

2013 Exhibition of School Planning and Architecture

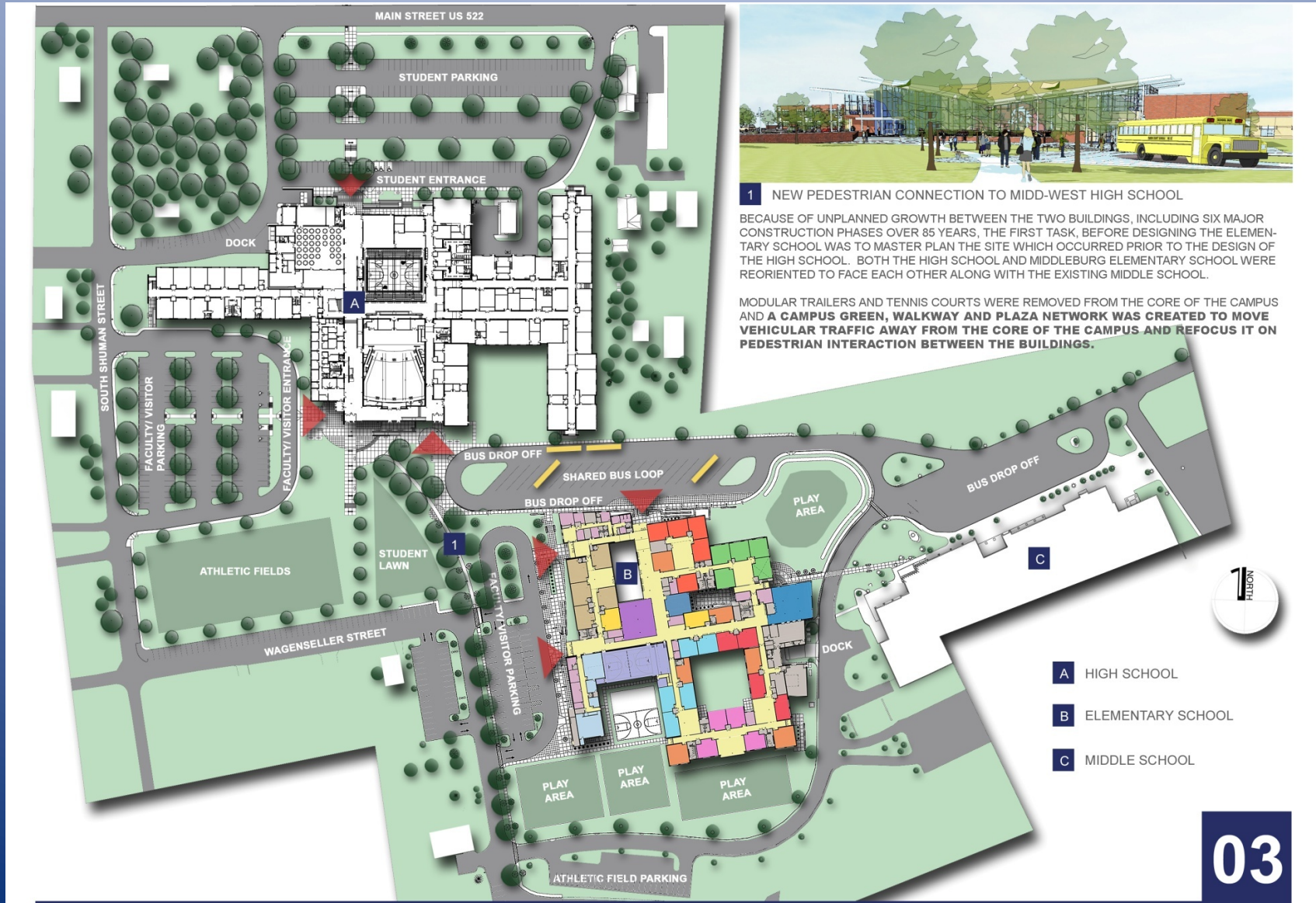
Middleburg Elementary School

Middleburg, PA

Middleburg Elementary School

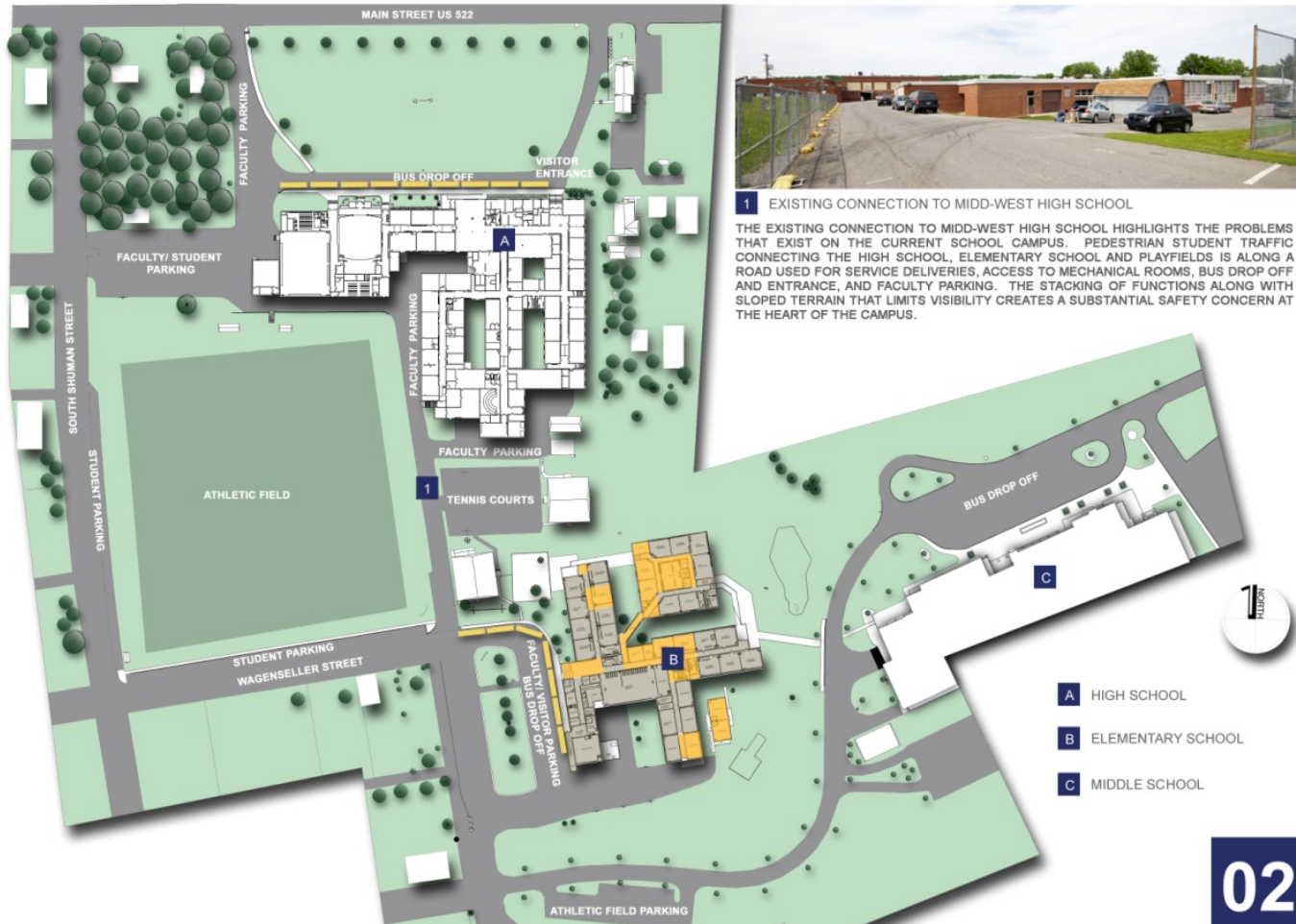


Middleburg Elementary School



Community Environment

Midd-West School District and the Design Team engaged the community through presentations, surveys and charrettes. This public outreach showed a strong sense of ownership in the Middleburg Elementary School. However, growth in the school population over 40 years and a “worn out” building had the community question the future of Middleburg Elementary School. The history of not only formal public education but also, Cub Scouts, Girl Scouts, Little League, Wrestling and many other community activities fostered a wish to maintain the facility. A discussion of transforming the “bones of the building” for the next 40 years of Midd-West School District became a central theme as the project moved forward into design.



EXISTING CAMPUS PLAN

A building Transformed

Community Environment: Maintaining the building at its current location also allowed for shared use of adjacent Middle and High School facilities, one with an auditorium and the other with an athletic complex that over the years has allowed for more educational opportunities for Middleburg Elementary School including high school students assistant teaching within the Middleburg Elementary School. The final design heavily renovated 40% of the existing building and used additions to transform the interior and exterior identity of the building. The final building design still houses the same number of students but now provides for three separate identities or schools within the building.



