

OHIO SCHOOL  
FACILITIES  
COMMISSION

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2014  
OHIO  
SCHOOL  
DESIGN  
MANUAL

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## FOREWORD

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The Ohio School Facilities Commission (OSFC) is pleased to announce the 2014 Ohio School Design Manual (OSDM) update.

Each year the Commission revises the OSDM with support and valuable input from the design and construction community, school districts, state agencies and other interested parties. The result is a dynamic document that reinforces our commitment to high quality school facilities while maintaining flexibility and local control.

This year's update includes a separate volume entitled, "VOLUME 1 - EDUCATIONAL FACILITY PLANNING GUIDE" which is a stand-alone guide for school districts to use as a guide for facility planning. This stand-alone guide outlines the process from inception up to the design phase of a facility project. The separate volume provides school districts the planning tools required for a facility project without the length and quantity of the entire OSDM.

The manual is a cornerstone of the Commission's efforts to promote the 21<sup>st</sup> Century learning environment, providing guidelines that serve the diverse needs of local school communities and their students. For our Design Professionals, the OSDM provides a wide selection of high quality materials and systems to serve the districts over the entire lifecycle of the building. This approach ensures that both the district and the taxpayers of Ohio achieve the maximum benefit from their investment.

Ohio continues to build on past design achievements that meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) for Schools. The LEED system is the national benchmark for high performance green buildings.

The OSFC acknowledges the difficult design and construction tasks that ultimately result in the buildings so critical to our Ohio communities and the new educational goals set by Governor Kasich. There is a necessary balance measured between the complexity and cost of 21<sup>st</sup> century structures and the sustainability and maintenance requirements to be borne by local taxpayers for decades to come.

We look forward to working with you to design and build exciting educational environments for Ohio school students.

Sincerely,  
Ohio School Facilities Commission

Richard M. Hickman  
Executive Director

## **FOREWORD**

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# OHIO SCHOOL DESIGN MANUAL

## Ohio School Facilities Commission

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## EXECUTIVE SUMMARY INTRODUCTION

### CHAPTER 1: INTRODUCTION

The Ohio School Facilities Commission (OSFC) is an independent agency of the State within the Ohio Facilities Construction Commission (OFCC) and is charged with overseeing the design and construction of school facilities in the state of Ohio. A school facilities project is a very exciting event for a school district, but it can also be complex and overwhelming.

The OSDM Design Manual (OSDM) has been developed to provide consistent, clear information for school districts and design professionals as a new generation of schools is being created for Ohio. The guidelines are the culmination of standards, accepted procedures, statutory requirements, and the experience of experts and authorities throughout the United States. The guidelines provided in the OSDM establish a uniform level of quality and sustainability for all public school buildings. The OSDM applies to new school facilities and new additions to existing buildings. Renovation to existing facilities should adhere to the OSDM guidelines when possible.

Since the OSDM communicates a vast amount of information on so many planning, design, and construction issues, the length and quantity of the OSDM can be intimidating. However, understanding how the OSDM is organized and which information will be needed during the various phases of the process will enable each participant to be better prepared for the exciting opportunity of creating school facilities.

***This year's update includes a separate volume entitled, "VOLUME 1 - EDUCATIONAL FACILITY PLANNING GUIDE" which is a stand-alone guide for school districts to use as a guide for facility planning. This stand-alone guide outlines the process from inception up to the design phase of a facility project. The separate volume provides school districts the planning tools required for a facility project without the length and quantity of the entire OSDM.***

An important consideration in developing a state-wide program that must provide equity among districts is the balance between broadly applicable standards and program delivery. A fundamental tenet of educational facility planning is that school facilities must be responsive to a school district's educational program. The OSDM allows districts to develop building programs that respond to their current, unique needs as well as preparing for their educational future. There are also many different ways in which districts are delivering educational programs and helping students accomplish learning objectives at each grade level and school. By designing classrooms and other instructional spaces to be flexible and adaptable, districts are better prepared to accommodate future educational program developments.

***The EDUCATIONAL FACILITY PLANNING GUIDE begins the exciting process of developing learning facilities that respond to the needs of learners. This separate volume incorporates the development and outcome of the district's vision into the design process which will reinforce the transformation to learner centered facilities.***

Additionally, sustainable, energy efficient features will be incorporated into school facilities designs. These features will have a positive impact on student academic achievement. By promoting the design and construction of green schools, we can make a significant impact on student health, test scores, teacher retention, school operating costs and the environment.

In response to the desire for sustainable designs and the Governor's Executive Order 2007-02S, Coordinating Ohio Energy Policy and State Energy Utilization, the OSFC adopted Resolution 07-124, Approving Incorporation of Energy Efficiency and Sustainable Design Features into the Commission's Programs. As a measure of success, the Commission

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adopted the U.S. Green Building Council's (USGBC) LEED for Schools (Leadership in Energy and Environmental Design) Silver Certification as its benchmark with preferred investment in attaining LEED points in the energy and atmosphere category.

The OSDM is required by state law to provide the parameters for building assistance programs in which the school district and the State of Ohio share the building costs. Throughout the planning, design, and construction phases of every project there are four factors that must be considered and held in balance: quality, cost, optimizing energy performance, and time (schedule). The OSDM was created to provide parameters for balancing these four essential elements fairly for all the projects in each district throughout the state.

The Career-Technical School sections are intended to be used in conjunction with the OSDM to address all aspects of programming, design, and construction of Career-Technical and Comprehensive High Schools that are not explicitly covered by other sections of the OSDM. They provide guidelines for the size and quantity of instructional and support spaces as well as material/system components necessary for the construction of Career-Technical School facilities and the Career-Technical components of Comprehensive High Schools.

Equality among school districts related to size of career-technical spaces, finishes, systems and costs is the primary purpose of the Career-Technical sections. It is the intent of the OSFC Vocational Facilities Assistance Program (VFAP) to improve existing Career-Technical program spaces, especially in relation to curriculum and instructional delivery methods, building codes, OSHA requirements, and fire safety. The space guidelines set forth in these sections are intended to meet these requirements as well as to accommodate the best practices for the delivery of Career-Technical programming.

