

# TRINITY CHURCH | Boston, Massachusetts

National Historic Landmark, 1971

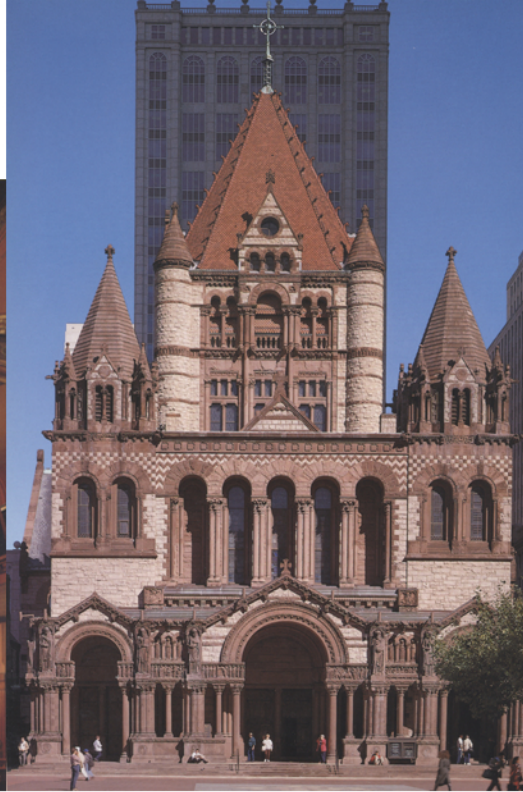
Richardson Romanesque Style

Henry Hobson Richardson, 1877  
Renovations in 1920's and 50's

13,000 Sq. Ft. of new and renovated program area

Restoration Project includes the Church, Parish House and development of the Undercroft

Major renovation and preservation phase completed February 27, 2005



The Trinity Church congregation in Boston has been growing since H.H. Richardson completed the first phase of construction in 1877. About every 20 years the church undergoes another construction phase, ranging from simple preservation to the expansion of the existing buildings. Due to the relatively small urban site, any new expansion had to be directed downward, underneath the existing church. Goody Clancy, the hired architect by the congregation to head the project, realized they were adding one more layer to this continually developing, living church. In their addition, Goody Clancy worked to preserve the elements of Richardson's design which continued to function well, restore that which needed to be, and alter existing plans to accommodate for the expanding congregation. The Undercroft, or foundation of the church, had originally been designed as 4,500 wooden pylons. New mechanical systems and an expanding program required excavation, and therefore this structural system was further reinforced to counteract the removal of selected pilings. The Undercroft has become a space capable of occupancy containing a meeting area, new book shop and new restrooms. This space is divided by a new glass art piece commissioned by the congregation, continuing the motif Richardson utilized in the Sanctuary, the telling of stories. Major characterizing elements designed by Richardson, such as sculptures and details, were preserved, or restored, according to the standards of the Secretary of Interiors. Details and materials, such as wood where people touch and interact with their environment, are mimicked in the Undercroft. The architect worked to leave as much as possible of the worship space unaltered, but the addition of an elevator and two stair connections, for accessibility, required some minor alterations. In this process Goody Clancy worked to blend in new material to existing, while clearly differentiating between the two.

Maintained major elements of existing structural system, undercroft reinforced and monitored, excavation to extend use of undercroft spaces

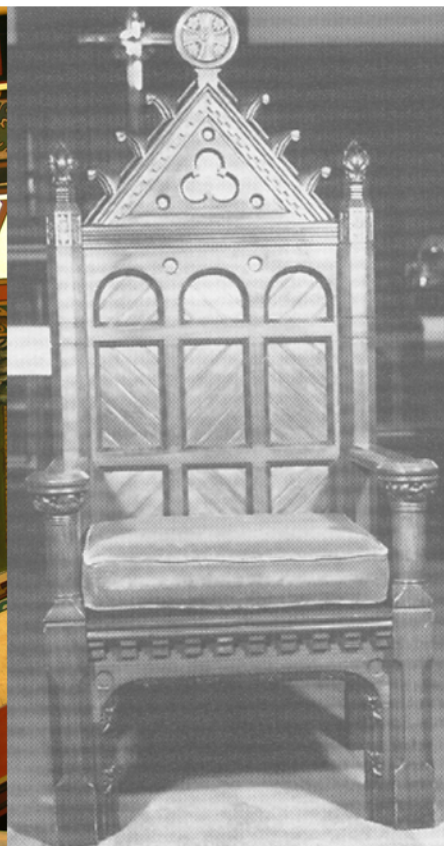
Restoration of carved sandstone statues and details, as well as slate roofs on exterior

Restoration of John La Farge murals and decorative paints on interior of Church and Parish House

