)~~.



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### Ground Plate—GP



Copper ground plate with two bolt pressure cable holders.

- GP1 18" x 18" x .032 (45.7cm x 45.7cm x .0813cm)
- GP2 18" x 24" x .032 (45.7cm x 61cm x .0813cm)
- GP3 18" x 36" x .032 (45.7cm x 91.4cm x .0813cm)

Call factory for information on other sizes.

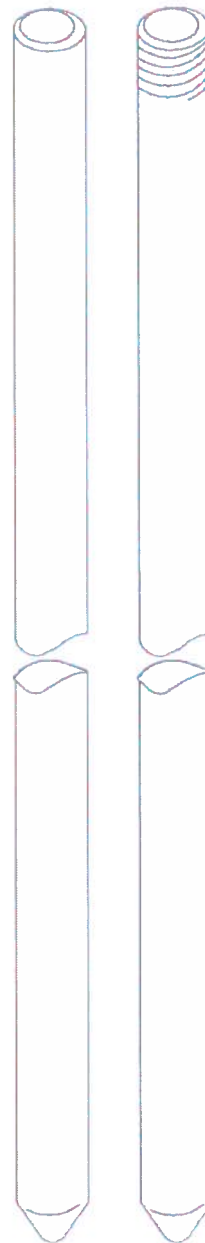
### Ground Rods—GR

UL listed copper clad steel ground rods.

- GR3X 5/8" x 8' (1.59cm x 2.44m)
- GR3 5/8" x 10' (1.59cm x 3.05m)
- GR3S 5/8" x 10' Sectional (1.59cm x 3.05m)
- GR4 3/4" x 10' (1.91cm x 3.05m)
- GR4S 3/4" x 10' Sectional (1.91cm x 3.05m)

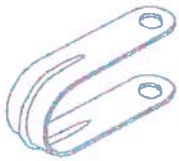
Call factory for information on other available ground rod sizes.

A variety of stainless steel ground rods are also available.



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**Fastener Loops-FL**

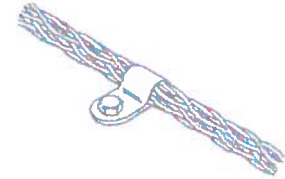


~~FL1C\*~~ ~~1 Nail stamped copper loop.~~

~~FL1T\*~~ ~~1 Nail stamped tinned copper loop.~~

~~FL1A\*~~ ~~1 Nail stamped aluminum loop.~~

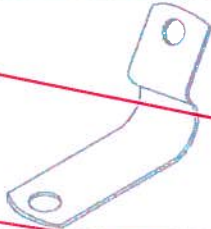
~~\*Use with Class I conductors.~~



→ ~~FL2C\*~~ ~~1/4" hole, medium stamped copper loop.~~

~~FL2T\*~~ ~~1/4" hole, medium stamped tinned copper loop.~~

~~\*Use with Class I conductors.~~

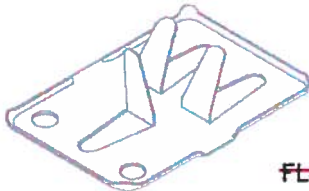


→ ~~FL3C†~~ ~~1/4" hole, largest stamped copper loop.~~

~~FL3T†~~ ~~1/4" hole, largest stamped tinned copper loop.~~

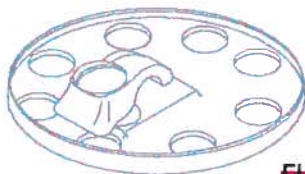
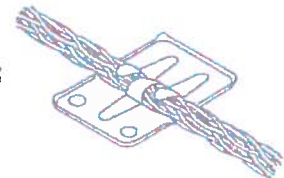
→ ~~FL3A†~~ ~~1/4" hole, largest stamped aluminum loop.~~

~~† Use with Class II conductors.~~



→ ~~FL4C~~ ~~Stamped Adhesive Crimp Copper Loop~~  
 For use on built-up, single membrane or other flat roof surfaces where mechanical penetrations must be avoided. Use with adhesives compatible to roof surface. 2-1/4" x 3-1/2" (5.7cm x 8.9cm); approximately 1.4 oz. (40 grams).

~~FL4A~~ ~~Stamped Adhesive Crimp Aluminum Loop~~  
 As above, but stamped aluminum. Approximately .8 oz. (23 grams).



~~FL7B~~ ~~Heavy Duty Cable Holder~~  
 A cast bronze, bolt-type adhesive fastener for securing cable. Suitable for use on built-up, single membrane or other roof surfaces where mechanical penetration must be avoided. Use with adhesives compatible to roof surfaces. 3 1/8" (7.9cm) diameter casting with stainless steel bolt and cast clip. Approximately 4.8 oz. (113 grams).

~~FL7A~~ ~~Aluminum~~  
 Approximately 1.7 oz. (48 grams).

**NOTE:** Copper & bronze fittings are also available tinned.

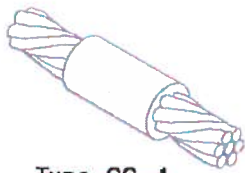


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### Exothermic Connections

We stock a complete line of weld metals, molds and accessories.  
Call for a complete catalog of exothermic weld equipment.

