

# *Disaster Resistant Homes*<sup>®</sup>

## *Materials Specified in Disaster Resistant Homes*<sup>®</sup>

Examples of materials used in the Foundation, Structural Insulated Panels SIP, Building Wrap, Floor & Roof Trusses, Wall & Roof Sheathing, Exterior Wall Materials, Exterior Roofing Materials.

Please see PDF titled: **Architectural Styles for Disaster Resistant Homes**<sup>®</sup>

*By the use of non-combustible & self-extinguishing Structural and Exterior Materials*

***...design your home with us and save the trees...***

Innovative Design, Development & Construction Company

GENERAL ENGINEERING & GENERAL BUILDING CONTRACTOR and Designer CA LIC # 539500

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In Partnership with



Developers Corporation

[www.ecousadevelopers.com](http://www.ecousadevelopers.com)

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## How to Design & Build Disaster Resistant Homes® ?

*By the designing, specifying and using of 'only' non-combustible & self-extinguishing Structural and Exterior Materials.*

## What is the process of designing a Disaster Resistant Home® ?

and also see the PDF file Titled: 'Introduction to Design And Building Processes' @ [www.ecousadevelopers.com](http://www.ecousadevelopers.com)

*The steps to see your home design in a virtual walk through, on your computer or with your cell phone becoming virtual reality viewer. We use Chief Architect Software Platform.*

1. what architectural style do you like? you can adjust as we go through the design process?
2. the approximate size in sq/ft for the home?
3. If you have a lot in mind, we should optimize the siting of your home for views and passive solar?
3. Kind of Floor Plan? An open floor plan, what kind of Great Room Size with kitchen and style do you like?
4. the kind of Bedrooms, closets, & sizes, do you like?
5. the kind Bathrooms, fixtures, & sizes do you like?
6. we can then layout a preliminary floor plan for you to adjust to your vision, as much as needed,
7. any other additions or other features, or special needs?
8. then we can preliminarily finalized floor plan, and design the windows & doors,
9. then design initial designs for ceilings and roofs layouts, you like,
10. then we will layout your preliminary home design for your 1st virtual walk through,
11. then adjust features and spaces from you virtual walks through, until you know this is your home.
12. then we will finalize your spaces & architectural features for your final OK and virtual walk through.

*Repeat these steps as many times as needed to see your dream home.*

13. Then create your official Plans & Specifications, sometimes with the help of an Architect or our engineers to submit to any planning and building agency, with your plot plan and the engineering details supplied by the engineers.

*We design your home for these certifications and verifications.*

*Which will save on energy bills for the life of your home*



**The Features & Benefits of the certifications:**

***Disaster Resistance:***

Natural Events (Resistance to Wild Fires, Earthquakes  
Pests Termites, Mold, Fungus, Bacterial  
Weather, wind loads, Hurricanes)

***Solar Ready:***

PV Solar Electric with Battery backup & EV charging

***Water Efficiency:***

Heat Pump Hot Water Heater

Drought resistant landscaping, automated Irrigation, vegetable garden, fruit and nut trees

***Building Science:***

High R value Thermal Enclosure with SIP panel construction  
HVAC should be a heat pump system for highest efficiency

***Indoor Air Quality:***

Automated fresh Air exchanges & Filtration

***Efficient Components:***

Heat Pump HVAC

LED Lighting & high efficiency Appliances

***Best Practices:***

Self-extinguishing Insulation of high R values  
Low U value triple glazed windows for best efficiency  
Super secure metal clad Doors for fire and personal safety

***The Features above are what we have the engineers specify in your Plans & Specifications  
and certify after your home is built***

*We design the finest quality home possible, for safety, for energy efficiency, and for your health  
& comfort.*

## Foundation System, Specifications

*The Innovations used in the Homes' Foundation System*



Showing a commercial store slab foundation before the concrete pour using, mono slab® Forms

