

Performance Concrete Products

This is the first of periodic newsletters we will be electronically distributing that will highlight AAC projects and applications. As the mid-west's premier distributor of Aercon autoclaved aerated concrete, Performance Concrete Products provides engineering, design, training, and on site construction support for its AAC projects. We also provide an experienced network of AAC DCI's (dealer/contractor/installer) who provide superior project management and erection of AAC facilities.



AAC panels used as exterior wall assembly on new Kentucky Sports of all Sorts facility

The new Sports of all Sorts facility, located in Florence, Kentucky, opened for business in early September of this year. The new facility, which was designed by **Bayer Becker**, is a 49,714 square foot super facility that contains four basketball courts, 8 bowling lanes, an expansive exercise area, as well as a food court.

The construction management firm, **Val Henson Construction**, from Louisville, Kentucky, contracted with **Bruns General Contracting**, a **Performance Concrete Products DCI** (dealer/contractor/installer) to supply and complete the AAC erection.

Bayer Becker selected 8-inch AAC wall panels as the primary AAC component for the facility, which was attached to a structural steel infrastructure. For architectural detail, 12 inch panels were selected for the first course followed by a 10 inch panel for the second course. The 8-inch panels

were then utilized to complete the exterior walls, which reached a total height of 24 feet to the parapet. Slightly less than 27,000 square feet of AAC panels were required to complete the project.



The space available at the construction site for staging the various building materials was very limited and the dimensions of the AAC panels allowed **Bruns**' personnel to manage the erection sequence effectively while not negatively impacting the work of other contractors on the project. This flexibility, coupled with the staged delivery schedule of the AAC by **Performance Concrete Products**, allowed **Bruns** to stay on schedule.

Additional architectural accents were provided on the exterior of the facility by having **Bruns** personnel field route the AAC panels. **Bayer Becker** incorporated into the building façade over 5000 linear feet of etching, which included a diamond formation on the front of the building. Vertical and horizontal reveals were then included on all four sides of the building due to the facilities high visibility.

The exterior finish was a combination of high contrasting colors and finishes. The 12 and 10-inch AAC panel step outs at the base were finished with **Elite Cement's** Litewall fine sand application. This same finish was carried into the entrance interior walls for continuity. The remainder of the exterior finish was completed with Elite's Acryl M, an acryl based finish that provided a textured contrast to the Litewall. The interior of the AAC walls that were simply painted with a light colored acrylic base paint.

The Sports of all Sorts facility is located on Mt. Zion Road, exit 178 on I-75.



OSFC funded high school utilizes AAC cladding installed by Miles-McClellan Construction

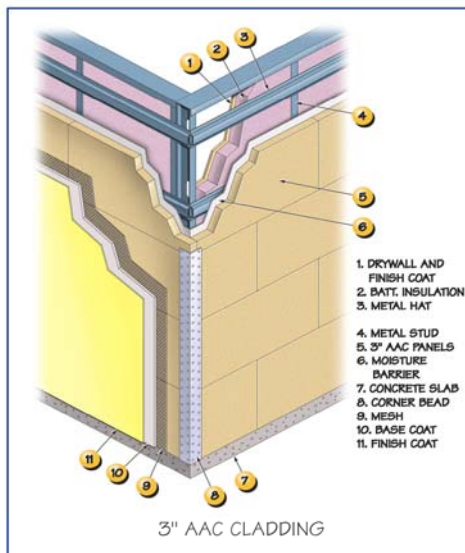
Trotwood Madison High School, which is located just north of Dayton, Ohio, is the first OSFC (Ohio School Facilities Commission) funded school project to use AAC cladding as part of an exterior wall assembly. The architectural firm of **Fanning/Howey, Inc.**, whose lead team on the Trotwood project is located at their Celina, Ohio, location, was seeking an effective alternative materials to EIFS that would meet budget and maintenance goals while still allowing the firm to

provide acceptable architectural details to the structure. The areas of the exterior that **Fanning/Howey** was seeking alternatives for on this specific project were the gables, copulas, clock tower, dormers, and wall banding. Total square footage of these areas was over 27,000 square feet.

Performance Concrete Product's Jeff Baker worked closely with the **Fanning/Howey** team who jointly agreed that 3-inch autoclaved aerated concrete panels would be the base element of the assembly. Once the decision was made, details on the appearance of the AAC cladding on the exterior were resolved as well as technical specifications developed for the bid and project manual.

In hindsight, while working out the initial assembly details required considerable effort, the agreed upon assembly is relatively simple. The 3-inch AAC panels are attached with coarse thread decking fasteners to 16 gage metal studs that have been tap coned into the CMU cavity wall. Rigid insulation is installed between the metal studs to insure the R-value of the wall envelope. Through the wall flashing is installed at the intersection of the metal studs and brick veneer just prior to the installation of the 3-inch AAC panels.

