

CPUC Staff Ex Ante Review

CPUC Staff Project ID Number	SCE 19 C C 355
CPMPA Directory Link	https://dce.resources.info/cmpa/projects/15834
PA	SCE
PA Application ID	
PA Application Executed Date	
PA Program ID	SCE-13-SW-002G
PA Program Name	Savings by Design (SBD)
PA Program Year	2019
Date of CPUC Staff Review:	8/11/2020
PA CMPA Upload Dates Included in this review:	
First PA Upload	1/7/2020
Second PA Upload	5/25/2020
Third PA Upload	N/A
PA Measure Description(s):	
Measure 1	New Construction - Above Code Comprehensive Design - Overall Building Performance
Measure 2	
Measure 3	
Measure 4	
Measure 5	
Measure 6	
Measure 7	
Measure 8	
Measure 9	
Measure 10	
PA Project Description:	New construction of Roof and exterior wall insulation Two VRF systems, Five high efficiency mini-split units and high efficiency LED lighting
PA Ex Ante kW Demand Reduction	
PA Ex Ante Annual kWh Impacts	
PA Ex Ante Annual Therm Impacts	
PA Proposed Incentive \$ (to Customer)	
PA Proposed Total Payment to Implementer \$ (not to include the above incentive to customer)	
CPUC Staff Approved Ex Ante kW Demand Reduction	
CPUC Staff Approved Ex Ante Annual kWh Impacts	
CPUC Staff Approved Ex Ante Annual Therm Impacts	
CPUC Staff Primary Reviewer Name	
CPUC Staff Primary Reviewer Firm	
CPUC Staff Review Supervisor Name	
CPUC Staff Review Supervisor Firm	
PA Primary Reviewer Name	
PA Primary Reviewer Firm	
CPUC Staff Project Manager	
CPUC Staff Policy Authorization (as needed)	
CPUC Staff Recommendation Marked "X":	
	Application ready to proceed without exception
X	Application ready to proceed with exception(s) as noted
	Application rejected
	Application not ready for review revised and resubmit as notes

Action Number:	Summary of CPUC Staff Required Action by the PA:	Action Category	Due Date	PA Response	ED Resolution
	<p>Reviewer notes: "Please note that the EPro model has many errors that need to be fixed before the energy savings can be estimated. The most serious error is the way the two primary AHUs are modeled. The PA and SBD Team are claiming this is a VRF system and they go to great lengths with documentation to allow use of VRF in this case. However, the Plans Schedules and Submittals all indicate the AHUs are not a VRF system as defined by CEC and EnergyPro. The AHUs are central system VAVs with heat pump heat and cool and electric resistance reheat VAV terminal boxes. The model has a bad mix of VRF and VAV elements not done properly for either type of system. EnergySoft has guidelines published for both types of systems that the SBD Team should review. Savings results could be very different maybe negative when all model errors are fixed."</p> <p>We would like to request that the model be thoroughly re-reviewed and all errors corrected. The project can then be re-submitted again if eligible at that point. Thank you.</p>	Issue with Calculation on Method	N/A		See below.