The picture shows zero wood Forms, using, mono slab® concrete forms,

Rebar reinforcing,

Hydronic heating and cooling circuits,

Vapor Barrier 20mil thick,

Thermal Barrier of minimum 2" thick Styrofoam,



All vapor barrier seams and penetrations are sealed with tape



The Stego Wrap rolls vapor barrier 20 mil

***We Specify and build with Structural Insulated Panels SIPs,  
That contain zero wood products.***

*Depending on the location of the home in the USA,  
and the back order time to delivery of SIP panels, of the 3 companies,  
we order the SIP panels from one of the 3 companies.*

*Company #1 Thermasteel Company with Brand name REVPANEL® System is shown below*



## THE REVPANEL SYSTEM

COMPOSITE STRUCTURAL INSULATED PANELS  
by THERMASTEEL

**Strong**

- ▶ The ability to build up to eight stories with no additional structure.
- ▶ Hurricane, fire and seismic resistance.

**Thermally Efficient**

- ▶ Provides the highest R-values available. Up to R-49 effective.

**Cost Effective**

- ▶ Four-in-One structure, insulation, sheathing, and vapor barrier.
- ▶ Reduces time to enclose.
- ▶ Quick assembly reduces processes and labor at every stage, reducing overall cost.
- ▶ Pre-engineered system. Panels arrive on job site with door and window openings cut, reduces labor, skill requirements, and scrap.

**Sustainable**

- ▶ 20% recycled materials, 100% recyclable.

**Safe**

- ▶ Fire retardant
- ▶ Mold resistant
- ▶ Pest deterrent
- ▶ Non-toxic, VOC free



Thermally Broken - Dual Opposing Frames



ThermaSteel Wall, Structural Insulated Panels, SIP Panel System



Standard xPanel dimensions are 48" w x 96" thru 144" long. Single and compound angles available as needed.

5.5"-7.5" Thickness  
R-35 to R-47 (Effective)  
4-in-1, Structure, Insulation, Sheathing, Vapor Barrier  
Load bearing up to 24,000plf (12GA)  
Up to 8 stories with no additional structure  
Density 1.5pcf  
Arrives on site with doors and windows cut



Standard iPanel dimensions are 48" w x 96" thru 144" long. Single and compound angles are available as needed.

3.5" Thickness  
R-29  
Load Bearing 13,568plf (16Ga)  
Arrives on site with door openings cut



Standard rPanel dimensions are 48" w x 96" thru 144" long. Single and compound angles are available as needed. Spans longer than 144" can be achieved in several ways.

5.5" and 7.5" Thickness  
R-35 to R-47 (Effective)  
Up to 220mph wind load  
EPS density 1-1.5pcf  
Arrives on site with door and window openings cut



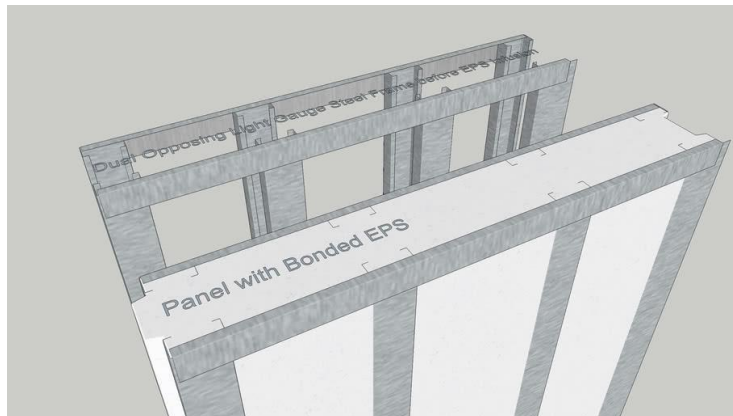
Standard fPanel dimensions are 48" w x 96" thru 144" long.

