

## Concrete Masonry: A Solid Solution for Corrections and Detention Facilities

With the increased interest in public safety has come the need for more criminal justice facilities. Over the past fifteen years, the number of people incarcerated in the United States has tripled. Concrete masonry is extremely practical for construction of new and remodeled corrections and detention facilities because it is durable, versatile and cost-effective.

Concrete masonry can meet the security requirements of any type of justice facility and it helps to satisfy stringent energy and building codes. Aggressive construction schedules are not a problem as the masonry industry has ample manpower for even the largest projects and masonry construction can proceed in virtually any weather conditions.

Beyond the practical considerations, concrete masonry also adds tremendous flexibility with design aesthetics for justice projects of any size and budget as the following examples demonstrate.

### Project

#### Clallam County Juvenile Facility Port Angeles, Washington

When KMD Architects and Planners began designing this 21,800 square foot detention facility suitable for juveniles, they wanted to take into account the special circumstances of the troubled youth who would be spending time within its walls. "One of the reasons we chose concrete masonry is the ability to use the material on a more human scale," explained Michael Beaman, Project Architect at KMD Architects. "The selection of CMU allowed us to design a strong facility that also maintained a natural element that people can relate to."

Photo by Robert Nixon

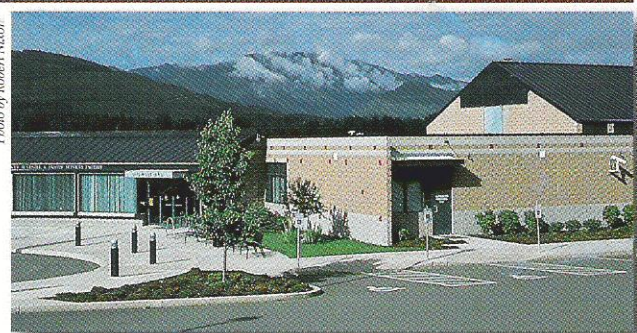


*The colors, textures and patterns of concrete masonry units (CMU) create architectural richness and provide a human scale to this project.*

The Clallam County Juvenile Facility has become a prototype for other projects by providing a design suitable for turnkey operation upon completion. This concept has been developed by KMD in association with Brown and Root Building Company.

Ground, smooth and split-face units of two different integral colors were used in the project. Glazed concrete masonry units were also used throughout the facility to add accents. The use of three different textures allowed the designers to create a more visually interesting structure. The detention area was constructed completely of load bearing concrete masonry. The exterior of the facility – a cavity wall system – is comprised of 8" wide CMU, 2-1/2" of rigid insulation, and a 4" CMU veneer.

Photo by Robert Nixon



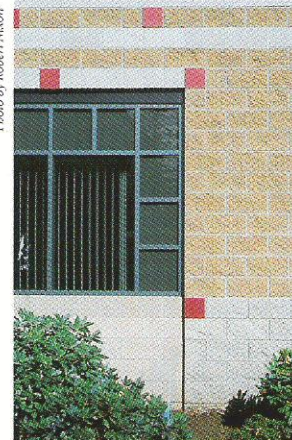
*The civic and detention portions of the Clallam County Juvenile Facility are tied together visually through the use of concrete masonry construction.*

"Cost was a primary factor in deciding upon concrete masonry for this facility," according to Beaman. "However, another reason we selected CMU is its ability to obtain an ideal energy efficiency in composite construction."

The concrete masonry proved to be contractor-friendly in all weather conditions during construction. The entire project was finished within the designated timetable, requiring only a ten-month schedule.

"CMU goes together well, details well, and there is a lot to say for the craftsmanship aspect of this type of construction," Beaman points out. "In many ways, masons are among the last true craftsmen, and their pride shows in their work".

Photo by Robert Nixon



*Concrete masonry meets the need for an extremely durable exterior and interior finish for this juvenile facility.*

Client satisfaction has been very high on this project. "After three years, we are still as pleased with the facility as we were when we first began operations," expressed Pete Peterson, director of the facility.

#### Architect

KMD Architects and Planners  
Portland, Oregon

#### Structural Engineer

KPFF  
Portland, Oregon

#### General Contractor

Absher Construction  
Puyallup, Washington

## Project

### SeaTac Federal Detention Center

SeaTac, Washington

This \$60 million facility is a classic example of what good partnering between architect and the masonry contractor can yield. The result is a project that is aesthetically pleasing, highly functional and unique in its design.