There is no intent within the context of the OSDM to restrict, encourage, or otherwise influence the requirements of the public bidding laws of the State of Ohio relative to entities bidding on labor, material, products, or services. Names of proprietary organizations are not stated within the manual, and the intent is to encourage open, competitive bidding for the work.

The OSDM is the exclusive property of the OSFC of the State of Ohio, and the OSFC reserves the right to add, delete, modify, or otherwise change the content of this manual at any time. Specific information contained within the manual will be periodically modified to reflect current conditions.



**A. ROLES OF PARTICIPANTS IN DESIGN AND CONSTRUCTION**

The Project Team is responsible for creating and implementing a district facility plan. The planning, contracting, and project management strategies involved in this process have been developed, refined, and have proven to be successful in millions of dollars worth of school projects. Each team member will need to access and become familiar with various portions of the Design Manual to better understand his/her role and fulfill his/her responsibilities.

**Participants in Implementing the Master Facility Plan*****Role: School District Representative (District)***

*Responsibilities:* The School District Representative is responsible for making decisions during the design and construction of the school project.

***Role: Ohio School Facilities Commission (OSFC), Planner (OSFC-P), Project Manager (OSFC-PM)***

*Responsibilities:* An OSFC Planner and Project Manager is the primary interface for the school district, the CP, and the DP. The OSFC-P and OSFC-PM accommodates the unique needs of the school district within the framework of OSFC policies and procedures.

***Role: Educational Planner (EP)***

*Responsibilities:* The Educational Planner provides guidance, expertise, and experience in the development of an educational framework, which meets the educational vision of the district.

***Role: The Design Professional (DP)***

*Responsibilities:* The DP is involved in developing the Program of Requirements (POR) for the project. The DP, along with his or her consultants, is responsible for the documents that are developed during design and that are ultimately used for the construction of the project.

***Role: The Construction Professional (CP)***

*Responsibilities:* The CP is responsible for scheduling, estimating, and providing overall coordination for projects

***Role: Commissioning Maintenance Agent (CMA)***

*Responsibilities:* The Commissioning Maintenance Agent (CMA) is hired by the school district to provide a single point responsibility to ensure efficiency of operation and performance of the building's major systems.

Every team member must understand and fulfill his or her responsibilities for the planning, design, and construction process to be successful. Fortunately, the team works together to be sure that everyone's voice is heard and decisions are made and implemented in a timely manner. Partnering sessions are held throughout the process to help all the stakeholders work together in an environment of mutual trust with open channels of communication.

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**B. SUMMARY OF THE CONTRACTING, DESIGN, BIDDING AND CONSTRUCTION PROCESS****CONTRACTING**

Agreements and contracts are established between the state and the school district for the project.

**DESIGN**

The Project Team works together to develop a POR, the detailed square footage requirements for each space in the building. Once the POR is approved the design phases begin:

- Schematic Design Phase (SD): Spaces are drawn to the correct scale indicating relative sizes as stated in the POR. Spaces are shown in the correct relationship to each other. Energy simulation modeling to occur.
- Design Development Phase (SD): The drawings indicate greater levels of detail. In addition to classroom and building size, the building systems, materials, and furnishings are shown in the documents. Commissioning process begins.
- Construction Documents Phase (CD): The documents show the detailed information that will ultimately be used by the contractors to bid and construct the building.

**BIDDING**

The project is bid, bidders are evaluated, and contracts are executed.

**CONSTRUCTION**

The Project Team and the Contractor work together to construct the building. Throughout the construction phase the Project Team holds regular meetings to review the progress of construction. The Project Team uses proven methods to assist in monitoring the budget, schedule, project quality, and change orders during construction. Furniture and equipment are procured. Commissioning is implemented.

**OCCUPANCY**

Furniture and equipment are delivered and put in place. Students, faculty, and staff move into the building.

**POST-  
OCCUPANCY**

The warranty phase begins and a Maintenance Plan is implemented. The project and financial closeout steps occur.

The following table illustrates the contracting, design, construction, occupancy, and post occupancy process; the participants in each step, and the estimated timeline for each phase.

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PRE-PLANNING	PRIOR TO PROJECT BEGINNING	<b>ESTABLISH PARTNERSHIPS WITH COMMUNITY STAKEHOLDERS</b> The school district should undertake a process to establish partnerships with community stakeholders, establish and refine its educational vision, and review school facilities in connection with that educational program and vision.											
		<b>ESTABLISH / REFINED EDUCATIONAL VISION</b> Stakeholders should work together to develop an educational vision. Questions that may be answered include: <ul style="list-style-type: none"> <li>• What are the most appropriate program areas and delivery systems for the district?</li> <li>• What does educational research suggest?</li> <li>• What is the most appropriate grade configuration or school size?</li> <li>• What areas are working? What needs to be changed?</li> </ul>											
		<b>CONNECT EDUCATIONAL PROGRAM AND VISION WITH FACILITIES</b> Connections must address the relationship of every site's school improvement planning process, the facility that is being considered, and community involvement in taking ownership of the process. Questions that address connecting the educational program with facilities include: <ul style="list-style-type: none"> <li>• What are the future educational programs and/or systems that will impact facilities?</li> <li>• What priorities should be addressed regarding the educational program and facilities?</li> </ul> Once the district has developed an educational vision, it is now time to assess the physical condition of the district's classroom facilities and the ability of those facilities to support the district's educational vision. The district may apply for the Facilities Assessment Program (FAP) only at any time to determine the condition of their classroom facilities.											

