

CHARACTER OF SERVICE & LIMITATIONS


CHARACTER OF SERVICE AND LIMITATIONS

Electrical District No. 3 of Pinal County (ED3) reserves the right to approve all service installations and only authorized personnel of the Engineering and Operations department will make the determination.


1. TYPES OF SERVICE

- 1.1 The following types of service are available based on the classification of use, location and the amount of load to be served. Three (3) phase service is available only in certain areas and usually results in cost to the Customer. It is necessary for the Customer to contact the ED3 Engineering and Operations department at (520) 424-0416 to verify availability of the type of service requested ***prior*** to purchasing equipment. Typically, ED3 will supply one (1) voltage classification to a building. Contact the ED3 Engineering and Operations department for Policy, Procedures and Standards for multiple voltage applications.
- 1.2 The operation of large flashing signs, welders, arc furnaces, induction heaters, radio and television transmitters, x-ray equipment, reciprocating compressors and similar apparatus having intermittent flow of large currents sometimes interferes with other users of the electric service. The Customer shall consult ED3 so that the character of electric service that will be supplied, the corrective equipment needed and other special precautions that must be taken will be mutually known factors before planning to sue such apparatus. The Customer shall be responsible for corrective equipment that may be necessary.

This table outlines the load limitations for each type of service. These limitations are for total 1Ø and 3Ø load.									
See Table Note	Classification				Minimum Load (kW)	Overhead Limitations		Underground Limitations	
	Phase	Wire	Voltage	Type		Minimum SES (amps)	Maximum SES (amps)	Minimum SES (amps)	Maximum SES (amps)
1.3	1	3	120 / 240	Res. / General	5	60	800	100	600 *
1.5	3	4	120 / 240	Res. / General	10	100	1200	100	600
	3	4	120 / 208	General (No Residential)	50	200	2500	200	4000
	3	4	277 / 480	General (No Residential)	50	100	2000	100	3600
1.7	3	3	2400	General (No Residential)	250	400	800	400	800
	3	4	7200 / 12470	General (No Residential)	250	100	156 **	100	156
* 800 amp allowed – contact ED3 Engineering and Operations department at (520) 424-0416 for requirements.									
** Non-dedicated circuit. Dedicated circuit requires system review - contact ED3 Engineering and Operations department at (520) 424-0416 for requirements.									

	ELECTRICAL DISTRICT NO. 3	Date: 07-27-11
	ENGINEERING CONSTRUCTION STANDARDS	Rev. 1
	SECTION 5	Approval: LY
	CHARACTER OF SERVICE & LIMITATIONS	Page 1 of 4


- 1.3 The minimum loads listed on the above table are required in order to avoid underutilization of facilities charges. Two (2) wire 120 volt service and three (3) wire 120 / 240 volt service are allowed when:
- 1.3.1 Two (2) wire - 120 volt service is allowed for installations of not more than two (2) circuits and / or motors of less than 0.5 HP, except in the case of special equipment. Underground service will be supplied only when adequate facilities are available at the location.
 - 1.3.2 Three (3) wire - 120 / 240 volt service is allowed to structures with more than two (2) circuits and / or electric ranges, air conditioners, water heaters, space heating equipment and motors up to and including 7.5 HP.
 - 1.3.3 800 amp service is available for multi-metered residential, condominium and apartments with load verification.
- 1.4 Availability of a single phase service in a three (3) phase service area. Single phase commercial service in a dedicated three (3) phase development is not available from three (3) phase transformers.
- Exception: If load rating is less than 30 amps or is a temporary service.**
- 1.5 Three (3) phase service for residential use is available when:
- 1.5.1 The possibility exists to serve a residence on the perimeter of an underground residential subdivision from existing overhead three (3) phase facilities.
 - 1.5.2 Supplying overhead service to a three (3) phase load of 3 HP or a three (3) ton heat pump or air conditioner, provided three (3) phase overhead facilities are available.
- 1.6 All applications for service without ground fault protection will be reviewed on an individual basis.
- 1.7 Available as an upgrade of existing three (3) phase, three (3) wire system – within City of Maricopa / Pinal County only (see table, previous page).

