ELECTRICAL CALCULATIONS

STRINGS 1 - 10
OPERATING VOLTAGE = 1 * 40.25
TOTAL
OPERATING CURRENT = 1 * 8.78

MAX PV VOLTAGE & CURRENT CALCULATIONS:
RECORD LOW TEMP (°F): -36
VOLTAGE CORRECTION PER NEC 690.7: 1.23
MAX PV SYSTEM VOLTAGE PER NEC 690.7: 48.21
Vcorrection X Voc X # MODULES IN SERIES
PER OPTIMIZER 400V

MAX PV CONTINUOUS CURRENT PER NEC 690.8(A)(1):
1.25 X ISC X #STRINGS
1.25* 10.15* .96= 12.18A

DC CONDUCTOR AMPACITY CALCULATIONS:
MAX # OF STRINGS PER SET OF DC CONDUCTORS: 1
EXPECTED WIRE TEMP (°C): +22oC Correction, 3" 72
TEMP CORRECTION PER TABLE 310.16: 0.5
OF CURRENT CARRYING CONDUCTORS: 2
CONDUIT FILL CORRECTION PER NEC 310.15(B)(3)(a): 1
CIRCUIT CONDUCTOR SIZE: #10 AWG
CIRCUIT CONDUCTOR AMPACITY: 30 A
REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(A&B):
1.25 X 1.25 X Isc X # OF STRINGS
PER OPTIMIZER 15 A
DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16:
TEMP CORR. PER NEC TABLE 310.16 X CONDUIT FILL CORR. PER
NEC 310.15(B)(3)(a) X CIRCUIT CONDUCTOR AMPACITY =
1 * 1 * 30 = 30 A > 15.57 A

AC CONDUCTOR AMPACITY CALCULATIONS:
OF INVERTERS: 1
EXPECTED WIRE TEMP (°C): 26
TEMP CORRECTION PER TABLE 310.16: 1
CIRCUIT CONDUCTOR SIZE: #6 AWG
OF CURRENT CARRYING CONDUCTORS: 3
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a): 1
CIRCUIT CONDUCTOR AMPACITY: 65 A
REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(B):
1.25 X MAX INVERTER OUTPUT CURRENT X # OF INVERTERS
1.25 * 42* 1 = 52.5 A

DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16:
TEMP CORR. PER NEC TABLE 310.16 X CONDUIT FILL CORR. PER
NEC 310.15(B)(3)(a) X CIRCUIT CONDUCTOR AMPACITY =
1 * 1 * 65 = 65 A > 52.5 A
60 A OCPD

TOTAL ARRAY
AC CONDUCTOR AMPACITY CALCULATIONS (FROM ARRAY TO MSP):
OF INVERTERS: 1
CIRCUIT CONDUCTOR SIZE: #6 AWG
OF CURRENT CARRYING CONDUCTORS: 3
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a): 1
CIRCUIT CONDUCTOR AMPACITY: 65 A
REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(B):
1.25 X MAX INVERTER OUTPUT CURRENT X # OF INVERTERS
1.25 * 42 * 1 = 52.5A

MAIN DISCONNECT: 100 A
NEW SOLAR SYSTEM FUSE 60 A

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Pikes Peak REGIONAL Building Department
shelby
ELECTRICAL

MATERIAL LIST

31	JINKO 320W MODULE
1	SOLAREDGE SE10000H-US 10KW INVERTER
31	SOLAREDGE 9300-5 SERIES-NXX DC OPTIMIZED 320W
5	SNAPNRACK, STANDARDRAIL SET, 122IN, BLACK, 6 PC
2	SNAPNRACK, STANDARD RAIL SET, 122IN, BLACK, 2 PC
14	SNAPNRACK, STANDARD RAIL SPLICE ASSEMBLY, BLACK
84	SNAPNRACK, MID CLAMP ASSEMBLY, 1.31 - 1.77IN, BLACK
24	SNAPNRACK, UNIVERSAL END CLAMP ASSEMBLY, REV 2
24	SNAPNRACK, STANDARD RAIL END CAP, BLACK
78	SNAPNRACK, L-FOOT KIT W/ FLASHING, BLACK
32	WILEY WEEB, PMC, GROUNDING LUG/CONNECTOR, WASHER FOR SNAPNRACK RAILS
8	WILEY WEEB, 6.7AS, GROUNDING LUG/CONNECTOR, ASSEMBLED BONDING JUMPER
8	GROUNDING, WILEY WEEB, L-6.7AS, ASSEMBLED WEEBLUG W/ WASHER
1	HELLERMAN TYTON, 188-09101, PREPRINTED LABEL KIT, RESIDENTIAL, 7KW TO 15KW
2	CABLE TIE, FITS .2" TO .3" DIA CABLES, SST, 25 PACK
2	PV OUTPUT, MULTI-CONTACT MC4, MALE/FEMALE, 10/1, 50FT, 600 V, PV WIRE
2	STRAIN RELIEF, 1/2IN, NYLON, 0.25-0.27IN CABLE DIA, TWO HOLE, MALE PIPE THREAD, 6MM

CONTRACTOR INFORMATION
Big Dog Renewable Electric Energy
Contractor Lic # EC.0100531
620 Pheasant Ridge Dr
Chubbuck, ID 83202
208-242-3352 T
208-232-5935 F X

DESIGNED BY
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DATE	
7/16/2020	
REQUIRED SIGNAGE	
ISSUED FOR: PERMIT	