Photo by Acasaf Productions



*The architectural design of the concrete masonry cylindrical base makes this justice facility's exterior visually attractive. The project received a Construction Specifications Institute award.*

Completed on an aggressive construction schedule, this self-contained detention center reflects how concrete masonry works in harmony with other materials including concrete, glass and steel.

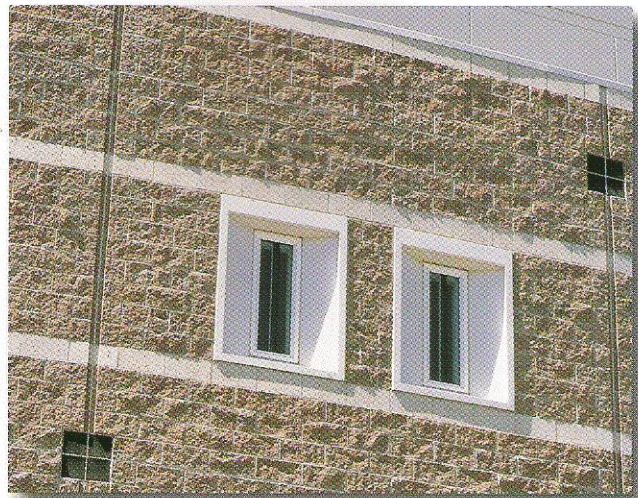
"The concrete masonry allowed us to bring color and richness to the project at a fraction of the cost of precast," explained Steve McConnell, Lead Designer at NBBJ. "Integral color CMU, custom shapes and glazed units allowed us to introduce rhythm, scale, and modulation in the design that would not otherwise have been possible". The scale of the CMU assisted in integrating the structure within the local residential community. Concrete masonry provides maximum security without compromising appearance.

The ability to fabricate custom CMU allowed the architects to create aesthetic recessed reveals at the expansion joints. Special recessed glazed block added highlights on the same plane as the expansion joints along the exterior curved walls.

"CMU was easy to segment around the curves of these walls," said McConnell. "Given the complexity of the project, CMU facilitated execution of our designs." Custom shapes needed for this building's unique angled corners were cut on site.

"We installed approximately 400,000 concrete masonry units on this project in the middle of winter while meeting or exceeding the schedule deadlines," explained Bob Hudson, Estimator of Fairweather Masonry. "Several factors contributed to this project's success: the versatility of masonry, an architect and engineer who used masonry to it's fullest potential and who were willing to work closely with us, and an exceptional general contractor."

Photo by Acasaf Productions



*The scale and aesthetics of concrete masonry construction integrate well into the surrounding community.*

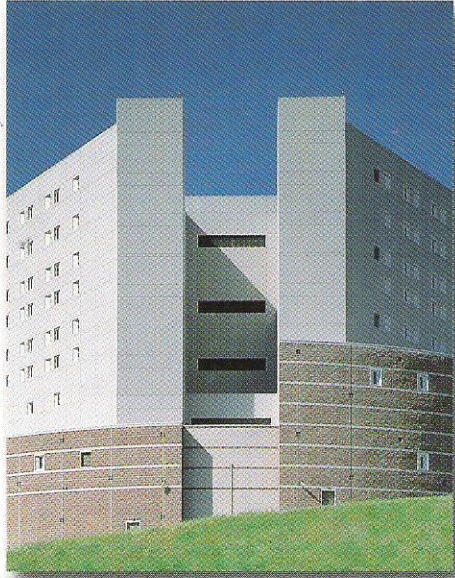
Retaining walls on site were constructed of segmental concrete masonry units. The walls—up to 50 feet high—are visually compatible with the CMU exterior.

The facility combines cast-in-place concrete at the central core and elevator shafts; precast concrete; and 4", 6", 8", and 12" split-face, ground-face and glazed CMU on the exterior with primarily 6" and 8" smooth, painted CMU for the interior cells.

"Given the design and security requirements of this project, utilizing concrete masonry was the only way this facility could have been built within schedule," said Hudson. "This was a very challenging and rewarding project of which we are very proud to have been a part."

Steve McConnell added, "Concrete masonry was the ideal construction material for this project. It has excellent cost/benefit properties and its life cycle cost advantages make it a prudent use of public money."

Photo by Asasasi Productions



The exterior walls serve as the "secure perimeter" of this federal detention center. They impart a sense of permanence to the structure.

