



**Proposal to Provide  
Educational Specifications and  
Planning Services**

Warren Area High School  
Warren County School District

Thomas &  
Williamson

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## Executive Summary

### On-Time. On-Budget.

It's the most basic goal of any project, and it's particularly important for educational facilities - where delays and cost overages can impact each student's opportunity to learn and achieve. Just as our school district clients take on the monumental responsibility of educating their students, we, as their partners, take the responsibility for ensuring that all their goals for their building projects are accomplished.



### Look Deeper.

Look deeper into the most successful K12 building projects that you have seen and you will find there is something in common: the completed facility is a uniquely crafted reflection of the educational process which it houses. As your trusted and experienced guide, we provide the knowledge, technology and strategies to work within your budget and schedule and we look deeply into your needs in order to help you craft a very special facility.



### Management through Engagement.

Engagement is the engine of our management approach. Through all the phases of your project - planning, design, construction and start-up, we'll actively engage with you, all of the design professionals and the contractors in order to bring about a collaborative environment for all stakeholders to maximize their contributions to your project.

management  
Engagement

## *History of the Firm*

### **History of the Firm.**

Jon Thomas and David Williamson first met in 1991, while both were employed at the Pittsburgh headquarters of a national engineering and project/construction management firm. Over the next six years, they would collaborate on numerous K12 projects and building programs.

In 1998, following the acquisition of the firm where they were employed, Mr. Thomas and Mr. Williamson set out on their own and formed Thomas & Williamson. Built upon the partners' expertise in the field of project management, T&W gained immediate recognition for its specialization in providing integrated planning and management services for K12 clients in Western PA.

Thirteen years later, the firm has gained popularity - not only as K12 specialists - but among a small group of firms specialized in K12 projects in the area, T&W stands out with its unsurpassed depth of services. The firm is increasingly sought out to both manage and consult on projects with quick turnaround requirements, intense budget sensitivity and trail-blazing quality and educational programming standards.



## Jon M. Thomas

*Principal*

Co-Founder and President of Thomas & Williamson: Mr. Thomas has 29 years of experience as a Project Manager of school and institutional projects. His experience is equally apportioned in design and construction and includes a vast portfolio of K-12 school construction projects valued at over \$100 million annually.

An essential factor in the success of each project on which Mr. Thomas has served has been the integration of program and cost. "We always felt that it was absolutely essential to spell-out the program of the project, in fine detail, then associate the costs – before the design process began." In order to achieve this integration of program and cost, Mr. Thomas developed management systems that "model" the costs of projects based on educational programming information.

"The school districts with whom I have worked found a real benefit in being able to see where the cost concentrations of their projects would be as a result of their conceptual educational needs." The cost modeling systems were developed by Mr. Thomas in response to a school districts' need for instantaneous feedback on the cost of their projects. The combined understanding of building design and project cost has also enabled Mr. Thomas to bring substantial cost reductions to projects through Value Engineering.

"I guess that my focus has always been on continuous improvement. When you are managing a project with a definite completion point and budget in mind, it is sometimes difficult to comprehend the concept of continuous improvement. If you divide the processes of designing and constructing into phases, the results can be very positive. Instead of waiting until the drawings are completed to get bids – you



*Jon M. Thomas – President  
Thomas & Williamson*

perform a cost estimate and verify the scope hasn't changed appreciably from the initial program. If you review the project at the completion of each phase of design and construction, you will find it is quite easy to improve the outcome."

### **Education**

BS Civil Engineering Technology,  
Point Park University

Associate of Applied Technology  
Triangle Institute of Technology

Continuing Education Certification:  
Engineering - Penn State University  
Planning – University of Texas at Austin

### **Registration**

Pennsylvania EIT Certified

### **Experience**

29 years

### **Affiliations**

PASBO  
Associated Builders and Contractors, Inc.  
Verland Foundation Board of Directors

## David M. Williamson

*Principal*

Co-Founder and Vice President of Thomas & Williamson, Mr. Williamson has over 39 years of experience as a project manager for school, university, institutional and governmental projects. Experienced in CPM scheduling, estimating, cost control and construction management, Mr. Williamson has worked on projects ranging from elementary school renovations to university recreation centers. In addition, Mr. Williamson served as an on-site construction manager for a variety of educational and institutional projects.

Mr. Williamson has also provided technical assistance to financial institutions, insurance companies and government agencies in overseeing construction projects. These services have provided an assessment of the overall project schedule, budget and scope of work. A critical aspect of this work is keeping the client informed of any significant issues that may impact the project schedule, budget, scope, or quality of work.

Prior to the start of construction, Mr. Williamson reviews the project documentation, audits the funding sources, critiques the cost estimate and project budget, investigates the anticipated cash flow, establishes requirements for construction financing, and reviews the permitting and compliance requirements. He also determines that proper controls have been established by the designers and contractors to ensure adherence to the preceding issues. After the start of construction, Mr. Williamson monitors the project to determine variations from the project budget and schedule and to ensure all compliance issues are addressed.

Mr. Williamson has also analyzed numerous multi-million dollar construction claims on over 30 projects with a constructed value of over \$500 million. This work includes the



*David M. Williamson – Vice President  
Thomas & Williamson*

development and analysis of as-planned, as-built, would-have-been, and contemporaneous scheduling techniques to determine delays and acceleration. Another key part of his work is determining labor productivity, financial entitlement issues and changed conditions.

As part of the technical construction claims services, Mr. Williamson has provided document reviews, discovery assistance, deposition outlines, negotiation assistance and expert witness testimony.

### **Education**

BS Civil Engineering,  
Carnegie-Mellon University

MS Civil Engineering  
Carnegie-Mellon University

MBA  
University of Pittsburgh

### **Registration**

Pennsylvania Registered Engineer

### **Experience**

39 years

## *Planning Process*

### **Program + Budget + Schedule**

Our core mission on any project is to clearly define the Program, develop a realistic Budget based on the discrete elements of the Program and then, to develop a work plan, in the form of a Schedule, which outlines the necessary steps of the design and construction processes to foster integration of the Program and Budget.

### **Programming**

When beginning a project, it is most important to define that which is to be accomplished by the design - rather than prepare the design solution itself. After all, no matter how great the design, how good can it be if it fails to meet the client's needs?

We utilize traditional inquiry-based programming techniques in order to identify your needs for all functional aspects of the project. We support the programming process with various surveys, conducted on-line or using printed survey forms, to gather your detailed input. We organize that information and set it forth as the formal program, a set of clear instructions to direct your design professionals on the path to developing a design which best suits your needs.





## Planning Process

### Assembling the Planning Team

Knowing how to ask the right questions and knowing how to compile the program in a well-organized format goes a long way to achieving success in this vital stage of the development of your project, but having the right people at the table to provide the input about your operations is more important.

Our planning process places your representatives front-and-center with the following special-purpose groups:

#### -The Umbrella Committee:

This group is the clearinghouse for the sharing of all information pertinent to the programming study. It should include the highest-level decision-makers as well as a representative from each department and/or facility within your organization. The Umbrella Committee sets the objectives to be achieved in the programming for the organization as a whole and considers how the individual segments of your organization intertwine and support each other. This committee also appoints the membership of the Departmental Groups.