	<p>There are several problems with the EnergyPro model.</p> <ol style="list-style-type: none"> The systems and zones of the AHUs are attempted to be modeled as ductless multi-split VRF systems. But according to the plans and equipment schedules of the 75%CD set, the AHUs are central system VAVs with heat pump heating and cooling with single-duct VAV terminal units with electric resistance reheat. Model must be adjusted to the correct system and terminal units. On the systems levels of the model, the distribution is input as existing. This needs to be corrected for all systems. Per plans for AHUs, the ducts are New Ducted Located in conditioned space and should be sealed with leakage verified. For the CU systems, the ducts are New and Ductless/with fan. One of the EEM recommendations is for insulation inside metal framed walls. The Epro model has the metal framed walls as [redacted] in the JA4 tab but has [redacted] in the Layer tab. Model must be corrected. Additionally, neither of those walls actually pass the prescriptive minimum U-factor for metal framed walls. This is not an EEM. The slab-on-grade floor elements are missing the Ext Perimeter lengths. The windows are input correctly as center-of-glass ratings but need to change the Fenestration Type as where appropriate to Curtainwall/Storefront to get full credit. Per plan [redacted] and the EEM recommendations, the roof insulation is supposed to be [redacted]. The Epro model has a [redacted]. This needs to be corrected to match permitted plan set. The Epro model includes raised floor elements on all second floor rooms. These should be corrected to interior surfaces. There are missing exterior walls on some conditioned rooms. There are some walls with the wrong orientation. Example is room [redacted] that has the wall with a window that should be facing east not north. This room is also missing a short north facing wall. The modeled orientation of the building needs to be turned to the true compass direction. The unconditioned and indirectly conditioned areas are missing from the model like the [redacted]. The associated lights and fans are missing from the energy consumption. The conditioned area of the building is short. Refer to 2016 CEC 100.1(b) for the definitions of "Conditioned Floor Area" and "Conditioned Space". The lighting plan was not submitted for the [redacted] so the lights in the model were not reviewed. The model lighting needs to be adjusted to match the permit plan set. 			<p>Fixed all warning errors by correcting occupancies within appropriate ranges.</p> <ol style="list-style-type: none"> Model corrected to be VAV packaged with VAV zone terminal units with heating. Duct changed to new with sealed leakage verified. [redacted] from EnergySoft mentioned that only layers tab is used for calculations under SBD module. Exterior wall changed to match design and now it meets prescriptive U = 0.07 values. Added all exterior perimeter lengths. Updated storefront type. Updated to [redacted]. Updated to interior surfaces. Updated missing exterior wall. Updated orientation 330 degrees from N. 10. Added restrooms areas and exhaust fans. Added lighting to missing zones. 	<p>7-13-2020 After review of the resubmitted energy model files and other information, there are still problems with the resubmitted EnergyPro model. Preliminary adjustments made by reviewer indicate that project should remain eligible after remaining issues are addressed.</p> <ol style="list-style-type: none"> The resubmitted files include two model files: one is based on VAV systems and one is based on VRF systems. The PA goes on to use a separate spreadsheet calculation to derive a mixture of savings estimates from the two different model results. The construction documents and plans all confirm this is a VAV system. EnergySoft publishes the Mechanical System Modeling Guide Variable Refrigerant Flow (VRF) Systems, in which they describe a VRF system as: "Variable refrigerant flow (VRF) systems condition space by distributing refrigerant directly to indoor units located in multiple rooms or zones." None of the construction documents support the use of the VRF modeling technique. EnergyPro VRF system modeling is not an appropriate application for this project. The VRF type energy model should be disregarded from the calculations. The VAV type energy model needs to use the appropriate efficiency ratings to include the use of the specified heat pump condensing unit. The [redacted] condensing unit has a published AHR ratings certificate for COP, EER, and IEER ratings. Change model to match these ratings. The distribution needs to be changed to show Duct Location = Conditioned. This building does not have an attic. It can be readily proven that the values used in the JA4 tab have a direct effect on the calculated results for both the compliance and NC calculations. It is imperative that the information on the JA4 and the Layers tabs are correct and in agreement for all building elements. As an example, the [redacted] according to plans is a metal framed (not metal building wall with R-19 batt insulation). The current model mistakenly names that wall assembly as [redacted]. The JA4 correctly imports the [redacted] (JA4 4.3.3.A6) but then mistakenly indicated additional interior and exterior framing as metal, which