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PRE-PLANNING	PRIOR TO PROJECT BEGINNING	<b>PROGRAMS and APPLICATION PROCESS</b>											
		<b>Facility Assessment Program (FAP)</b> Permits school districts to receive a district-wide assessment and master facility plan for existing classroom facilities. This information empowers the district to make informed decisions regarding its facilities.  <b>Non-funded Program, Expedited Local Partnership Program (ELPP) or Vocational Facilities Assistance Program (VFAP) ELPP</b> ELPP permits school districts that are estimated to be over two years away from eligibility for state assistance under the Classroom Facilities Assistance Program (CFAP) to receive a district-wide assessment and master facilities plan from the OSFC. The OSFC will assess the classroom facilities needs of participating districts, and, in collaboration with the district, develop a district-wide master facilities plan. Program participants may spend local resources on a discrete part of their overall master facilities plan (either new construction or major renovation) and later receive credit for qualifying expenditures from the school district's share of the overall project budget when the district becomes eligible for state assistance under CFAP or VFAP.  <b>Funded Program Exceptional Needs Program (ENP)</b> ENP is a building replacement program that provides school districts with the ability to protect the health and safety of their students with a new facility. The program has a single building orientation, so it will not necessarily fund a district's entire facilities needs.											

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PRE-PLANNING	1 MONTH	<b>NOTIFICATION OF ELIGIBILITY FOR FUNDED PROGRAM (CFAP,VFAP or ENP)</b> CFAP provides funding for the entire or a segment of the facility needs of a school district. Each school district is ranked on the School District Ranking List supplied to the OSFC by the Ohio Department of Education (ODE).  Vocational Facility Assistance Program (VFAP) provides funding for vocational, career technical, and comprehensive high schools similar to the CFAP program.											
PLANNING	PRIOR TO PROJECT BEGINNING	<b>DISTRICT SELECTS PRE-BOND DESIGN PROFESSIONAL</b> The district is responsible for interviewing and selecting the Pre-Bond Design Professional (PBDP) for pre-bond services. The PBDP is responsible for review of the assessment and master plan options. The PBDP assists in site selection, segmenting and estimating locally funded initiatives. The PBDP provides support at meetings. OSFC does not co-fund pre-bond services.											

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PLANNING	1- 2 MONTHS	<p><b>OSFC CONDUCTS FACILITY ASSESSMENT</b></p> <p>The development of a uniform and comprehensive assessment of a district's facilities is central to CFAP, VFAP, ENP, ELPP and VFAP ELPP. The process has evolved since 1997 and is accomplished through an Assessment Consultant (AC) working with a sophisticated internet-based assessment tool. The school district will be requested to provide floor plans and other information and to make Facilities Managers available to assist the consultants in the evaluation of the facilities.</p> <p>The facility assessment report contains a variety of data about each of the district's buildings, such as: site acreage, current grade configuration, capacity, number of floors, number of teaching stations, total building square footage, and the dates of construction for the original building and additions. However, it is important for all parties to understand that the use of the facility assessment report is for the purpose of developing an estimated project cost and scope based on best available data. Conditions which are hidden or otherwise unknown may have an impact on the final project cost.</p> <p>The AC reviews 23 building components and applies a funding level to each of these components in order to bring the existing condition or system(s) to the minimum level described within the OSDM standards. The assessment report will either indicate no work required, supplementing a system or component, or complete replacement of a system or component based upon age, condition, size, or non-existence.</p> <p>Additionally, the facility assessment report contains the Council of Educational Planners International (CEFPI) facility appraisal review, report and summary. The purpose of the CEFPI appraisal form is to subjectively report on conditions of the facility.</p> <p>Refer to section 0101 for additional information.</p>											

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PLANNING	1 -2 MONTHS	<b>DEVELOP ENROLLMENT STUDY FOR A TYPICAL PRE-K-12 SCHOOL, ELPP, FAP, ENP, or CFAP</b> An important component of the OSFC planning protocol is the development of student enrollment projections. Upon entering a program, OSFC assigns an Educational Projection Consultant (EPC) to develop the enrollment projections. The objective is to determine the number of students for which the buildings should be designed. The enrollment history of the school district is obtained through an online district questionnaire. School district demographics such as live birth statistics, population information, housing starts, and survival rates are all combined to project the district's enrollment 10 years into the future.  Refer to section 0102 for additional information.											
		<b>DEVELOP ENROLLMENT STUDY FOR A CAREER-TECHNICAL SCHOOL</b> An important component of the OSFC planning protocol is the development of student enrollment projections. Upon entering the VFAP ELPP or VFAP, the OSFC assigns an Educational Projection Consultant (EPC) to develop the enrollment projections. The objective is to determine the number of students for which the buildings should be designed. The enrollment history of the school district is obtained through an online district questionnaire. Additional enrollment information is obtained from the Ohio Department of Education (ODE) on associate districts.  Refer to section 0102 for additional information.											

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PLANNING, APPROVAL, AND FUNDING	3 - 8 MONTHS	<b>DEVELOP MASTER FACILITIES PLAN SPECIFYING SCOPE AND COST FOR K-12 SCHOOLS AND/OR CAREER-TECHNICAL SCHOOLS</b> <u><b>K-12 SCHOOLS</b></u> After the Assessment and Enrollment Projection reports are completed, the Master Facilities Plan is developed to define the scope of work and budget for each of the school district's classroom facilities. The number of students projected for each school is entered into the grade level-appropriate spreadsheet in the Ohio School Design Manual (OSDM) to determine the total gross square footage for that school in the Master Facilities Plan. Square foot allowance charts can be found in Chapter 2, Section 2000 of the OSDM. When Career-Technical programs are provided at the facility, the projected enrollment in the Career-Technical program is used along with the types of programs to develop a space allocation for those high schools housing Career-Technical programs.											
		<u><b>CAREER-TECHNICAL SCHOOLS</b></u> After the assessment and enrollment reports are completed, the Master Facilities Plan is developed to define the scope of work and budget for each of the district's classroom facilities. The number of career-technical students for each school is entered into the core space spreadsheet in Chapter 2 of the OSDM (Career-Technical section) to determine the total gross core square footage for that school in the Master Facilities Plan. The program area is determined by developing a program of requirements. Square foot maximum charts can be found for both core and program areas in Chapter 2, Section 2700 of the OSDM (Career-Technical section).  The core square footage for each school is then multiplied by the allowable cost per square foot for that school level and school size (data found in Section 1200 of the OSDM). All buildings in the school district are aggregated to determine the overall budget for the Master Facilities Plan.											