#### -The Departmental Groups:

Each department of your organization has a voice in our process. We'll work with the Umbrella Committee to help assemble these groups in order that we may gain insights into how the individual components of each department work together as well as how the departments share spatial resources. The Departmental Groups also work to identify individuals who are best-suited to contribute



programming data at the functional level of your organization.

This structure enables us to gather and qualify the programming data and quickly develop recommendations which best address your facility needs.





## Planning Process

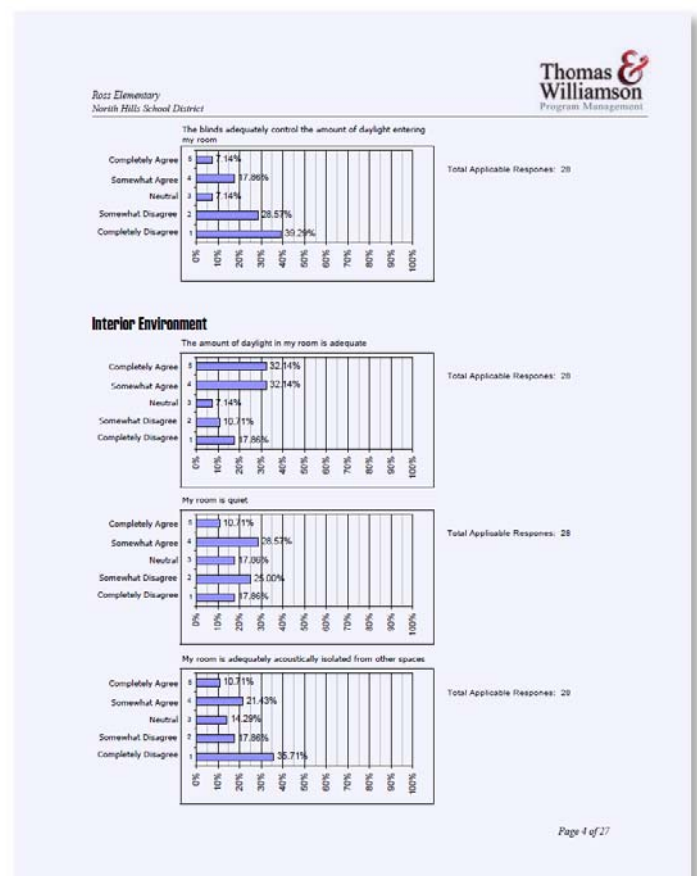
### Inventory of Spaces

Chances are that your organization already has its own facilities - and the project that you are contemplating involves the improvement, expansion or replacement of those facilities. Therefore, the necessary starting point is to assemble a list of all of the spaces included in each of your facilities. We'll prepare this inventory and include the space's area, location, departmental affiliation, number of occupants.

### Spatial Adequacy Survey

After we know how many spaces you have in your facilities – we'll need to get your opinion of the features which render your spaces inadequate. We'll conduct a brief survey of your staff or delegates of your staff and develop a report rating the adequacies of your spaces, groupings of spaces as well as the adequacy of the overall facilities.

This survey enables us to compile a thorough needs assessment of your facilities. The assessment is rated using the Likert scale and is organized into the following functional categories for each type of space:



## Planning Process

### Program Compiling

Our main tool used in the compilation of the information is the Programming Data Sheet. Our planners review all the information collected as well as the other sources and make the necessary refinements and compile the data for review by the members of your internal planning team. A separate data sheet is prepared for each type of space contemplated. These sheets discuss the proposed usage, the planned functions performed, frequency of use, the size, interior environmental requirements, furnishings and equipment for each type of space. A section of the data sheet is also dedicated to describing how various operations can be conducted in a single space as well as how one programmed spaces relates to others, which is the most important information necessary in making decisions involving facility grouping and consolidation.

Once the data is compiled for the space, the quality and function requirements for each type of space will have been documented. Once approved, the programming defines the functional objective for the project and enables you to clearly articulate your needs to the design team.

#### Space Utilization Tables: Administrative Cluster

Guidance Suite						
Room No.	Current Use	Area	Capacity	Planned Use	Area	Capacity
ADD-3		0 SF	0	Outstanding	400 SF	0
Totals:		0 SF	0		400 SF	0
Nurse's Suite						
Room No.	Current Use	Area	Capacity	Planned Use	Area	Capacity
ADD-23a		0 SF	0	Examination Room	0 SF	0
ADD-23		0 SF	25	Health Office	100 SF	0
ADD-23b		0 SF	0	Rest Area	0 SF	0
ADD-23c		0 SF	0	Nurse's Office	0 SF	0
ADD-23d		0 SF	0	Toilet Room	0 SF	0
ADD-23e		0 SF	0	Waiting Area	0 SF	0
Totals:		0 SF	25		100 SF	0
Faculty Workroom						
Room No.	Current Use	Area	Capacity	Planned Use	Area	Capacity
ADD	Copy Room	213 SF	0	Faculty Workroom	0 SF	0
Totals:		213 SF	0		0 SF	0
Administrative Suite						
Room No.	Current Use	Area	Capacity	Planned Use	Area	Capacity
ADD-1		0 SF	0	Cafeteria/Vestibule	0 SF	0
ADD-19		0 SF	0	Large Conference Room	400 SF	0
ADD-20		0 SF	0	Small Conference Room	200 SF	0
ADD-21		0 SF	0	Duplicating Room	100 SF	0
ADD-25		0 SF	0	Office Mailroom	80 SF	0
ADD-26		0 SF	0	Principal's Office	200 SF	0
ADD-2a		0 SF	0	Reception Area	300 SF	0
ADD-2b		0 SF	0	Reception Area	300 SF	0
ADD-36		0 SF	0	IST/RTI	200 SF	0
ADD-33		0 SF	0	Storage	200 SF	0
ADD-34		0 SF	0	Storage	200 SF	0
ADD-32a		0 SF	0	Toilet Room	42 SF	0
ADD-32b		0 SF	0	Toilet Room	42 SF	0
Totals:		0 SF	0		2,314 SF	0
MDF - Data Closet - Facility						
Room No.	Current Use	Area	Capacity	Planned Use	Area	Capacity
C18	Music Office	50 SF	0	MDF Data Closet	100 SF	0

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#### Administrative Suite Conference Room - Large

##### Programming Data

Recommended Area:	400 SF
Description of Program/Curriculum:	The Administration has a need for a large conferencing space.
Grouping/Methods of Instruction:	None
Types of Activities & Functions:	The Conference Room will be utilized for groups of up to 14 people, for meetings. Staff enrichment meetings.
Intra-Spatial Relationships and Arrangement:	The Conference Room should be accessible to all departments. The Conference Room should be located within the Administrative Cluster. It should also be accessible for use by the instructional staff as well.
Wall Finish:	Painted concrete masonry units or plaster on metal stud framing, STC: 50.
Floor Finish:	Provide commercial grade carpet throughout.
Ceiling Finish:	Provide suspended acoustical tile and grid system: LR: 75%, NRC: 55-65, STC: 35-39. This area should be acoustically isolated which may require the use of soundproofing materials.
Equipment:	Display boards: Provide (1) wall of marker board and tackboard.
Furniture:	Provide a rectangular conference table to accommodate approximately 14 people, with comfortable task chairs.
Storage Requirements:	Provide one wall of built-in base and wall cabinets with countertop for storage, materials, and refreshments.
Plumbing:	Ideally, a small sink and refrigerator would be provided within the

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## Planning Process

### Budget Development

You will be presented with programming for various improvements for your facilities, but before you get to the point of deciding the priorities for the upgrades, it is necessary to make the dimension of cost part of the considerations.