 <p>Electrical District No. 3</p>	ELECTRICAL DISTRICT NO. 3	Date: 07-27-11
	ENGINEERING CONSTRUCTION STANDARDS	Rev. 1
	SECTION 5	Approval: LY
	CHARACTER OF SERVICE & LIMITATIONS	Page 2 of 4

2. ADDITIONAL SERVICE / METER


Regarding existing services, added load will be evaluated on a per-Customer basis. Existing wired buildings or suites adding load in excess of the existing service entrance load capacity may require an additional service and meter as follows:

- 2.1 When a Customer leases an existing building with the service entrance equipment already installed, as many meters as the service entrance can hold (in accordance with local authority) can be requested. The existing service equipment must meet code design capacity before additional service laterals will be provided.
- 2.2 When the Customer's load is greater than ED3's capability to serve through one (1) service and transformer, additional service(s) and transformer(s) may be added. Additional costs may be assessed, contact the ED3 Engineering and Operations department at (520) 424-0416.
- 2.3 Under certain circumstances when the Customer requests and pays (installed cost plus a monthly fee) for redundant, standby, or reserve facilities may be allowed. Prior approval by ED3 is required and (installed cost plus a monthly fee).Customer charges apply.
- 2.4 For primary voltage services, system constraints will be considered prior to approval of additional services (special engineering may be required).
- 2.5 Multiple services / meters shall be identified. Identification means shall be in such a manner as meter 1 of 3, 2 of 3, 3 of 3, etc.
 - 2.5.1 ***If a Customer has two (2) or more services, for safety reasons, none of these services shall be interconnected; this prevents backfeed.***
 - 2.5.2 On three (3) phase delta services, no 120-volt single-phase load will be connected to the power (wild) leg (208V high).
- 2.6 ***For primary voltage and master metered services, contact ED3 for approval.***

	ELECTRICAL DISTRICT NO. 3	Date: 07-27-11
	ENGINEERING CONSTRUCTION STANDARDS	Rev. 1
	SECTION 5	Approval: LY
	CHARACTER OF SERVICE & LIMITATIONS	Page 3 of 4

3. **STARTING CURRENTS, THREE (3) PHASE MOTORS**

- 3.1 In general, across the line starting of three (3) phase motors is allowed for motors up to 25 HP on 208 or 240 volt systems and 75 HP on 480 volt systems, provided the motors' locked rotor amps do not exceed code "F", NEC table 430-151.
- 3.2 Motors larger than those in 3.1 above require ED3 Engineering and Operations department analysis to determine the starting method. The Customer shall supply a starter, if one is required. Data required for analysis includes:
 - 3.2.1 Location
 - 3.2.2 Motor size
 - 3.2.3 Code letter
 - 3.2.4 Voltage
 - 3.2.5 Number of starts per time
- 3.3 Starters must conform to latest National Electric Manufacturer's Association (NEMA) standards and the installation must be in accordance with the NEC. Magnetic contactors in full voltage motor starters must have a coil capable of sealing in the contactor at seventy-five percent (75%) rated voltage. All motors must have three (3) element overload protection, one (1) element in each conductor to the motor.
- 3.4 Maximum permissible current values in the above reference apply to an installation of a single motor. Starters may be omitted on the smaller motors of a group installation when their omission will not result in a starting current in excess of the allowable starting current of the largest motor of the group.
- 3.5 In the case of irrigation installations, ED3 requires that all motors greater than 30 HP be served at 480 volts or greater.

	ELECTRICAL DISTRICT NO. 3	Date: 07-27-11
	ENGINEERING CONSTRUCTION STANDARDS	Rev. 1
	SECTION 5	Approval: LY
	CHARACTER OF SERVICE & LIMITATIONS	Page 4 of 4