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PLANNING, APPROVAL, AND FUNDING	1 MONTH	<b>STATE AND LOCAL SHARE FUNDING</b> Once the Master Facilities Plan is developed a program specific calculation worksheet will be used to determine the state and local share. For values that change over time, e.g. net bonded indebtedness and assessed valuation, consult with OSFC and bond counsel for the correct figures to use.											
	1 MONTH	<b>STATE AND DISTRICT PROJECT AGREEMENT</b> This standardized Agreement serves as the basis of the relationship between the school district and the OSFC until the Project Completion Certificate is signed. It has been coordinated with three other documents; the Architect's Agreement with the school district, the CP's agreement, and the General Conditions of the Contracts for Construction.  Refer to section 0126 for additional information.											
END OF PLANNING PROCESS AND BEGINNING OF DESIGN AND CONSTRUCTION PROCESS Refer to section 1020 in Volume 2 for additional information within the Design and Construction Process													
CONTRACTING	2 - 4 MONTHS	<b>CONTRACT FOR DESIGN PROFESSIONAL</b> The selection of the Design Professional (DP) to provide services for the Design/Bid/Build process is made jointly through a publicly-advertised qualifications-based selection process. The typical process involves publicly requesting Statements of Qualifications, review and short-listing of the submitting firms, and final interviews to rank as many as three candidate firms. Only after selecting the top firm do the owners enter into fee negotiations. OSFC must approve the DP's contract.											
		<b>CP SELECTION AND CONTRACT</b> The selection of the Construction Professional (CP) is made by the <i>owner team</i> . The selection process again is a qualifications-based, open process involving advertisement, short-listing, interviews and final ranking and final selection. The fees are negotiated by the <i>owner team</i> .											

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PRE-DESIGN	1 MONTH	<b>SELECT COMMISSIONING MAINTENANCE AGENT (CMA)</b> The CMA employed directly by the school district, acts independently of the Designers to assure that the Building Systems will function within the parameters established as the basis for their design and the owner's design intent. At the beginning of the design process, the agent establishes a Commissioning Plan to be followed throughout design and construction efforts and post occupancy. The Commissioning Plan establishes operational objectives, monitors installation procedures, and incorporates functional testing protocols.  The CMA is an independent third party with no other ties to the project. The CMA cannot be tasked with conducting any subsequent corrective actions beyond that of the CMA role.											
	2 - 6 MONTHS	<b>PRE-DESIGN (PD)</b> The Pre-Design Phase (PD) of the project includes the development of the Program of Requirements (POR) defined above, LEED Registration, LEED point checklist and initial energy modeling. The PD information is reviewed and approved by the Project Team before starting the Schematic Design (SD).											
PRE-DESIGN	1 - 2 MONTHS	<b>ECO CHARRETTE</b> Sustainable, energy efficient features will be incorporated into school facility designs. These features will have a positive impact on student academic achievement. By promoting the design and construction of "green" schools, we can make a significant impact on student health, test scores, teacher retention, school operating costs, and the environment. Emphasis is given to energy efficiency in the design of new and renovated facilities. An integrated design approach is encouraged, and energy modeling early in the design process is required. This modeling should include the design choices and optimize the building's energy efficiency. (See Chapter 7, pages 7010-1 and 7010-2).											

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DESIGN	ALL DESIGN PHASES 10 - 15 MONTHS	<b>Develop Program of Requirements (POR)</b> The Development of the POR (identification of space needs) should begin with a thorough understanding of current and future student instructional needs. The school district Administration is encouraged to consider contracting with an Educational Planner (EP), whose primary function will be to assist the district and its stakeholders in developing/reviewing its educational mission, goals, and vision and then communicating that vision to the design team. This process should include administration, staff, OSFC representatives, students and interested community members.											
		Following the planning process with the EP, information such as the grades to be housed, the number of students per grade and the square footage per student are entered into the OSDM active excel spreadsheets yielding the Total Gross Building Square Footage. Using the Bracketing Chapter of the OSDM, prototypical space allocations for specific grade groupings are reviewed and a district specific written building space plan is developed. Various schemes are developed and tested against the allowable square footage until the school district's Educational Delivery Plan is manifested in a space plan. The POR is a written listing of the spaces along with their respective square footages. Two-dimensional graphic building plans should not be developed until the written POR has been completed and approved by the Project Team.											
		If the school district elects to proceed with components not listed as acceptable in the OSDM, the school district may proceed with district funds in addition to the prescribed district millage requirement or apply for a variance. Deviations should be discussed with the OSFC staff during the early planning phases of the project. Upon recommendation of the Variance Committee, the Executive Director may approve the variance, where there is agreement that the variation will result in good value for the district while maintaining the budget.											

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DESIGN	ALL DESIGN PHASES 10 - 15 MONTHS	<b>SCHEMATIC DESIGN (SD)</b> During the SD Phase, the required spaces developed during the POR process are organized in functional groupings and oriented around building circulation and service systems. Along with the SD, the DP will submit the POR, LEED point checklist, energy modeling, technology system schematic and description, and energy consumption information. The SD information is reviewed and approved by the Project Team before starting the Design Development (DD) Phase.											
		<b>DESIGN DEVELOPMENT (DD)</b> During the DD Phase the design is further refined to incorporate the actual materials and systems that will be used in construction. Detailed calculations for material stresses, heat loss/gain, and electrical loads are made and the final configuration of materials is established. Preliminary Specifications for all components are prepared and are used along with the drawings in the preparation of the construction estimate of cost by the CP. The DD documents including the POR, LEED point checklist, energy modeling, technology system documents, and drawings, are reviewed and approved by the Project Team before starting the Construction Documents (CD) Phase.											