We utilize the systems discussed in detail in the Cost Modeling section to derive costs from basic program criteria. Here's why it is beneficial to your organization to study the cost of your project in detail – before design begins.

### Know the cost up front

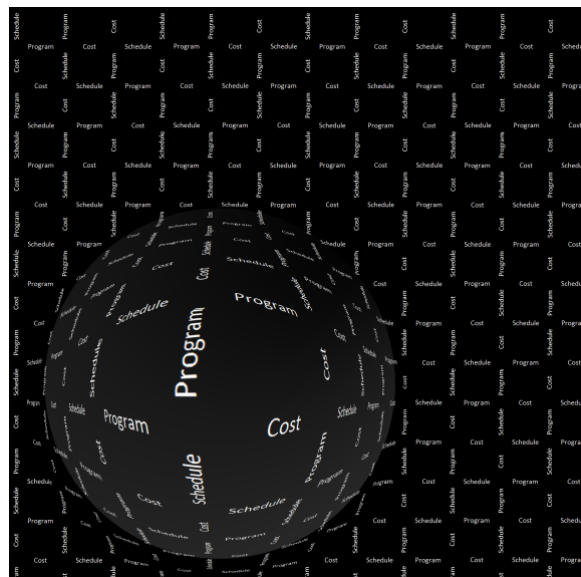
Moving ahead into design with a poorly defined budget is like dining at a restaurant with no prices on the menu. Sure – we would all like to enjoy such luxuries, but what organization can place itself at such financial risk?

Regardless of the complexity or uniqueness of your project, there are ways of integrating the costs of the improvements to the program using only programmatic information. The program information, code requirements and physical criteria are inexorably linked and drive the requirements for the design.

We view this relationship among the program and cost (and schedule) as a singular entity – the manifestation of the Project and we specialize in providing you with feedback as to how the slightest changes in the program impact the cost.

We'll connect the costs to the program in such a way that you will be able carefully compose the scope of your project so that it is optimized with an acceptable budget.

- Learn more about our strategy in Cost Modeling.



## *Planning Process*

### **Schedule Development**

All building projects must be planned, then designed and then constructed. Regardless of the delivery method that is selected: design-bid-build, design-build, minimum-essential-design or bridged-design-build, someone must first decide what the project will be, someone must design it and only then can it be built. Skip a step, and you must go back to the beginning.

Not only is it our goal to develop a project schedule, an overall timeline in which the planning, design and construction will occur, it is also our goal to identify the overall construction logistics that will impact the design and budget for the project. While all projects are influenced to some degree by the inherent consecution of the construction process, projects involving renovations are particularly constrained by the operational requirements brought about by building around a functioning facility. These impacts are significant and must be considered in the budgeting process.

The Project Schedule completes the definition of the scope of your project with the final step of the integration of Program, Budget and Schedule.

- Learn more about our approach in Scheduling.

planning design construction

## Facilities Utilization

### What is typical?

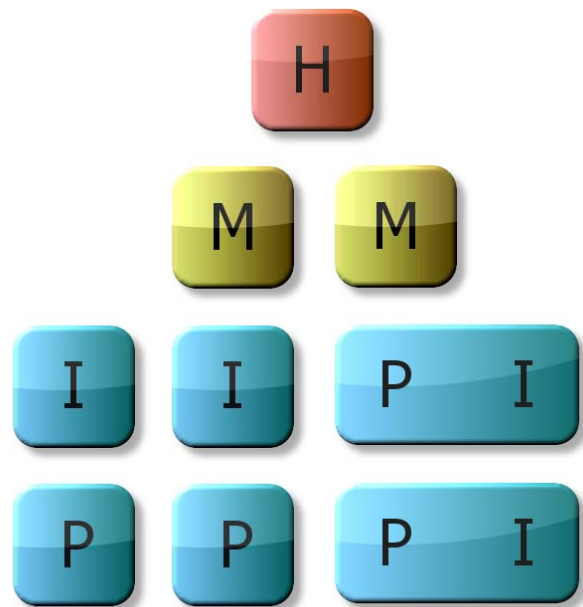
There are seemingly infinite combinations of grade level groupings which can be used within a K-12 operation. For most districts, the groupings include elementary, middle or junior high and high school. But from district to district, the grade levels which comprise those groupings can vary widely.

There is no typical or universal configuration.

What is typical, however, is that every school district has existing school buildings and every school district attempts to develop a grade-level structures which are integral to their program. The program can change or the enrollment changes. These types of changes can cause the once "ideal" grade-level structure to function in a sub-optimal way.

### Developing Alternatives.

We assist our clients by organizing the quantities of spaces that are required in order to operate each grade level. We look for operational improvement opportunities by exploring a variety of grade-level groupings and by determining how those groupings can fit your facilities, while maintaining compliance with your educational program objectives. Through careful investigation, new configurations can be developed which optimize the use of your existing facilities without compromising your program.



## *Facilities Utilization*

### **Space Utilization Studies.**

There are several methods available for calculating the capacity of a school. Most methods consider the capacity of each classroom or other type of educational space. Those respective unit capacities are multiplied by the number of each type of space in order to determine overall facility capacity. Such methods generally yield suitable results for receiving funding or for finding the gross capacity of the facility. But they rarely address the specific spatial needs in a manner adequate to determine the existence of under-utilized or over-utilized space.

We employ all of the conventional methods for calculating gross facility capacities including the full-time equivalent capacity (FTE) and pupil station methods. However, in order to determine where capacity utilization deficiencies exist we conduct a unique analysis of the master class schedule for the school.

### **Existing Space Surveys.**

The primary shortcoming of a FTE capacity analysis is its inability to address the use of space beyond the use of scheduled space. The efficiencies of rooms in which no classes are scheduled are not considered, and the anticipated needs for those spaces are not addressed either. We take the extra step of accounting for each room of the facility in our database. This extra degree of accounting serves several purposes.

First, it allows us to determine the functionality of non-scheduled spaces such

as a cafeteria, library or resource room. Those rooms obviously have capacities and affect the operation of a school. They are not considered, however, in an FTE analysis – such as those that are part of the PlanCon process.

Secondly, counting all of the spaces in a building allows us to explain the significance of the ratio of scheduled area to gross building area. In general, that ratio has become lower over recent years with the implementation of newer and more space-consuming codes and laws affecting building design.

Finally, by collecting information about all of the spaces contained in a building, we are able to provide more detailed spatial quantity data for input in our Cost Modeling system. Ultimately, our clients are able to see which spaces will cost the most to build or renovate.

### **Schedule Efficiency Studies.**

Our studies include a complete analysis of the master schedules used by the school principals to schedule classes at the schools. We record the number of students using each room during each period of the day. Those figures are tallied and the average utilization rate is computed for each scheduled space in the facility.

This analysis demonstrates that school facilities can have capacity problems – even though the overall capacity seems to be compatible with the anticipated enrollment.

