

Commercial Energy Compliance



Electrification Technical Assistance Program

Request Description

Innovative design engineers have difficulty demonstrating compliance with the California Energy Code for some all-electric building systems. A recurring issue is that commercial central hydronic air source heat pump (ASHP) plants that provide space heating are not provided either a prescriptive pathway or a performance (simulation-based) pathway in the Energy Code. While the California Energy Commission regularly updates compliance tools, this equipment has not yet been integrated. Building officials are generally deferential to the compliance software's standard capabilities and not always technically equipped to review exceptional conditions.

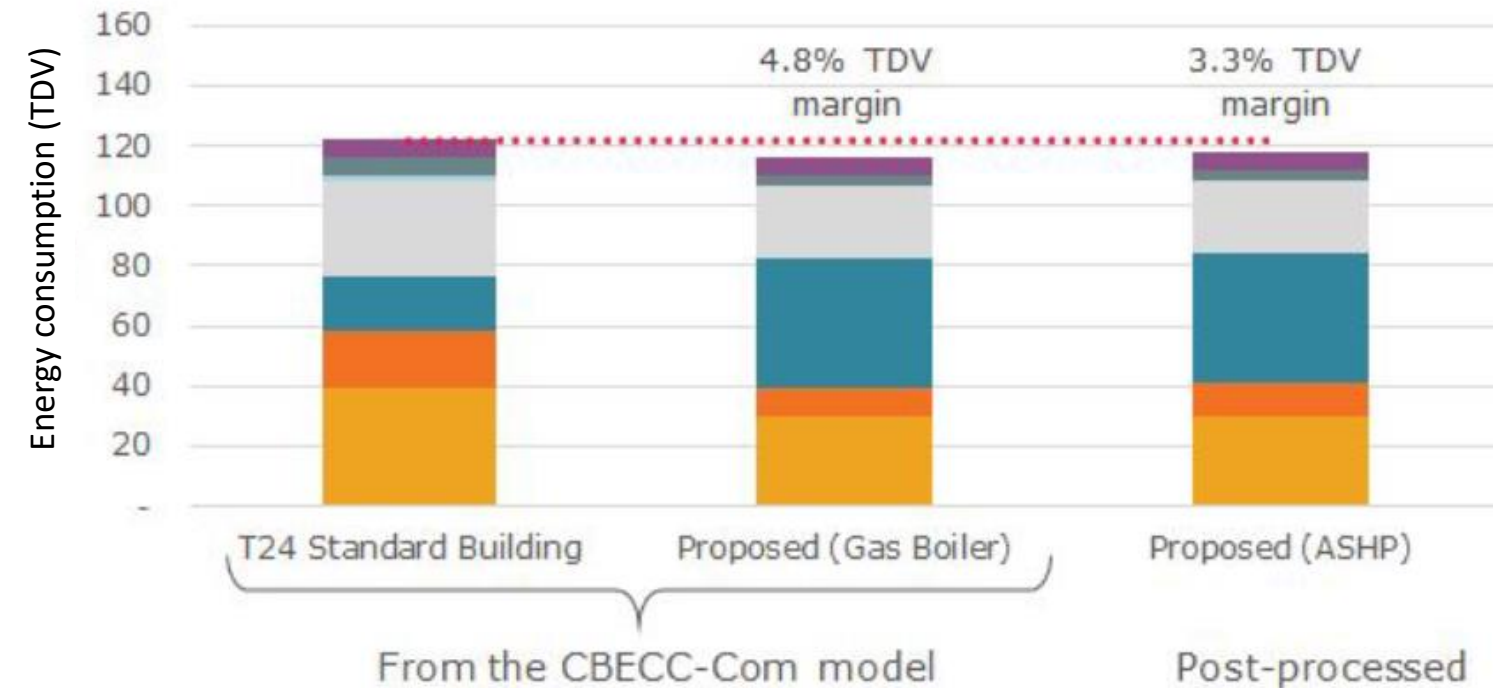
Developers must decide whether to risk proceeding with an all-electric design and potentially be denied a building permit, or to switch to a natural gas boiler space heating system. Many developers are unlikely to afford rigorous studies demonstrating compliance using the Exceptional Design method outlined in Section 10-104 and 10-110 of the Energy Code. Design engineering teams play a key role in describing energy compliance to the building official, but are not impartial.

Support Offering

The Technical Assistance Program team supported building officials and the design team by providing a third-party review of the energy compliance calculations using spreadsheet-based post-processing. The developer's design engineering team leveraged the Exceptional Condition option in compliance software (CBECC-Com) for 'significant modelling approximations,' and submitted a narrative to describe the system and estimates in detail.

The Program team performed a rigorous review of design drawings, energy models, and post-processing spreadsheets, including all major building systems. The Program team reviewed for accuracy, justifiable methods, discrepancies and approximations, and provided an overall assessment to the building official. The building official agreed with the Program team's recommendations and approved the energy code compliance pathways in principle in two separate instances. With the Program team's assistance the project developers can move forward with all-electric designs with confidence that they will be approved by the building officials.

Energy Code (Title 24 Part 6) Compliance



| Project Summary | |
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| Building systems of interest | Central hydronic air source heat pump space heating |
| Referral source | Building officials |
| Location | Two instances: San Bruno and South San Francisco |
| Building occupancy type | Large office |
| Approximate square footage | 200,000 ft ² |
| Stage of project design | Design development |
| Question or issue description | Energy Code compliance approach |
| Profession | Building Officials |
| Project description | New construction multi-story office buildings |
| Program assistance provided | Third-party compliance verification |