

## **Project #21 – High Performance**



# **Coopers Hawk Terrace Phase 3**

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Participant Information:  
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Category: Multifamily - High Performance

Project Information:  
Coopers Hawk Terrace Phase III  
12870 Sylva Lane  
Sonora, CA 95370

Date completed: 2021

Total sq.ft.: 1152 s/f per duplex/single family residence with 150 s/f entry/dining covered porch

Built by:  
Delillo Contracting  
Dale Delillo  
23656 Porcina Way  
Columbia, CA 95310  
510-468-8253

Panels Manufactured by: Premier Building Systems LLC

Designed by:  
Zero-Energy Plans LLC  
Ted L. Clifton  
2360 Como Ave.  
Coupeville, WA 98239  
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360-678-7000



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### Building use:

Multifamily duplex/single family home development

SIP wall thickness: 5.5" core graphite-infused SIPs

SIP roof thickness: 6" core graphite-infused SIPs, over R-15 batts in top chord of truss

Benefits of using SIPs on this project. Did SIPs help save time, labor, construction costs, or energy?

SIPS provide superior insulation and air-sealing, while eliminating the need to vent the attic, which is a big deal when it comes to the Wildlands-Urban Interface Code. Construction time was also a factor, as site labor is increasingly in short supply.

### Any innovative design elements or structural engineering:

The SIPS -over-Truss construction allows longer spans, while keeping some attic space for ductwork and fire suppression systems. The use of R-15 batts in the top chord of the truss beneath the R-28 SIPS panel gives us a well air-sealed R-43 assembly, with no thermal bridging. Gable end walls go all the way to the bottom of the SIPS panel, which provides all the overhangs, without requiring additional framing.

### Certifications the project received:

This project was designed to the US DOE Zero-Energy-Ready standard, which includes EPA Indoor Air Plus. I do not know if testing was done or if the project was certified. They have a different (nonHERS) system in CA.

### Energy use intensity in kBtu/ft<sup>2</sup>:

The total envelope heat loss for the duplex was 13,581 Btu/h on the design degree day. This would represent an energy intensity of 5.895 Btu/sf.

### HVAC:

Each unit uses a Mitsubishi Ductless heat pump for heating and cooling, and features a tier-3 heat pump water heater for domestic hot water.

### Additional energy-saving materials used in the building envelope:

Vinyltek triple-pane windows were used, with low SHGC and a U-value of .16

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### Additional energy-efficient products or design features:

All appliances were the lowest energy-use in their respective categories. 100% of lighting is LED. The homes were designed to receive maximum benefit from their passive design. Water heating, mentioned above, is at a Co-efficient of Performance of 3.35.

### Solar panels installed:

Solar panels were designed in from the beginning, but not yet installed due to issues with PG&E. With solar panels on the garages only, these units will completely power themselves and the owners cars (two cars per unit at 10,000 miles per car per year). With the entire south-facing roofs fitted with solar panels, these 18 residential units would power themselves, AND an addition 54 average existing homes in the neighborhood.

Additional sustainable materials or design features not listed above, such as recycled materials, low-VOC finishes, landscaping, etc.:

Exteriors are all Hardi-plank, Hardi-panel, and Hardi-trim, for fire-proof exteriors. The roofs are all steel standing-seam roofing, for the same reason. The finished floors are all dyed concrete.

### Additional comments:

The 6" GPS roof panels were set on standard trusses. There is no overhang on the trusses and no bird-blocking...only solid blocking between trusses in accordance to the Wildlands - Urban Interface Code. The bottom chord of the trusses provides a fully enclosed attic completely inside the SIPS building envelope, with only the ends of the trusses needing to be spray-foamed. The required sprinkler system is free to run along the bottom chord of the trusses. The combination of Hardi-Siding, and Hardi-Soffit along with all the tempered glass in the windows and the steel roofing provide a fireproof exterior shell. This is something to be touted widely. PG&E, get out of our way!!!



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