English-inspired church built in ICF

ICF was the chosen building envelope method for the building of an English inspired, cathedral-sized church in Tallahassee as it solved structural, thermal, and acoustical concerns in one product.

NUDURA ICF has demonstrated its versatility and sustainability in the building of a new Gothic style church. St. Peter's Anglican Church in Tallahassee, Florida was completed in June 2014 in only 20 months at a cost of $9.2 million.

The challenge was to mirror the style of a historic place of worship while using modern technologies which comply with today's codes of practice. First, Karin Zawrotny of DodStone Group Architects spent time in the UK visiting historic Anglican churches to gain first-hand experience of sacred buildings.

The 35,369 sq. ft. cathedral-sized church is based upon a traditional crucifix floor plan and is laid out on an East-West axis with arched doors and windows as is traditional for Anglican churches. Ecclesiastical symbolism is an integral part of the design; the three gable end windows represent the holy trinity, and the 24 spires on the church the number of elders. The two rose windows each has twelve petals, for the twelve apostles.

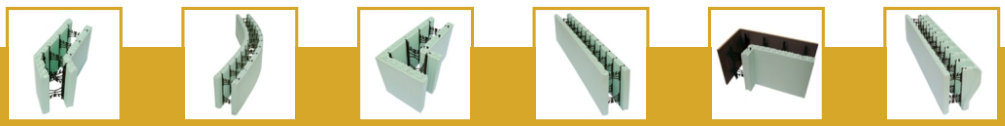
PROJECT STATISTICS

Location:
Tallahasse, Florida

Building:
English inspired cathedral-sized church

Size:
35,369 sq.ft

ICF:
87% exterior wall and 15% interior wall built using ICF. Constructed with NUDURA's reinforced ICF walls with rebar and 2-way concrete slabs to floor.



The project is the most complex use of ICF walls in and around the region. The complexity created by intersecting ICF wall thickness, arched openings, and the height of the unsupported gables pushed the limits of this type of construction.

ICF lent itself to the project by solving structural, thermal, and acoustical concerns with one product. NUDURA was the most economical system that met all of the specified criteria. Some 87% of exterior walls and 15% cent of



interior walls are built using ICF. St. Peter's was constructed with NUDURA's reinforced ICF walls with rebar and 2-way concrete slabs to floors. To emulate its English origins in style, the exterior is finished in cast stone and rock cast stone veneer.

ICF was chosen as the alternative to block construction for three reasons. The walls are slimmer, no additional acoustical is required and its thermal properties reduce the size of mechanical equipment. Energy consumption for August, 2014 was 82,368 KWH (includes ALL loads, not just HVAC).

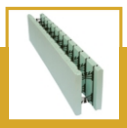
Built using all the skills of a latter-day master craftsman equipped with today's technologies, the tall gable ends (68 feet at the apex) were fashioned by using ICF blocks with 10” cores (8” cores were used in most other areas). By using cavity closers for the arched openings, the curves could be built in the workshop. The cavity closer was then used as the template to cut the foam blocks. The larger openings were reinforced with plywood below to make sure the curves didn't buckle when the concrete cores were poured.

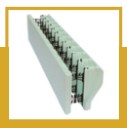
The thrust exerted on the walls by the trusses was transferred to the ICF walls so additional reinforcing was added. The wall was shot with lasers both before and after the trusses were installed and loaded to verify that the walls did not deflect beyond what the masonry cladding system could accommodate.

The water table of the site is fairly close to the surface. The church was built into a hill with almost 12 feet of fall from the west to the east. By installing the north and south foundations in a tiered fashion, below ground waterproofing was minimized.

Despite the need for additional air exchanges due to the type of occupancy and tightness of the building, the overall cooling system was reduced by one third in comparison to the requirements of conventional construction. The church utilizes two smaller air conditioning units (one second hand) set up in parallel so that both are only in use when the structure is fully occupied.





With the major arterial road of town just to the east, sound control was a critical concern. ICF's acoustic properties provide a serene environment in which to worship.

St. Peter's was scheduled to be consecrated by high ranking clergy in June. The project faced rain delays at several key points, so contractor staggered the construction times almost around the clock which allowed different crews to utilize the same scaffolding and lifts and helped minimize different trades working in the same areas simultaneously.

The church received a merit award from the AIA Tallahassee in December 2013 saying; “There is a wealth of historic facilities to draw from and this project does it masterfully. The building truly captures the spirit of what a church of this denomination should feel like. The architect's use of scale, proportion and rhythm is exemplary.” Professional visitors to St. Peter numbered 750 in the first three months and the congregation has grown by 150 people.

Watch it being built at http://vimeo.com/90548467

For further information contact Jean Marc Bouvier, Director of Sales and Business Development – International on 07766 118711 or visit www.Nuduraicfs.co.uk