INTERCONNECTED POWER SOURCES

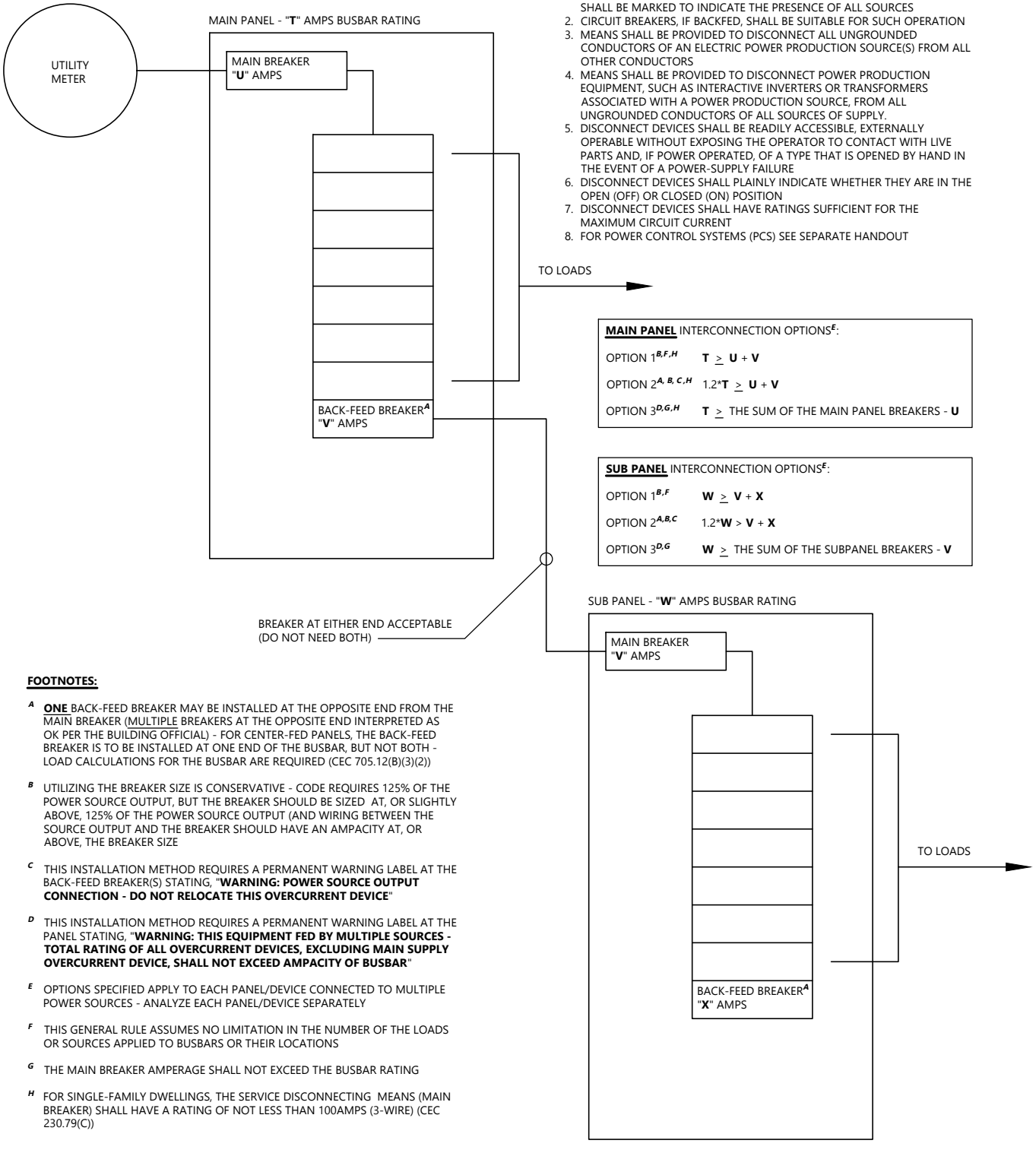
City of
SANTA ROSA
Planning & Economic
Development - Building Division

