# Service 2017 Single Family Instructions



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## SERVICE 2017

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The **Service 2017** software is a spreadsheet template software program for calculating main service panel size, feeder sizes and single family 1-Line drawings. The **Service 2017** software is for reference purposes only, and Durand & Associates cannot assume any responsibility for the accuracy of the program contents. In using this program the user agrees to hold harmless and wave all claims against Durand & Associates.

#### SOFTWARE REQUIREMENTS

Service 2017 was created with Microsoft Excel 97. To use these templates you must have Microsoft Excel, Version 97 or later, installed on your computer.

## SERVICE 2017 TEMPLATE

To use the template start your Excel program and select File Open. Then navigate to the "Service 2017" folder.

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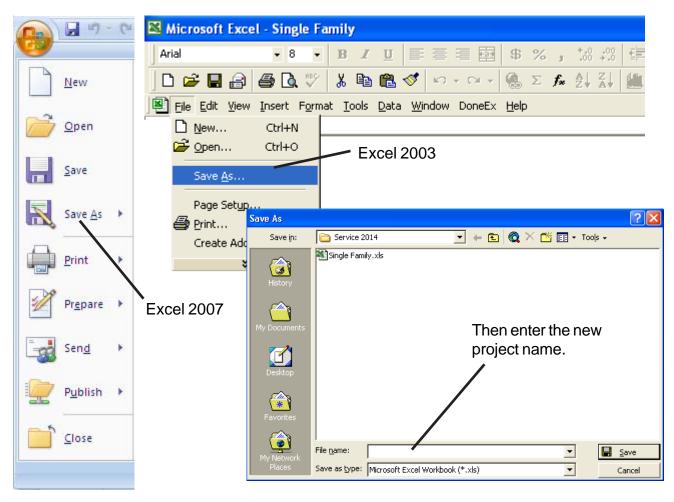
Double click on the "Service 2017" folder which will display the folder's contents.

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🌗 Residential 1-Li 🔦	Name	^	Date modified	Ту
🍌 Residential 1-Li	🗐 Single Family			
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	e:		All Excel Files (*.xl*;*.xl	

Then double click on the "Single Family" to open the template.

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service 2017 (Version 17.0A) - Single	Family Optional Calculat	ion Method (NEC	220.82) or	(NEC 220.30)	- Copyright	2016 - Dura	ind & Associates
ENERAL INFORMATION					DROP CALC	s	YES
	AMPLE			HIGH VOL	100 T		240
	23 MAIN			LOW VOL	TAGE		120
CITY/STATE/ZIP	DLSOM, CA 95630			FAULT CU	RRENT CAL	cs 📃	YES
CODE YEAR	2017			AVAILABI	E FAULT CL	JRRENT	14,000
DISPLAY 1-LINE	YES			PANEL NA	ME		DP1
OVERHEAD / UNDERGROUND	UNDERGROUND			PHASE			1
METER-MAIN.PANEL	METER MAIN			TOTAL SC	UARE FOOT	TAGE	1,500
MAIN-PANEL	MAIN			APPLIANC	E CIRCUITS		2
UNDERGROUND CONDUIT SIZE	2 1/2"			LAUNDRY	CIRCUITS		1
CONDUIT TYPE	PVC						
EEDER	- 1855 Geo 19			SERVICE	RISER	F	EEDER
FEEDER TYPE	CONDUIT						I-1 1/4" EMT
LENGTH	20'					2	2-#2/0 THHN CU
WIRE CU/AL	CU						I-#4 THHN CU (N)
WIRE TEMP	60° C						I-#6 CU GND
MINIMUM AMPS	0						
% FACTOR	0%						
GROUND WIRE Y/N	YES					F	FC AT THIS PANEL
SELECT WIRE TYPE	THHN					1	1,508 CLC
CONDUIT TYPE	EMT						
VOLTAGE DROP % FACTOR	0						

Once the template is open, use the "File Save As" command to save the file as a new project.