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DESIGN	ALL DESIGN PHASES 10 - 15 MONTHS	<b>CONSTRUCTION DOCUMENTS (CD)</b> At the conclusion of the DD Phase, all decisions regarding the make-up of the new building should be resolved and documented. Adjustments should have been made in the design to bring the cost estimate into alignment with the project budget. The objective of the CD Phase is to prepare documentation that will accurately and precisely convey the design to the prime contractors who will construct it. In essence, the DD drawings and specifications are refined and combined with Instructions to Bidders and General Conditions of the Contract for Construction and other documents necessary to define the activities of all parties during the actual construction. Additionally, the LEED point checklist, energy modeling, technology drawings, and USGBC Design Review Comments are included as part of the CD documents. These documents are used as the basis of the final estimate of construction cost necessary for a recommendation to the school district and OSFC prior to entering the Bidding Phase (BP). These documents are submitted for agency approval necessary for the issuance of a building permit.											
BIDDING	ALL BIDDING PHASES 1 - 3 MONTHS	<b>BIDDING PHASE (BP)</b> The structure of the BP is defined by statute. The process begins with the public advertisement for bidders. This advertisement describes work divided into trade packages. It indicates where the documents can be obtained and states the date, time, and place of the public bid opening. It establishes a time and place for a pre-bid conference during which the contractors can ask questions related to the project. Sealed prime contract bids are received at the bid time and publicly opened, read aloud and tabulated.											

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BIDDING	1 MONTH	<b>EVALUATE BIDDERS</b> After the bid opening meeting, the apparent low bidders are evaluated to determine whether they are responsible according to criteria set forth in law. The bid packages are carefully examined by district counsel and the CP for compliance with the bidding requirements.											
BIDDING	ALL BIDDING PHASES 1 - 3 MONTHS	<b>ENTER INTO CONTRACTS</b> Within 60 days of the receipt of bids, the CP and low bid contractors work together to prepare construction contracts for the work on form documents provided by OSFC. The contracts are approved by resolution of the school disytrict and the OSFC.											
		<b>TRADE CONTRACTOR PARTNERING</b> Similar in format to the previous day-long executive partnering session, the trade contract partnering session introduces the prime contractors to the team. Objectives and concerns are discussed, communication channels are established and dispute resolution procedures are agreed upon.											
CONSTRUCTION	18 - 24 MONTHS	<b>CONSTRUCT BUILDING</b> This phase takes more time than any of the others. Sometimes it takes as much as 18 or 24 months for a single K-12 or high school. Often it begins with a sitework package which commences prior to all the documents being complete for the building itself. This work can include the preparation of the entire site and the construction of the building pad. Normally the construction of a school is done as if the building were divided up into four or six different building projects allowing the contractors to move sequentially through the entire project.											

			PARTICIPANT LEGEND										
			ACTIVE PARTICIPANT										
			ADVISORY / REVIEW										
			MINIMAL / NO PARTICIPATION										
PHASE	Approximate Duration	PHASE Brief Description	School District (SD)	OSFC Planner (OSFC-P)	Regional Program Consultant (RPC)	Assessment Consultant (AC)	Enrollment Projection Consultant (EPC)	Pre-Bond Design, Professional (PBDP)	Educational Planner (EP)	OSFC Project Manager (OSFC-PM)	Design Professional (DP)	Construction, Professional (CP)	Commissioning Maintenance Agent (CMA)
CONSTRUCTION	1 - 3 MONTHS	<b>PROCURE FURNITURE AND EQUIPMENT</b> While the furniture plan for a facility can and should be created at the same time that the SD, DD, and CD Phases are being completed, the actual bidding and ordering of the furniture is typically postponed until 6 to 9 months before the anticipated move in date. Specifications and materials change frequently in the furniture industry and items bid as much as a year ago, may no longer be available.											
	1 - 2 MONTHS	<b>DEVELOP MAINTENANCE PLAN</b> The school district maintenance plan is normally prepared by a Commissioning Maintenance Agent (CMA). Aided by a comprehensive web tool, the CMA creates an exhaustive list of every asset requiring maintenance in the building. The asset manufacturer’s recommendations for ongoing maintenance and useful service life are analyzed, and a report is generated outlining the cost impact of maintaining the building. The revenue for maintenance is also analyzed, and a business plan is developed and presented to the school district for its use.											
	1 MONTH	<b>CLOSEOUT PARTNERING</b> The closeout partnering meeting brings all stakeholders together in a session to focus on the smooth completion of all participants’ obligations under their contracts. A professional facilitator guides all parties step by step through the requirements.											
	1 - 2 MONTHS	<b>PUNCH LIST</b> Having been notified by the contractors that their work is complete and compliant with the project documents, the DP and CP inspect the work and prepare a “punch list” of missing or deficient items. The items on this list must be completed, repaired or replaced by the contractors. When the corrections are accomplished and all items are accounted for on the punch list, the DP Team and the CP are notified to make a final inspection.											

# EXECUTIVE SUMMARY

## OVERVIEW OF THE DESIGN AND CONSTRUCTION PROCESS

## CHAPTER 1: INTRODUCTION

			PARTICIPANT LEGEND										
			ACTIVE PARTICIPANT										
			ADVISORY / REVIEW										
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PHASE	Approximate Duration	PHASE Brief Description	School District (SD)	OSFC Planner (OSFC-P)	Regional Program Consultant (RPC)	Assessment Consultant (AC)	Enrollment Projection Consultant (EPC)	Pre-Bond Design Professional (PBDP)	Educational Planner (EP)	OSFC Project Manager (OSFC-PM)	Design Professional (DP)	Construction Professional (CP)	Commissioning Maintenance Agent (CMA)
OCCUPANCY	1 MONTH	<b>MOVE INTO BUILDING</b> Time must be allocated in the schedule to deliver and set up loose furnishings and move equipment, supplies, and materials into the building.											
OCCUPANCY	1 MONTH	<b>FINAL COMMISSIONING</b> While the CMA should be an active team member from the beginning, the work involved with system documentation and performance testing can only start as the systems come on line. Commissioning begins as systems are started and deemed functionally operational.											
POST-OCCUPANCY	11 MONTHS	<b>WARRANTY PERIOD</b> Normally the project specifications call for the contractor to provide a labor guarantee for a period of one year commencing when the school district begins to use the building. Equipment and product warranties are usually longer in duration and are set forth in the specifications. During the applicable period, the contractor is obligated to repair or replace any systems or materials that are not functioning as intended. An eleven month inspection of the building is conducted by the DP team, CMA, and CP, and deficiencies are listed. The contractor is obligated to correct those deficiencies much as he or she is obligated to do in the punch listing process.											
	1 - 2 MONTHS	<b>PROJECT CLOSEOUT</b> The project closeout focuses more on the relationships between the school district and the contractors than on the school district and the OSFC. The closeout process is necessary to monitor and verify the submission of operation manuals, owner training, attic material stock, certificates contract completion and other documentation. The DP shall provide record documents to the school district prior to final completion. The requirements for record drawings and other provisions of the closeout process are set forth in the contracts and in OSFC policy and procedure memoranda.											



