



EDITION 4
VOLUME 2

WIRING METHODS FOR SUBPANEL CONNECTIONS: BUILDING WIRE SELECTION GUIDE



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LOW VOLTAGE CABLE SELECTION GUIDE

Many of Southwire's 600V products are suitable for connecting an electrical subpanel to a main panel. However, not every product is suitable for every situation. Please see the table below for information comparing several different wire/cable types that are commonly found in and around U.S. residential areas.

Please keep in mind that the information provided here is meant as a general guide. It is not intended to be a complete list of permitted or required installation conditions.

Wire/Cable (Southwire Specs)	Construction and Uses	Direct Burial?	Burial in Conduit?	Aerial Installation?	Branch Circuits and Feeders?	
					Indoor	Outdoor
NM-B (SPEC 10028)	<ul style="list-style-type: none"> Consists of two, three, or four insulated phase conductors plus a bare grounding conductor, all under an overall jacket Primarily used as branch circuit wiring for outlets, switches, and other general purpose and dedicated circuits in indoor residential locations For indoor dry locations only 	NO	NO	NO	YES	NO
UF-B (SPEC 10036)	<ul style="list-style-type: none"> Consists of two or three insulated phase conductors with or without a bare grounding conductor, all encased in an overall jacket Generally used for feeder and branch circuits for outside post lamps, pumps, swimming pools/hot tubs, workshops, and other loads and apparatuses Can be used in place of NM-B² 	YES	YES	NO ³	YES	YES ⁴
SER (SPEC 10041, SPEC 10052)	<ul style="list-style-type: none"> Consists of two, three, or four insulated conductors plus a bare neutral/grounding conductor⁵, all under a binder tape and an overall jacket Insulated conductors identified with colored stripes Cable is round Primarily used to convey power from the service drop to the meter base and from the meter base to the distribution panelboard Can be used anywhere SE cables are permitted 	NO	NO	NO ³	YES ⁶	YES ⁷
SEU (SPEC 10040, SPEC 10043, SPEC 10050)	<ul style="list-style-type: none"> Consists of two insulated conductors plus a concentric neutral/grounding conductor⁵, all under a binder tape and an overall jacket Cable is flat/oval Primarily used to convey power from the service drop to the meter base and from the meter base to the distribution panelboard Can be used anywhere SE cables are permitted 	NO	NO	NO ³	YES ⁶	YES ⁷
MHF (SPEC 10054)	<ul style="list-style-type: none"> Consists of four RHH/RHW-2/USE-2 conductors twisted together Neutral conductor has white striping Grounding conductor is colored green Intended for the connection of mobile homes to a supply of electricity where permanent wiring is required, as specified in the NEC1 Can also be used anywhere RHH/RHW-2/ USE-2 conductors are permitted (see below) 	YES	YES	NO	YES ⁸	YES ⁸
THHN/THWN (-2) (SPEC 10000, SPEC 10003, SPEC 10012)	<ul style="list-style-type: none"> Primarily used in conduit and cable trays for service, feeder, and branch circuits in commercial and industrial applications Can also be used in residential applications 	NO	YES	NO	YES ⁸	YES ⁸
XHHW-2 (SPEC 10005, SPEC 10006, SPEC 10015)	<ul style="list-style-type: none"> Primarily used in conduit and cable trays for service, feeder, and branch circuits in commercial and industrial applications Can also be used in residential applications 	NO	YES	NO	YES ⁸	YES ⁸



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RHH/RHW-2/ USE-2 (SPEC 10010, SPEC 10020)	<ul style="list-style-type: none"> Primarily used as underground service entrance conductors Can also be used for feeder and branch circuits 	YES	YES	NO	YES ⁹	YES ⁹
URD (URD Specs)	<ul style="list-style-type: none"> Consists of two, three, or four insulated conductors twisted together Neutral conductor has three yellow stripes Typically used by the utility company, not homeowners Meant to connect a pad-mounted transformer to a meter box May lack the ratings necessary for applications subject to NEC¹ jurisdiction 	YES	YES	NO	NO ⁹	YES ¹⁰
Service Drop (Service Drop Specs)	<ul style="list-style-type: none"> Consists of one, two, or three insulated conductors twisted together with a bare neutral Meant to connect a pole-mounted transformer to a meter box NOT UL-rated and cannot be used in applications subject to NEC¹ jurisdiction 	NO	NO	YES ¹¹	NO	NO

YES = permitted

NO = not permitted

1. NEC = National Electrical Code

2. Permitted in place of NM-B if cable is multi-conductor, contains an equipment grounding conductor (EGC), and is installed according to the requirements for NM-B cable found in Part II of NEC Article 334 (except 334.12(B)).

3. Permitted where installed as messenger-supported wiring in accordance with Part II of NEC Article 396.

4. Must be identified as sunlight resistant if cable will be exposed to direct sunlight.

5. If used as service entrance cable, the bare conductor in SER and SEU cables may be used as a neutral conductor. If used as branch circuit or feeder cable, the bare conductor in SER and SEU cables may be used only as an equipment grounding conductor (EGC).

6. Permitted as indoor branch circuit and feeder wiring where the installation complies with the provisions of NEC Article 338 and with Part II of NEC Article 334 (except 334.80).

7. Permitted as outdoor branch circuit and feeder wiring where the installation complies with the provisions of NEC Article 338 and with Part I of NEC Article 225 and the cable is supported according to NEC 334.30.

8. Must be contained in conduit when above grade or indoors.

9. Can be used indoors if conductors also carry a rating that is permitted for indoor use (typically RHH/RHW-2).

10. Conductors must carry a rating recognized by the NEC (typically USE-2 with or without additional RHH/RHW-2 ratings) in order to be used in applications subject to NEC jurisdiction.

11. Only permitted if installation is not subject to NEC jurisdiction.



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