Restoration of interior furniture

Restoration of Chancel and Nave Aeolian Skinner organs

Restoration work continues on stained glass windows





The Trinity Church congregation found the architects at Goody Clancy to be focused on producing an efficient and well functioning building. The firm worked to update every aspect of Richardson's original design, in the most respectful and least visible ways possible. Simple systems such as low energy lights, teamed with sensory equipment, ensure little energy is wasted to illuminate spaces which do not require artificial sunlight. To further improve conditions inside the Church, designers worked to incorporate a massive geothermal heating and cooling system. This required the excavation of 6 vertical, rather than the commonly used horizontal, wells for heat exchanging. The wells are full of water naturally passing through the cracks in the bedrock which lays far below the church. Inserted into the wells are a closed loop of pipes, called the "house loop", which is also full of water. When circulated to the bottom of the 1,500 foot deep wells, energy is either discarded or received from the water surrounding the house loop. Eventually the house loop water makes its way back to the heat pump equipment buried just beneath the church. Operable windows optimize the efficiency of this design, allowing maximum comfort achieved for those inside the church, while demanding as little energy as possible. A stormwater recharge system was installed in the 1930's when the congregation noticed a leak in a nearby sewer line lowering the groundwater table at the church. While repairing the leak, the benefits of circulating water through the wood piling structure were discovered. By redirecting stormwater from the roof to the structure, rather than the sewer, the church was provided with a free water source which helped maintain their structural system. This existing system continued to work efficiently, but Goody Clancy's new Undercroft required redistributing of this water. New drywells were dug equidistantly around the church to ensure the distribution of rainwater to the pilings continued. The area Trinity Church is located is known as "Back Bay", an area in Boston which used to be a river until it was backfilled by the city, rainwater distribution systems, like the one utilized by Trinity Church, help keep the groundwater table level as if the church was not there at all.

Six new geothermal wells installed for heating and cooling, utilizing digital controls for further energy efficiency

Variable Frequency Drives implemented with HVAC system, paired with CO2 sensors

Operable windows for manual ventilation control

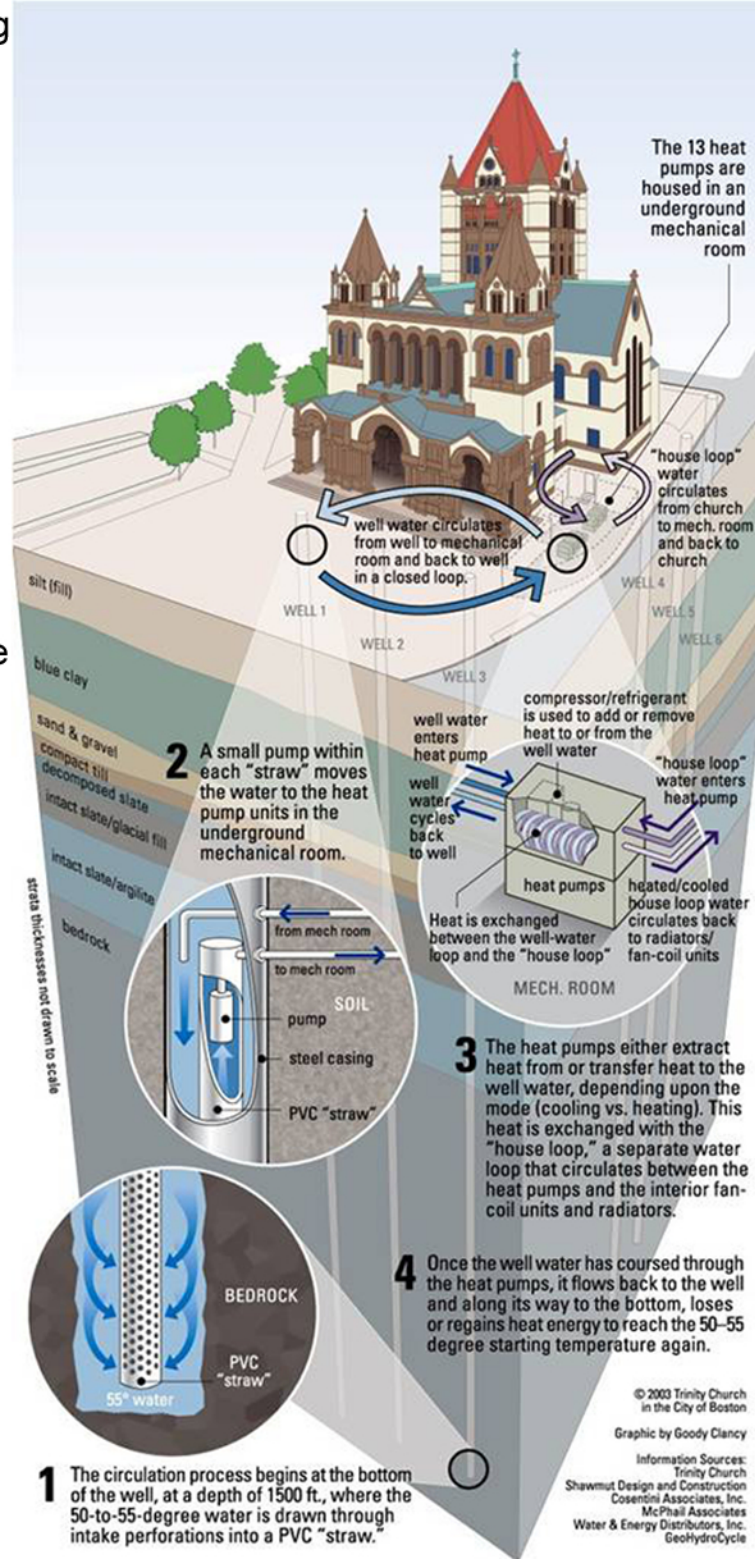
Daylight sensors combined with energy saving light fixtures

100% of stormwater on site is retained, and rain-sensors implemented to use to ensure structural integrity of wood piling support system beneath church before redistribution to natural groundwater table

Water saving fixtures help reduce potable water use on the interior

Use of recycled content local and regional materials, and re-use of salvaged materials

Low VOC compliant paint, carpet, adhesives and composite wood



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Eco-Preservation [Falsetto]

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University of Oregon