**EXECUTIVE SUMMARY****CHAPTER 1: INTRODUCTION****OVERVIEW OF THE DESIGN AND CONSTRUCTION PROCESS**

			PARTICIPANT LEGEND										
			ACTIVE PARTICIPANT										
			ADVISORY / REVIEW										
			MINIMAL / NO PARTICIPATION										
PHASE	Approximate Duration	PHASE Brief Description	School District (SD)	OSFC Planner (OSFC-P)	Regional Program Consultant (RPC)	Assessment Consultant (AC)	Enrollment Projection Consultant (EPC)	Pre-Bond Design Professional (PBDP)	Educational Planner (EP)	OSFC Project Manager (OSFC-PM)	Design Professional (DP)	Construction Professional (CP)	Commissioning Maintenance Agent (CMA)
POST-OCCUPANCY	1 - 2 MONTHS	<b>FINANCIAL CLOSEOUT</b> The financial closeout primarily focuses on reconciling and concluding the fiscal relationship between the school district and the OSFC. This process includes a comprehensive recap of the original project budget, any budget increases that were approved, the State share, the local share, and the interest earned on both the State and the district shares. All expenditures are recapped, including those for contracts, change orders, miscellaneous district expenses, and soft costs. Once the financial reconciliation is agreed to, a certificate of project completion is executed. Principal dollars remaining in the project construction fund are distributed to the State and school district in proportion of the original State and school district shares. Remaining interest earned on State and school district funds is returned to the State and deposited in the school district maintenance fund.											

**CHAPTER 1: INTRODUCTION OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION**

Volume Two of the Ohio School Design Manual (OSDM) is organized into ten chapters that explain the design, and construction process; identify the square footage provisions for each school level; detail the features and amenities of each space; and provide systems, materials, and specification information. This section of the Executive Summary contains an overview of key points included in each chapter.

The OSDM is made up of two volumes. The first volume (Volume 1) titled EDUCATIONAL FACILITY PLANNING GUIDE is the guide for school districts to use from inception of a facility project up to the start of the design stage. The second volume (Volume 2) contains the information needed from the beginning of the design stage through the commissioning stages and 11-month walk-through.

The chapters included in the OSDM are:

**VOLUME 1****EDUCATIONAL FACILITY PLANNING GUIDE****VOLUME 2**

Chapter 1: Introductory Information  
 Chapter 2: OSDM Bracketing  
 Chapter 3: School Site  
 Chapter 4: Elementary School  
 Chapter 5: Middle School  
 Chapter 6: High School  
 Chapter 6: High School (Career-Technical)  
 Chapter 7: Sustainable Design  
 Chapter 8: Systems and Materials  
 Chapter 8: Systems and Materials (Career-Technical)  
 Chapter 9: Specifications  
 Chapter 9: Specifications (Career-Technical)  
 Chapter 10: Miscellaneous  
 Chapter 10: Miscellaneous (Career-Technical)

**VOLUME 1**

Contains the planning process and guidelines for school districts to use from inception of a facility project up to the start of the design stage.

**VOLUME 2****Chapter 1: Introduction**

Chapter 1 contains introductory information that provides a general overview of the design and construction process and the Design's responsiveness to educational planning.

**Key Points**

- Developing a clearly articulated educational program is the essential first step to any successful school building project. Partnerships should be developed between school personnel and the community to establish and refine the educational vision and begin the connection between the educational vision and a building program.
- Enrollment Projections and Facility Assessments provide essential data for decision-making.

**EXECUTIVE SUMMARY****OSDM ORGANIZATION****CHAPTER 1: INTRODUCTION****Chapter 2: OSDM Bracketing**

Chapter 2 assists the school district in establishing the square footage for a new facility. Bracketing first identifies the overall square feet for a facility and then identifies spaces that may be included. The size of a school facility is based on student capacity, grade configuration, and square foot per student.

**K-12 Key Points**

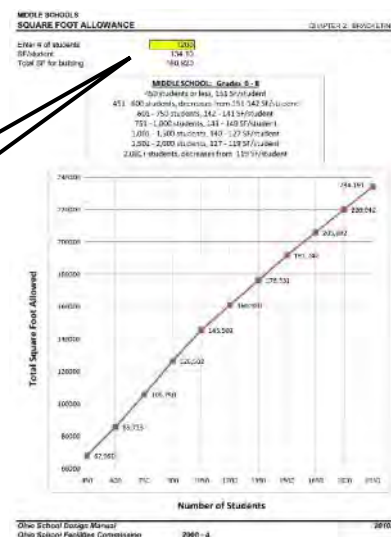
- The formula for determining the overall square footage of a school facility is:

$$\text{grade grouping \# of students} \times \text{student square feet} = \text{total overall square feet funded}$$

