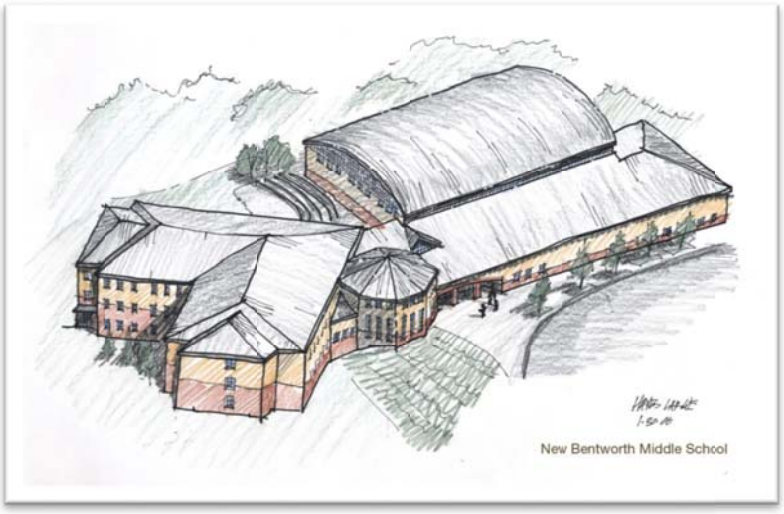
Building Statistics – Part One

Building Name:	Bentworth Middle School
Location:	Bentleyville, PA
Building Occupant Name:	Bentworth Middle School
Occupancy or Function Types:	Group E (Educational
Size:	83,800 Square Feet
Number of Stories Above Grade:	3 Stories
Starting/Ending Dates of Construction:	May 2007/January 2009
Cost:	$18 Million
Project Delivery Method:	Design-Bid-Build

Primary Project Team

Owner:	Bentworth School District	www.bentworth.org
Architect:	Hayes Large Architects	www. hayeslarge.com
Construction Manager:	Oxford Development Co.	www.oxforddevelopment.com
MEP Engineers:	Hayes Large Architects	www. hayeslarge.com
Structural Engineer:	Atlantic Engineering Services	www.aespj.com
Civil Engineer:	The EADS Group	www.eadsgroup.com
Geotech Consultant:	CMT Laboratories, Inc.	www.cmtlaboratories.com
Food Service Consultant:	McFarland Kistler & Associates, Inc.	

Architecture



The entrance of the building is focused around a central hexagonal lobby which acts as a node separating the academic wing from the rest of the building. Therefore, areas such as office space, music and physical education rooms, cafeteria, and gymnasium are located in a separate, single story wing where the noise associated with these spaces will not disturb the learning process. The academic wing consists of three floors, all of which are arranged in an "L-shape". This design does several things for the building. First, the corridor running down the center of the "L-shape" allows for the classrooms located to its either side to be provided with natural sunlight and excellent views of the surrounding suburban area. The shape also makes it possible for the academic wing to take up less site area than what a conventional wing would. Finally, the node of the "L" provides a central area that connects each of the legs of the "L" and as such restrooms and faculty areas are provided at this location.

Codes

International Building Code 2003
NFPA 2000
ICC/ANSI A117.1 – 1998
Americans with Disabilities Act – 2004 Title 1 and 2

Zoning

Construction Type - Non Combustible, Type IIB
Unprotected
Fully Sprinkled

Height Limitations -

Height Allowed:	2 Story, 55’
Sprinkler Modification:	1 Story, 20’
Total:	3 Story, 75’
Actual:	3 Story, 47’ +/- (at gable roof midpoint)

Area Limitations –

Tabular Area Allowed:	14,500 SF per floor
Modification:	lf=100[F/P-.25]W/30

lf=100[1,301’/1,301’-.25]30/30 = 75%
Aa = At = [At*lf/100] + [At*ls/100]
Aa = 14,500 + [14,500*75/100] + [14,500*200/100]
Aa = 14,500 + 10,875+29,000 = 54,375 SF

Area Reduction Height:	None
Actual Area, Floor 1:	19,115 SF
Actual Area, Floor 2:	46,680 SF
Actual Area, Floor 3:	15,479 SF

Historical Requirements

The building is new construction and has no historical requirements.

Building Enclosure

Building Façade: The primary composition of the façade consists of split face CMU construction. This system varies in coloration as it rises up from the ground approximately seven feet as beige, followed by a course of dark grey, and then the building finishes out in a maize color. The office area and academic wing have consistent fenestrations for insulated, operable windows. Small sections of the building, such as the main entrance, larger fenestrations, and stairwells have an aluminum curtain wall system installed.

Roofing: The roof is a prefinished standing seam metal roofing system which directs rainwater to gutters bordering the roof perimeter.

Sustainability Features

The most notable stainable feature of Bentworth Middle School is their geothermal heating and cooling system which has a loopfield consisting of 96 six inch wells that are 350 feet deep each. This system will greatly reduce the buildings consumption of fossil fuels when compared to a conventional system.