

Full View Sectional Doors Create More Flexible and Dynamic School Classrooms and Shared Spaces

Challenge:

Establish increased flexibility within new and existing classrooms and shared spaces that provides teachers and students the opportunity to engage in collaborative instruction and learning.

Solution:

11 strategically-placed 4'x8', 9'x8', 12'x8' Amarr® 3552 Heavy-Duty Aluminum Full View Sectional Doors with ClearView aluminum struts and ½-inch clear tempered glass.

Results:

A dynamic, progressive and multi-purpose learning environment for the school and community that breaks down the barriers of traditional classroom design, maximizes the use of natural light and serves as a model design approach for other schools to emulate.

Facility:

Elysian K-8 School (capacity: 480 students)

Environment:

Education

Location:

Billings, MT

Architects:

[A&E Architects](#) - Billings, MT
[Integrus Architecture](#) – Seattle, WA

Dealer/Installer:

[Alpha Overhead Door](#) – Billings, MT

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Elysian K-8 School – Billings, MT

Faced with a surge in population growth in its district due to a flourishing medical community and increasing nearby energy exploration, the enrollment at Elysian K-8 School in Billings, Montana had doubled in just two years, requiring a school remodel and expansion.

After successfully passing a bond issue in 2013, work quickly began on the nearly \$8 million, 66,000 square-foot renovation and expansion project at Elysian K-8 School, which can now accommodate up to 480 students. Plans called for creating an innovative educational environment that would surpass any other in the region, maintaining their high performance in state standards testing and complementing the nearby innovative single-family housing developments.

Breaking down traditional barriers

“We didn’t want to just add more boxes of classrooms. We wanted to do it right,” stressed Lucas Larson, Elysian K-8

School superintendent at the time of project design and construction.

Larson said he and his team looked closely at award-winning schools in other states in the region that had collaborative and flexible learning spaces, along with a lot of natural light filtering in. “The result we achieved fit in very well with what our school board, teachers, staff, and community envisioned,” Larson added.

“We were convinced that our own full view doors would also break down the barriers of a traditional classroom approach, encourage more collaboration among teachers and increase the flexibility of space.”

– Lucas Larson, Elysian K-8 School Superintendent (during the school’s renovation/expansion project), Billings, Montana

The inspiration for what the Elysian K-8 School achieved was based in part on a trip Larson and members of his school board took to visit one particular school in Washington state. The school was well-known for an innovative interior design concept that really caught their eyes: full view sectional doors with clear panes of glass integrated into the classroom learning environment.

Larson said, “Once we witnessed the doors in action, we were convinced that our own full view doors would also break down the barriers of a traditional classroom approach,

encourage more collaboration among teachers and increase the flexibility of space.”

Two architectural firms, one clear vision

After thoroughly evaluating a select number of resources, the Elysian school district determined that local Billings firm, [A&E Architects](#), was the best choice to handle the design for the school project. For added expertise on educational interior design, A&E Architects brought in Seattle-based partner and nationally-recognized [Integrus Architecture](#).

Larson explained that the district became very comfortable with the progressive insights A&E and Integrus provided, as well as both firms’ willingness to listen and talk about ideas with a vision that reached beyond the norm.



Working seamlessly, A&E focused on exterior design elements (due especially to the firm’s familiarity with the local climate), while Integrus concentrated on interior design and classroom layout. A critical design element that became part of that process was a total of 11 strategically-placed 4’x8’, 9’x8’, 12’x8’ Amarr® 3552 Heavy-Duty Aluminum Full View Sectional Doors, specified by Integrus. Each of the

full view doors features a wide expanse of ½-inch thick clear tempered glass between two-inch extruded clear anodized aluminum rails and stiles. ClearView aluminum struts add strength and durability to the doors without restricting the viewing area and allowing the maximum amount of natural light.

“A considerable amount of planning went into the door locations,” Larson pointed out. “For example, there were several middle school classes accustomed to working collaboratively, so it made sense that they would benefit from the increased access between classrooms.”



Larson added that all of the school’s teachers were highly involved in the overall design process and spent time talking with the architects.

The renovation part of the project centered on Elysian’s middle school area. Due to a few pre-existing constraints, all six full view doors in that part of the school are the same size—9’x8’—with the exception being one corner classroom which has a 4’x8’ door. The new elementary section incorporated the remaining 12’x8’ and 9’x8’ doors in the library. All classrooms with full view door access still retain standard entry and exit doors.