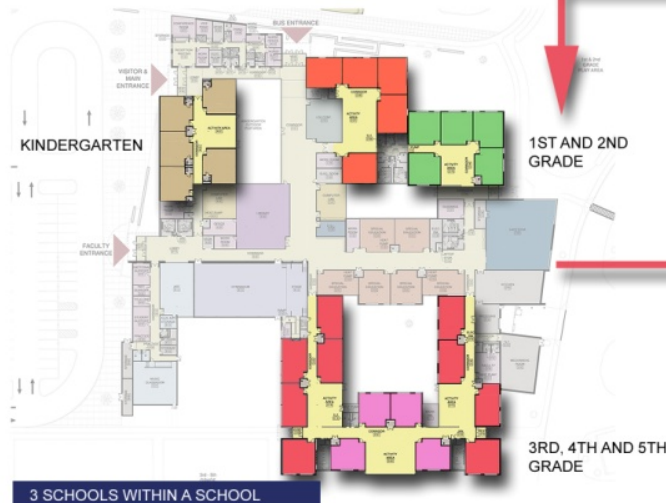
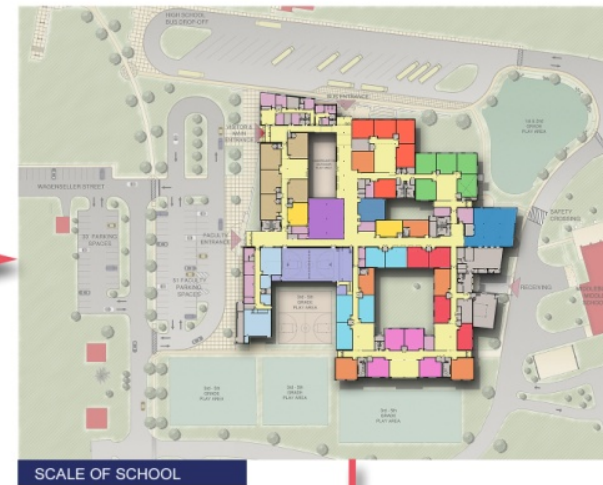
RENOVATIONS TO THE ELEMENTARY SCHOOL INCLUDED THE DEMOLITION OF ABOUT TWENTY FIVE PERCENT OF THE BUILDING TO ACCOMMODATE CONNECTIONS TO THE NEW ADDITIONS AND NEW PUBLIC STREETS THROUGH THE BUILDING. CAREFUL ATTENTION TO THE REMAINING STRUCTURE WAS TAKEN TO MINIMIZE THE MOVEMENT OF WALLS AND MINIMIZE CONSTRUCTION COSTS.

04

EXISTING FLOOR PLAN

Grade House

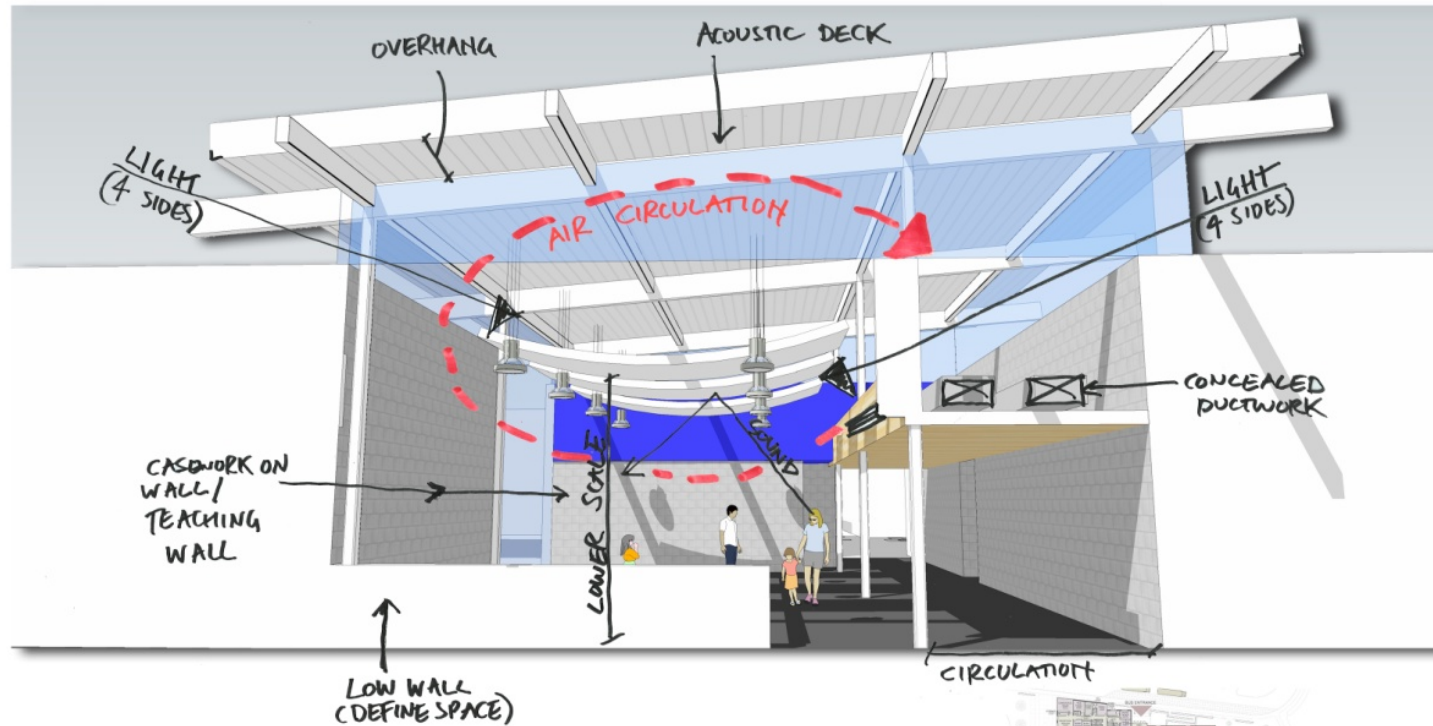
Learning Environment: Throughout the development of the project the client stressed concern with creating an individual identity for students within the school while at the same time knitting into the fabric of a three building school district campus. The final solution was to create a series of scales within the building. The core education would be within Grade Houses offering a ring of classrooms for one grade level around a central “Activity Area”.



