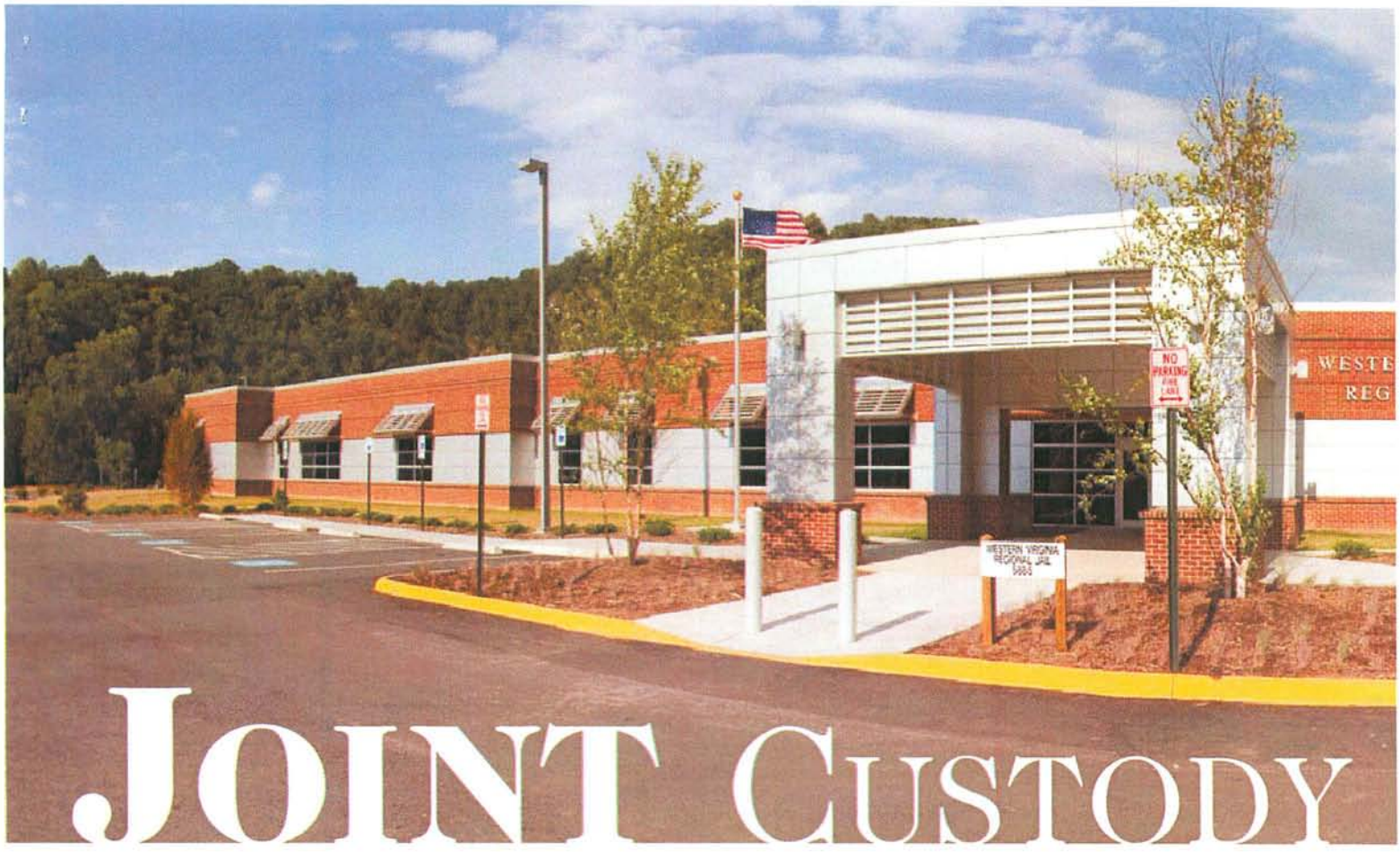


JOINT CUSTODY

Western Virginia Agencies Join Forces to Boost Capacity, Convenience and Efficiency with $122 Million Roanoke Regional Jail

By Lisa Kopochinski

Situated on a 42-acre site in Salem, Va., the new $122 million Western Virginia Regional Jail, which opened in April, stands as a concrete testament to interjurisdictional communication, cooperation, and coordination in tackling the pressures, challenges and constraints facing corrections agencies and elected officials at the local level.

