

## ARMED FORCES RETIREMENT HOME



<b>Project Type:</b>	Armed Forces Retirement Home
<b>Location:</b>	Gulfport, Miss.
<b>Owner:</b>	GSA-Armed Forces Retirement Home Armed Forces Retirement Home Agency, Washington, D.C.
<b>Architect:</b>	URS Corporation, New York, N.Y.
<b>Structural Engineer:</b>	URS Corporation, New York, N.Y.
<b>Contractor:</b>	W.G. Yates & Sons Construction Co., Philadelphia, Miss.
<b>Precaster:</b>	Tindall Corporation, Mississippi Division, Moss Point, Miss

### OVERVIEW

In 2005, Hurricane Katrina destroyed an 11-story Armed Forces Retirement Home in Gulfport, Miss., and forced 400 retired veterans to vacate the facility. Now, 5 years later, a new complex, designed as continuing-care retirement living for veterans, has opened. The complex features three nine-story towers rising from the main floor, with a parking level on the ground floor. A landscaped green area with walking paths, bicycle trail, and swimming pool surround the main building. The project also involved restoration of an existing chapel, construction of a new pedestrian bridge overpass, and replacement of an existing outdoor swimming pool.

The 660,000-square-foot facility contains 582 units. Initial residents included 135 veterans who were displaced from the former structure and relocated to Washington, D.C., following the hurricane.

The buildings consist of poured-in-place concrete post tension decks, 12-in.-thick, architectural precast concrete wall panels with steel stud backers, and modified bitumen roofs. Included are 1,075 white precast panels with minimal color variation, architectural reveals, and medium sandblast. The panels average 12 ft tall, 8 ft wide, and 6 in. deep.

Individual rooms have private balconies with views to the beach. There are dining facilities, a Hall of Honor and covered parking. In addition, there is a professionally equipped fitness center with physical fitness programs, a wellness center, and a wing for long-term care. Amenities include: a movie theater, bowling alley, library, work area for arts and crafts, card and game rooms, computer center, media room, bike shop, and a multi-purpose area for live entertainment and dances.

The design was created to withstand winds of more than 200 mph in a Category 5 hurricane, the first structure built on the Mississippi coast to meet that standard.

To achieve that status required overcoming several key obstacles, according to Alex Guthrie, senior project manager at Tindall Corp.'s Mississippi Division in Moss Point, Miss. "Several post-Katrina construction projects using conventional wall-panel mounting methods had experienced water penetration," he explains. "That concern, plus the massive number of post-tensioned tendons used in the cast-in-place framing system, necessitated the development of a novel system for the cladding-hanging connections." Working with architect Igor Labuda of URS Corp in Washington, D.C., the precaster designed connections to fix the panels to the roof slab or the bearing point of the balcony's edge and ensured that no penetrations could compromise the waterproofing barrier placed in the cavity of the building envelope. "Tindall took extensive efforts to use the outline of what we needed to achieve and developed an extremely effective system."

About 95% of the panels were erected with four tower cranes, requiring the panels to be designed below a maximum weight to ensure they did not exceed the maximum capacity of two different crane arc charts.

The project was initially designed to meet LEED Silver standards. However, according to Howard Rice, project executive, W.G. Yates & Sons Construction Co., it's projected that it will, instead, obtain LEED Gold rating.

**100** PERCENT

Amount of precast concrete components that were locally sourced

**82** PERCENT

Amount of construction waste that was diverted from the landfill

**48** PERCENT

Amount that potable water use was reduced, compared to baseline requirements



Retirement complex includes resident pavilions clad in architectural precast panels.

Photo: Tindall Corp.



Precast panels fit snugly around balconies and other projections.

Photo: Tindall Corp.



Pavilion clad in precast panels house 582 units for veterans.

Photo: URS Corporation.

## PRECAST CONCRETE'S CONTRIBUTION TO SECURE CONSTRUCTION PRACTICES

"The AFRH development is designed to reflect the government's commitment to incorporate principles of sustainable design and energy efficiency in building design," says Angela Rivera, LEED AP, Assoc. AIA, CDT, URS Corporation. "An Integrated Design approach was employed to inform the decision making process, including whole Life-Cycle Costing assessments used to design efficient building systems based on longer-term payback rather than solely a first cost basis."

### Sustainable Sites:

Previously contaminated, the brownfield site was remediated prior to construction. A green roof has been installed atop the ground floor platform to reduce the urban heat-island effect and reduces and filters storm-water volumes. Reflective roof systems top the three towers.

Careful attention was paid to limit the amount of paving on the site. Gravel areas were used instead of asphalt for long term boat, RV, and vehicle parking. "We actually increased the amount of green space over the original site," adds Rice.

### Water Efficiency:

Potable water use has been reduced by more than 48%, compared to baseline requirements. Low-flow, ultra low-flow and dual-flush fixtures have been installed.

Well water, rather than city water, is used for irrigation.

### Energy & Atmosphere:

The concrete structure also increased the thermal mass of the facility, which enables it to take advantage of the large temperature swings of the local climate.

Efficient lighting, HVAC, and kitchen equipment was installed, including occupancy sensors and VAV chiller pumps.

Each resident has individual control of their HVAC system.

### Materials & Resources:

Both locally sourced and recycled content materials were utilized in the facility. All architectural precast concrete panels were sourced from a plant only 25 miles from the building site. In total, 37% of building materials were obtained from within the region.

The project achieved a recycled content level for all construction materials of 21%.

Plant produced precast concrete panels produced no on-site construction waste and minimized site disturbance. Of all construction waste, 82% was recycled and diverted from the landfill through the implementation of a comprehensive on-site waste management plan.

Further to LEED requirements, concrete is a material with a very long life expectancy.

### Indoor Environmental Quality:

Significant attention was given to ensure occupant comfort. Occupant controllability of both thermal and lighting controls has been provided, and a Thermal Comfort Survey will be undertaken approximately a year after occupation so the facility managers can assess whether the building is performing as intended and undertake any remediation measures necessary to increase comfort levels.

Low-VOC paints, coatings, carpets and composite wood products were utilized throughout the project. Carbon Dioxide monitors are installed throughout. Ductwork was sealed during construction.

Clerestory glazing and large window walls bring in daylighting and minimize the need for artificial lighting.

### Innovation & Design Process:

Two Innovation in Design points were achieved for exemplary performance in water and site attributes: one for reducing water use by greater than 40%, and one for maximizing the open space so that it is double the building footprint.



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