## Facilities Utilization

Our report will present the following for each scheduled space:

- a) *full-time equivalent capacity (FTE)*
- b) *adjusted FTE*
- c) *pupil station capacity*
- d) *average student~periods per day*
- e) *total student~periods per day*
- f) *percent utilized*
- g) *weighted percent utilized*
- h) *optimum facility utilization rate*

### **Space Utilization Report.**

The Space Utilization Report presents all of the current and planned space utilization information in a tabular format. The report will serve as a ledger for balancing the existing spatial capabilities with the spatial needs found through the Programming process. These reports help to provide a clear picture of a facility's current organization in order to effectively organize future needs and provide an optimum plan for the utilization of existing spaces. These reports are generated for each facility in the study in order to determine if the redistribution of enrollment is beneficial to operation of the schools.



## Facility Assessment

### Preliminary Research.

The Facilities Assessment phase of the study begins with a survey of each facility. The survey team will consist of our engineering professionals as well as representatives of the District's facilities staff. The goal of the survey team will be to collect information on the conditions of all existing building components. The products of the survey will be a detailed engineering analysis and a database containing the types of building components in use at the facilities, their size and quantity, present condition and their anticipated serviceable life. Not only will this database be a useful tool to the planning team in the assessment of the facilities, but it will be a document that can be used by the District for future renovation projects or maintenance programs for as long as the buildings are owned by the District.

Prior to mobilizing our engineers, we will compile and research all available documentation of the facility, including the original building plans, plans of subsequent additions and renovations, asbestos management programs and previous facilities assessment studies. We will prepare background plans and worksheets to ensure that each building component is classified. The worksheets will be arranged in Construction Specifications Institute (CSI) format so that the collected data can ultimately be transformed into a detailed, line-item cost estimate.

We will survey the conditions of all major building systems, which will include but not be limited to the following systems:

- 1 General Requirements
- 2 Sitework
- 3 Concrete
- 4 Masonry
- 5 Metals
- 6 Wood & Plastics
- 7 Thermal & Moisture Protection
- 8 Doors & Windows
- 9 Finishes
- 10 Specialties
- 11 Equipment
- 12 Furnishings
- 13 Special Construction
- 14 Conveying Systems
- 15 Mechanical
- 16 Electrical

The survey will be conducted through non-destructive means to the fullest possible extent. Where it is not possible to draw conclusions as to the conditions of building components by non-destructive methods, we will recommend a further examination to be conducted using destructive procedures. The urgency of the need for the destructive tests (if required) will be discussed with the District during this phase of the study.

Our comprehensive Facility Assessment report will address all civil, structural, architectural, plumbing, HVAC and electrical systems present at the facilities and form the basis for conclusions drawn with respect to the practical utility of the facilities for their consideration as part of the Planning Study for the facility.

## *Facility Assessment*

### **Code Reviews.**

In addition to our survey of the facility, we will conduct code reviews in order to determine what types of upgrades the facilities must undergo to be in compliance with the prevailing building codes and accessibility guidelines set forth by the Americans with Disabilities Act. The review will determine the building height and area limitations given by the Pennsylvania Uniform Construction Codes as well as the associated fire and panic requirements. It is our intent to clearly identify the restrictions imposed on the existing building by the codes at this early stage of the project so that the conclusions drawn in the study are based on tangible guidelines.

To execute the code reviews, we will rely upon our professional engineering expertise and our in-depth experience in the interpretation of building codes. Our study will include documentation of our code review. This documentation will alert the District to the existence of non-compliant building systems requiring remediation. In addition, the code analysis will assist the architect in the production of the final design and establish quality goals in response to the individual code classifications of the building.

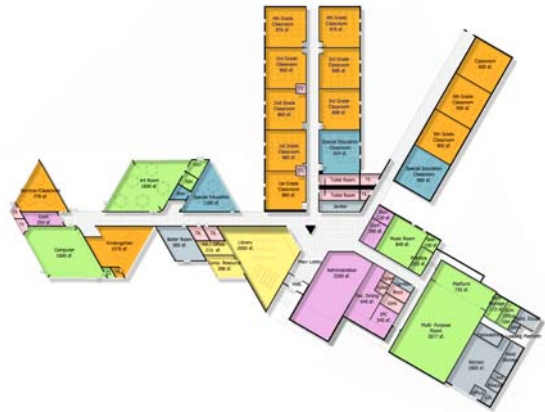
## Conceptual Design

### Conceptual Design Studies.

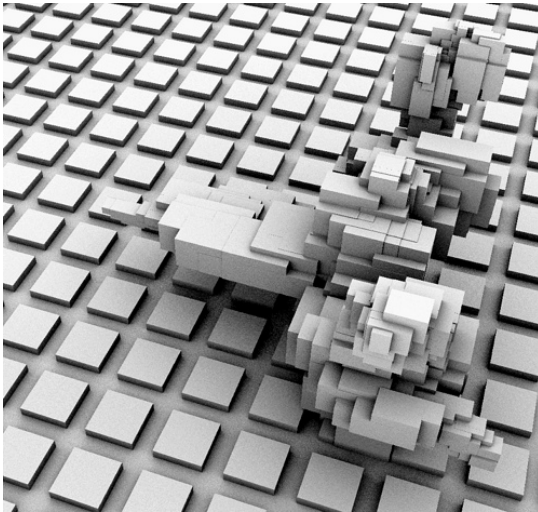
With such large volumes of data that are collected and compiled, we find it helpful to associate graphics, including thumbnail plans of the facilities and their sites, as part of the planning process. We use the plans to illustrate the relative sizes and arrangement of the spaces within the facilities as well as issues such as expandability, adjacency, accessibility, circulation, clustering and separation.

More and more we find that school districts are facing the question of “build new – or renovate?”. And with new restrictions on local spending, that question is taking on greater significance in the planning phase of projects. Often the “new or renovate” question is solved by determining the factors which govern the ability of a building to be expanded. The best way to develop such a solution is through the use of conceptual plans.

We provide conceptual plans of each of the final alternatives as well as plans which represent the current conditions of the existing buildings. These plans are keyed to our Model Cost Estimate to associate the costs of the individual spaces.



## *Cost Modeling*



Like all clients involved in setting a budget, you find yourself with only the basic building blocks of a project scope, but you are in need of accurate forecasts of the cost of your project. You need to know the details which build up to the total construction cost, in order that you can choose the design option that will best meet your needs.

In such situations, it is common that clients will seek assistance from contractors - who employ cost estimators to prepare bids for construction projects that they seek. But the estimators must also be given the details of the scope. Someone must develop these details from the most basic of conceptual design information.

That someone is T&W.

We are pioneers in the development of conceptual cost and building modeling systems for building construction projects. We develop and use highly-sophisticated modeling techniques to generate conceptual design solutions. These solutions provide our clients and A/E partners with cost forecasts in the finest detail available for their use in making important project scope decisions.

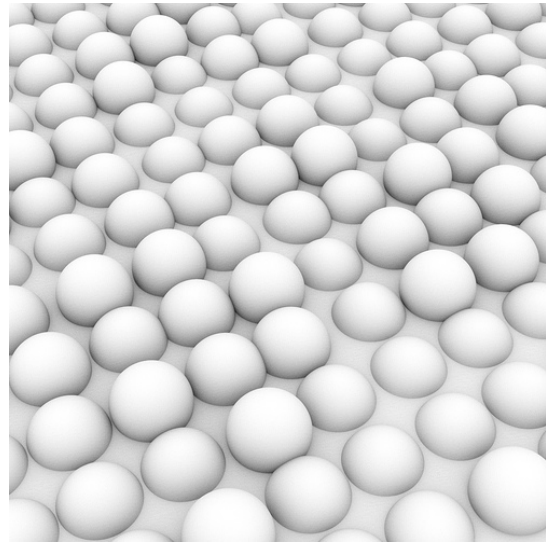
## *Cost Modeling*

### **What is Modeling?**

Modeling is a statistical process – which relies upon algorithms to generate likely outcomes given the parameters which influence those outcomes. In the case of the design and cost of a building, the algorithms are design formulas – based on accepted engineering practices and standards set forth by the building codes. The algorithms are modified by other variables, such as repetition, scale and complexity which are intrinsic factors to any building design.