Thickness - 10.5" and 11.5" with concrete (by others)  
Free spans up to 30ft  
50 p/sq live load

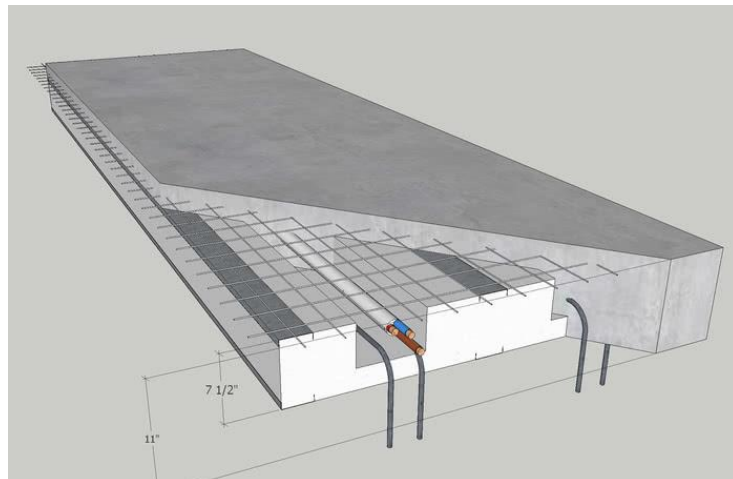


*ThermalSteel, Exterior Walls, Interior Walls, Floor System, and Roof System,  
Structural Insulated Panels, SIP Panel System.*

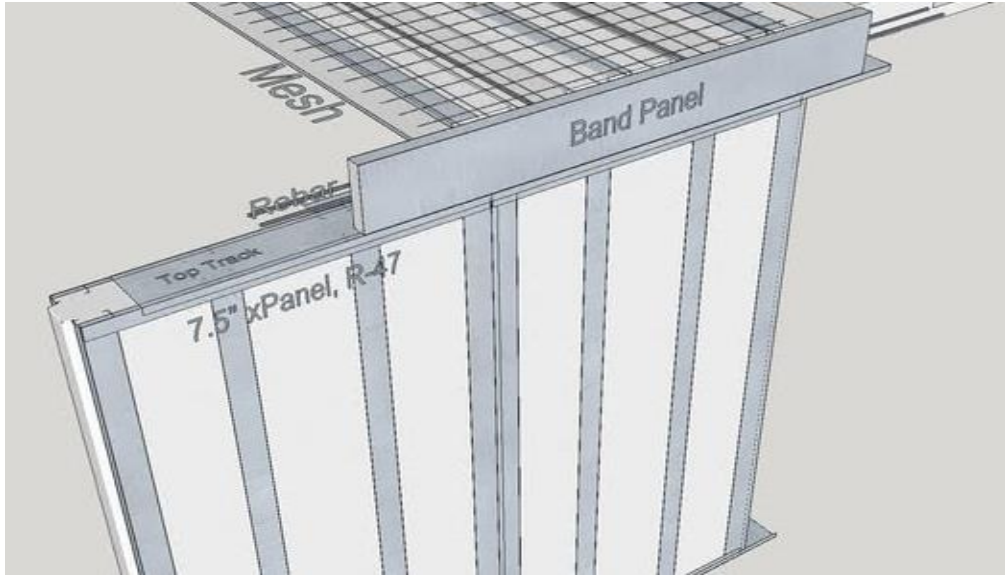
*Thermasteel SIP panels will provide you the highest R value, safe structural integrity, in wild fire, earthquake, and high wind events that your home will encounter in your homes life.*