**Additional Key Points in Chapter 2:**

- The minimum school size at any grade configuration is 350 students (per 3318.03 ORC).
- The ranges of gross fundable square footage per student per school level are:  
Elementary (K-5) – from 115.6 – 125 square feet on a sliding scale  
Middle (6-8) – from 141 – 151 square feet on a sliding scale  
High (9-12) – from 156 – 180 square feet on a sliding scale  
The sliding scale allows for the fact that larger buildings that must be provided for larger student populations are more space efficient and require fewer square feet per student.
- Additional graphs indicate total funded gross square footage for K-12, K-8, and 6-12 school buildings.
- There are certain parameters for which spaces must be included and how large those spaces must be. Aside from those parameters, the planning team must work together to determine which spaces are needed. The parameters for developing the Program of Requirements (POR) include:
  - “Academic Space” refers to space in: Core Academic, Special Education, Art, Music, Family and Consumer Science, Technology Education, and Business Education. All other space is considered to be “Non-Academic.” Space can be moved from Non-Academic areas to Academic areas, but not *vice versa*.
  - The total square footage for all Academic areas must equal or exceed the total listed in the OSDM for that school level and enrollment.
  - For grades PK-5: the size of a classroom may be reduced 10% from the size listed in the OSDM.
  - The total square footage developed may vary no more than one-tenth (0.001) of one percent above or below the total square footage in the Master Plan.
  - For all grade levels: Academic spaces may be reduced up to 10% to accommodate extended learning areas.
- See charts in Chapter 2 for additional information
  - Section 2100 for elementary schools (grades K-5)
  - Section 2200 for middle schools (grades 6-8)
  - Section 2300 for high schools (grades 9-12)
  - Section 2400 for grade K-12 combination schools
  - Section 2500 for grade K-8 combination schools
  - Section 2600 for grade 6-12 combination schools

To determine the gross square footage for a school building, enter the number of students.



**CHAPTER 1: INTRODUCTION OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION****OSDM Tolerance**

During the development of the original OSDM, published in 1997, extensive research was conducted into existing local, state, and national classroom size standards. It was determined that a 900 SF classroom was the appropriate size to accommodate current and future student needs, project based delivery, children with disabilities, and multiple program delivery methods for twenty-five (25) students.

As part of the implementation of the OSDM, it was found that a certain amount of tolerance was needed to allow flexibility when designing the spaces contained within the school and the overall total size of the school building. Extensive research was conducted regarding sizing instructional spaces to adequately accommodate student learning, children with disabilities, movement, flexibility, adaptability, and future program delivery methods. It was determined that allowing a tolerance of 10% so districts may reduce the overall classroom size to no less than 810 SF would provide extra space for the development of creative learning spaces, student commons and other instruction areas such as art and music. This reduction allows classrooms to remain adequately sized to meet student educational needs. Following is a brief summary of the primary points of the tolerance policy. The full tolerance policy follows this summary.

All grade level academic spaces may be reduced up to ten percent (10%) below the square footage of spaces specified in the OSDM.

**Measurement and Area Calculations for Building Spaces**

Classrooms and other instructional spaces are sized to be flexible and adaptable to curricula of the future. Core areas, circulation, and building services are appropriately sized to support a range of design solutions. The following spaces shall be measured as indicated below when evaluating design solutions for compliance with the OSDM:

Corridors: Stairs, ramps, and elevators shall be included in the Program of Requirements (POR) as Corridor area.

Stairs: Stair area shall be calculated as one hundred percent (100%) on the ground floor and fifty-percent (50%) on elevated floors. Area shall be calculated based on the total area inside the stair enclosure walls.

Elevators: Elevators shall be calculated as one hundred percent (100%) on the ground floor and zero percent (0%) on elevated floors.

Overhangs: Overhangs located at building entrances and exits do not count as area. Interior balconies are generally counted as circulation space.

Total Net Square Footage of a Room: Calculated as the measurement of the interior area excluding the wall thickness.

Total Gross Square Footage of a Room: Calculated as the measurement of the exterior area including the wall thickness.

Mechanical Equipment Space: Includes “traditional” mechanical equipment rooms and an elevated “walkable” space for mechanical equipment and its servicing. “Vaults” associated with geothermal systems are counted as mechanical room square footage.

**EXECUTIVE SUMMARY****OSDM ORGANIZATION****CHAPTER 1: INTRODUCTION****Square Footage Flexibility for the Total Building**

For 3-stories and greater construction, the developed area may be increased for vertical circulation up to the square footage provided in the bracketing tool. The project budget is not increased due to offsetting reductions in site development costs with 3-story and greater construction.

On a building-by-building basis, the total gross square footage developed for a building may vary from the square footage specified in the Master Facilities Plan or the square footage adjusted for vertical circulation by:

Plus 1/10<sup>th</sup> of one percent (0.001) or  
Minus ½ of one percent (0.005)

**Square Footage Flexibility for Non-Academic Spaces**

Non-Academic Spaces are defined as those areas that do not comprise the academic core of the building and include specific areas such as: administration spaces, media center, physical education areas, food service, custodial spaces and building services. The Commission may apply discretion to approve reasonable flexibility for the square footage of non-academic spaces specified in the OSDM. Increasing the square footage of non-academic spaces is not an acceptable justification for a reduction to the square footage of academic space, however the Commission does support expanding academic spaces through the reallocation of non-academic space to the academic core. Corridor area should be appropriately sized to accommodate the design solution for the project.

See Section 1120 High Performance Learning Environments for exemption to minimum square footage

**Square Footage Flexibility for Academic Spaces**

Academic Spaces are defined as all bracketed program areas except the non-academic spaces within a building. The OSDM provides a range of flexibility for the square footage of such spaces.

Please note that only one of the options shown below for each grade level may be used.

1. For all grade levels, academic spaces may be increased above the square footage of spaces specified in the OSDM. Required non-academic spaces must still satisfy their intended uses. The total gross square footage of the building shall not be increased.
2. For all grade levels, academic spaces may be reduced up to ten percent (10%) below the square footage of spaces specified in the OSDM.
3. The total gross square footage of the academic core shall equal or exceed the total gross square footage of the academic core space specified in the OSDM.

**Variance Requests for OSDM Systems, Materials and Square Footages**

The design professional is required to pursue an OSDM Variance Request from the Commission for deviations from the standards, material and system specifications, and area square footages provided in the OSDM. The design professional may provide data to support the use of alternative products through the Design Variance Request process. Variances may be requested via the Construction Professional website at <http://www.cmw.osfc.state.oh.us> using the online OSDM Variance Request tool. The Commission has established an OSDM Variance Request Committee that is tasked to review these requests, to conduct proper research on each request, and to make appropriate recommendations.