## TABS

HEATING/COOLIN	G						
1 ENTER THE TO AND COOLING	EQUIPMENT.	E RA1	ſING	KVA	\ OF	AIR (	)(
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Ready							

Located at the bottom of the screen are 2 tabs. One marked Input and the other marked Calcs.

The Input tab is used to enter your project's information.

The Calcs tab is used to view and print your load calculations.

### GENERAL ENTRIES

GENERAL INFORMATION	
PROJECT NAME	SAMPLE
ADDRESS	123 MAIN
CITY/STATE/ZIP	FOLSOM, CA 95630
CODE YEAR	2008
DISPLAY 1-LINE	YES
OVERHEAD / UNDERGROUND	UNDERGROUND
METER-MAIN.PANEL	METER
MAIN-PANEL	MAIN
UNDERGROUND CONDUIT SIZE	2 1/2"
CONDUIT TYPE	PVC

CODE YEAR	Select 2002, 2005, 2008, 2011, 2014 or 2017
DISPLAY 1-LINE	This will turn on or off the 1-Line drawing on the load calcs.
OVERHEAD / UNDERGROUND	Selecting overhead will display an overhead service on the 1-Line, and selecting underground will display an under ground conduit on the 1-Line.
METER MAIN PANEL	METER - Will display a single meter.
	METER MAIN - Will display a meter main combination.
	METER MAIN PANEL - Will display a meter main & panel combination.
MAIN PANEL	MAIN - Will display a separate main breaker.
	MAIN PANEL - Will display a panel with a main breaker.
CONDUIT SIZE	Select none or the desired conduit size for your riser or underground conduit.
CONDUIT TYPE	Select the type of conduit.

VOLTAGE DROP CALCS	YES
HIGH VOLTAGE	208
LOW VOLTAGE	120
FAULT CURRENT CALCS	YES
AVAILABLE FAULT CURRENT	25,000
PANEL NAME	DP1
PHASE	1
TOTAL SQUARE FOOTAGE	1,800
APPLIANCE CIRCUITS	2
LAUNDRY CIRCUITS	1

VOLTAGE DROP CALCS Select Yes or No. This will turn on or off the display of voltage drop calculations.

HIGH VOLTAGE Enter the highest voltage.

LOW VOLTAGE Enter the lowest voltage.

FAULT CURRENT CALCS Select Yes or No. This will turn on or off the display of fault current calculations.

AVAILABLE FAULT CURRENT If you are using an overhead service, enter the available fault current at the point of connection (service cap) to the incoming power.

If you are using an underground service, enter the available fault current at the meter.

PANEL NAME Enter panel name.

PHASE Select 1 or 3Y.

TOTAL SQUARE FOOTAGE Enter the total square footage of the dwelling.

APPLIANCE CIRCUIT Enter the number of appliance circuits. (Minimum 2)

LAUNDRY CIRCUITS Enter the number of laundry circuits.

FEEDER	
FEEDER TYPE	CONDUIT
LENGTH	10'
WIRE CU/AL	AL
WIRE TEMP	75° C
MINIMUM AMPS	100
% FACTOR	0%
GROUND WIRE Y/N	NO
SELECT WIRE TYPE	THHN
CONDUIT TYPE	EMT
VOLTAGE DROP % FACTOR	0

FEEDER TYPE	Select CONDUIT, SER, or MC
LENGTH	Enter total length of wire from service cap to panel.
WIRE CU/AL	Select CU or AL.
WIRE TEMP	Enter wire temperature 60, 75, or 90.
MINIMUM AMPS	Enter the minimum amps.
% FACTOR	Enter the % factor. This will increase the design load by the percentage. Example: If the calculated load is 90 amps and you enter 20%, the program will add 18 amps to the calculated load giving you a design load of 108 amps.
GROUND WIRE Y/N	Enter YES or NO. This option only appears when you are using a conduit feeder.
SELECT WIRE TYPE	Select wire type. This option only appears when you are using a conduit feeder.
CONDUIT TYPE	Select conduit type. This option only appears when you are using a conduit feeder.
VOLTAGE DROP %	Enter the % factor for voltage drop correction. This will increase the wire size thus reducing voltage drop.
	NOTE: Increasing the % factor forces the program to increase the wire size thus reducing the voltage drop.