FOUR SCALES TO MIDDLEBURG ELEMENTARY SCHOOL

Activity Areas

Learning Environment: The “Activity Areas” as described below were the center for flexible education within the building creating dynamic spaces at the core locations within the building and connected to the exterior views from the building.



ACTIVITY AREAS ARE LOCATED AT THE HUB OF EACH OF THE 6 GRADE HOUSES. THESE AREAS ARE INFORMAL GATHERING AREAS FOR EACH GRADE LEVEL ALLOWING TEAM TEACHING OR MULTIPLE SMALL GROUP INSTRUCTION. A BALANCE WAS STRUCK BETWEEN BEING OPEN TO THE CORRIDOR SYSTEM, VISUAL CONNECTION TO THE CLASSROOMS, DAYLIGHTING WITHIN LANDLOCKED SPACE AND PROPER ACOUSTICS FOR INSTRUCTION. RAISED ROOF STRUCTURE ALLOWED THE OPPORTUNITY FOR DAYLIGHTING WHILE CURVED ACOUSTICAL CLOUDS WERE HUNG TO SCALE THE SPACE AT A LOWER LEVEL FOR THE ELEMENTARY SCHOOL STUDENTS, CONTROL SOUND AND DIVERT POTENTIAL GLARE FROM THE CLERESTORY WINDOWS.

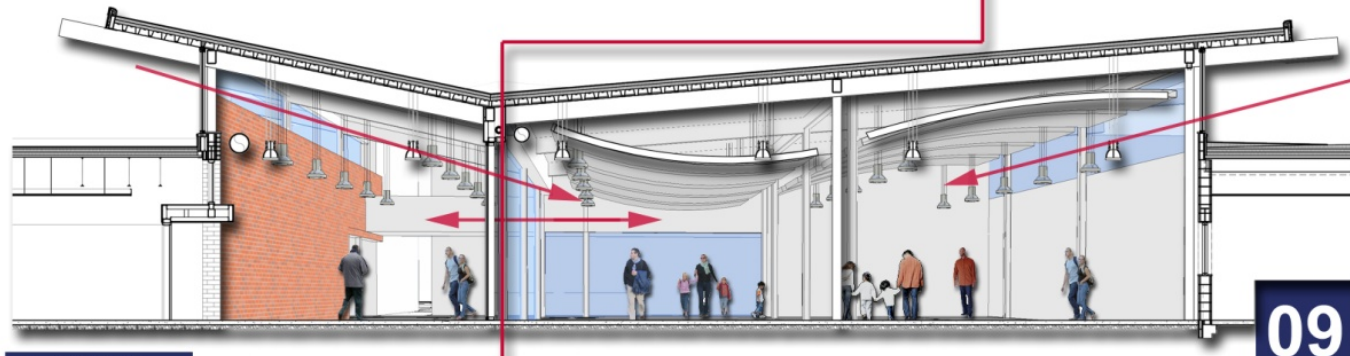
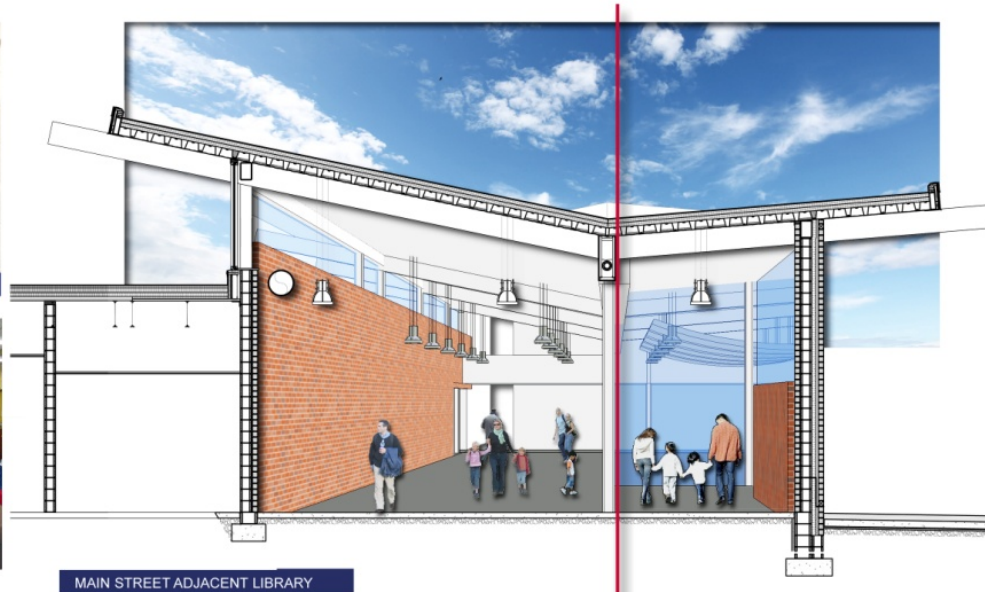
THE RAISED STRUCTURAL DECK WAS ALSO USED IN THE LIBRARY AND MAIN STREET TO BRING DAYLIGHT INTO THE INNER CORE OF THE BUILDING. AS IN THE ACTIVITY AREAS, SCULPTURAL ACOUSTICAL CLOUDS SCALE DOWN THE LIBRARY. ATTENTION WAS GIVEN TO THE PLACEMENT OF BULKHEADS AND CEILING TO CONCEAL MECHANICAL SYSTEMS AND CREATE TRANSITION BETWEEN CORRIDORS AND PROGRAM SPACE THAT ARE OPEN TO EACH OTHER.