#### Cable To Cable



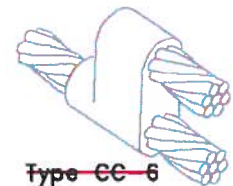
Type ~~CC-1~~



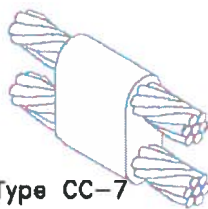
Type ~~CC-2~~



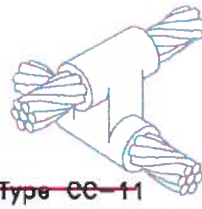
Type ~~CC-4~~



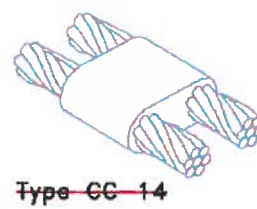
Type ~~CC-6~~



Type ~~CC-7~~

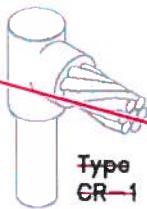


Type ~~CC-11~~

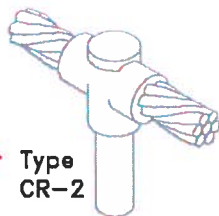


Type ~~CC-14~~

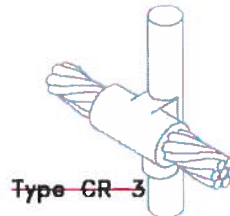
#### Cable To Ground Rod



Type ~~GR-1~~



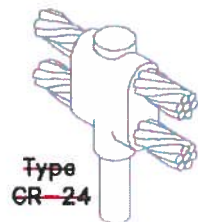
Type ~~CR-2~~



Type ~~GR-3~~



Type ~~GR-17~~



Type ~~GR-24~~



Type ~~RR-1~~

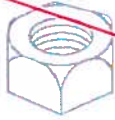
When ordering exothermic molds, be sure to specify the size of the conductor(s) and/or rod(s) you will be using.



**Get grounded.**  
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## Stainless Steel Fasteners

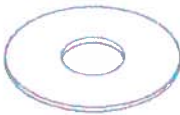
### Nuts



~~1/4-20~~  
~~5/16-18~~  
~~3/8-16~~  
~~1/2-13~~  
~~5/8-11~~  
~~1/2-13~~

Hex Finish Nut  
 Hex Finish Nut  
 Hex Finish Nut  
 Hex Jam Nut  
 Hex Jam Nut  
 Acorn Cap Nut

### Washers



~~1/4" Flat Washer~~  
~~5/16" Flat Washer~~  
~~3/8" Flat Washer~~  
~~1/2" Flat Washer~~  
~~1/2" Fender Washer 2" OD~~

~~1/4" Lock Washer~~  
~~5/16" Lock Washer~~  
~~3/8" Lock Washer~~  
~~1/2" Lock Washer~~

### Hex Head Bolts



~~1/4-20 x 1/2"~~  
~~1/4-20 x 5/8"~~  
~~1/4-20 x 1-1/4"~~  
~~5/16-18 x 3/4"~~  
~~5/16-18 x 7/8"~~  
~~5/16-18 x 1-1/4"~~  
~~3/8-16 x 1"~~  
~~3/8-16 x 1-1/4"~~

Hex Head  
 Hex Head  
 Hex Head  
 Hex Head  
 Hex Head  
 Hex Head  
 Hex Head  
 Hex Head

### Hex Washer Head Self-Tapping Screws

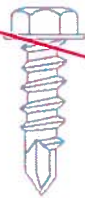


~~#10 x 3/4"~~  
~~#10 x 1"~~  
~~#10 x 1-1/2"~~

Magnetic Type 'A'  
 Magnetic Type 'A'  
 Magnetic Type 'A'



### Hex Washer Head Self-Drilling Screws



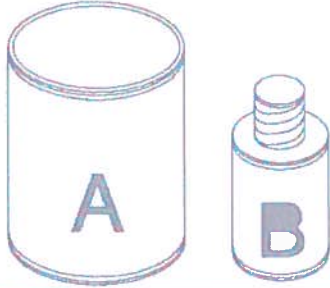
~~#10 x 5/8"~~  
~~#10 x 3/4"~~  
~~#10 x 1-1/2"~~  
~~#12 x 3/4"~~  
~~#12 x 1-1/4"~~

Magnetic Tech  
 Magnetic Tech  
 Magnetic Tech  
 Magnetic Tech  
 Magnetic Tech 5



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## Sealants



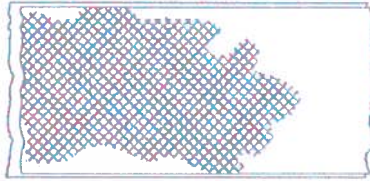
### ~~Two-Part Pourable Sealer~~

~~1-gallon Part A, 1-quart Part B  
Fast-drying adhesive cement for adhering to  
rubber membrane roofing.~~



### ~~Rubber Lap Sealer~~

~~Black sealant 11 fluid ounce tube  
Compatible with rubber membrane roofing materials.~~



### ~~Rubber Flashing~~

~~Pressure sensitive, 6" wide uncured rubber flashing with  
adhesive backing. (6" w x 100' L roll. Approximately .075 thick.)~~

### Adhesive/Sealant

#### ~~Heavy Duty Sealant~~



High performance sealant adheres to a variety of  
building substrates.

M-1 by Chemlink in 10.1 fluid ounce tube (299 ml)

Black  
Grey  
White

Available by the tube and in 24 tube cases.



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**EAST COAST LIGHTNING EQUIPMENT**



*The Lightning Protection Institute*

*This is to certify that*

*Bret A. Peifer*

*being qualified by experience and found upon examination  
in*

*Colorado Springs, Colorado*

*to possess advanced knowledge and expert abilities, is a*

*Master Installer Designer # 1042*

*of Mr. Lightning. Attest this  
October Twentieth, Two Thousand Ten.*

*Edward J. Smith III*  
Executive Director