LAST UPDATED: 01 DEC 2023

THIS DRAWING DEPICTS MINIMUM CODE REQUIREMENTS PER THE 2022 CALIFORNIA CODE CYCLE - INFORMATION IS FOR REFERENCE ONLY AND IS NOT A SUBSTITUTE FOR ACCURATE DRAWINGS PREPARED FOR EACH PROPOSED CONSTRUCTION PROJECT

LOAD SIDE INTERCONNECTION

CALIFORNIA ELECTRICAL CODE (CEC) 705.12



GENERAL NOTES:

1. EQUIPMENT CONTAINING OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO A BUSBAR OR CONDUCTOR SUPPLIED FROM MULTIPLE SOURCES SHALL BE MARKED TO INDICATE THE PRESENCE OF ALL SOURCES
2. CIRCUIT BREAKERS, IF BACKFED, SHALL BE SUITABLE FOR SUCH OPERATION
3. MEANS SHALL BE PROVIDED TO DISCONNECT ALL UNGROUNDED CONDUCTORS OF AN ELECTRIC POWER PRODUCTION SOURCE(S) FROM ALL OTHER CONDUCTORS
4. MEANS SHALL BE PROVIDED TO DISCONNECT POWER PRODUCTION EQUIPMENT, SUCH AS INTERACTIVE INVERTERS OR TRANSFORMERS ASSOCIATED WITH A POWER PRODUCTION SOURCE, FROM ALL UNGROUNDED CONDUCTORS OF ALL SOURCES OF SUPPLY.
5. DISCONNECT DEVICES SHALL BE READILY ACCESSIBLE, EXTERNALLY OPERABLE WITHOUT EXPOSING THE OPERATOR TO CONTACT WITH LIVE PARTS AND, IF POWER OPERATED, OF A TYPE THAT IS OPENED BY HAND IN THE EVENT OF A POWER-SUPPLY FAILURE
6. DISCONNECT DEVICES SHALL PLAINLY INDICATE WHETHER THEY ARE IN THE OPEN (OFF) OR CLOSED (ON) POSITION
7. DISCONNECT DEVICES SHALL HAVE RATINGS SUFFICIENT FOR THE MAXIMUM CIRCUIT CURRENT
8. FOR POWER CONTROL SYSTEMS (PCS) SEE SEPARATE HANDOUT

MAIN PANEL INTERCONNECTION OPTIONS[E]:

OPTION 1[B,F,H]	**T** ≥ **U** + **V**
OPTION 2[A, B, C, H]	1.2***T** ≥ **U** + **V**
OPTION 3[D,G,H]	**T** ≥ THE SUM OF THE MAIN PANEL BREAKERS - **U**

SUB PANEL INTERCONNECTION OPTIONS[E]:

OPTION 1[B,F]	**W** ≥ **V** + **X**
OPTION 2[A,B,C]	1.2***W** > **V** + **X**
OPTION 3[D,G]	**W** ≥ THE SUM OF THE SUBPANEL BREAKERS - **V**

FOOTNOTES:

[A] **ONE** BACK-FEED BREAKER MAY BE INSTALLED AT THE OPPOSITE END FROM THE MAIN BREAKER (MULTIPLE BREAKERS AT THE OPPOSITE END INTERPRETED AS OK PER THE BUILDING OFFICIAL) - FOR CENTER-FED PANELS, THE BACK-FEED BREAKER IS TO BE INSTALLED AT ONE END OF THE BUSBAR, BUT NOT BOTH - LOAD CALCULATIONS FOR THE BUSBAR ARE REQUIRED (CEC 705.12(B)(3)(2))

[B] UTILIZING THE BREAKER SIZE IS CONSERVATIVE - CODE REQUIRES 125% OF THE POWER SOURCE OUTPUT, BUT THE BREAKER SHOULD BE SIZED AT, OR SLIGHTLY ABOVE, 125% OF THE POWER SOURCE OUTPUT (AND WIRING BETWEEN THE SOURCE OUTPUT AND THE BREAKER SHOULD HAVE AN AMPACITY AT, OR ABOVE, THE BREAKER SIZE

