



# Fault Current Calculation Form

Permit Number: \_\_\_\_\_ Project Name: \_\_\_\_\_

Date: \_\_\_\_\_ Contractor Name: \_\_\_\_\_

The following fault current calculation form must be completed and submitted prior to service approval. See instructions and impedance table on reverse side. Continue these steps until each panel has been addressed or the fault current is below the minimum equipment rating.

## A. UTILITY TRANSFORMER

	Value	Total Impedance	Fault Current
1. Rated Capacity	_____ KVA		
2. Secondary Voltage	_____ V	_____ $\emptyset$	
3. Nameplate % Impedance	_____ %		
Or			
4. Transformer Short Circuit Amps	_____ Amps		
5. Ohmic Impedance (V (see V defined in step 1 page 2) divided by the short circuit amps)		_____ Ohms (step #1)	

## B. SERVICE CONDUCTORS

1. Conductor Size	_____	Type _____ (CU or AL)	
2. Length	_____ Ft		
3. Type of Conduit (metal or PVC)	_____		
4. Impedance per 1000'	_____ Ohms per 1000'		
5. Number of Parallel Runs	_____		
6. Conductor Impedance (Imp. per 1000' x length divided by (# of parallel runs x 1000))	_____ Ohms (step #2)		
7. Total Impedance to Source (A5 + B6)	_____ Ohms		
8. Fault Current to Load Terminals (V (see V defined in step 1 page 2) divided by B7)	_____ Amps		(step #3)

## C. SERVICE ENTRANCE EQUIPMENT

1. Equipment Rating	_____ Amps	
2. Interrupting Rating		_____ A.I.C.

## D. FEEDER CONDUCTOR

1. Conductor Size	_____	Type _____ (CU or AL)	
2. Length	_____ Ft		
3. Type of Conduit	_____		
4. Impedance per 1000'	_____ Ohms per 1000'		
5. Number of Parallel Runs	_____		
6. Conductor Impedance (Imp. Per 1000' x length divided by (# of parallel runs x 1000))	_____ Ohms		
7. Total Impedance to Source (B7 + D6)	_____ Ohms		
8. Fault Current at Load Terminals (V (see V defined in step 1 page 2) divided by D7)	_____ Amps		(step #3)

## E. FEEDER PANEL

1. Equipment Rating	_____ Amps	
2. Interrupting Rating		_____ A.I.C.

**TRANSFORMER REPLACEMENTS:** Replacements that result in a higher possible fault current, than that of the existing equipment, SHALL be addressed to this department, prior to reconnection of existing service equipment.

-----**FAULT CURRENT CALCULATION INSTRUCTIONS**-----

**(STEP #1)**

**Secondary Transformer (I.C. Rating) at its rated voltage, calculate Z-ohms as follows:**

$$\text{Transformer Z-ohms} = \frac{V}{\text{Short Circuit Current}} \quad (\text{"V" as defined below})$$

		<u>V</u>
120/240V	1Ø 3-wire	120
208Y/120V	3Ø 4-wire	120
240 Delta	3Ø 4-wire	140
480Y/277V	3Ø 4-wire	277
480 Delta	3Ø 3-wire	277

**(STEP #2)** (Using Cable Impedance Data Table Below)

$$\text{Conductor Impedance} = \frac{(\text{impedance per 1000}') \times \text{length}}{1000 \times \text{number of parallel runs}}$$

**(STEP #3)**

$$\text{Service I.C.} = \frac{\text{"V"}}{\text{Total Z}} \quad (\text{total Z} = \text{transformer Z} + \text{cable Z})$$

**(STEP #4)**

$$\text{Subpanel I.C.} = \frac{\text{"V"}}{\text{Total Z}} \quad (\text{total Z} = \text{transformer Z} + \text{cable Z})$$

**Note:**

Continue these steps until each panel has been addressed or the fault current is below the minimum equipment rating.

**CABLE IMPEDANCE DATA** (ohms per 1000 feet)

Conductors	Copper		Aluminum	
	Magnetic Duct	Non-Magnetic Duct	Magnetic Duct	Non-Magnetic Duct
#2	0.20	0.19	0.32	0.32
#1	0.16	0.15	0.25	0.25
#1/0	0.12	0.12	0.20	0.20
#2/0	0.10	0.10	0.16	0.16
#3/0	0.079	0.077	0.13	0.13
#4/0	0.063	0.062	0.10	0.10
250KCM	0.054	0.052	0.086	0.085
300KCM	0.045	0.044	0.072	0.071
350KCM	0.039	0.038	0.063	0.061
400KCM	0.035	0.033	0.055	0.054
500KCM	0.029	0.027	0.045	0.043
600KCM	0.025	0.023	0.038	0.036
750KCM	0.021	0.019	0.031	0.029