artificially improves the U-factor. The Layers tab calls out just one element which is incorrectly input as a [redacted]. "This is not a metal building and it does not have two layers of blanket insulation. The corrected wall of [redacted] results in assembly U-factor of 0.160 which does not meet the minimum prescriptive requirements. Most of the zones still do not have the Slab on Grade Ext. Perimeter correct. A review of the first (10) zones found that (6) have the wrong perimeter value. The first zone [redacted] lists [redacted] feet but the measured ext perimeter from sheet A-B2.10 is [redacted] feet. All Ext Perimeter values need to be corrected. Window inputs appear to be done correctly. The current model has two types of roof assemblies input. Both are incorrect per the roof plan and details. The JA4 and layers should both be input as [redacted] JA4 4.2.2.A5 plus [redacted] plus [redacted]. Resulting in about 0.031 U-factor. The proper interior surface on a second floor is a floor assembly, not a wall assembly. Change second level floors to uninsulated raised floor interior surface. Room [redacted] still has the wrong inputs for wall areas, window areas, and wall directions. All walls and windows need to be confirmed. The building orientation appears to be consistent now with the key plan. Add the [redacted] return/relief fans [redacted] & [redacted] to [redacted] & [redacted] respectively. Add Toilet [redacted] Change [redacted] and [redacted] to zone [redacted]. Add the restrooms and associated fan and lights. Need to include indirectly conditioned rooms like [redacted]. As an example B104 is indirectly conditioned with transfer air from [redacted] so [redacted] floor area is added to [redacted] and add the slab exterior wall and exhaust fan [redacted]. Do same for all other indirectly conditioned rooms. [redacted] lighting plans are still not submitted so no review is made. The PA to confirm lighting in model matches construction plans. For all [redacted] through [redacted] on the System level and Distribution tab, change the Cooling Distribution to Ductless.

Note or Instruction Number:	CPUC Staff Notes or Instructions:	Instruction Category	Due Date		
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CPUC Staff Recommendation Definitions	
CPUC Staff Recommendation	Definition
Application ready to proceed without exception	The PA will continue to upload application documents to the CMAA directory through the implementation and claims phases of the project. The PA may proceed to approve the project without waiting for CPUC Staff response. A project is waived from further review at the post-installation stage by CPUC staff but the PA is responsible for post-installation (IR) review. There will not be conditional approval.
Application ready to proceed with exception(s), as noted	<p>The PA must make revisions or changes as noted in CPUC Staff's review comments. The PA will continue to upload application documents to the CMAA directory through the implementation and claims phases of the project. The PA may proceed to approve the project without waiting for CPUC Staff response. If CPUC Staff decides to perform IR review of a project CPUC Staff will notify the PA. The scope will be limited to determine if the project was carried out consistent with the application and notes provided during pre-installation review and to obtain information pertaining to whether the eligibility criteria or metrics should be revised.</p> <p>Unless the scope of work presented in project application has changed at IR review the project will not be reviewed again in the areas specified below. Scope change is defined by substantial changes include significant modifications to the proposed equipment type size quantity configuration the expansion of a project to include additional retrofits or the splitting of a project into multiple phases.</p> <p>The following areas will not be reviewed again by CPUC Staff:</p> <ul style="list-style-type: none"> • Calculation Tool • Calculation Methodology • M&V Plan • Baseline • Eligibility • EUI/RUL • Measure Type • Program Influence
Application rejected.	<p>The application is rejected as submitted. The PA shall promptly inform the applicant as to the reasons why the project was rejected and the specific recommendations for the conditions under which the project would be approved. CPUC Staff shall provide the reasons for the rejection or request for modification including each basis as to why the project is rejected or modification is requested. In addition CPUC Staff shall provide specific recommendations for the conditions under which the project would be approved.</p> <p>If any party to the project is unsatisfied with the Commission's directions for the project a dispute resolution process may be initiated by that party. The Commission shall adopt rules for the conduct of the dispute resolution process. —Section 381.2 (g) (3) (f)</p>
Application not ready for review, revised and resubmit as noted	The application has deficiency in the supporting documentation and the PA has provided incomplete documentation. The complete documentation has been defined in the Statewide Custom Projects Guidance Document. Please note that this is not a final recommendation from CPUC staff. This recommendation is limited to two requests per application.