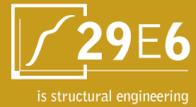


Beach Residence  
Hilton Head Island, SC  
Matt Taylor, Architect  
May River Contracting



Completed, 2011

This oceanfront residence, of 12,000 sf and lowcountry-modern architectural design, is located within a high-end, private community on Hilton Head Island, SC. The architectural style (large cantilevers, vast expanse of glass and the distinct wall construction) demanded unique use of structural framing, including: concrete, steel and cross-laminated timber (CLT). At the time of construction considered to be one of the first uses of this type of decking system.

 See real-time project construction here!

At the time, the largest windows on the east coast tested for wind loading; testing criteria included wind pressure and impact for 130 mph winds (ASD level). In addition to the structural requirements the glass also had to meet energy code and local 'turtle glass' requirements.



Above ground endless-edge pool with aquarium glass.



Auger cast piling extends 65' into ground to mitigate against scour due to high velocity flood waters as well as liquefaction during earthquakes.

Glass handrail. This seemingly minor detail took some extensive research and calculations to ensure the glass was adequately designed to meet loading requirements. It has to withstand 200 lbs of force in any direction.



Construction of pool and pool stairs.



Steel embed later used to support stainless steel beams on the rear deck. There was concern that deck beams would cause rebar corrosion. With the plate being stainless, contact with rebar was avoided.



This photograph illustrates:  
1) Connection and support of CLT on steel beam.  
2) How CLT was C&C'd at corner for steel.



Integration of wood and concrete.



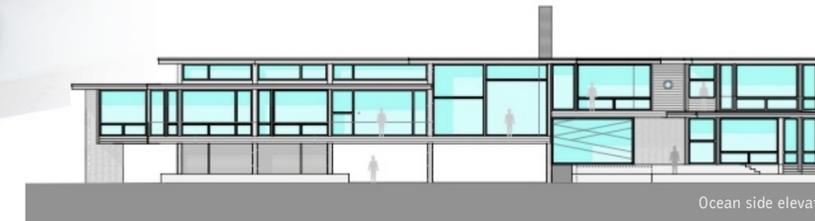
To achieve a lowcountry-modern look and obtain approval by the HOA architectural review board, numerous aspects of the building created interesting design challenges requiring innovative solutions, to name a few:

- architect's personal challenge to eliminate exposed connections
- use of large single and double cantilever spans
- large span glass openings
- new product considerations with CLT/mass timber decking
- beach location necessitating hurricane loading requirements. One aspect of consideration for hurricane impact is the scour of the foundation. Designed with concrete auger cast foundation pile support, in the event of scour the house will still be secure.
- within the vicinity of Charleston, SC, seismic and liquefaction requirements were also accounted for



29E6's construction support services, including special inspections, is one way we streamline the construction process while ensuring the quality of the intended design.

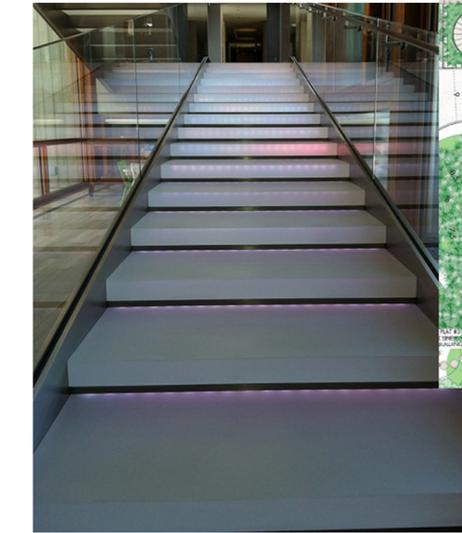
Mechanical systems were piped through the beams. Beams were analyzed to be able to have the penetrations drilled into them as shown.



Ocean side elevation



Floorplan, Main Floor



Floorplan, Main Floor



Floorplan, Second Floor



Floorplan, Aerial

