Service 2014 Single Family Instructions



USe Ś Manua

Copyright 2013 Durand & Associates

SERVICE 2014

COPYRIGHT 2013 - DURAND & ASSOCIATES

This software and manual are protected by Federal Copyright Laws and may not be copied or duplicated for the purpose of resale or distribution. A registered user may copy the template files for their own personal use provided they retain sole possession of such copies.

The **Service 2014** software is a spreadsheet template software program for calculating main service panel size, feeder sizes and single family 1-Line drawings. The **Service 2014** 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 2014 was created with Microsoft Excel 97. To use these templates you must have Microsoft Excel, Version 97 or later, installed on your computer.

SINGLE FAMILY TEMPLATE

To use the single family template start your Excel program and select File Open. Then navigate to the "Service 2014" folder.

Open		? 🔀
Look <u>i</u> n:	🐷 Local Disk (C:) 💽 🖕 🔁 🔞 🗙 📸 🕶 Tools 🗸	
History	Service 2014	
My Documents		
Desktop		
Favorites		
		>
My Network	File name:	Open 💌
Places	Files of type: All Microsoft Excel Files (*.xl*; *.xls; *.xlt; *.htm; *.html; •	Cancel

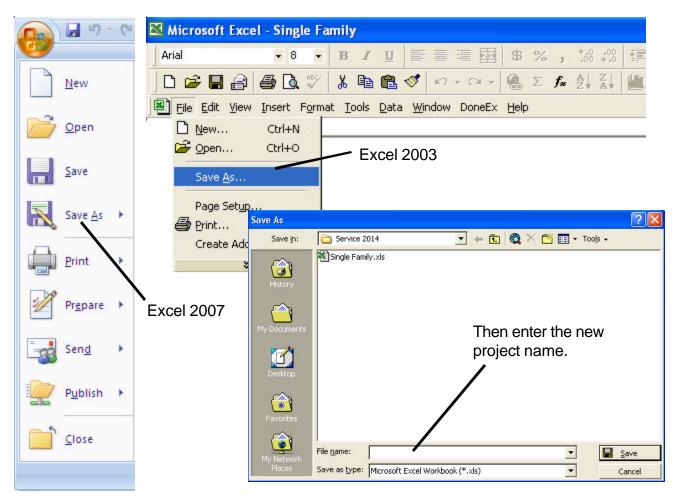
Double click on the "Service 2014" folder which will display the folder's contents.

Open		<u>?</u> ×
Look įn:	🔁 Service 2014 🗾 🗢 🔁 🔞 🗙 📸 🕶 Tools 🗸	
() History	Single Family.xls	
My Documents		
Desktop		
Favorites		
<u></u>	File <u>n</u> ame:	en 🔻
My Network Places	Files of type: All Microsoft Excel Files (*.xl*; *.xls; *.xlt; *.htm; *.htm); Cana	

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

Microsoft Excel - Single Fan	an a she an		
」 ☞ ଅ 🕾 巻 🗗 🏡 3	6 🖻 🗳 🐼 🗠 - Ci + 🗍	🍓 Σ 🎜 ຊີ່ 🕌 🚺 🚺 700%	• 2) •
		Arial	• 8 • B I U 🗏 🗄 着
Eile Edit View Insert Format	<u>T</u> ools <u>D</u> ata <u>W</u> indow <u>H</u> elp		
C42 🗾 =			
Service 2014 (Version 14.0A) - Singl	e Family Optional Calculation Meth	od (NEC 220.82) or (NEC 220.30) - Copyrigh	ht 2013 - Durand & Associates
GENERAL INFORMATION		VOLTAGE DROP CA	
PROJECT NAME	SAMPLE	HIGH VOLTAGE	240
ADDRESS	123 MAIN	LOW VOLTAGE	120
CITY/STATE/ZIP	FOLSOM, CA 95630	FAULT CURRENT CA	And Anna and a second second
CODE YEAR	2014	AVAILABLE FAULT (
DISPLAY 1-LINE	YES	PANEL NAME	DP1
OVERHEAD / UNDERGROUND	UNDERGROUND	PHASE	1
METER-MAIN.PANEL	METER MAIN	TOTAL SQUARE FOO	DTAGE 1,500
MAIN-PANEL	MAIN	APPLIANCE CIRCUITS	S 2
UNDERGROUND CONDUIT SIZE	2 1/2"	LAUNDRY CIRCUITS	1
CONDUIT TYPE	PVC		
FEEDER		SERVICE RISER	FEEDER
FEEDER TYPE	CONDUIT		1-1 1/4" EMT
LENGTH	20'		2-#2 THHN CU
WIRE CU/AL	CU		1-#4 THHN CU (N)
VMRE TEMP	60° C		1-#6 CU GND
MINIMUM AMPS	0		
% FACTOR	0%		
GROUND WIRE Y/N	YES		AFC AT THIS PANEL
SELECT WIRE TYPE	THHN		10,038 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/COOLI	lig
1 ENTER THE TO AND COOLING	
Draw + 🔓 🌀	AutoShapes 🗸 🔪 🔲 🔿 🎒 🦂
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