**Architect**

NBBJ • Seattle, Washington

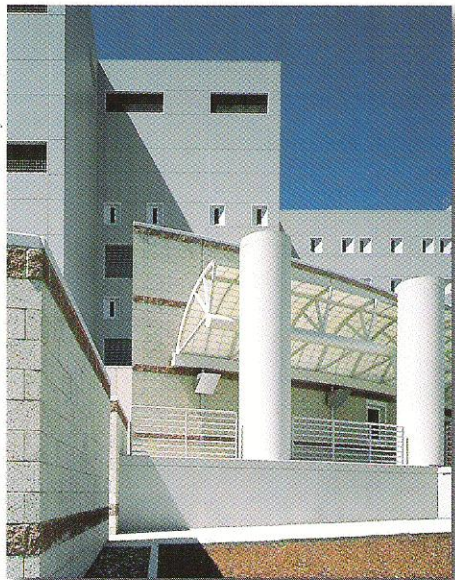
**Structural Engineer**

Andersen, Bjornstad, Kane, Jacobs, Inc. • Seattle, Washington

**General Contractor**

M. A. Mortenson Company • Bellevue, Washington

Photo by Asasasi Productions



The CMU walls provide life cycle cost advantages. Note the sharp angled corner at the end of the CMU radius wall.

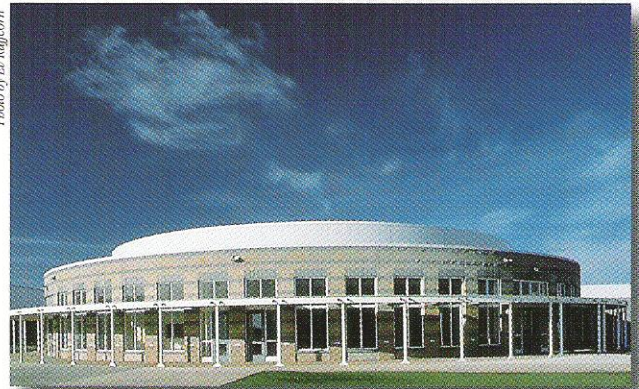
**Project**

**Airway Heights Corrections Center**

Airway Heights, Washington

"We wanted to design a facility that had a community feel to it," explains Ev Ruffcorn, Design Partner of Zimmer, Gunsul, Frasca—the architectural firm for the Airway Heights Corrections Center. "Concrete masonry gave us not only the security and the cost-saving aspects that we needed for this facility, but also variety, so that we could design each of the 'neighborhoods' of this 'town' with its own character".

Photo by Ev Ruffcorn

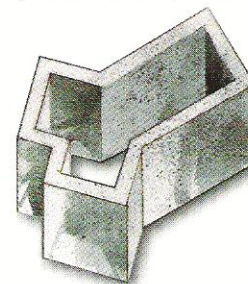


The selection of concrete masonry for this Washington State project provided numerous architectural options to help make the design more interesting and creative. CMU also helped to meet an aggressive construction schedule.

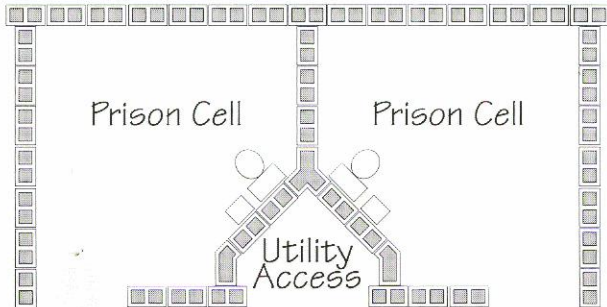
Ruffcorn notes that the selection of CMU for this project allowed for a combination of textures and colors that help make the design more interesting and creative. "Using CMU also saved six to nine months construction time over using precast concrete," explains Ruffcorn. "Concrete masonry construction continues to be a less expensive and more efficient way to go."

Bricklayer manpower requirements were met with Local No. 3 Spokane members. The International Union's job information center assisted in providing the bricklayers necessary to complete this project on time.

"The use of CMU, including special Y-shape units, allowed for flexibility in the design with color, shape and pattern," said James Standish, Project Architect of Integrus Architects who designed the facility's 512-bed expansion phase. "Concrete masonry is ideal for this type of project because of its durability, strength and fireproof qualities."



