Focus of This Issue: Miscellaneous Products and Projects

New Watertight Connectors

The first field installation of the newest A-LOK Connector, the A-LOK Premium, was in July 2009. The stormwater job was at Delaware Creek in Toledo, Ohio. Watertight connectors were chosen over grouting to speed up the installation. The interesting thing about this job was the 42" RCP (made by Independent Concrete Pipe) had an OD of 51.25", which is the very biggest size suggested for the #1640 A-LOK connectors cast into these manholes, which were precast by Mack Industries of Toledo. However, the extra flexibility of the A-LOK Premium connector made the installation of the pipe, by contractor E.F.Zeiler, very simple and quick, requiring minimum force.

Tight fit easily accomplished

Photo and story by Wally Swiger, A-Lok Products

Congratulations to Professional Members CHA, Passero, CDM, and Dewberry for National Recognition

In ENR’s latest ranking, CHA was rated the 83rd largest design firm in the U.S. based on 2008 revenue. They were also named among ENR’s Top US design firms serving the manufacturing sector, ranking 12th based on revenue from manufacturing clients in 2008.

Passero Associates Earns Spot on Zweig Hot 200 Firms List — Mark Zweig says “Over the years, the “Hot Firm” designation has become synonymous with success in the industry. Firms on The Zweig Letter Hot Firm list are recognized the world over as well-managed companies that outperform their peers because they do a better job for their clients.”

CDM is ranked #15 on ENR’s Top 200 Environmental Firms, #10 in Engineering/Design, as well as appearing in separate Top 20 Listings related to Water Supply/treatment, Wastewater Treatment, and yet again in Hazardous Waste.

Dewberry has announced that Andy Ko, PhD, PE, Director of Bridge Structures, has been selected to serve on the American Railway Engineering and Maintenance-of-Way Association’s (AREMA) Technical Committee 8, Concrete Structures and Foundations. This committee contributes to the development and advancement of both technical and practical knowledge and recommended practices pertaining to the design, construction and maintenance of railway infrastructure.
Precasting …. Mass Producing Customized Products

Jail cells, single slope half barriers, sound walls, box culverts, special slabs for utility structures or highway segment night replacement….. the list would be endless.

Box Culvert with attached headwall, meeting NYSDOT moment connection requirements

Customized Headwall

DI and Top Slab with Galvanized Frame

(continued on page 5)
INTENSIVE MANAGEMENT UNIT, MONROE CORRECTIONAL COMPLEX– IMU/SEG

Project Type: Correctional  
Location: Monroe, WA  
Owner/Developer: Washington State Department of Corrections, Olympia, WA  
Architect/Engineer: INTEGRUS Architecture, Spokane and Seattle, WA  
Contractor: Absher Construction Company, Puyallup, WA  
Precaster: EnCon Washington, Puyallup, WA

OVERVIEW

The 140,000-square-foot IMU/SEG project, which scored 37 points on the USGBC LEED-NC rating system, consists of an Intensive Management Unit (IMU) and Segregation Management Unit (SMU). This new facility, constructed at a cost of $277 per square foot, houses inmates classified as Intensive Management Status (IMS) and inmates classified as Segregation Management Status (SMS).

Two housing wings on both levels of each building have 32 single-occupancy cells, and one housing wing on both levels of each building has 36 single-occupancy cells (four cells for handicapped use), resulting in a total of 100 single-occupancy maximum-security cells for each building. Each wing is located around a control room for optimum visibility. Each housing wing consists of a main level and mezzanine level, with two showers on each level. The wings are divided in half to provide a total of 12 individual pods of 8 cells, or 9 cells where accessible cells are provided. Each pod, including those on the mezzanine, has a dedicated entry door for inmate movement and delivery of services. The administrative-services wing provides support to the housing wings with correctional staff offices and break rooms, inmate visiting, counseling rooms, hearing rooms, storage space, food services and linen storage, and holding and isolation cells.

Because of the extreme security concerns, the structure consists of precast concrete exterior sandwich walls. All cells are constructed of precast concrete as well as bunks, tables, and stools within the cells.

(continuation...)

