Branford Point Residence

Branford, CT

Photographs courtesy FACE Design

Juror Comment

"The idea of drawing upon historic born construction techniques and adapting them to a residential steel system has been cleanly executed. The structure is refined, elegant...Innovation is highly evident and construction quality is first class."

The new 5,500-sq.-ft Branford Point Residence on the Connecticut shoreline is both progressive in its form yet sensitive to its local context. Inspiration for the design is drawn from local sources, like traditional New England timber-frame barn structures. The home is situated on the banks of a heavily trafficked river, and structural details of the nautical presence influence the building's architecture.

When designing the structure, some goals included:

- Achieve a generous volume of space, free of bearing walls and supporting columns, that allows a flexible floorplan.
- Create a low-maintenance structure that is protected from the elements of a varying climate.
- Efficiency in construction, limiting the amount of on-site costly framing time.
- Ability to be assembled in different configurations and applied to different programs.
- Merge with as many existing building techniques as possible.
- Incorporate pre-fabrication where possible
- Competitive in square foot cost.

The Solution

A post-tensioned steel-moment frame was chosen for the structure, since it could achieve column-free long spans, and was more environmentally responsible to use than heavy timber. The structure is composed of pre-manufactured connections and modified HSS sections, which were bolted together on the ground as "bents." They were then raised to form structural arches bolted to connections embedded in concrete foundation walls. These arches are braced with horizontal I-beams and fitted with connection points for the attachment of precut structural insulated panels (SIPs). The assembly of this superstructure took only seven days.

The stress-skin is becoming more common in construction for its super-insulative qualities, strength, and erection speed. The SIPS are 6"-thick sandwiches of high-density foam and recycled flake-

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board, computer-milled to specification and delivered to site. Typically they are used either as an insulating skin over self-supporting timber frame, or at smaller scales as structural envelopes. When coupled with a steel frame and allowed to work structurally, large volumes can be contained efficiently. For this project, curved SIPs were developed for the first time, and were used for transitions at peaks and eaves. SIP Clips™ were developed to translate loads between frame and skin. The skinning of this envelope took four weeks.

The Home

The home is situated on a long narrow lot, and is accessed from an active street on its western side. The home was sited to orient views northerly to the picturesque riverscape while allowing natural light to filter from the South. Strategic carving of the envelope was studied digitally to maximize winter light, while providing shade in the heat of summer and to frame views of the river. A large sun-scoop sits on the roof, allowing reflected sun to spill down into the house and providing whole-house ventilation against the heat.

The main body of the house is one large volume. It contains a sizeable mezzanine housing two master suites and an overlooking library and lounge area. This mezzanine bridges a two-story vaulted great room to connect with a roof deck, and is accessed from an open steel and glass stair.

At ground level, the open plan is organized around the kitchen. Dining, living and lounge share the north face and river views, while pantry, office and bath reside in the south. A long circulation axis defines the halves and connects through the breezeway separation to the smaller wing to the East. This second body contains guest accommodations, a spa area and a garage with studio above.

The materials and finishes were influenced by the surrounding nautical environment. Patina, powder-coat and galvanization protect the steel, while IPE Ironwood, opalescent glass and natural stone provide warmth and tactility. ★