Our engineers and designers have developed engineering design formulas to address everything from the required size and weight of structural members - given the building configuration - to the required length and diameter of wire in branch electrical circuits - given the number of outlets per wall in your classrooms.

We work from the inside out – compiling the spatial quality attributes and spatial quantity formulas as a mathematical mirror of your program requirements for each type of space to be included in the project. Then we take the building configurations and material compositions provided by the architect and we build virtual building shell models in our system to generate building material quantities which serve as the basic input for the development of cost estimates.



## Cost Modeling

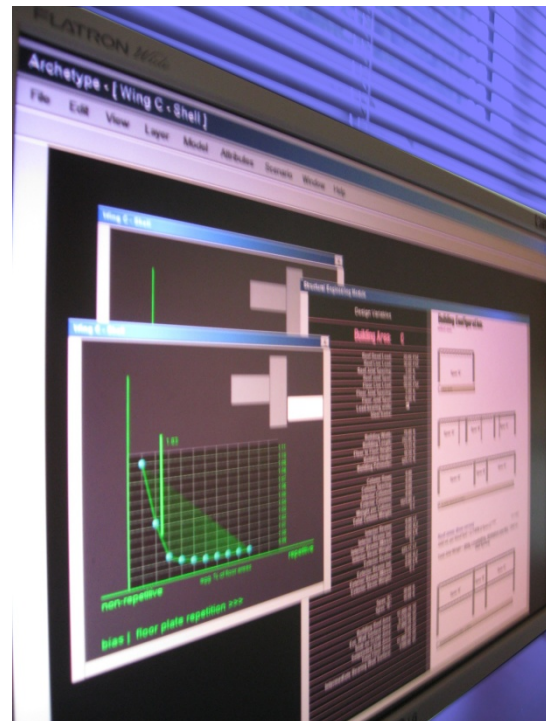
### MEP System Design Synthesizing

It used to be that designers would work for months, developing the designs for the main mechanical and electrical systems for their building projects. They would make their best guess at the cost of the systems, usually relying only on recent square foot construction costs for similar systems. It was inevitable that as they got further into the design process, they would find that significant and costly departures from the original concepts were necessary. The design was completed, the bids were received and then everyone struggled to determine why the mechanical-electrical-plumbing (MEP) was so far over budget.

The lesson that should have been learned is that you cannot accurately forecast the cost of the MEP using only historic square foot costs.

We learned that lesson and responded by deriving the costs of MEP system components as a function of the lowest level physical properties associated with the system operational loads. For instance - instead of estimating the cost of an air handling unit - we calculate the size of the unit in terms of its air flow and heating and cooling capacities and then estimate the cost in terms of the dollars per CFM and dollars per Btu.

The capacities of such components drive the sizes of the piping, ductwork, cabling and main equipment that support the units and comprise the main MEP infra-structure. This



information empowers the designers with real-time cost feedback and enables program/cost hybridization to occur - resulting in the highest degree of first-cost/life-cycle cost optimization.

### Structure Design Synthesizing

The building structure and envelope typically account for between 35 and 50 percent of the construction cost. It is a large component of the building cost and requires precision in the determination of structural member sizes - prior to the rather routine task of assigning unit costs.

Our structural engineers have formulated macros, which utilize such rudimentary

## Cost Modeling

factors as wind load, soil bearing capacity, bay width and depth, floor-to-floor height and the number of stories to generate conceptual member sizes, footing width and composition, caisson diameter and other structural component profiles that are used as input for the cost estimates. All profiles are updated with actual final design and bid cost information for continued refinement of the application's design forecasts. In addition, like all other modules of the system, we have linked bias filters for scale, complexity, repetitiveness and design integration for the purpose of forecasting the likelihood scope increase on individual line items of the structural systems.

This information is linked to a data form which allows the designer to run alternative scenarios for primary and secondary structure types, roof materials, exterior skins, window sizes and spacing and the application of special architectural features.

Like all other modules of our cost modeling system, the controlling conceptual design parameters are completely dynamic and yield real-time cost feedback by toggling any of the quality and quantity parameters.

### Cost Data

We maintain a continuously updated bank of construction cost data for public school construction projects completed in the northeastern US. In addition, we maintain close relationships with the manufacturers and suppliers of materials and equipment that is commonly used in K-12 construction.

Our cost data includes all material unit prices, equipment costs and labor costs. Our labor unit costs are computed by tracking and averaging the historic production rates of all trades on our previous K-12 projects and in accordance with the prevailing wage rates in the project area.

All cost data is dynamically linked to our conceptual design models and can be presented in a variety of standard and custom reports, including cost accounting templates for PDE's PlanCon Part D – Project Accounting based on Estimates with separate tabulations for new construction, renovation, prime contracts, site costs, abatement and roof replacement.





## *Cost Estimating*

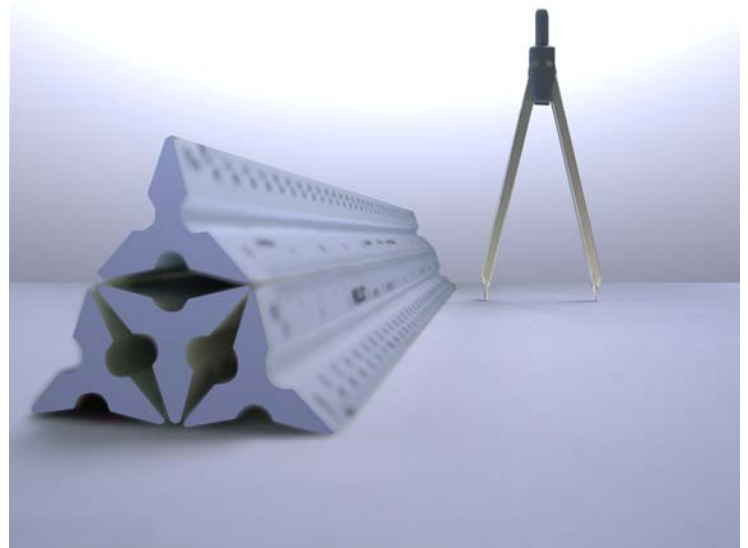
### **Parametric Cost Estimating.**

We offer a full range of cost estimating services for building and building-related projects, including traditional detailed take-off (parametric) estimating. This type of estimating is utilized to a limited extent on Design Development level estimates and used exclusively on Construction Documents level estimates.

Take-off's are performed using various measurement techniques, ranging from printed plan-scaling and CAD scaling to quantity assignment and extraction using BIM. In assignments where T&W has been engaged to perform cost modeling services, parametric estimating is coupled with our models and used to detail unique, non-algorithmic aspects of the project.