MAJOR APPLIANCES DESCRIPTION RANGE(S) & OVEN(S) CLOTHES DRYER(S) WATER HEATER(S)	QTY 1 1	KVA (EA) 8 5	
RANGE(S) & OVEN(S)	Enter r	number of ranges, ov	ens, and KVA rating.
CLOTHES DRYER(S)	Enter n	number of dryers and	I KVA rating.
WATER HEATER(S)	Enter n	number of water heat	ers and KVA rating.
HEATING/COOLING 220.82(C)			
1 ENTER 100% OF THE NAMEPLATE RATI COOLING EQUIPMENT.	NG(S) OF THE AIR CONDITIO	NING AND	ENTER KVA
2 ENTER 100% OF THE NAMEPLATE RATI IS USED WITHOUT ANY SUPPLEMENTAL		HEN THE HEAT PUMP	ENTER KVA
3 ENTER 100% OF THE NAMEPLATE RATI COMPRESSOR.	NG(S) IN KVA OF THE HEAT I	PUMP	ENTER KVA
ENTER 100% OF THE SUPPLEMENTARY NOTE: PROGRAM WILL AUTOMATICA			ENTER KVA
4 ENTER 100% OF THE NAMEPLATE RATI FOUR SEPARATELY CONTROLLED UNI NOTE: PROGRAM WILL AUTOMATICA	rs.		ENTER KVA
5 ENTER 100% OF THE NAMEPLATE RATI MORE SEPARATELY CONTROLLED UNI NOTE: PROGRAM WILL AUTOMATICA	rs.		ENTER KVA
6 ENTER 100% OF THE NAMEPLATE RAT AND OTHER HEATING SYSTEMS WHER AT THE FULL NAMEPLATE VALUE. SY BE CALCULATED UNDER ANY OTHER S	E THE USUAL LOAD IS EXPEC STEMS QUALIFYING UNDER T	CTED TO BE CONTINUOUS	ENTER KVA

Enter heating & cooling loads listed above.

## NOTE:

Displayed above is the heating & cooling loads for the 2008, 2011, 2014,OR 2017 NEC. Other Code years will appear differently.

ISC. 120 VOLT LOADS		AMPS
DESCRIPTION	QTY.	EACH
1 DISHWASHER	1	11.5
2 DISPOSAL	1	6.5
3 MICROWAVE OVEN	1	9.8
4		
5		

Enter the description, number of units, and the amps for each item.

MISC. 208 OR 240 VOLT LOADS		AMPS	
DESCRIPTION	QTY.	EACH	PHASE
1 WELL PUMP	1	18	1
2			
3			
4			
5			
6			
7			
8			
9			
10			

Enter the description, number of units, amps, and the phase for each item.

NOTE: Phase column only appears when using a 3-Phase panel.

## PRINTING

To print your load calculations click on the Calcs Tab.

Calcs

## Select the File Print Command

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File Edit View Insert Format Tools Data Window DoneEx Help			
Dew Ctrl+N			
Open Ctrl+O	D CALCULATIONS	PROJECT NAME	
Save <u>A</u> s	FION 220.82	DWELLING UNIT	
Page Setup	B)	NEUTRAL LOAD NEC 220.61	
Print Ctrl+P	QFTX3VA)= 5,400 VA	TOTAL SQ FOOTAGE ( 1,800 SQ I	
	0 VA ) = 3,000 VA	APPLIANCE CIRCUITS ( 2 X 1,500	
Create Adobe PDF	VA)= 1,500 VA	LAUNDRY CIRCUITS (1 X 1,500 V	
×		TOTAL CONNECTED NEUTRAL LO	
RANGE ( 2 ON ANY 2 PHASES			
PER PHASE DEMAND ( 16,000	VA÷2)=8,000 VA	FIRST 3,000 VA @ 100% ( 3,000 \	

If the calculations print on more than one page, go to the "File Page Setup Command" and reduce the percentage.

Page Setup	? 🛛
Page Margins Header/Footer Sheet Orientation	1
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