Above ThermalSteel Wall SIP Panel System



Above ThermalSteel Floor SIP Panel system



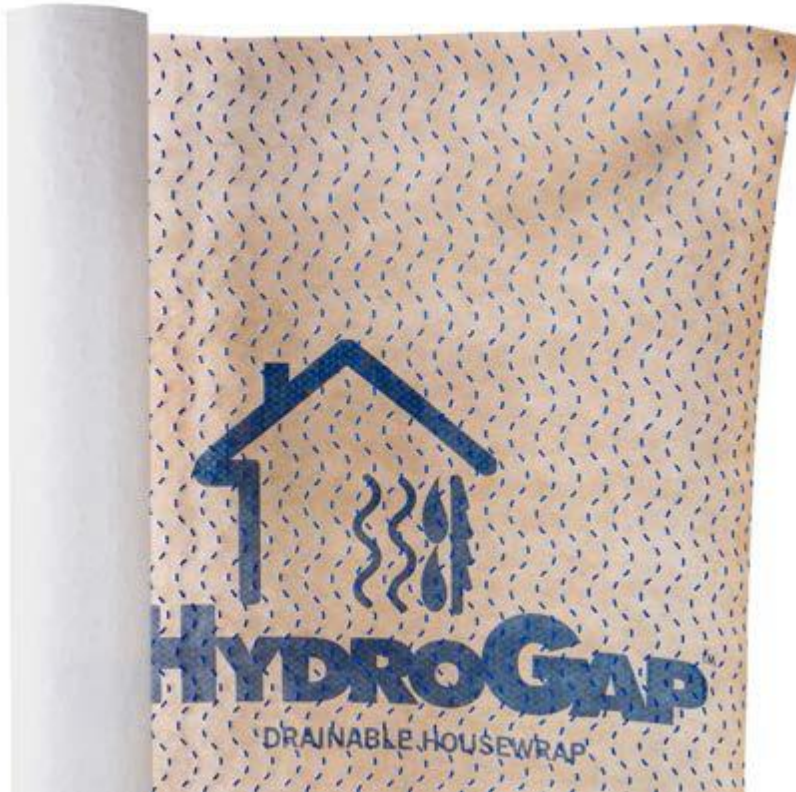
Above please see ThermalSteel Wall and Floor panel system connected

**Second and higher 'Floor Framing' is Designed-engineered with Steel Floor Trusses.**



Above are ThermalSteel™ Panels married to metal trusses

## The premium, 'house wrap system' HydroGap®



HydroGap® Drainable Housewrap is the best performing drainable housewrap on the market. This product allows construction professionals to Build Better™ by effectively eliminating excess moisture, thereby preventing the damaging effects of mold and rot. Its patent-pending one millimeter spacers allow at least 100x more bulk water to drain from a wall versus standard housewraps and drains water 2x faster than any other drainable housewrap on the mark

This building wrap material is more expensive than other building wraps systems.

But it is a very low percentage of the costs of materials used to build your home.

The product performs a very important function in the comfort, structural integrity and longevity of the life cycle of your home.

***The premium 'Cement Siding' or 'Stucco exterior finishes' or a combination with Stone and or Brick materials?***

*We specify James Hardie Cement Siding or stucco finishes, sometimes with partial Stone and or Brick exteriors for the exterior walls of your home, because they are non-combustible and do not burn,*



HardieZone® – Engineered for Climate®

James Hardie, the undisputed leader in fiber cement has always made the world's most resilient siding, and now we have made it even better. For the first time, siding has been engineered for climate. So you get the right board for the right climate.



HardiePlank® Siding & HardieShingle® Siding

*(Plank-Chestnut Brown & Countrylane Red)*



*HardiePanel® Siding & HardieTrim® Boards  
(Panel-Countrylane Red, Trim-Arctic White)*



*HardiePlank® Siding & HardieTrim® Boards  
(Plank-Heathered Moss, Trim-Arctic White)*



*HardieShingle® Siding -  
Straight Edge & HardiePlank®*

*Siding (Plank-Tuscan Gold,  
Shingle-Monterey Taupe)*

*James Hardie Board siding and trim structures are guaranteed for 30 years.*

*We specify James Hardie exterior products for your dream home.*



*HardiePlank® Siding & HardieTrim® Boards  
(Plank-Woodland Cream, Trim-Arctic White)*



*HardiePanel® Siding &  
HardieTrim® Batten Boards  
(Navajo Beige)*



*HardieShingle® Siding -  
Staggered Edge  
(Boothbay Blue)*



That's why architectural design and color have become more important when building or re-siding a home. Utilizing James Hardie® siding with ColorPlus® Technology in your home allows you to maximize these opportunities.