Our project engineering staff is trained and proficient in all divisions of construction estimating including:

- indirect construction (soft) cost
- bulk cut/fill and trenching calculations
- concrete
- wall structures, cladding and surfaces
- steel framing
- wood frame construction
- thermal and moisture
- doors and windows
- finishes and trim
- equipment, specialties and equipment
- equipment, specialties and equipment
- special construction
- plumbing
- fire protection
- HVAC
- controls
- power and lighting
- electrical and communications systems
- data systems



## Cost Estimating

CSI Code	Description	Units	Qty	Material		Labor		Mark-up		Total
				Unit Cost	Total	Unit Rate	Total	%	Total	Total

### Report Options.

Our standard estimating template provides reports including the data fields shown above for each line item.

### Analytics.

Summary reports are available with custom data sorts and analytics, displaying cost information by key parameters for easy reference, cost segregation and cost optimization studies.

### Cost Data Sets.

All material cost data is updated annually using published data from RS Means. Select volatile cost information is compiled per estimate based on published cost reports from ENR, local quotes and recent compiled bid data.

Labor rates are computed using base labor rates published for the project and modified to include historically measured rate multipliers.



## *Planning Team*

Thomas & Williamson is fortunate enough to attract employees and consultants from the top of a variety of fields, each possessing unique skills and experience. The key employees selected specifically for the Warren County School District are:

### **Jon M. Thomas**

#### **Team Manager**

Co-founder and president of Thomas & Williamson: Mr. Thomas has 29 years of experience as a project manager of school and institutional projects. His experience is equally apportioned in design and construction and includes a vast portfolio of K-12 school construction projects valued at over \$500 million.

### **Alicia A. Zevola**

#### **Executive Administrator**

Ms. Zevola has 13 years of experience in construction. Previously, Alicia has participated in planning, programming and facilitating documentation for such schools as North Allegheny, Avonworth, West Allegheny and Palisades School District.

### **Blake W. Leibert**

#### **Project Engineer**

Mr. Leibert has 3 years of project engineering experience. He was recently onsite for the additions and renovations project to the Montour High School. He has been on planning projects for North Allegheny, West Allegheny and is currently working on the Butler Area School District study.

### **Katie Dedola**

#### **Project Administrator**

Mrs. Dedola has 6 years experience in the design industry, and with it, a unique set of skills. Katie is currently working on a facilities master plan study for the Butler Area School District.

## **Alicia A. Zevola**

*Executive Administrator*

With a BA in Education and 13 years experience in project administration, Alicia brings an insider's perspective to planning and management of Thomas & Williamson's clients' projects. As an Educator, she is able to assist clients with all their instructional needs.

Alicia has been an integral part of the project management team and a necessary link in the exchange of vital management information among various team members and projects managers. She is also an essential link in the communicating between the job site and the home office. She is responsible for facilitating communication between construction managers and contractors, managers and Owners.

As an Executive Administrator, Alicia's responsibilities include preparing and distributing Change Orders, Payment Applications and Contract documents. Alicia also assists in the preparation of Project Reports, which are presented to the school board each month.

She is currently working on projects for North Hills School District and Montour School District. Previously, Alicia has participated in planning, programming and facilitating documentation for such schools as North Allegheny School District, Avonworth School District, Mars Area School District, Palisades School District and Crawford Central School District.



### **Education**

BA Elementary Education,  
Point Park University

### **Experience**

13 years

## **Blake Leibert**

*Project Engineer*

Mr. Leibert has been working for Thomas & Williamson as a Project Engineer for the past two years. His most recent project was assisting the onsite Project Manager on the Montour High School Renovations and Additions. Blake was responsible for numerous tasks and reports, such as, daily, weekly, and monthly school board reports. Also, he worked closely with the building inspectors to ensure that the work performed conformed to the project specifications.

Blake is an integral part of the feasibility study teams and a necessary link in the exchange of vital information between the client and architect. In addition, he is responsible for compiling the data necessary to complete a comprehensive feasibility study that will meet the needs of our clients today and in the future.

The ability to prepare programming information and provide cost information from the inception of the project has allowed us to provide additional cost savings to our clients. Before the program becomes a project, cost savings ideas can be instituted without sacrificing educational quality standards.

Blake has recently been involved with facilities studies for the West Allegheny School District, North Allegheny School District and Warren County School District. His work performed for these studies included the analysis of current and potential enrollment capacity, building renovation and addition cost estimates and the creation of conceptual floor plans.



### **Education**

Bachelor of Science in Civil Engineering  
Technology  
University of Pittsburgh at Johnstown

### **Experience**

3 years

## **Katie Dedola**

*Project Administrator*

Mrs. Dedola brings 6 years experience in the design industry, and with it, a unique set of skills that translates well to assisting Thomas & Williamson's clients.

Katie's previous design experience has given her a building trade perspective, allowing her to develop essential space planning skills, as well as the ability to interpret construction drawings. She also cultivated essential communication skills helping to identify clients' needs while balancing those needs with expectations and budget requirements.

As a Project Administrator, Katie's responsibilities include preparing, maintaining and distributing documents vital to providing and facilitating communications between the client, architect, contractors and team members. These documents include: project reports, submittal logs, RFI's, change orders and payment applications. She also assists in the bid process and in the preparation of estimates.

She is currently working on the Carlynton School District and the West Allegheny Elementary projects. She is also involved in the Facilities Master Plan study for the Butler Area School District.



### **Education**

BS Interior Design,  
Indiana University of Pennsylvania

### **Experience**

6 years

## Study Experience

### **West Allegheny School District**

*Imperial, Pennsylvania*

Contact:

Mr. Ken Fibbi  
(724) 695-5223

#### **Project Feasibility Studies:**

- Programming
- Space Utilization Study
- Enrollment /Capacity Analysis
- Cost Modeling/Budget Development
- Time/Dollar-Scaled Facility Assessments
- Facility Assessments
- Conceptual Design

2-Elementary Schools

1-District Administration Office

### **Warren County School District**

*Warren, Pennsylvania*

Contact:

Dr. Norbert Kennerknecht  
(814) 723-5223

#### **Project Feasibility Studies:**

- Programming
- Space Utilization Study
- Conceptual Design

2-Elementary Schools

### **North Allegheny School District**

*Pittsburgh, Pennsylvania*

Contact:

Mr. Robert Gaertner, PE  
(412) 369-5432

#### **Project Elementary Studies Phase 2:**

- Space Utilization Study
- Demographics Study
- Enrollment Projections/Capacity Analysis
- Cost Modeling/Budget Development
- Time/Dollar-Scaled Facility Assessments
- Facility Assessments
- Conceptual Design
- Technology Planning

7-Elementary Schools

### **Montour School District**

*Robinson Township, Pennsylvania*

Contact:

Dr. Donald Boyer  
(412) 490-6500

#### **Project Feasibility Study:**

- Conceptual Estimate
- Conceptual Design

1-Athletic Facility



## Study Experience

### **Manhasset UFSD**

*Manhasset, New York*

Contact:

Dr. Lawrence Bozzomo  
(267) 261-4360

#### **District-wide Facilities Master Plan:**

- Programming
- Space Utilization Study
- Enrollment/Capacity Analysis
- Cost Modeling
- Facility Assessments

2-Elementary Schools

1-Secondary School

1-District Office

1-Transportation Facility

### **Miller Place UFSD**

*Miller Place, New York*

Contact:

Dr. Grace J. Brindley  
(631) 474-2700

#### **District-wide Facilities Master Plan:**

- Space Utilization Study
- Enrollment/Capacity Analysis
- Cost Modeling
- Facility Assessments