ACTIVITY AREAS

Raising the Roof and Opening Connections within the Building

Physical Environment — The existing roof in the core of the building was removed and a new structure and raised roof was inserted to allow daylighting to be brought into the core of the facility which daylighted over 94% of all educational spaces. The use of acoustical metal decking and acoustical clouds within these raised areas was designed to control sound for learning and maintain a small scale environment for the young students. This approach was used throughout the facilities to create open learning environments with visual connections between varied program spaces allowing both formal education along with impromptu opportunities for learning or large group gathering.



LIBRARY

09

Sustainability and School as a Teaching Tool

Physical Environment - The use of daylighting was perhaps the most visible example of sustainability within the building. The building was designed to USGBC standards and is currently registered to attain Gold Certification, including 32.7% Energy reduction, 44% water use reduction and meeting standards for enhanced acoustical performance. Midd-West School District throughout the project saw the opportunity to use the building as a teaching tool. Curriculum staff and the design team worked together to develop a sustainability Module that was integrated into the science curriculum with 10 hours of instructional time per year.



VIEW FROM ENTRANCE

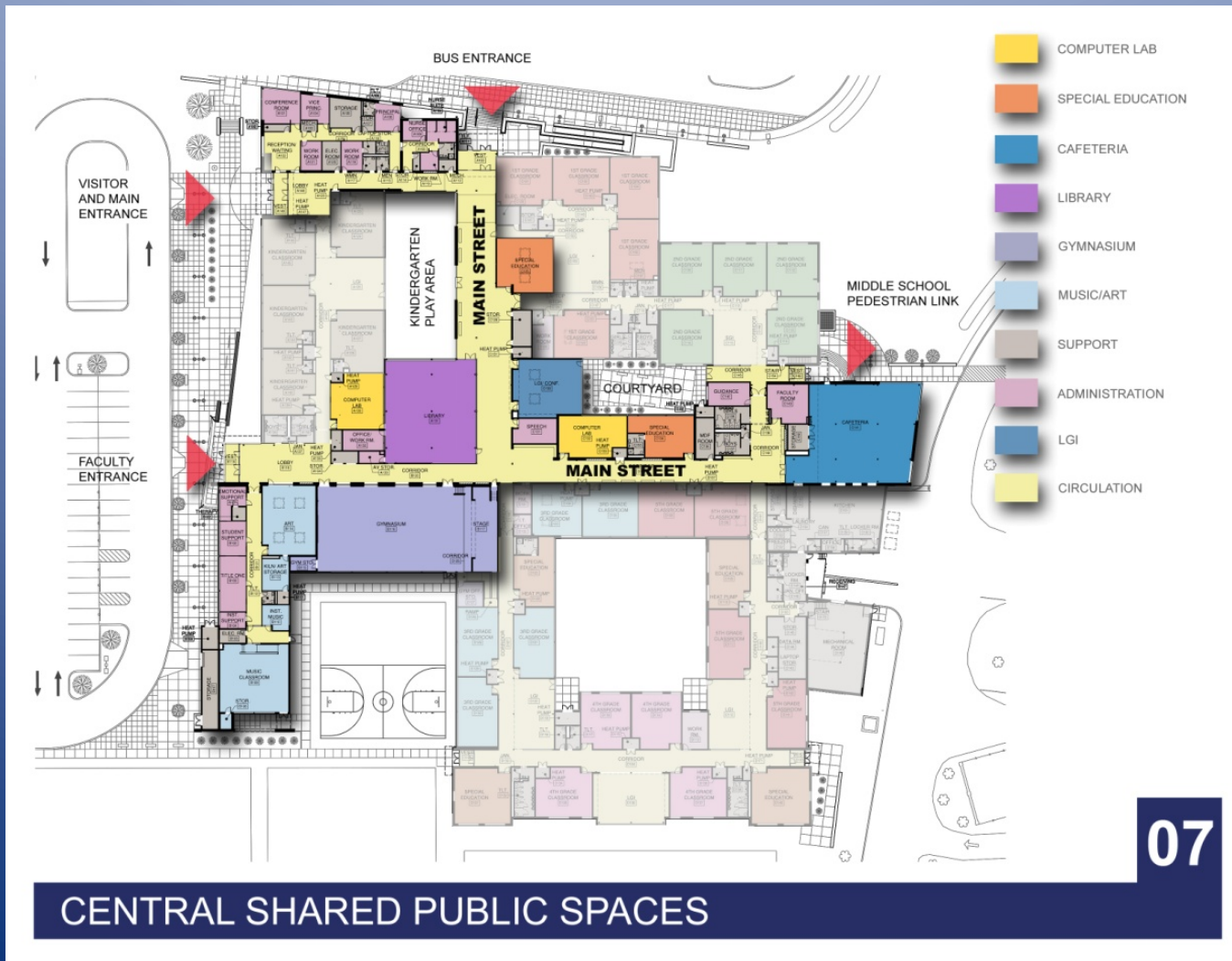
THE CAFETERIA ACTS AS THE CONCLUSION TO THE MAIN STREET OF THE BUILDING THAT CONNECTS ALL OF THE PUBLIC SPACES OF THE BUILDING. THE EXISTING CAFETERIA WAS UNDERSIZED AND PARTIALLY USED AS A MULTI PURPOSE SPACE. THE EAST AND NORTH FACADES OF THE NEW CAFETERIA HAVE EXPANSES OF GLAZING THAT ALONG WITH BLADE WALLS (FOR GLARE CONTROL) CREATE AN OPEN AND TRANSPARENT ENVIRONMENT ADJACENT TO OUTDOOR PLAY AREAS. SCULPTURAL CEILING CLOUDS WERE USED TO AGAIN CREATE SCALE WITHIN THE SPACE BUT ALSO CREATE THE PROPER ACOUSTICS FOR A SPACE THAT CAN ALSO SERVE LARGE GROUP INSTRUCTION.