The 605-bed facility, which was developed to provide updated facilities, deliver operational efficiencies and address jail overcrowding and inmate population projections, represents the raison d'etre of the Western Virginia Regional Jail Authority. The counties of Franklin, Montgomery and Roanoke and the City of Salem established the WVRJ to manage planning, financing and construction of the new jail under a 2005 regional partnership agreement.

The WVRJ project is also driven by resource conservation and environmental sustainability, and with the Commonwealth of Virginia reimbursing 50 percent of costs for regional jail projects, compared to 25 percent for a local jail, the joint-facility project represented a win-win partnership for the four jurisdictions.

Joining Forces

The local office of architectural and engineering services firm AECOM served as prime designer and supplied civil and M/E/P engineering on the 264,000-square-foot project. AECOM also acted as owner representative on the project with Virginia firm Thompson & Litton providing design services on a sub-consultant basis.

The procurement of project design and construction was conducted under Virginia's Public-Private Education and Infrastructure Act partnership, which is designed to bring private sector expertise to bear on public projects, encourage innovative approaches to construction and financing, and ultimately save time and money through public-private partnership.

"PPEA allows for faster procurement than afforded under the old design-bid-build model," says Jeff Boehm, vice president at Howard Shockey & Sons, the project's general contractor. "Construction starts sooner and occupancy occurs earlier."

Commencing work in April 2007, the Winchester, Va.-based firm, which has delivered a number of justice and corrections projects throughout the mid-Atlantic region, completed the project in 24 months.

Of the $94 million in total costs for construction and land acquisition, the Commonwealth will reimburse the WVRA for approximately $46 million. The WVRA raised $49 million of construction costs and approximately $30 million for capital purchases, such a vehicles, uniforms, office furniture, dental chairs and medical beds, through short- and long-term loans.

"The state does not reimburse for anything that is not tied down," says Superintendent Charlie Poff, a 35-year veteran of the jail system.

"It's a unique facility in that if you build a regional jail, the local jails close," Poff says. In this case, however, the existing local jails did not close.

The new regional jail was planned as a centralized overflow facility to augment existing bed capacity across the multiple local jails, which were operating at two to three times capacity. Housing mostly sentenced inmates, and some special needs, medical and mental health, and female inmates, the regional jail will function as a hub for the local facilities, which are situated close to their respective municipal and county courthouses and serve their communities, Poff says.

However, participating jurisdictions will administer community-based programming and all custody releases will occur through the local jails.

PROJECT TEAM

Owner/Operator: *Western Virginia Regional Jail Authority*
Owner Representative: *AECOM*
Project Manager: John Chaney
Architect: *AECOM; Thompson & Litton Inc.*
Construction Manager: *Construction Dynamics Group - Arcadis*
General Contractor: *Howard Shockey & Sons Inc.*
Detention Equipment Contractor: *Cornerstone Detention Products*
Security Electronics Contractor: *South Western Communications Inc.*
Security Consultant: *David E. Musacchio & Assoc. Inc.*

Courtesy of AECOM Services Inc. Photos by Richard Boyd.