1-Primary School

1-Intermediate School

1-Middle School

1-High School

1-District Administration Facility

1-District Maintenance Facility

1-District Athletic Facility

### **Palisades School District**

*Bucks County, Pennsylvania*

Contact:

Mr. Dave Keppel  
(610) 847-5131

#### **Project Feasibility Studies:**

- Programming
- Space Utilization Study
- Enrollment Projections/Capacity Analysis
- Cost Modeling/Budget Development
- Facility Assessments
- Conceptual Design

1-High School

2-Elementary Schools

1-Athletic Facility

### **Elizabeth Forward School District**

*Pittsburgh, Pennsylvania*

Contact:

Mr. Edward Campbell  
(412) 638-5630

#### **Project Feasibility Studies:**

- Programming
- Space Utilization Study
- Enrollment Projections/Capacity Analysis
- Cost Modeling/Budget Development
- Facility Assessments
- Conceptual Design
- Detailed Site Utilization Studies

1-Athletic Facility

1-High School Complex Master Plan

## Study Experience

### **North Allegheny School District**

*Pittsburgh, Pennsylvania*

Contact:

Mr. Robert Gaertner, PE  
(412) 369-5432

#### **Project Feasibility Studies:**

- Programming
- Space Utilization Study
- Enrollment Projections/Capacity Analysis
- Cost Modeling/Budget Development
- Facility Assessments
- Conceptual Design

2-High School  
2-Middle Schools  
5-Elementary Schools  
1-District Office  
1-Transportation Facility  
2-Athletic Facilities

### **West Jefferson Hills School District**

*Jefferson Hills, Pennsylvania*

Contact:

Mr. Bruce Elms  
(412) 384-6845

#### **Project Feasibility Studies:**

- Programming
- Space Utilization Study
- Enrollment Projections/Capacity Analysis
- Cost Modeling/Budget Development
- Time/Dollar-Scaled Facility Assessments
- Conceptual Design

1-High School  
1-Elementary School  
1-District Office

### **Warren County School District**

*Warren, Pennsylvania*

Contact:

Dr. Norbert Kennerknecht  
(814) 723-5223

#### **Project Feasibility Studies:**

- Programming
- Space Utilization Study
- Enrollment /Capacity Analysis
- Cost Modeling/Budget Development
- Facility Assessments
- Conceptual Design

1-Middle Schools  
2-Elementary Schools

#### **District-wide Space Utilization Study:**

3-High Schools, 1-Junior/Senior High School  
1-Middle/High School  
3-Middle Schools  
15-Elementary Schools

### **Gateway School District**

*Pittsburgh, Pennsylvania*

Contact:

Dr. Richard Domencic  
(717) 938-9577

#### **Project Feasibility Studies:**

- Programming
- Space Utilization Study
- Enrollment Projections/Capacity Analysis
- Cost Modeling/Budget Development
- Facility Assessments
- Conceptual Design

1-High School  
2-Athletic Facilities

## Study Experience

### **Avonworth School District**

*Pittsburgh, Pennsylvania*

Contact:

Dr. Valerie McDonald  
(412) 369-8738

#### **District-wide Facilities Master Plan:**

- Project Visioning
- Programming
- Space Utilization Studies
- Demographics Study
- Enrollment/Capacity Analysis
- Cost Modeling
- Facility Assessments
- Land Development Study

1-High School/ Middle School  
1-Intermediate School  
1-Primary School  
1-District Office

### **North Hills School District**

*Pittsburgh, Pennsylvania*

Contact:

Dr. Pat Mannarino  
(412) 318-1004

#### **Project Feasibility Study:**

- Project Visioning
- Thematic Development
- Programming
- Space Utilization Study
- Enrollment /Capacity Analysis
- Cost Modeling/Budget Development
- Facility Assessments
- Conceptual Design

2-Elementary School  
1-Middle School

### **Moon Area School District**

*Moon Twp., Pennsylvania*

Contact:

Mr. Alan Bennett  
(412) 264-9440

#### **District-wide Facilities Master Plan:**

- Programming
- Space Utilization Studies
- Enrollment/Capacity Analysis
- Cost Modeling
- Time/Dollar-Scaled Facility Assessments
- Project Abandonment – Risk Analysis

1-High School  
1-Middle Schools  
4-Elementary Schools  
1-District Office

## *References*

### **Contacts**

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Palisades School District  
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223 Clever Road  
McKees Rocks, PA 15136  
(412) 490-6500

**Dr. Patrick Mannarino**

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North Hills School District  
135 Sixth Avenue  
Pittsburgh, PA 15229  
(412) 318-1004

**Mr. Dave Dickson**

Director of Facilities  
Crawford Central School District  
11280 Mercer Pike  
Meadville, PA 16335-9504  
(814) 724-3145

**Dr. William Pettigrew**

Superintendent  
Mars Area School District  
545 Route 228  
Mars, PA 16046  
(724) 625-1518

**Mr. Bruce Elms**

Director of Buildings and Grounds  
Elizabeth Forward School District  
401 Rock Run Road  
Elizabeth, PA 15037  
(412) 384-6845

**Mr. Ken Fibbi**

Director of Buildings & Grounds  
West Allegheny School District  
PO Box 55  
Imperial, PA 15126  
(724) 695-5223

**Mr. Gary Peiffer**

Superintendent  
Carlynton School District  
435 King's Highway  
Carnegie, PA 15106  
(412) 429-2500

**Mr. Joe Ambrosini**

Business Manager  
New Castle Area School District  
420 Fern Street  
New Castle, PA 16101  
(724) 656-4771

## *References*

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840 Wood Street  
Clarion, PA 16214  
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**Mr. Maxim Dorosa**

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1000 Commerce Drive  
Parkridge One, Suite 500  
Pittsburgh, PA 15275  
(412) 787-2100

## TESTIMONIALS

### Dr. Francis Barnes

*Former Superintendent - Palisades School District  
Former - Pennsylvania Secretary of Education*

"Jon Thomas and I had the opportunity to work together on a project when I was with the Huntington Area (PA) School District, and his project management approach amazed me — his capacity for interactions with people as well as his ability to communicate clearly and effectively. In addition, he did a great deal to delimit the architectural garnishing that can quickly accumulate and drive up project costs. Furthermore, Jon upheld such high standards — you just don't forget someone like that."



"When I arrived at Palisades, the board had conducted background research with staff, parents, and community members and accepted the fact that the high school — which, excluding a new science wing, hadn't been touched since 1953 — required renovation. They were about to hire an architect."

"I had already learned that hiring a construction manager after an architect can prevent the construction manager from really demonstrating their full value. A construction manager can provide cost savings by influencing the design phase and governing the bidding process."

"Our board really liked the concept of construction management, because we certainly don't have the skills to refute whatever an architect proposes. When Jon arrived at his interview, he was very prepared and had done his homework on our project so he could specifically explain the skills and vision that he could provide for us."

"At our elementary school project, our first bid came in \$800,000 over our projected costs. Jon worked with the architect to rebid the project and the new bids returned within \$85,000 of our budgeted projection. In essence, a good construction management firm will pay its salary five-fold due to the savings realized."