DEDICATED CAFETERIA

10

Individual Ownership in the Building

Planning Process: Early in the process the client created a design team made up of not only architects and engineers, but from the client consisting of Senior Administration, School Board Members, Curriculum Directors, Teachers, Janitorial Staff and Students and Community Members. Some of the involvement in the planning process revolved around community meetings, presentations, workshops and charettes, and many of the members mentioned were involved in “signing off” at schematic, design development and final drawing completion. A common theme throughout the project was that all stakeholders had a voice in the development of their school for the next 30-40 years. While most goals were met, some “wish list items” were not achievable, but with the invested effort of all stakeholders, everyone understood how the project achieved it’s final design and gained community support.



Individual Identity within a Community

Planning Process: One of the key discussions throughout the project was how the building would be designed to create Public and Private Zones of the Building. The final design created two main streets. That included all of the primary public program spaces, Gym, Library, Cafeteria, Art, Music, Large Group Construction. The three schools for Kindergarten, 1st-2nd grade and 3rd-4th Grade are then accessed from the public streets that can be locked down. Throughout the project discussion had occurred related to how the Middleburg Elementary School needed to be a scaled down version of the town and campus. Graphics as shown below were used to describe how the building would be scaled down to the individual student to teacher instruction but more importantly alleviate community concerns that students do not become lost in the size of a 600-750 student elementary school.



SCALE OF CAMPUS



SCALE OF SCHOOL



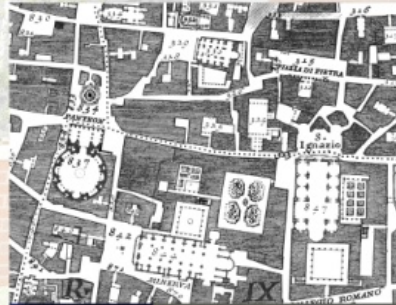
3 SCHOOLS WITHIN A SCHOOL



GRADE HOUSE



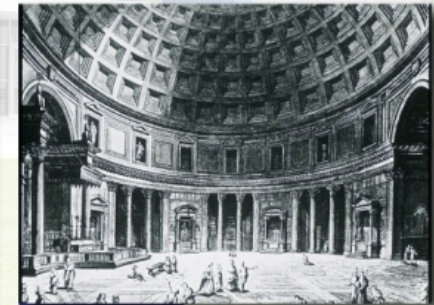
CITTÀ



RIONE



PIAZZA



CENTRO

Floor plan



EARLY DISCUSSION WITH THE CLIENT STEERED TO THE FACT THAT THE BUILDING WOULD BE APPROXIMATELY A 100,000 SF ONE STORY BUILDING. THIS CREATED THE POSSIBILITY OF LONG DISTANCES WITHIN THE BUILDING TO REACH AREAS OF THE BUILDING. A THREE LOOP SYSTEM WAS CREATED WITHIN THE ELEMENTARY SCHOOL TO AVERT THIS CONCERN. EACH LOOP ENTERS ONE OF THE THREE SCHOOLS WITHIN THE BUILDING AND TIES TO THE MAIN STREET SYSTEM ALLOWING ACCESS TO ALL OF THE PUBLIC PROGRAM WITHIN THE BUILDING.

