

APPENDIX A: Sources of Equipment Meeting the Requirements of The *National Electrical Code*

A number of PV distributors and dealers stock the equipment needed to meet the *NEC* requirements. Some sources are presented here for specialized equipment. This list is not intended to be all-inclusive or to promote any of the products.

CONDUCTORS

Standard multiconductor cable such as 10-2 with ground Nonmetallic Sheathed Cable (NM and NMC), Underground Feeder (UF), Service Entrance (SE), Underground Service Entrance (USE and USE-2), larger sizes (8 AWG) single-conductor cable, uninsulated grounding conductors, and numerous styles of building wire such as THHN can be obtained from electrical supply distributors and building supply stores. See *NEC* Table 310-13 for cable types and characteristics.

Flexible, fine-stranded cables should not be used with terminals or lugs that have a setscrew or screw mechanical attachment. These terminals and lugs (also found on circuit breakers, fuse holders, and PV equipment) are not generally listed for use with other than normal 7, 19, and 37 stranded conductors. Appendix K presents additional details.

The highest quality, most durable USE-2 cable will also have RHW-2, and 600V markings and be made of cross-linked polyethylene (marked XLP or XLPE). Flexible USE, RHW, and THW cables in large sizes (1/0 - 250 kcmil) and stranded 8-, 10-, and 12-AWG USE single conductor cable can be obtained from electrical supply houses and wire distributors. The following short list provides information on a cable distributor and manufacturer.

Anixter Bros.
2201 Main Street
Evanston, Illinois 60202
800-323-8166 for the nearest distributor
847-677-2600

Cobra Wire and Cable, Inc.
PO Box 790
2930 Turnpike Drive
Hatboro, PA 19040
215-674-8773

DC-RATED FUSES

DC-rated 15, 20, 30 amp and higher rated fuses can be used for dc branch-circuit overcurrent protection depending on conductor ampacity and load. Larger sizes (100 amp and up) are used for current-limiting and overcurrent protection on battery outputs. DC rated, listed fuses are manufactured by the following companies, among others:

Bussmann
P.O. Box 14460
St. Louis, MO 63178-4460
314-527-3877
314-527-1270 (Technical Questions)

Ferraz Shawmut
374 Merrimac Street
Newburyport, MA 01950
978-462-6662

Littelfuse
Power Fuse Division
800 E. Northwest Highway
Des Plaines, Illinois 60016
(708) 824-1188
800-TEC FUSE (Technical Questions)
800-227-0029 (Customer Service)

The following fuses may be used for battery circuit and dc branch circuit overcurrent protection and current limiting applications. If transients are anticipated in PV circuits, these fuses can also be used in those locations.

Fuse Description	Size	Manufacturer	Mfg #
125-volt dc, RK5 Time delay, current-limiting	0.1-600 amp	Bussmann	FRN-R
125-volt dc, RK5 Time delay, current-limiting	0.1-600 amp	Littelfuse	FLNR
300-volt dc, RK5 Time delay, current-limiting fuse	0.1-600-amp	Bussmann	FRS-R
300-volt dc, RK5 Time delay, current-limiting fuse	0.1-600 amp	Ferraz	TRS-R
300-volt dc, RK5 Time delay, current-limiting fuse	0.1-600 amp	Littelfuse	FLSR
600-volt dc, RK5 Time delay, current-limiting fuse	0.1-600 amp,	Littelfuse	IDSR

The following fuses should be used for PV source-circuit protection if problems are not anticipated with transients. They may also be used inside control panels to protect relays and other equipment.

Fuse Description	Size	Manufacturer	Mfg #
Fast-acting, midget fuse	0.1-30 amp	Ferraz	ATM
Fast-acting, midget fuse	0.1-30 amp	Littelfuse	KLK-D

ENCLOSURES AND JUNCTION BOXES

Indoor and outdoor (rainproof) general-purpose enclosures and junction boxes are available at most electrical supply houses. These devices usually have knockouts for cable entrances, and the distributor will stock the necessary bushings and/or cable clamps. Interior component mounting panels are available for some enclosures, as are enclosures with hinged doors. If used outdoors, all enclosures, clamps, and accessories **must** be listed for outdoor use [110.3(B)]. For visual access to the interior, NEMA 4X enclosures are available that are made of clear, transparent plastic.

HYDROCAPS

Hydrocap® Vents are available from Hydrocap Corp. and some PV distributors on a custom-manufactured basis.

Hydrocap
975 NW 95 St.
Miami, FL 33150
305-696-2504