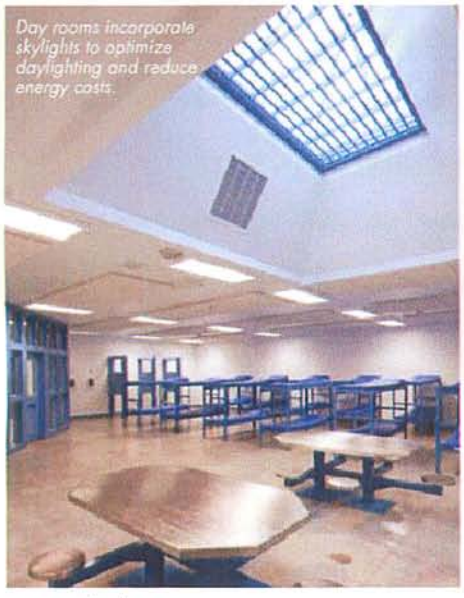
PROJECT DATA

Facility Name: *Western Virginia Regional Jail*
Type: *Interjurisdictional municipal/county jail*
Construction Cost: *$94 million*
Capacity: *605 beds*
Area: *264,000 square feet*
Start Date: *April 2007*
Completion Date: *March 2009*

"You want to keep the law enforcement officers in the community," Poff says. "We agreed right away to do transportation for all the inmates — picking them up, taking them to doctor's appointments, and taking them into the Department of Corrections."

Facility operating costs are shared by each jurisdiction on a pro-rata basis, with 38 percent of bed capacity allotted to Roanoke County, 32 percent to Franklin, 20 percent to Montgomery, and 10 percent to Salem.

"The localities pay a per diem of $30 per inmate per day to hold their inmates here. It is like a user fee," Poff says.



Day rooms incorporate skylights to optimize daylighting and reduce energy costs.

One of the main benefits of the partnership comes with the joint facility's ability to handle many medical conditions and deliver services that the existing local jails are not designed or equipped to accommodate, Poff says. Local jails transported inmates to nearby hospitals for medical treatment.

Medical facilities at the new jail include a 32-bed segregation unit and a three-bay dental unit, with a physician and/or physician's assistant, skilled-nursing care and a mental health practitioner on site five days per week. The medical unit is staffed at all times by registered nurses.

"Our goal is to keep them within the facility," Poff says.

Internal Affairs

The WVRJ facility, which has a total capacity of 805 beds — 80 percent male and 20 percent female — incorporates a mezzanined single-story podular design, precast concrete construction and cell and dormitory housing configurations. The building envelope utilizes precast, exposed concrete, brick and split-face CMU exterior walls.

The precast concrete cells were built and outfitted on site by Pennsylvania-based firm Rotondo Weirich, which also delivered almost 70 modular plenum units. The plenum units, which create horizontal interstitial spaces between module levels, accommodate the necessary plumbing, electrical and HVAC systems that serve the facility.

"Each module was cast in one shot, eliminating the need to bolt or weld any pieces on," Boehm says. "It was a massive operation, functioning like an oversized assembly line."

The five general population pods each consist of four housing units anchored by a central control station. A sixth 18-bed segregation housing pod, which features a dedicated control station adjacent to the unit, provides single-occupancy cells for special needs, medium-security, protective custody, and at-risk inmates.

The mezzanined, podular design and housing configuration allowed the project team to deliver the required bed capacity within a compressed floor plan and minimized building footprint, which delivers operational efficiencies and cost savings across a range of areas, including energy and inmate management.

Control stations provide 360-degree visibility to maximize operational supervision. Sightlines, access and movement through and around housing units and pods are augmented through the utilization of mirrored security glazing, access control, and a series of sally ports.

"The central local control station is encircled by sally ports, which control access to and from each of the housing units, while also assisting in the managing sightlines," says Mark Swecker, lead architect for Thompson & Litton, which provided architectural and structural engineering services.

The design also impacted daylighting strategies, restricting the team's ability to incorporate conventional windows throughout the facility.

"The decision — for security and cost-savings reasons — was to have no windows in the housing areas, but instead provide natural daylight via efficient use of skylights," says John Chaney, project manager for AECOM.

On Point for LEED

WVRJ officials are seeking LEED certification for the regional jail, targeting a total of 30 credits in areas including water and energy efficiency, indoor environmental quality, construction materials and design innovation.

WVRJ features precast concrete modular housing units by Rotondo Weirich.