The final step of the installation was the application of the exterior finish. **Miles-McClellan Construction and Development**, Columbus, Ohio, who won the masonry portion of the Trotwood Madison bid and was **Performance Concrete Products** approved contractor, or DCI, on the project, choose to self perform this step just as they had decided to do with the installation of the AAC panels. The final finish, Litewall SL with an Acytex acrylic textured coating, is a lightweight plaster that is specifically manufactured by **Elite Cement Products** to be applied as a coating to AAC components. In addition to providing a decorative appearance, the AAC compatible finish provides a moisture barrier, is vapor permeable, and has a high degree of elasticity. Although AAC is not listed in the OSFC's design manual, **Fanning/Howey** was able to receive a variance from the commission to allow AAC to be used on the Trotwood Madison project. Fanning/Howey has since included similar AAC assemblies on two recently released school projects in the Sugarcreek School District.



Michael Lichtenberg & Sons complete RPI expansion



Michael Lichtenberg & Sons Construction, Inc., Performance Concrete Products' DCI (dealer/contractor/installer) located in Cincinnati, Ohio, recently completed an addition for RPI, which is located in Cincinnati, Ohio. Working with the client, **Lichtenberg**, who is a design/build contractor, designed the facility using a pre-engineered steel infrastructure with 8-inch AAC panels providing the exterior wall assembly.

RPI, which is a printing and electronic graphics firm, required additional warehouse space equaling almost 20,000 square feet. Even though the warehouse has a clear space of 22 feet and 26 feet to the parapet, only 9700 square feet of AAC 8-inch panels were required. To provide the building with some detail, **Lichtenberg** used the chaffered panels in a horizontal assembly. This detail, coupled with the incorporation of RPI's color scheme at the top of the warehouse, gave the new structure an integrated feel to the existing facility.

This design is a perfect example of the "single wide masonry" concept that is available with AAC panels and block. Since 8 inch AAC provides an effective R factor of 20 no additional insulation was required. Secondly, since the client felt that the natural light coloration of AAC provided an acceptable interior appearance, which is frequently the decision that owners make for this type of application, no additional infrastructure or finish was required. It is the removal of insulation, studs, drywall and/or paint from an AAC assembly at a cost of over \$4.00 per square foot that the phrase "single wide masonry" is derived.

As is always the case with an AAC facility, the exterior of the warehouse needed to have an AAC compatible finish applied. For this project, **Elite Cement Product's** Acryl M was selected. To ensure color compatibility for RPI's corporate color scheme that was displayed in the color bands at the top of the building, regular acrylic latex paint was applied over a basecoat of Acryl M.

RPI was so pleased with the AAC that they are preceding with a new 10,000 square foot warehouse that will be located on a site near their existing facility. Like the initial project, **Lichtenberg** will be using 8-inch AAC panels as a cladding attached to a pre-engineered infrastructure. Construction for this new facility is set to begin in the first quarter of 2005.

Rudolph/Libbe Inc. joins Performance Concrete Products' DCI network

Performance Concrete Products is very pleased to welcome **Rudolph/Libbe Inc.** to its DCI network. **Rudolph/Libbe, Inc.**, whose main office is located in Walbridge, Ohio, and who also has a location in Canton, Michigan, is a general contractor who also performs design/build functions as well as construction management. It is a leading edge construction firm that has completed many complex projects in northwestern Ohio and southern Michigan.

Rudolph/Libbe's first AAC project is the new City of Maumee, Ohio, police station that is currently under construction. The architectural firm of **Horne and King Architects** designed the new facility. This state of the art 56,000 square foot facility will provide the police station with expanded administrative and dispatch offices, physical fitness facilities, and a third floor firing range.

It is the unique requirements of the third floor firing range that lead **Horne and King Architects** to select 8 –inch AAC blocks for the wall assembly. With the new facility being located in the heart of downtown, sound tolerances were obviously a critical issue.

With a STC (Sound Transmission Class) of 45 and a NRC (Noise Reduction Coefficient) of .15 being physical attributes of the 8 inch thick AAC material, AAC became a logical choice. This acoustical benefit, coupled with the lightweight of AAC, which provided for structural savings in the third floor assembly, provided an excellent application for AAC.



Artist rendering of new City of Maumee police station

The actual wall assembly consisted of standard 8 inch X 8 inch X 24 AAC block with single cored AAC block of the same dimension used for the rebar, which was required every four feet on center. Since the facility is specified as an essential facility and rated as a category 3, a ring beam was required. The ring beam was then attached to the rafter beam via an attachment angle with cast in place bolts.

The exterior of the firing range will be covered with **Elite Cement Products** Litewall finish, a two coat application, which will provide the AAC wall with a moisture barrier as well as allow for the AAC to release moisture per its being vapor permeable. Since the firing range will not be visible due to the parapet, no final finish coat was required. On the visible areas of the interior, Gypspray, **Elite's** gypsum based interior single coat finish, was applied. Both the Litewall and Gypspray finishes are trowel applied.



Ground view of 3rd floor firing range



Wall assembly



Field cutting lintel to length with chop saw



Ring beam intersecting with rafter beam

City of Maumee project (con't.)