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, or 2014
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.
CONDUIT TYPE	

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 TYPE	CONDUIT
LENGTH	10'
WIRE CU/AL	AL
VMRE 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 nu	umber of ranges, ov	ens, and k	VA rating.
CLOTHES DRYER(S)	Enter nu	umber of dryers and	KVA ratin	g.
WATER HEATER(S)	Enter nu	umber of water heat	ers and K	/A rating.
HEATING/COOLING 220.82(C)				
1 ENTER 100% OF THE NAMEPLATE RATING(S COOLING EQUIPMENT.) OF THE AIR CONDITIONI	NG AND	г	ENTER KVA
2 ENTER 100% OF THE NAMEPLATE RATING(S IS USED WITHOUT ANY SUPPLEMENTAL ELE	And the second	IEN THE HEAT PUMP	[ENTER KVA 0
3 ENTER 100% OF THE NAMEPLATE RATING(S COMPRESSOR.) IN KVA OF THE HEAT PI	JMP	[ENTER KVA 0
ENTER 100% OF THE SUPPLEMENTARY ELEC NOTE: PROGRAM WILL AUTOMATICALLY /			ſ	ENTER KVA 0
4 ENTER 100% OF THE NAMEPLATE RATING(S FOUR SEPARATELY CONTROLLED UNITS. NOTE: PROGRAM WILL AUTOMATICALLY A	5		[ENTER KVA 0
5 ENTER 100% OF THE NAMEPLATE RATING(S MORE SEPARATELY CONTROLLED UNITS. NOTE: PROGRAM WILL AUTOMATICALLY A	•		[ENTER KVA 0
6 ENTER 100% OF THE NAMEPLATE RATING(S AND OTHER HEATING SYSTEMS WHERE THE AT THE FULL NAMEPLATE VALUE. SYSTEM: BE CALCULATED UNDER ANY OTHER SELEC	USUAL LOAD IS EXPECT S QUALIFYING UNDER TH	ED TO BE CONTINUOUS	[ENTER KVA 0

Enter heating & cooling loads listed above.

NOTE:

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

120 VOLT LOADS DESCRIPTION	QTY.	AMPS EACH
1 DISHWASHER	1	11.5
DISPOSAL	1	6.5
MICROWAVE OVEN	1	9.8
		si internet interne
5		

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

DESCRIPTION	QTY.	EACH	PHASE
1 WELL PUMP	1	18	1
2	a		
3			
4			
5			
6			
7	×	(A	
8			
9		6	

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

Arial 🔹 8 👻	B I U		\$%,	+.0 .00 .00 +.0 €	岸津田・	• 🕭 •
D 🚅 🖬 🔒 🖨 🖪 🖤	🌡 🖻 🛍 💅	KO + CH +	🚷 Σ f*	AL AL	100%	- 2
Eile Edit View Insert Form	nat <u>T</u> ools <u>D</u> ata <u>W</u> ir	ndow DoneEx	Help		a demokranik	
D New Ctrl+N						
🚰 Open Ctrl+O				BBS IFST		
: Save <u>A</u> s	ID CALCULATIONS			PROJECT NAME DWELLING UNIT		
Page Setup	B)			NEUTRAL	LOAD NEC 220	0.61
	QFTX3VA)= 5,400 VA		TOTAL SQ FOOTAGE (1,800 SQ I			
1	0 VA) = 3,000 VA		APPLIANCE CIRCUITS (2 X 1,500 '			
L Create Adobe PDF	VA)=		1,500 VA	LAUNDRY	CIRCUITS (1 X	1,500 V
*				TOTAL CO	NNECTED NEUT	RAL LO
RANGE (2 ON ANY 2 PHASES) PER PHASE DEMAND (16,000 V				FIRST 3.00	0 VA @ 100%	13.0001
						/ -12

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	Print
$oldsymbol{A}$ $oldsymbol{\widehat{P}}$ Portrait $oldsymbol{A}$ $oldsymbol{\widehat{L}}$ Landscape	Print Previe <u>w</u>
Scaling	Options
Adjust to: 33 % normal size	
C Eit to: 1 🜩 page(s) wide by 1 💠 tall	
Paper size:	
Print guality: 600 dpi	
First page number: Auto	
ОК	Cancel