25 PERCENT  
Amount of baseline energy-use reduction due to precast concrete panel design.

58 PERCENT  
Reduction in potable water consumption.

60 MILES  
Distance from precast concrete manufacturing facility to the jobsite.
The facility is staffed to have a maximum number of 20 employees work in the building and house a maximum number of 200 inmates. Employees are encouraged to utilize the bus or ride bicycles to work, and all inmates either walk or are bussed to the facility. Van pools are also implemented on the campus to achieve ride sharing and other transportation alternatives. During the design phase, design teams worked with the campus to eliminate some existing parking stalls.

The design team also worked with mechanical and electrical engineers to implement better energy-saving strategies by increasing the R-value of the insulated precast sandwich wall panels, installing efficient HVAC control systems, introducing rainwater collection systems, and hiring a commissioning agent to monitor the system’s accuracy and efficiency.

The project was designed and specified to achieve a LEED silver rating. However the project actually achieved a gold rating. The project contract and documents include the elements of the project and materials that have a high recycled content and/or were manufactured in nearby neighborhoods. A sign-off letter system was also established in the contract documents to ensure that the awarded contract submitted correct information, recycled-content ratios, and distances from the manufacturers, in order to precede the work.

**PRECAST CONCRETE’S CONTRIBUTION TO SUSTAINABLE CONSTRUCTION PRACTICES**

**Materials & Resources:**

Precast concrete systems were incorporated that use a high fraction of local materials, including aggregates, steel, cement, and fly ash in the concrete. The precast concrete fabricator’s plant was less than 60 miles from the job site and panels were sized to allow for maximum stacking and a minimum amount of trucking.

The specific goal was to incorporate a minimum of 50% recycled materials, based on material cost. Approximately 97% of construction waste was diverted for repurposing and more than 99% of construction waste and debris was recycled. Additionally, more than 60% of construction materials were harvested or manufactured locally, including the precast concrete wall panels.

**Energy & Atmosphere:**

A thermally efficient precast sandwich wall panel shell was utilized. The precast concrete panels were designed to exceed the baseline model energy code by at least 25%, and use 27% less energy than comparable noncertified buildings.

**Sustainable Sites:**

The facility has on-site retention and treatment of stormwater. Precast concrete retention tanks were used as the collector basin.

**Water Efficiency:**

Rainwater collection is used by toilets in inmate areas. This feature contributes to a 54% reduction in water consumption and a 58% reduction in potable water consumption as opposed to a comparable facility.

**Indoor Environmental Quality:**

The precast concrete components produce no dust or airborne contaminants during construction or service because the precast concrete elements are fabricated and cured off-site. With the precast concrete components incorporated and the facility constructed, it offers natural lighting for more than 75% of the occupied space.
Correctional Facility Relies on Precast Concrete Modules

The U.S. Army Corps of Engineers will use precast concrete modular construction for a new medium- and maximum-security correctional facility.

Oldcastle Precast Modular is currently working with JE Dunn Construction, Kansas City, Mo., to provide 248-precast concrete cells at the Fort Leavenworth Regional Correctional Facility in Fort Leavenworth, Kan., as part of the base realignment and closure program.

The new $150 million 2-story correctional facility will consist of 483 beds, including a warehouse, engineering, and maintenance building as well as a covered vehicle storage area. A new access road will lead to the prison on its 40-acre site.

The medium-security general housing unit will consist of 200 cells, and the maximum-security single housing units will consist of 48 cells.

Oldcastle Precast Modular is supplying and installing the furniture including combination units. Production for the 248 cells began in late October and will finish in February 2009. Erection will begin in February and be completed in March.

The architect of record is HSMM/AECOM of Virginia.

NECSA Integrates with PCA

Effective January 1, 2009, NECSA (Northeast Cement Shippers Association) was integrated with PCA (Portland Cement Association).

The integration will align promotion efforts on a national, regional and local scale. The relationship between PCA/NECSA and any of its promotion partners should remain unchanged. PCA/NECSA will be PCA in the Northeast Region and all requests for PCA resources should be directed to the PCA/NECSA office in Castleton, NY at (518) 477-4925 or hstefek@cement.org.

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