



Maricopa County

Planning & Development Department

Department Directive

Department Directive:
DD-2004-11

Supersedes: DD2000-86

Effective: Immediately

Initiator: Paul Trombley

Manager: Tom Ewers *TE*

Director: Joy Rich *JR*

PURPOSE: To update the department policy regarding the submittal requirements for electrical services rated 400 amperes or greater.

REFERENCE: NFPA 70 (National Electrical Code);
Arizona State Board of Technical Registration – R4-30-302

POLICY/PROCEDURE: Applications for permits where an electrical service is proposed to be modified, relocated or installed as new, shall include the following:

400 Amperes or Greater:

- 1) Electrical one line diagram
- 2) Electrical load calculations

As required by the Arizona State Board of Technical Registration – R4-30-302

"A registrant shall prepare and submit drawings and specifications for a new electrical system or an addition or modification to an existing electrical system provided the service and associated electrical feeders exceeds 600 amperes 120/240 volts, single phase or 225 amperes 120/208 volts, three phase and the fault current exceeds 10,000 amperers."

Attachments: Electrical one line diagram (sample)
Electrical load calculations (sample)

ELECTRICAL LOAD CALCULATIONS – Dwelling Unit

		<u>WATTS</u>
Sq. Feet Livable _____	x 3watts =	_____
Appliance Circuits (2 Min.) _____	x 1500w =	<u>3,000 TYP</u>
Laundry Circuit	=	<u>1,500 TYP</u>
Ranges / Other Cooking Appliances	=	<u>8,000 TYP</u>
Fixed Appliances (Dishwasher, Etc)	=	_____
Water Heaters	=	_____
Clothes Dryers	=	<u>5,000 TYP</u>
 Sub-total of “Other Load”	=	_____
 1 st 10kVA of “Other Load” at 100%	=	<u>10,000</u>
Remainder at 40%	=	_____
 Total of “Other Load”	=	_____
 A/C or Heating Load at 100%	=	_____
Other motor loads (spa, pool, etc) at 100%	=	_____
Other buildings fed from this service (garage, barn, etc at 100%)	=	_____
 Total Calculated Load	=	_____
 Total watts divided by _____ volts	=	_____ Amps

Notes: The values given above are for this residential example only.
Actual loads for a given project must be entered.
Total amps of 400 or greater require the submittal of a one-line diagram
and may require an Arizona registered engineer’s seal.

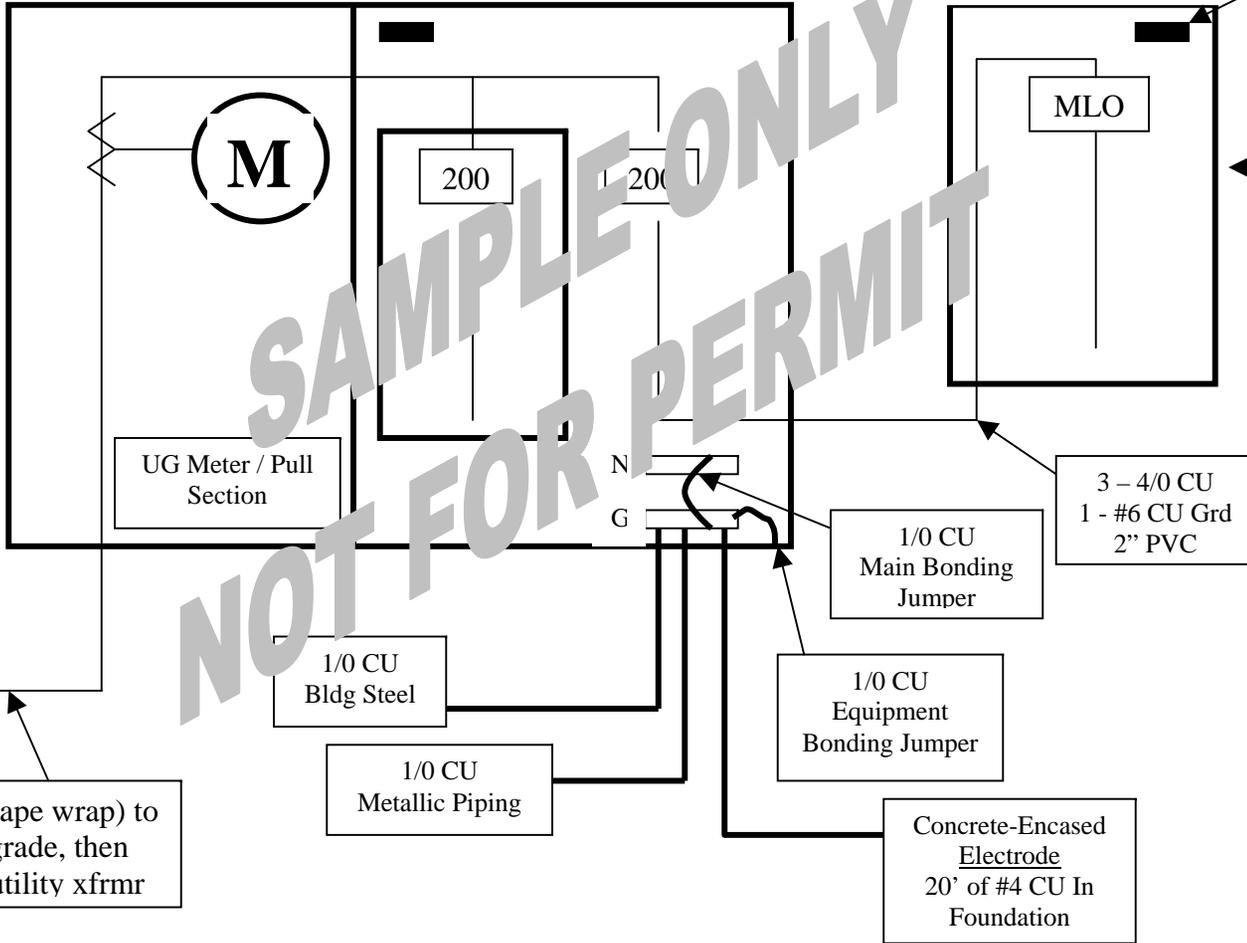
New "SES" - 400 AMP
120/240V - 1PH - 3 Wire NEMA 3R
Series Rated System - 22K/10K AIC

New Panel "B" - 200Amp
120/240V - 1PH - 3 Wire
NEMA 1 Series Rated
AFC = 18,560

Typical Series
Combination System
Ratings Plaque

Sub-panel within
same building
Isolated Neutral

AFC =
22,000A



3" RGS (tape wrap) to
below grade, then
PVC to utility xfrmr

ELECTRICAL ONE-LINE DIAGRAM - Not To Scale

NOTE

Submit load calculations along with one-line diagram

Installation or modification of Services of 600 amps or larger require one-line diagram and load calculations which are sealed by an Arizona Engineer.

Additional electrical plans or calculations may be required.