Special manufactured CMU shapes such as these Y-block with 45° corners allow for flexible project layout and economical construction.



*Prison security is enhanced by using custom shaped CMU to construct utility maintenance areas outside the individual cells.*

Concrete masonry was also selected for its energy efficiency. Hi-R® CMU with polystyrene inserts were used for the exterior walls. The pre-insulated block allowed for durable masonry surfaces to be left exposed on both sides of the exterior walls while meeting the energy code requirements in a cost-effective manner.

The facility's 'public neighborhood' consists of the entry/reception area, administration building and visiting rooms, and is directly accessible from the staff and visitor parking areas. The buildings in this area use a smooth, wheat-colored concrete block with white split-face bands. Concrete masonry is used for both interior and exterior bearing walls throughout the project.



*One of the six medium security housing units using CMU for the interior and exterior walls. Concrete masonry lends itself to construction of the most secure buildings without compromising aesthetics.*

Smooth wheat-colored block with gray split-face block and wheat-colored split-face wainscoting are incorporated throughout the 'downtown' area in the facility. Included in this area are the dining hall, library, hobby rooms, educational facilities, recreation area, multipurpose rooms and will eventually include a chapel.

The 'industrial' neighborhood begins next to the dining area and includes the inmate employment section of 'town'. It houses the kitchen, vocational training, laundry and maintenance facilities. For this work area, the designers chose to employ a more industrial feel, using galvanized metal roofing and siding with a gray, split-face wainscoting.



*The administration building incorporates an interesting CMU curved wall design which extends from the building's exterior into the interior space. The project's exterior walls were constructed of Hi-R® pre-insulated concrete block for optimum energy efficiency.*

The final sector is the 'residential neighborhood' where inmates live. Consisting of six 256-bed medium security housing units, each unit is split into two subunits with a common entrance and shared day room that is surrounded by two layers of cells enabling enhanced staff supervision. This area was constructed using load bearing gray and white concrete block with colored metal roofs. Concrete masonry is utilized in a variety of applications for this project from basic smooth gray CMU for construction of the prison cells to colored, textured CMU for the public spaces. As James Standish notes, "It is wonderful that one construction material can range from utilitarian to feature applications."

**Architect (First Phase)**

Zimmer, Gunsul, Frasca Partnership • Seattle, Washington

**Architect (Addition Phase)**

Integrus Architecture • Spokane, Washington

**Structural Engineer (First Phase)**

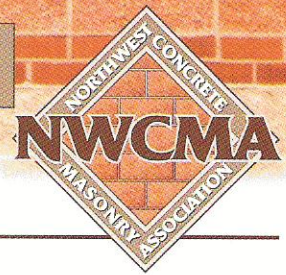
KPFF Consulting Engineers • Seattle, Washington

**Structural Engineer (Addition Phase)**

Integrus Architecture • Spokane, Washington

**Construction Manager**

Kitchell Contractors • Phoenix, Arizona



## Project

### King County Regional Justice Center

Kent, Washington

The problems of urban congestion in major cities often require an alternative solution to traditional downtown courthouse design and construction. In many ways, the King County Regional Justice Center is a progressive answer to these problems.

"The county wanted to build a full-service justice facility to make it convenient and more accessible to south county residents," explains David Layton, Project Manager at TRA Architects.

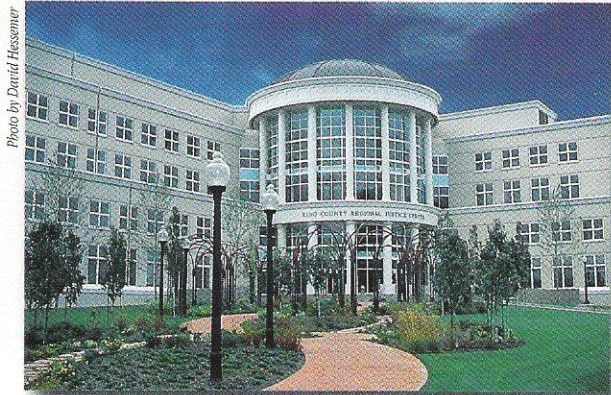


Photo by David Hessemer

*Brick veneer was selected for the exterior of the courthouse building which serves as the focal point of this justice facility.*

Designed by the architectural firms of TRA and HOK, this \$112 million project encompasses a courthouse containing 23 courtrooms, an 896-cell detention facility with 14 self-contained housing units, office space, central plant and facility shop areas, and a 600 vehicle parking structure on an 18.7 acre site in the heart of Kent, Washington.