05

PROPOSED FLOOR PLAN - LOOP SYSTEM

Exhibition of School Planning and Architecture

2013 Project Data

Submitting Firm :	Crabtree, Rohrbaugh & Associates Architects
Project Role	Architect
Project Contact	Jeff Straub
Title	Senior Project Manager
Address	401 East Winding Hill Road
City, State or Province, Country	Mechanicsburg, PA
Phone	717.458.0272

Joint Partner Firm:	
Project Role	Not Applicable
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	

Other Firm:	The Quandel Group, Inc.
Project Role	Construction Manager
Project Contact	Matt Kodak
Title	Project Manger
Address	3003 N. Front Street, Suite 201
City, State or Province, Country	Harrisburg, PA 17110717.657.0909
Phone	

Construction Firm:	Multi Prime Construction Project
Project Role	
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	

Exhibition of School Planning and Architecture

2012 Project Details

Project Name	Middleburg Elementary School
City	Middleburg
State	PA
District Name	Midd-West School District
Supt/President	Dr. Wesley L. Knapp, Superintendent
Occupancy Date	January 2013
Grades Housed	Kindergarten – Fifth Grade
Capacity(Students)	700 Students
Site Size (acres)	41.6
Gross Area (sq. ft.)	109820
Per Occupant(pupil)	156.88
gross/net please indicate	Gross
Design and Build?	In Construction
If yes, Total Cost:	21084780
Includes:	Site and Building Cost
If no,	
Site Development:	2496980
Building Construction:	18115800
Fixed Equipment:	472000
Other:	
Total:	21084780

Clear Points of Entry within Existing “Bones” of the Community School

Planning Process: Graphics as shown below were used throughout the design of the project with the community and district stakeholders to show how the existing facility would be transformed to meet the next generations of children being educated within Midd-West School District. Staff and the community wanted to create a distinct identity to the new facility while at the same time tying to the daylight existing façade that many in the community had grown up in and were now seeing their children educated within. It was this tie to past Alumni, pride in the facility and economics of reusing the existing bones or structure of the original building that helped tie new kindergarten students to parents and grandparents that attended the building as many as 40 or 50 years ago.



PROPOSED VISITOR AND MAIN ENTRANCE



EXISTING ENTRANCE FAÇADE



EXISTING VISITOR AND FACULTY ENTRANCE

IMPORTANCE IN DEFINED ENTRANCES WAS EMPHASIZED THROUGHOUT THE PROJECT. EXISTING ENTRANCES WERE NON DESCRIPT AND ALLOWED FOR POTENTIAL CONFUSION UPON APPROACHING THE BUILDING. **A DECISION WAS MADE TO USE THE EXISTING BUILDING AS A BACKDROP AND USE NEW CONSTRUCTION TO HIGHLIGHT CLEAR DEFINED ENTRY POINTS WITH LIMITED DIRECTIONAL SIGNAGE IN UNISON WITH SITE DESIGN.**

THE VISITOR AND MAIN ENTRANCE IS LOCATED AT THE ONE END OF THE NEW ADMINISTRATION BLOCK UTILIZING BLUE BLADE WALLS TO CALL ATTENTION TO THE ENTRY AND RAISED OVERHUNG STRUCTURE THAT ACTS AS ADDITIONAL COVERAGE AT THE ENTRY.

THE FACULTY ENTRANCE DOWN THE FAÇADE REDUCES IN SCALE TO ACT AS A SECONDARY ENTRY POINT BUT CREATES A RHYTHM OF GLAZING AND MATERIALS ALONG THE BACKDROP FAÇADE.

VISITOR AND MAIN ENTRANCE

Architectural Ties Between School District Buildings and Shared Space

Community Environment and Physical Environment: Middleburg Elementary School was Phase Two of a High School and Elementary School Project. During the design phase of Middleburg Elementary School, Midd-West High School was being constructed less than 150 feet across from a shared bus drop off loop. The bus drop off loop had staggered drop off for the different building to maximize the use of the district acreage on campus. During the day the drop off loop also takes on the function of hardscaped play space for the Elementary School in a secure environment at the heart of the campus. Exposed Structure Canopies act as the a clear Entry Point, but are scaled down versions of Design Features used on the Midd-West High School.

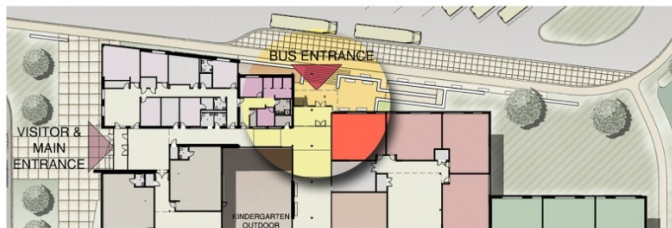


PROPOSED STUDENT ENTRANCE

THE STUDENT ENTRANCE ALONG THE SHARED BUS LOOP WITH THE HIGH SCHOOL IS FOUND AT THE OTHER END OF THE ADMINISTRATION WING, ALLOWING THE TWO PRIMARY ENTRANCE POINTS TO BE MONITORED FROM ONE LOCATION.

THE ENTRY POINT IS RAISED TO ACCOMMODATE A TRANSITION IN GRADE, BUT AT THE SAME TIME ALLOW THE ADMINISTRATION THE ABILITY TO OVERLOOK THE ENTIRE BUS LOOP FOR SAFETY DURING MORNING AND AFTERNOON MOVEMENT OF THE STUDENT BODY.

