HYBRID PANELIZED ROOF

New Earth Market

Yuba City, California

There is a newcomer to the natural food scene in California—New Earth Market—founded by a group of entrepreneurial families who saw a need in their community for sustainable, organic and seasonal products harvested within a 100-mile radius.

The 20,000-square-foot market includes a hybrid panelized roof system that offered the benefit of wood’s lower cost while integrating exposed steel to achieve the modern industrial look the client wanted. All-wood and hybrid panelized roof systems are popular on the west coast for their cost-effectiveness and speed of construction, but they can be used in retail, commercial and office applications anywhere—on almost any structure with a large, low-sloped roof.

The roof was designed using RISAFloor engineering software, which was recently updated to include a full range of wood features. Developed by RISA Technologies, RISAFloor and RISA-3D can now be used in tandem to design entire wood buildings or hybrid structures made from wood and other materials.

For more information, a webinar on panelized roof systems is available at woodworks.org in the Online Training Library.
While minimizing the building’s carbon footprint may not have been a stated design objective, wood offers two significant carbon benefits. It continues to store carbon absorbed during the tree’s growing cycle for the lifetime of the product—or longer if repurposed for another use. By substituting wood for steel or concrete, which require large amounts of fossil fuels to manufacture, it is also responsible for ‘avoided’ greenhouse gas emissions.

In keeping with its owners’ sustainability ideals, the New Earth Market stores 70 metric tons of carbon in its wood products and is responsible for 160 metric tons of avoided emissions—giving it a total carbon benefit of 230 metric tons. Wood is also the only major building material that is renewable and sustainable over the long term.

Owner: New Earth Properties
Architect: KD Architects
 Structural Engineer: Goodnight Structural Engineering
 Construction: Hilbers, Inc.

*CO₂ in this case study refers to CO₂ equivalent

Climate Change Advantage

| Volume of wood used: 80 cubic meters / 2,825 cubic feet of lumber, panels and engineered wood |
| U.S. and Canadian forests grow this much wood in: 14 seconds |
| Carbon stored in the wood: 70 metric tons of CO₂* |
| Avoided greenhouse gases: 160 metric tons of CO₂* |
| Total potential carbon benefit: 230 metric tons of CO₂ |

Equivalent to:
- 45 cars off the road for a year
- Energy to operate a home for 20 years

Source: US EPA 2010

For information on the calculations in this chart, visit woodworks.org