[C] THIS INSTALLATION METHOD REQUIRES A PERMANENT WARNING LABEL AT THE BACK-FEED BREAKER(S) STATING, "**WARNING: POWER SOURCE OUTPUT CONNECTION - DO NOT RELOCATE THIS OVERCURRENT DEVICE**"

[D] THIS INSTALLATION METHOD REQUIRES A PERMANENT WARNING LABEL AT THE PANEL STATING, "**WARNING: THIS EQUIPMENT FED BY MULTIPLE SOURCES - TOTAL RATING OF ALL OVERCURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR**"

[E] OPTIONS SPECIFIED APPLY TO EACH PANEL/DEVICE CONNECTED TO MULTIPLE POWER SOURCES - ANALYZE EACH PANEL/DEVICE SEPARATELY

[F] THIS GENERAL RULE ASSUMES NO LIMITATION IN THE NUMBER OF THE LOADS OR SOURCES APPLIED TO BUSBARS OR THEIR LOCATIONS

[G] THE MAIN BREAKER AMPERAGE SHALL NOT EXCEED THE BUSBAR RATING

[H] FOR SINGLE-FAMILY DWELLINGS, THE SERVICE DISCONNECTING MEANS (MAIN BREAKER) SHALL HAVE A RATING OF NOT LESS THAN 100AMPS (3-WIRE) (CEC 230.79(C))

FREE ACCESS TO CALIFORNIA CODES: https://www.dgs.ca.gov/BSC/Codes#@ViewBag.JumpTo

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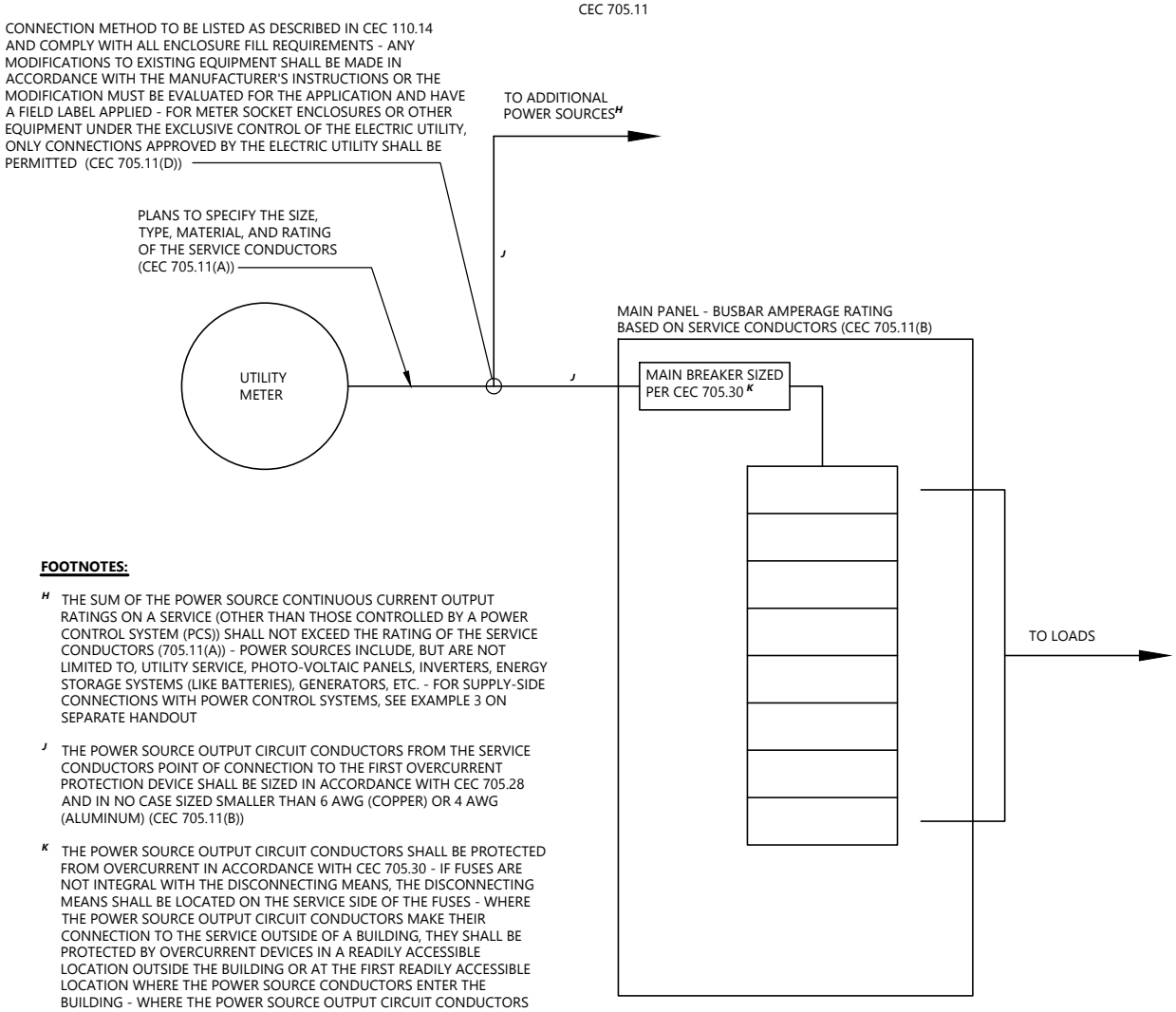
SUPPLY SIDE INTERCONNECTION