THE BUTTERFLY ROOF STRUCTURE THAT IS USED WITHIN THE BUILDING TO DAYLIGHT THE INTERIOR CONTINUES THROUGH TO THE ENTRANCE AND IS EXPRESSED, CREATING A DEFINED AND CLEAR ENTRY POINT. A MIXTURE OF COLORED MASONRY IS FURTHER INCORPORATED TO CALL ATTENTION TO THE ENTRY POINT AND BREAK THE FAÇADE DOWN.



ADJACENT HIGH SCHOOL (UNDER CONSTRUCTION)

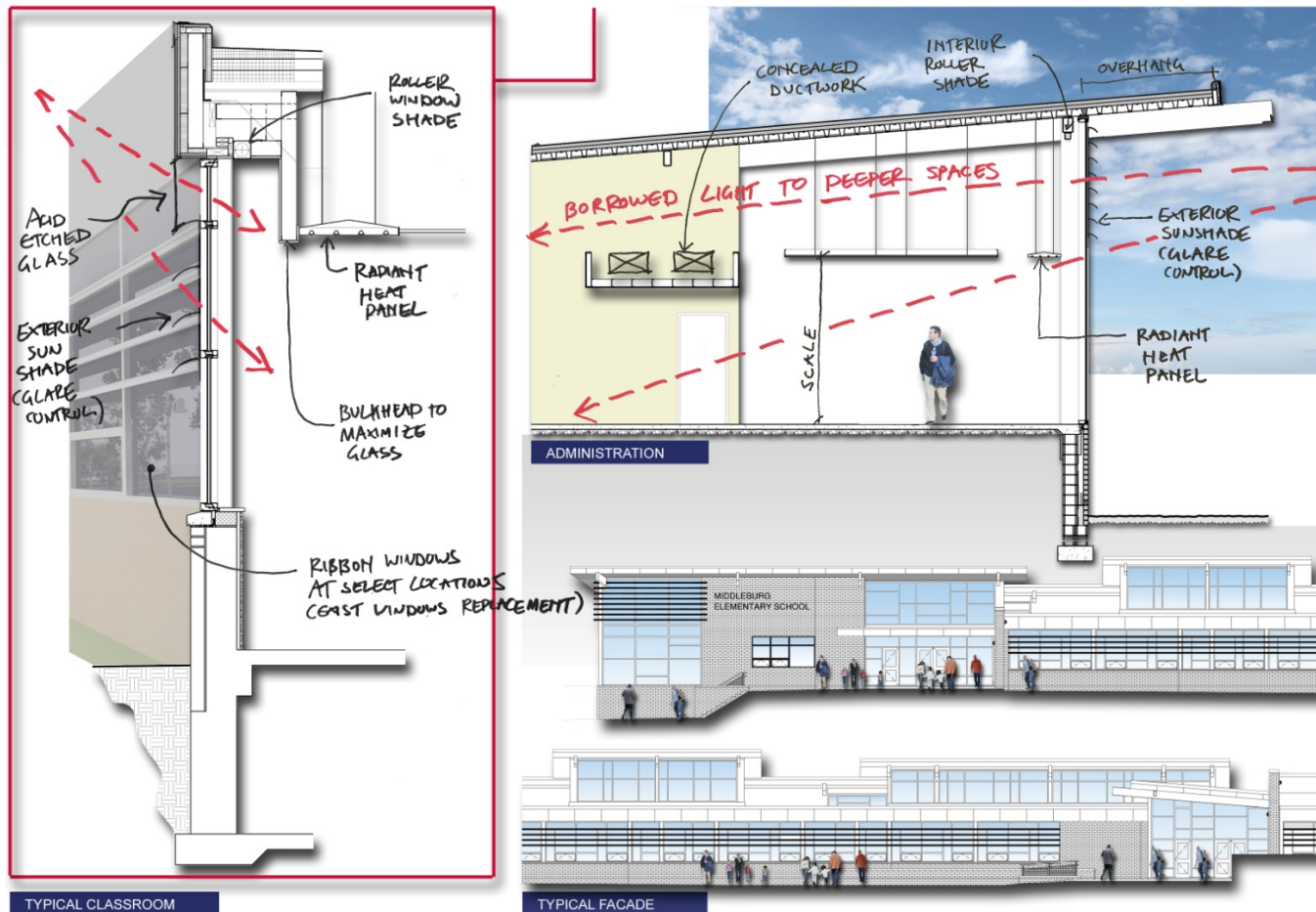


EXISTING STUDENT ENTRANCE

STUDENT ENTRANCE

Preserving Connection to Exterior Views

Physical Environment: The original Middleburg Elementary School had 1950-1960 ribbon windows, while these provided a history of natural daylighting for the building, construction technology of the mid 20th century created were not able to meet the design intent. The single glazed windows created uncomfortable drafty exteriors that were not extremely efficient for energy use. Blinds were also typically pulled throughout the year due to glare control. The design team worked with the district to install energy efficient windows and utilize technologies including light shelves, acid etched glass, ceiling clouds and at times sun shades mounted directly to storefront systems to allow glazing to be open to views with limited glare.



DAYLIGHTING

Middleburg Elementary School