"Faced with the normal resistance to a jail in a mostly residential community, we developed an 'out of sight' approach," explains Chuck Oraftik, Senior Vice President and Director of Justice Services at HOK.

Turning the building inward on itself, the jail is surrounded by the courthouse, parking structure and support buildings. This design not only improves the security of the facility, but also yields more aesthetically pleasing results.

According to Oraftik, "You're only able to see the jail when you're in a helicopter flying overhead. It is the perfect answer to the 'not-in-my-backyard' syndrome so prevalent across the country today. It is in their backyard, but it simply is not visible."

"In response to the surrounding community's desire for no exposed cell windows, we employed the concept of 'borrowed light' when designing the reinforced concrete masonry cells of this maximum security pretrial facility," explains Layton of TRA. "Rather than putting windows in the individual cells, natural light from the nearby day rooms is 'borrowed', resulting in better and more cost-effective inmate housing."

Photo by Tom Young

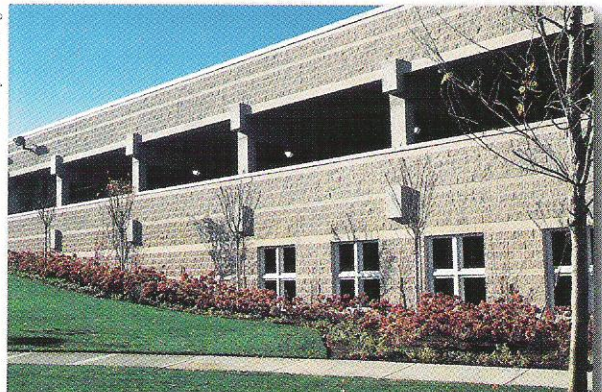


*Concrete masonry is used extensively throughout this regional justice center. Curved CMU walls illustrate masonry's design flexibility.*

Split-face concrete masonry units were used on the outside of the facility to complement the brick exterior of the courthouse and provide a detailed, finished appearance. The architects specified concrete masonry for its suburban, residential appeal as well as for its secure, durable and cost-effective aspects.

"Thanks to the nature of concrete masonry, construction was able to continue in virtually any kind of seasonal weather and the project was able to stay on schedule," said Layton.

Photo by Tom Young



*Split-face and smooth texture CMU enhance the appearance of the highly visible parking structure designed to help shield the jail from public view.*

#### Architects

TRA Architects • Seattle, Washington  
HOK Architects, Inc. • Redmond, Washington • San Francisco, California

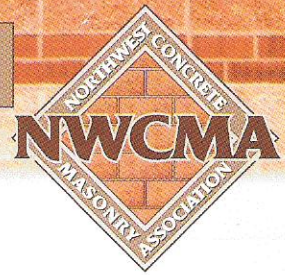
#### Structural Engineer

Skilling Ward Magnusson Barkshire, Inc. • Seattle Washington

#### General Contractor

Hensel Phelps Construction Company • Bellevue, Washington

# PROJECT FOCUS



**For further information on how to put concrete masonry to work for you contact:**

**Northwest Concrete Masonry Association**

Bellevue, Washington (425) 453-7606

**Builders Masonry Products**

Meridian, Idaho (208) 888-4050

**Central Pre-Mix Concrete Products Co.**

Spokane, Washington (509) 926-8235

**Eastside Masonry Products**

Redmond, Washington (425) 868-0303

**Mutual Materials Co.**

Bellevue, Washington (425) 452-2300  
Durham, Oregon (503) 624-8860

**Westblock Pacific, L.L.C.**

Portland, Oregon (503) 285-4557 or (503) 788-5814  
DuPont, Washington (253) 964-5000

**Western Materials**

Yakima, Washington (509) 575-3000  
Pasco, Washington (509) 547-3301

**White Block Co.**

Spokane, Washington (509) 534-0651

**Willamette Graystone, Inc.**

Eugene, Oregon (541) 726-7666  
Bend, Oregon (541) 388-3811  
Salem, Oregon (503) 585-5234

**Other Sources of Masonry Information**

**Masonry Institute of Oregon**

Portland, Oregon (503) 224-1940

**Masonry Institute of Washington**

Bellevue, Washington (425) 803-0627

**Masonry Industry Promotion Group**

Spokane, Washington (509) 324-2320



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