James Hardie siding with ColorPlus® Technology is an innovative product with a baked-on finish, providing unprecedented color consistency in a wide range of colors.

When the painting of your home is left to painting on-site you cannot be assured of a quality and consistent finish. However products with ColorPlus® Technology provide you years of lasting beauty and peace of mind with a 15-year finish warranty and a 30 year James Hardie board materials warrantee.

***Stucco Exterior Walls are an optional exterior finishing material***

*Lath & Stucco Systems & materials and textures are shown below.*

*The Lathing System is the structural system for your homes Stucco finishes,*

*We recommend Clark Dietrich Lathing systems.*

™



## **Easy Embedment System™**

### **Innovative Easy Embedment System™ (EES)**

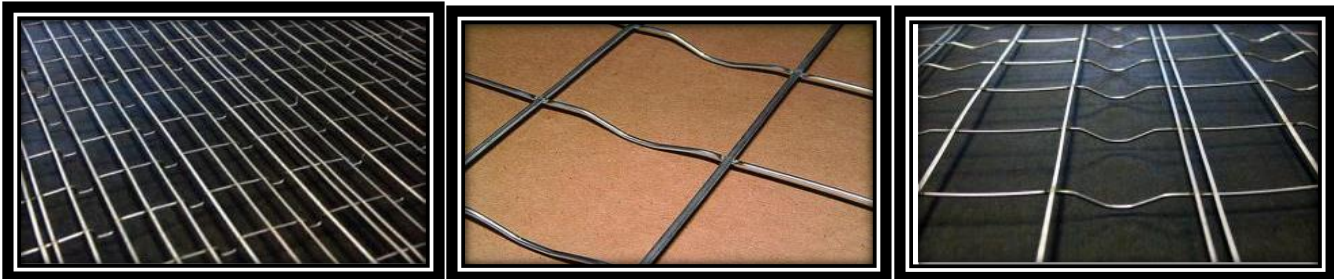
Our Easy Embedment System™ (EES) delivers exactly that. The most important part of the plastering application is the scratch-coat. It provides the ideal foundation for lath embedment resulting in a durable, long-lasting stucco cladding. EES, with Structa™ Wire and E-Flange™ Casing Beads and Control Joints ensures that the lath is embedded easily and thoroughly. The raised flanges of our E-Flange™ profiles allow for easier tying of accessories to the lath. The BackerBead® equipped profiles feature an integrated, closed-cell backer rod, eliminating steps and maintaining consistency by creating a uniform caulking gap to protect from water intrusion and provide superior quality in gap control, caulking depth, and coverage.

Structa™ Wire comes in rolls, not sheets, which are rolled out continuously across the wall with no vertical seams and no stapling or wire tying required on the horizontal laps. Simply roll Structa™ Wire over door and window openings and cut the wires away. Structa™ Wire lath products ensure the stucco mix gets to the wall with up to 80% more embedment using the same stucco application techniques as standard lath sheets. You achieve the greatest level of embedment possible on the market with EES!

EES makes stucco embedment fast, efficient, and with less skilled labor required, creating a finish that will stand up over time, reducing callbacks and failures due to moisture intrusion from installations with lesser levels embedment.



*Pictures of Clark Dietrich Lathing systems of products:*



Best Practices on installing the Lath see the link below:

[https://www.clarkdietrich.com/sites/default/files/imce/pdf/WhitePapers/2014\\_Jan\\_Lath/CD\\_WP\\_Expanded\\_Metal\\_Lath-Jan2014.pdf](https://www.clarkdietrich.com/sites/default/files/imce/pdf/WhitePapers/2014_Jan_Lath/CD_WP_Expanded_Metal_Lath-Jan2014.pdf)

*The Lath system I want to Specify: Easy Embedment System™ see the link below*

<https://www.clarkdietrich.com/products/easy-embedment-system>

Stucco Products website, see link below:

<https://www.lahabrastucco.com/#>

**LaHabra®** STUCCO SOLUTIONS FROM SCRATCH TO FINISH

## Stucco Textures



Smooth



Fine



Coarse



Swirl

Download LaHabra color Catalogue at: <https://www.lahabrastucco.com/literature/LCC.pdf>



*Stucco Exterior Finish with a Composite Tile Roof System*

**We Specify, Roof Truss Systems By Alpine 'TrusSteel® Brand**



**Roof framing with metal trusses from Alpine TrusSteel, a three-story, 67-unit assisted living center**



**Alpine metal trusses brand named TrusSteel will frame any roof strong and noncombustable**

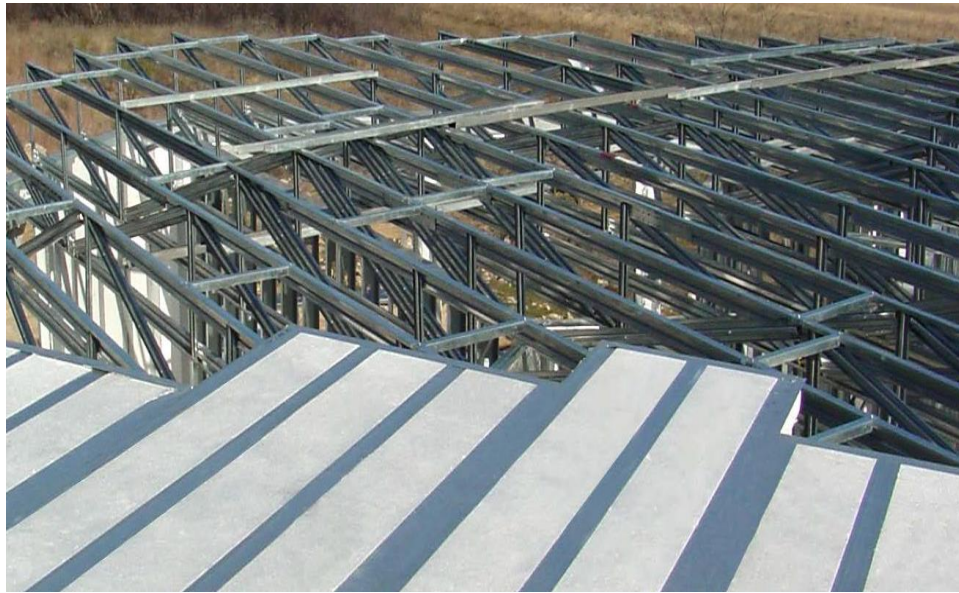


**Alpine TrusSteel trusses can be set one truss at a time as shown above**



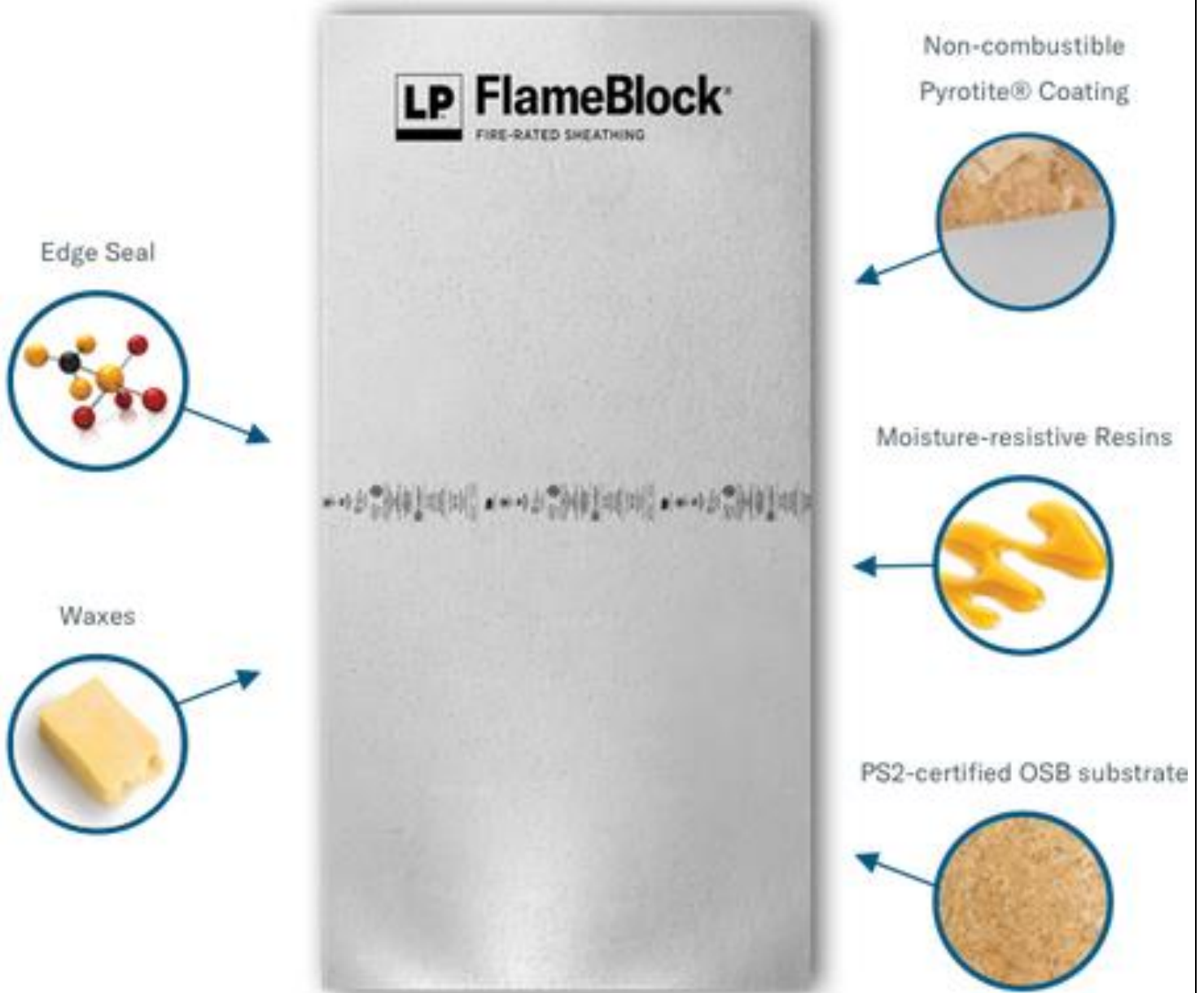
**TrusSteel trusses can be assembled on the ground with the whole roof set in place at one time**

***FLOOR TRUSSES BY ALPINE TRUSS***



**Above are ThermalSteel™ Panels married to metal trusses**

We Specify and use, FlameBlock® roof and wall sheathing as needed



**From The Expert Fireproof Panel Manufacturers At LP**

To create a standard OSB panel, LP's innovative manufacturing process combines wood strands oriented in cross-directional layers with waxes and resins. Then, to create LP® FlameBlock® panels, LP's proprietary non-combustible sheet materials and fiberglass-reinforced Pyrotite® treatment is added, which combines flame-spread and burn-through resistance. This creates a product that not only resists fire damage but meets code, provides design flexibility, and also offers the strength and structural integrity of traditional OSB panels.

## **We Specify 'only' Non Combustible Finish Roofing Systems**

There are many brands of finish roofing materials available.

Here is the list of non-combustible materials that we specify.

Each homes' architectural style and elements usually narrow down which materials to consider for a new home to be built.

### **Slate**

This natural stone tile is beautiful, durable, and non-combustible. However, slate is also an extremely heavy material, so you have to make sure your roof can support the weight. Additionally, slate tile is expensive and requires specialized knowledge for proper installation.

