



Coolidge Point Residence, Manchester MA
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SITE & PROGRAM

The building is sited along a south facing granite cape above the Atlantic Ocean on the Massachusetts coast north of Boston. Several generations ago quarried granite walls were built as landscape definitions - being used as both terrace boundaries and building foundations for a number of adjacent shingled houses and outbuildings. Both the stone tower and terrace with pergola on this site date from that time. The new construction was designed with the capacity to accommodate multi-generational family gatherings. The ground floor is a series of levels, linked to the existing terrace, that step down the sloping site section. On the ground and upper floors the major rooms are organized towards the south, while the service and utility rooms are set along the north. The exposed structural framing system was designed to allow for variations in permeability towards the surrounding site and for maximal openness to the light and landscape views.



MATERIALS & CONSTRUCTION

The new foundation walls and columns are pinned to the underlying granite, and are cast of integrally pigmented concrete with a sandblasted surface. The external columns have a stepped section that provides a bearing seat for the wood spanning members. The wall panel construction consists of shop-fabricated cypress screen frames. Operable sash, doors, fixed glazing and insulated infill panels were site installed, and directly set to the exposed screen frames. Plywood shearwalls are primarily located internally and are connected through the shear diaphragms of the floors and roof construction. Stainless steel/timber columns support glue-laminated wood beams for the large spans; with the addition of plywood webs some of the cypress screen frames also act as part of the spanning system for the upper floor levels. The insulated roof panels sit atop the exposed timber rafters.



The cypress screen frames were treated with a clear finish at the interior. The wallboard panels are inset from the face of the cypress, and were manufactured of recycled newsprint and gypsum. The underside of the roof panels have a white overlay surface to reflect diffuse light within the building section. Internal casework, doors, railings and the upper level wood floors were fabricated of white ash. The ground floor surfaces, and those of the upper floor bathrooms, are of ceramic tile and stone. All fasteners and exposed metal fabrications are stainless steel. External boarding and trim is resawn cypress, shingles are cedar and the exterior plywood is marine grade Douglas Fir. The batten seam roof, metal panels and flashings were fabricated of zinc alloy.

The building has a thin-slab radiant hydronic heating system on the ground and upper floors. Hot water for the hydronic floor is provided by a dual boiler system. The building is designed so that about half of its volume can be thermally separated with sliding panels to reduce the seasonal heating load when those areas are not in full use. Domestic hot water is heated by a thermal-siphon solar panel, the storage tank has an electric resistance element as backup.