Planning for mechanical opening



Flexibility of AAC
Routed AAC block for electrical conduit run

Fire walls and shafts *The perfect AAC applications*

While perhaps not the most exciting of applications, firewalls and fire shafts are never the less requirements that have to be addressed in almost every commercial and public building project. It is with these applications that two of AAC's physical attributes, fire resistance and light weight, bring real cost benefits to the client, the architect or designer, and the contractor.

Although the minimum UL fire rating for AAC is two hours, the material essentially provides one hour of fire protection for every one inch of material. Therefore, a two-inch thick piece of AAC material provides a two-hour rating and a four-inch thick piece provides a four-hour rating. All of the UL-263 ratings for the various AAC assemblies may be found on the UL web page under Aercon. These fire ratings, coupled with the lightweight of AAC (one fifth the weight of concrete), make AAC the perfect building material for these requirements.

New construction.

For new construction, which usually provides more than adequate room to operate the necessary equipment, designers and contractors normally utilize 2 foot by 20-foot AAC panels simply because of speed of erection. These panels may be installed either horizontally or vertically. For horizontal installations, the panels are attached to supporting columns with standard kremo hook fasteners. The horizontal joints are thin bed mortared together and the vertical joints at the columns are sealed and chalked. (See System No. C-BJ-1037, Through penetration Firestop System category on UL web page under certifications, Aercon.) For vertical installations, the bottom of the panel is set on type – M mortar and the top of the panel is pinned at the top. As with the horizontal installation, the panels joints must the thin bed mortared together to obtain a complete fire rated assembly.

Renovations.

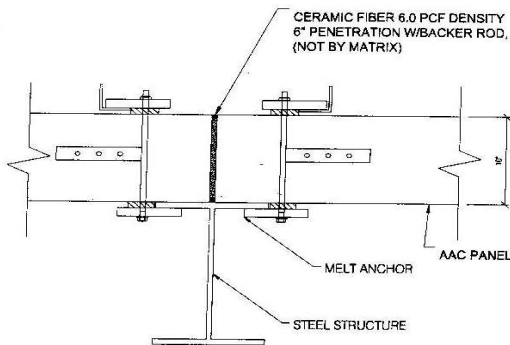
Due to space considerations, contractors normally use 8 inch X 8 inch X 24 inch block. This assembly is very basic with the first course laid in type-M mortar with the ensuing courses laid with thin bed mortar. Due to AAC block's solid composition and compressive strength, and since interior wind load considerations are only 5 lb., no rebar and grouting of cells is required in this assembly. (See melt away anchor below.) The light weight of the AAC factors in to these assemblies since the existing floor will not in most cases require thickened slabs or any other type of re-enforcement when AAC is used for the firewall. This not only reduces cost from the project but also has a positive impact on the overall schedule of the project.



Strip mall renovation using AAC block firewall using melt anchors to attach to bar joist.

Melt away anchors.

A joint development between Performance Concrete Products and **Bruns General Contracting**, the melt away anchor allows the contractor's engineer to design the firewall as a pinned connection versus a cantilever design. It is with these melt away anchors pinned to the top of the building that allows the elimination of rebar and grouting from the AAC firewall block assembly.



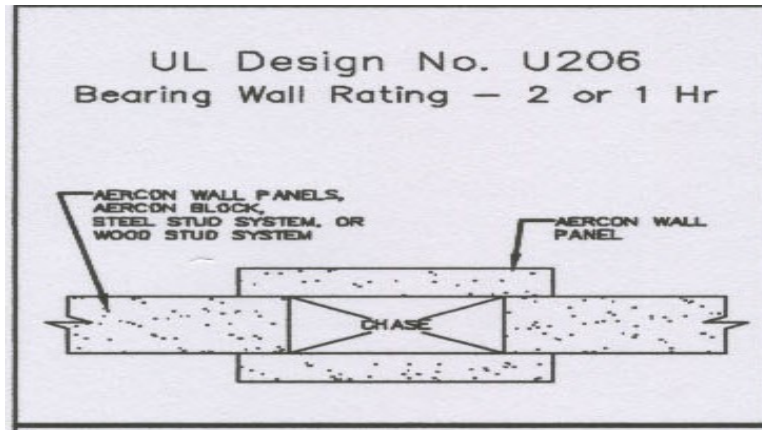
Detail for melt away anchor



AAC block routed to accept threaded rod and flange.

Fire shafts.

For any type of chase or shaft in a building, AAC components are a cost effective means of addressing this requirement. As an illustration, an elevator shaft, requiring a four hour rating, and erected out of CMU may be lined with 4 inch x 24 inch x 24 inch AAC blocks to achieve the rating. The AAC blocks are attached to the CMU shaft with standard masonry ties that are tap coned into the CMU. The AAC blocks, using the thin bed mortar, are laid in a running bond the full height of the shaft. The installation can achieve additional adherence by applying thin bed mortar to the backs of random AAC blocks.



Contact us

If you have any questions or issues that related to AAC or our network, please contact us at either our toll free number, 1-866-335-5468, or at www.brodenberg@performance-concrete.com. Also, please check our web page www.performance-concrete.com for information on other completed AAC projects as well as access to our manufacturer's web sites.