High-quality construction unmatched

Joining the architectural team and local general contractor Fisher Construction, Inc. was [Alpha Overhead Door](#), also of Billings. Alpha Overhead Door’s General Manager Matt Weber handled overseeing their installation.

“The Amarr full view doors represent our first experience in the school interior environment,” Weber shared. “They play not only an important daily functional role but also provide a really cool industrial look.” Weber mentioned that his team only encountered a few engineering challenges along the way.

“We spent some extra effort on a low headroom setup and integrating the doors’ track supports into the drop ceiling design,” Weber said. “We also modified the cable runs so they aren’t exposed to the kids in any way that would cause potential safety issues.”

“We’ve installed doors from other manufacturers, but we’ve always remained loyal to the quality we’ve come to expect with the Amarr brand.”

– Matt Weber, General Manager and Sales,
Alpha Overhead Door, Billings, Montana

After installation, Weber provided teachers basic how-to advice on what to look out for when operating the doors with students nearby. When closed, the doors are padlocked so students can’t open the doors’

slide lock mechanisms and play with the doors.

“The Amarr 3552 full view product is a great door and we find that higher end contractors use them often in their projects,” Weber added. “The doors have a heavier, high-quality construction that is unmatched. We’ve installed doors from other manufacturers, but we’ve always remained loyal to the quality we’ve come to expect with the Amarr brand.”

“The full view doors essentially serve as large windows that are part of a flexible, dynamic and changing architectural wall element.”

– Dusty Eaton, AIA, LEED AP,
Architect/Principal, A&E Architects, Billings,
Montana

Increased flexibility and classroom expansion

A&E Architects’ Dusty Eaton, AIA, LEED AP, Architect/Principal, explained that an important part of the rationale for the full view doors was based on two driving reasons: increased flexibility and expanding classroom size on an as-needed basis. “When a door (or combination of doors) is open, that then quickly increases classroom space and allows students to move into shared break-out areas so they can easily dive into a cross-disciplinary and collaborative teaching environment,” Eaton said.

For example, while one class is focusing on a science lesson and another class is working on math problems, once the door opens, the two classes can then quickly combine into one space to share findings from their respective lessons.

Eaton pointed out that he’s seen this in action in the school’s Yellowstone Room, which acts as art/science maker space. Once the full view door is open, kids can spill out from up to three classrooms and then go into full collaborative project mode.



“The most significant aspect of the full view door concept is the glass itself,” Eaton explained. “It really helps to make the classroom and shared spaces feel larger when the doors are closed.”

BIM software demonstrated door use

Sam Schafer, AIA, Senior Associate, Project Architect with Integrus Architecture shared that when designing the school’s interior, his firm used Autodesk® Revit® BIM (building information modeling) software which helped to clearly demonstrate to the school board, superintendent and teachers the full view doors’ planned placement and how they would be used.

“The Amarr full view doors are a great way to bring natural daylight from exterior

windows into a deeper floor plate than a traditional relight approach,” Schafer emphasized. “The doors, especially in the new elementary portion of the school, really help bring in more borrowed light into the classroom spaces and shared areas. This has also reduced the need for teachers to turn on overhead lights during sunny days.”

Schafer added that designing the doors into Elysian’s project involved addressing a few important safety details early in the process. For example, the design had to take into account fire sprinkler placement. “When the doors are open and blocking the sprinkler head on that part of the ceiling, we needed to add an extra sprinkler head to cover that space,” he said.

“The doors...really help bring in more borrowed light into the classroom spaces and shared areas.”

— Sam Schafer, AIA, Senior Associate, Project Architect, Integrus Architecture, Seattle, Washington

Looking back on the project, Schafer added that the doors promote a high level of connectivity between teachers which, in turn, impacts and sparks more creative ideas within students.

Students draw on door glass

Eaton also emphasized that the full view doors essentially serve as large windows that are part of a flexible, dynamic and changing architectural wall element that students can also write on with colorful dry-erase markers, or decorate them with

artwork and other projects to essentially make them their own.

“The final product clearly shows the level of commitment of everybody involved, including our firms, the general contractor, dealer/installer, the school board and the community who, all combined, embraced the potential of opportunity for what the school could become,” Schafer said.

“Initially, those involved on the project committees didn’t understand the concept of placing ‘garage doors’ in classrooms,” Eaton pointed out. “But once they understood it and saw it in action, the lights came on. They all agreed it’s a brilliant approach to dynamic education as well as community interaction and involvement.”



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