### **Clay Tile**

Clay tile is another non-combustible option. It's a popular choice for Southwestern, mission, or Spanish-style architecture. However, for optimal fire protection, it does require a bit of upkeep, particularly the barrel-shaped tiles, as there can be gaps between the underlayment and the tile sheathing. If these gaps aren't plugged, embers can get blown in, bypassing the Class A protection of the tiles, and spread to the structural support beams.

### **Concrete Tiles**

Concrete tiles, like clay, are non-combustible. They can be a good choice in terms of durability, fire-resistance, and cost-effectiveness. Today's concrete tiles come in many colors, finishes and shapes for an attractive look to your roof. Like clay tiles, a concrete tile roof must be installed correctly. Like clay, regular inspection by your roofer for misplaced tiles or other problems will help it retain its maximum fire resistance.

### **Metal Roofing Systems**

Metal Roofing is non-combustible and offers Class A protection in combination with a fire-resistant underlayment. It's lightweight, won't corrode, and requires little maintenance. Metal roofing can be made from copper, zinc and steel, as well as various alloys, and comes in a variety of finishes, colors, and designs. Even better, most types of metal roofing are heat reflective and meet Energy Star efficiency requirements — making them a great option for the Las Vegas desert climate.

Metal roofing offers a range of benefits that make it a great choice for many roofing projects:

- **Energy efficient.** Metal is a highly reflective material so the sun's rays are reflected off the roof rather than absorbed into the building which raises your cooling costs. Most metal roofs meet the Energy Star efficiency requirements
- **Low maintenance.** These durable roofs need only occasional inspections, gutter cleanings and other light maintenance.
- **Lightweight.** Light weight is beneficial and saves structural costs and is easier and less costly to transport.
- **Fire and wind resistance.** Despite its light weight, metal roofing is designed to resist strong winds and is highly resistant to fire.
- **Sustainable.** Most metal roofing is made of at least 30% recycled materials, has an exceptionally long life and is 100% recyclable.
- **Durable and long-lasting.** Metal roofing can withstand most weather conditions, fire and earthquakes. Its life typically extends from 30-100 years.
- **Beauty.** Metal roofing is aesthetically pleasing. Today's metal roofing choices come in a variety of finishes, colors and designs. Many designs combine the benefits of metal with the look of tile, slate or shingles.

Metal roofing materials are adapted to eliminate problems you may associate with metal.

They do not attract lightning any more than other roofing and, if struck, will tend to dissipate the charge safely throughout the structure rather than concentrate it on one area.

They are well shielded for noise and because of the metallic coatings applied to them, they do not rust.

#### **Alternative Metals of Copper and Zinc Roofing**

Some Roofing companies specialize in building custom copper roofing systems, as well as zinc roofing. The special features of these materials result in finished projects of exceptional beauty and character, and provide high quality roofing to our clients for decades to come.

***More Information upon request***

***Each home will also need the Fire rated Doors and Windows SPECIFIED.***

*More Information upon request*

***We also use premium high grade fasteners and fastening systems in all our homes. More Information upon request***

***With Larger Multi-level homes, custom 'Structural Engineering' is also usually required. Where usually Hot Rolled Structural Steel systems are specified.***

*More Information upon request*



*The Specified Materials above using one of four architectural Styles*

***Please see examples of 4 Architectural Styles, 157 exterior home examples***

*Traditional Residential Architecture Homes*

*Contemporary Residential Architecture Homes*

*Mid-Century Modern Residential Architecture Homes*

*Modern Residential Architecture Home*

*In the PDF titled: 'Architectural Styles for Disaster Resistant Homes'*

@ [www.ecousadevelopers.com](http://www.ecousadevelopers.com)

## Innovative Design Development & Construction

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In Partnership with



Developers Corporation

DISASTER RESISTANT-BUILDING SOLUTIONS

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[www.ecousadevelopers.com](http://www.ecousadevelopers.com)

*"Your home will reflect your personal style and tastes."*

"Your new home will always increase in value over the coming decades."