Sustainability measures added roughly 1.2 percent, or approximately $1 million, to the total project costs. However, the strategies are projected to yield significant life-cycle energy and operational cost savings, while reducing the environmental impact of the facility, officials say.

"The project team is currently reviewing project submission comments from the U.S. Green Building Council," says Swecker.

The design team incorporated an Energy Star cool roofing system to reflect solar-generated heat away from the building and mitigate the heat-island effect. The reflective roofing system reduces building envelope heat gain and heat transfer to interior space, which reduces HVAC loads and energy consumption.

The facility also incorporates energy-efficient lighting and HVAC systems integrated with intelligent building system management controls for enhanced efficiency and reduced operational costs.

"PPEA allows for faster procurement than afforded under the old design-bid-build model."

Water efficiency and conservation measures, such as a vacuum plumbing system, form key components in the push for LEED certification and are projected to reduce annual water consumption by 20 percent to 30 percent below that of a comparable conventional facility.

Unlike conventional water-intensive plumbing systems, the vacuum plumbing system, by Acorn Engineering, uses air pressure for the transport and discharge of solid and liquid waste.

"It has a life-cycle cost payback of less than one year and, most importantly, will reduce the amount of waste and use of domestic water by 2 million to 8 million gallons per year," Chaney says.

The overhead pipe installation and remote system monitoring and control limits inmates' ability to clog pipes and cause flooding or dispose of contraband by flushing items.

"We have total control," Poff says.

The facility incorporates several stormwater management, water recycling, runoff mitigation and soil erosion measures. A series of 30,000-gallon water storage tanks collect and filter rainwater for potable and nonpotable uses, such as laundry operations.

An integrated hot-water and heat recovery system is projected to yield $10,000 in annual energy savings, officials say.

Kitchen facilities include a food-waste disposal system that combines water with food waste as part of a pulping process. A second processing phase then extracts the water from the pulped mush, leaving a solid-waste product of significantly reduced volume.

Approximately 50 percent of waste materials generated during the construction phase were diverted from landfill for recycling, officials say.

Forward Thinking

While the jail has the capacity to double bunk to 805 beds, the facility is master planned to expand rated capacity by an additional 649 beds to accommodate future increases in the inmate population.

"We also added showers in the housing units, and additional space and support areas like medical, food service, laundry and recreation," Poff says.

Jail officials are working toward national accreditation of the facility by the American Correctional Association.

"There is a lot of work involved," Poff says. "We put together a 15-person transition team that worked about a year and a half before the facility opened. We wrote our policies in compliance with the ACA and are still working out a few bugs, but in about seven months, we will ask for on-site accreditation." ■


The vacuum plumbing system by Acorn Engineering is designed to improve water efficiency.

PRODUCT DATA

Video Visitation: *Vugate*
CCTV: *Vicon*
UPS: *Eaton*
Intercom: *Harding Instruments*
Card Access: *Honeywell*
Security Screening: *Kawneer*
Perimeter Fencing:
Allied Tube & Conduit
Sally Ports: *Tymetal Corp.; Overhead Door*
Correctional Furniture: *Peterson Detention; Willo Products Company*
Precast Concrete Cell: *Rotondo Weirich*
Cell Doors: *Acme*
Security Glazing:
Global Security Glazing
Security Screens: *Amico*
Security Locks:
R.R. Brinks Locking Systems
Security Plumbing: *Acorn Engineering*
Security Sprinklers:
Allied Tube & Conduit
Security Lighting: *Kenall Manufacturing*
Smoke Detection: *Alerton*
HVAC: *Aaon; Greenheck*
Mechanical/Plumbing Systems:
Southern Air Inc.
Electrical Systems:
Southern Electrical Services
Siphonic Roof Drainage:
RMS Engineering LLC
Rainwater Harvesting System:
Containment Solutions
Roofing: *Carlisle Syntec*
Gypsum Wallboard: *USG*
Precast Concrete: *Metromont*
Kitchen/Laundry: *Faasen & Assoc. Inc.*