"The staff at Thomas & Williamson is very organized, and they utilize technology and software to maximize the accuracy of their estimates, closely monitor project costs, and record effects of their decisions. In many instances, the architect will have errors that ultimately require a change order, and we, as lay people, not equipped to identify those issues before work begins. But the Thomas & Williamson staff is skilled at uncovering these problems. They build quality assurance measures into their projects, rather than trying to integrate them into the project, afterwards."

"We have an obligation to provide a cost-effective educational program for our students and our goal was to bring our antiquated facilities up to the 21st century standards — without breaking the backs of the taxpayers. The expertise of Thomas & Williamson was instrumental in that process."



## TESTIMONIALS

### Dr. Larry Bozzomo

*Former Superintendent – Manhasset Union Free School District  
Former Superintendent – North Allegheny School District*



"When I was a superintendent in suburban Pittsburgh, our district had a number of buildings to upgrade, and we retained Thomas & Williamson to do a feasibility study to estimate the costs for everything from bare essentials to an educational retrofit. By the time we had finished, the board knew exactly what the pricing would be — right down to the hardware on the doors. We now have a five-year plan for our facilities."

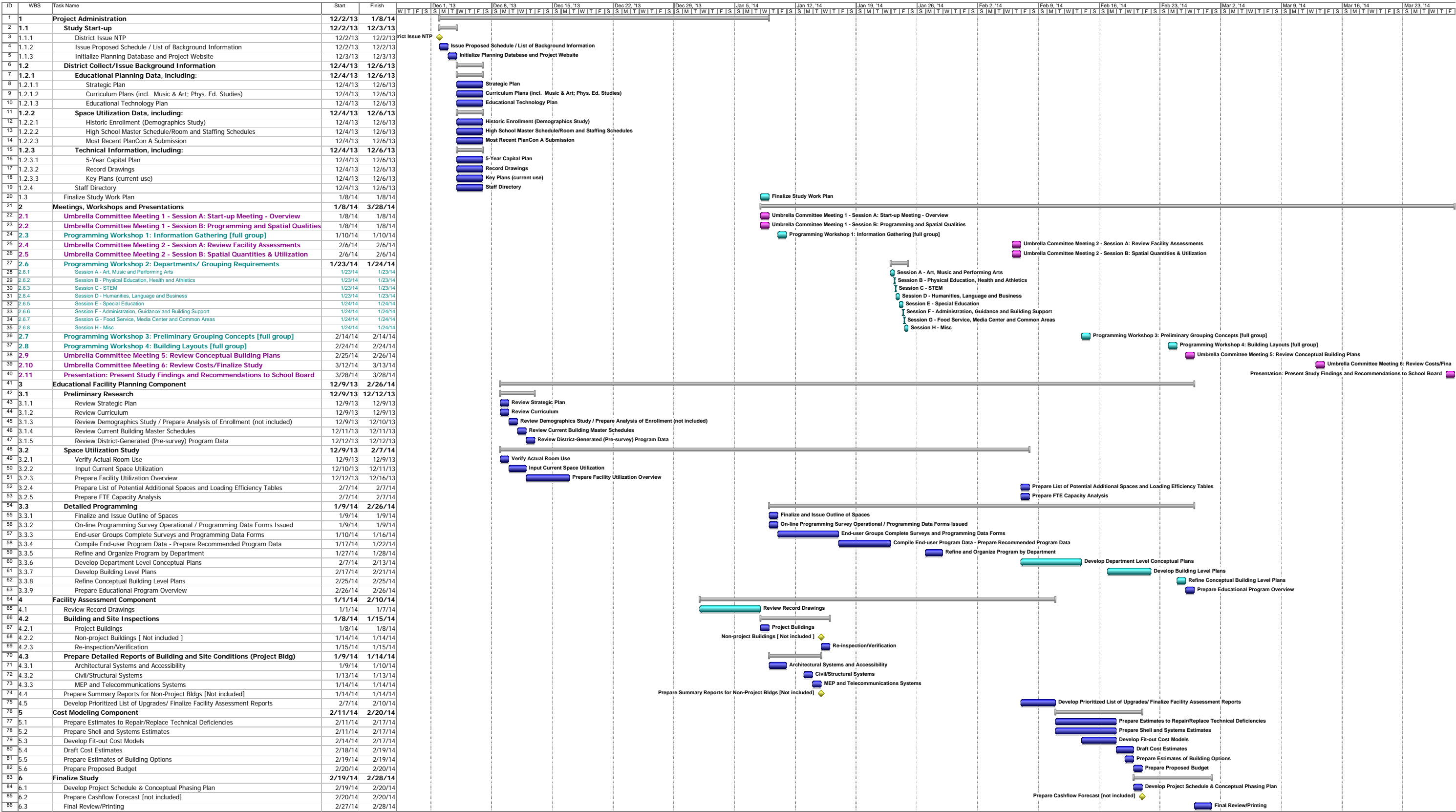
"The firm did a great deal of value engineering for us. We were able to reconstruct the intermediate high school — a project that initially seemed like an impossible renovation on an improbable site — at an incredibly economical cost. We knew it would be a challenge to increase capacity at a land-locked site, but Thomas & Williamson helped us develop a design that fit the footprint of the existing building. Their value engineering expertise helped us complete the project at significantly less cost than the original estimate that we received from another firm."

"I have 24 years experience as a superintendent and have been deeply involved in construction projects at several school districts. I met Jon Thomas on such a project more than 10 years ago when I was employed in Pennsylvania. I think he is the most competent individual in his field that I have ever met. He's knowledgeable, down-to-earth, and always follows through on a commitment. When I arrived at Manhasset, construction planning was underway. I knew that hiring Jon would greatly benefit our project."

"Our school board really appreciated Jon. I always say that the best defense is a good offense, and he's always proactive — he brings vision and insight to the table. He anticipates the board's concerns and resolves issues before they become costly problems. He never uses jargon — he tells it to you straight. When there's conflict between school administration and contractors, he mediates it and gets everyone on a productive path again. Each time I've worked with him, he's worked hard to earn the trust of everyone involved in the project. I guess I sound like a real Jon Thomas fan, and I am."

**Thomas &  
Williamson**  
Program Management





## Fee Proposal

We propose to provide the educational specifications and planning services for the lump-sum not-to-exceed fee of Thirty-One Thousand, Nine Hundred Thirty-Four Dollars (\$31,934.00).

Professional fees include all salaries, benefits, payroll expenses, standard insurances, lodging, non-volume reproductions, software, hardware, travel and mileage to Warren County, meals, telephone, fax, regular mail and home office expenses.

Our rates are calculated using our standard insurance package which includes the following:

-Professional Liability:	\$1,000,000.00
-General Liability:	\$1,000,000.00
-Medical Insurance:	\$500,000.00
-Automobile Liability:	\$1,000,000.00
-Umbrella Policy:	\$2,000,000.00

The following constitute reimbursable costs will be invoiced in addition to the indicated fees:

- Volume copying and reproducing
- Overnight/Express Mail
- Testing Lab Services
- Special Consultants

### Rates

Project Assignment	Name	Hourly Rate
Principal	Jon Thomas	\$210.00/hr
Consulting Architect	Quintin Kittle	\$100.00/hr
Senior Engineer	Fred Sunday	\$75.00/hr
Project Engineer	George Prock	\$55.00/hr
Project Engineer	Blake Leibert	\$55.00/hr
Executive Administrator	Alicia Zevola	\$50.00/hr
Project Administrator	Katie Dedola	\$40.00/hr