(REQUIRES SPECIAL APPROVAL FROM MAIN SOURCE UTILITY (PG&E))
CEC 705.11



FOOTNOTES:

H THE SUM OF THE POWER SOURCE CONTINUOUS CURRENT OUTPUT RATINGS ON A SERVICE (OTHER THAN THOSE CONTROLLED BY A POWER CONTROL SYSTEM (PCS)) SHALL NOT EXCEED THE RATING OF THE SERVICE CONDUCTORS (705.11(A)) - POWER SOURCES INCLUDE, BUT ARE NOT LIMITED TO, UTILITY SERVICE, PHOTO-VOLTAIC PANELS, INVERTERS, ENERGY STORAGE SYSTEMS (LIKE BATTERIES), GENERATORS, ETC. - FOR SUPPLY-SIDE CONNECTIONS WITH POWER CONTROL SYSTEMS, SEE EXAMPLE 3 ON SEPARATE HANDOUT

J THE POWER SOURCE OUTPUT CIRCUIT CONDUCTORS FROM THE SERVICE CONDUCTORS POINT OF CONNECTION TO THE FIRST OVERCURRENT PROTECTION DEVICE SHALL BE SIZED IN ACCORDANCE WITH CEC 705.28 AND IN NO CASE SIZED SMALLER THAN 6 AWG (COPPER) OR 4 AWG (ALUMINUM) (CEC 705.11(B))

K THE POWER SOURCE OUTPUT CIRCUIT CONDUCTORS SHALL BE PROTECTED FROM OVERCURRENT IN ACCORDANCE WITH CEC 705.30 - IF FUSES ARE NOT INTEGRAL WITH THE DISCONNECTING MEANS, THE DISCONNECTING MEANS SHALL BE LOCATED ON THE SERVICE SIDE OF THE FUSES - WHERE THE POWER SOURCE OUTPUT CIRCUIT CONDUCTORS MAKE THEIR CONNECTION TO THE SERVICE OUTSIDE OF A BUILDING, THEY SHALL BE PROTECTED BY OVERCURRENT DEVICES IN A READILY ACCESSIBLE LOCATION OUTSIDE THE BUILDING OR AT THE FIRST READILY ACCESSIBLE LOCATION WHERE THE POWER SOURCE CONDUCTORS ENTER THE BUILDING - WHERE THE POWER SOURCE OUTPUT CIRCUIT CONDUCTORS MAKE THEIR CONNECTION TO THE SERVICE INSIDE A BUILDING, THEY SHALL BE PROTECTED BY AN OVERCURRENT DEVICE LOCATED WITHIN 10ft FROM THE POINT OF CONNECTION TO THE SERVICE