**CHAPTER 1: INTRODUCTION OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION****Creative Learning Areas**

Allowing the 10% reduction in the size of the classrooms can provide exciting opportunities for flexibility in educational programming. Over the past few years, educational program delivery has changed to accommodate differences in students' learning habits, an increasing information base, project based assignments, and technology. When this reduction is used, it can result in the development of creative learning areas where students can receive instruction, conduct small group activities, practice drama, and engage in other learning activities.

Creative learning areas are intended to provide students, staff, and teachers with an area adjacent to the classroom where a multitude of activities can take place. This space does not have walls and is intended to "extend" the classroom or other area for instructional and support purposes. A few of the activities that can occur are:

- ◆ Small group work/study areas using soft or hard seating (3-7 students per group)
- ◆ Rehearsal area for student skits or plays
- ◆ One-on-one tutoring by peers or community volunteers
- ◆ Individual projects requiring more space than what is allotted in a traditional classroom (ex: creating a poster display board, doing a large painting or drawing, etc.)
- ◆ Reading by a teacher or volunteer to a large group of children (8-15 students, soft seating or soft floor space)
- ◆ Individual study or quiet time to read, reflect, or do homework
- ◆ Space to showcase student art and projects
- ◆ Service learning activities (volunteerism)
- ◆ Physical activities not incorporated in gym or outside areas (ex: gross motor skills, tumbling on mats, cheerleading practice)
- ◆ Accessibility for after-school student clubs (key club, school newspaper, student officers, etc.)
- ◆ English as a Second Language (ESL) tutoring
- ◆ Lecture/presentation space that combines students from two or more classes
- ◆ Lounging space for students with soft furniture to allow for wireless Internet access, reading, conversation, and other forms of informal social interaction
- ◆ Make-up tests (proficiency and school subject exams)
- ◆ Showing of films, class parties, fun activities

When designing creative learning areas, it is important to note some of the characteristics that define what a creative learning space is and is not. The characteristics below are not meant to limit the design team in its creative endeavors, but are meant to provide a guideline for discussions between the District and the design team.

**A Creative Learning Area IS:**

- ◆ A flexible learning and support space
- ◆ Adjacent to classrooms
- ◆ Classrooms on most sides
- ◆ May be part of the means of egress/corridor
- ◆ Has a visual connection to each of the adjacent classrooms

**A Creative Learning Area IS NOT:**

- ◆ Enclosed with walls and/or doors
- ◆ A room
- ◆ A "teaching station"
- ◆ A room with desks, chairs, a teacher's desk, or fixed furniture

**EXECUTIVE SUMMARY****OSDM ORGANIZATION****Career-Technical Bracketing****CHAPTER 1: INTRODUCTION**

Chapter 2, of the OSDM assists the school district in establishing gross square footage for a new Career-Technical facility. The size of a Career-Technical school facility is based on student capacity, approved program square feet and core square foot area per student.

Number of Students	Maximum Square Feet Per Student		
	Core Area	Program Area	Total
400 or less	113	169	282
600	101	162	263
800	97	146	243
1,000 or more	95	136	231

Number of students / 50 students per program = # of Type 1 – 4 programs funded

Number of students / 30 students per program = # of Type 5 – 7 programs funded

Core Area (# of students x square feet) + Program Area (# of programs x program square feet) = Total Overall Square Feet Funded

- There are certain parameters for which spaces must be included and how large those spaces must be. Aside from those parameters, the planning team must work together to determine which of the spaces are needed. The parameters for developing the Program of Requirements (POR) include:
  - A ratio of 25 students per classroom is used to determine building capacity.
  - A ratio of 50 students per program is used to determine the number of funded Type 1 - 4 programs and 30 students per program in Type 5 - 7 programs.
  - “Academic Space” refers to space in: Core Academic, Special Education and Program Types 1 - 7. All other space is considered to be “Non-Academic.” Space can be moved from Non-Academic areas to Academic areas, but not *vice versa*.
  - The total square footage for all Academic areas must equal or exceed the total listed.
  - The total square footage developed may vary no more than one-tenth (0.001) of one percent above or below the total square footage in the Master Plan. See charts in Chapter 2, Section 2700, for additional information.

The Bracketing spreadsheet is an interactive tool that aids in the development of the Program of Requirements.

The spreadsheet is organized by Program Area, i.e. Core Academic, Special Needs, etc., as well as Program Types 1-7.

The table at the top of the page shows examples of Core Spaces.

The second table shows examples of Program Spaces.

The table labeled WORKSHEET is linked to the detailed pages for each program area.

Sample School District, Sample School Building  
CAREER TECHNICAL SCHOOL  
SUMMARY OF SPACES EXAMPLE

CHAPTER 2: BRACKETING

Number of Students	400	600	800	1,000
Core SF/Student Funded	113	101	97	95
Total Core Space Funded	45,200	60,568	77,816	95,000
Program SF/Student Funded	169	162	146	136
Total Program Space Funded	67,600	97,500	116,800	136,800
Total Gross SF Funded	112,800	157,768	194,416	231,800

Core Spaces				
CT-AC Academic Core	14,420	30,520	26,890	33,370
CT-SE Spec. Ed./Student Svc.	4,000	4,000	5,170	5,290
CT-AD Administration	3,000	3,910	4,910	6,180
CT-MC Media Center	2,750	4,090	4,840	5,980
CT-SD Student Dining	4,480	5,750	7,447	9,594
CT-FS Food Service	1,615	2,315	3,015	3,555
CT-GU Custodial	300	400	500	500
CT-GS General Services	0	0	0	0
<b>Net Core Space</b>	<b>30,635</b>	<b>40,985</b>	<b>52,772</b>	<b>64,679</b>
Mechanical/Electrical Space (5.9%)	2,114	2,527	3,541	4,463
Corridors (14%)	4,289	5,735	7,389	9,055
Total Core Space	37,038	49,247	63,801	78,197
Construction Factor (11%)	4,074	5,448	7,016	8,602
<b>Gross Core Space Developed</b>	<b>41,112</b>	<b>54,695</b>	<b>70,817</b>	<b>86,799</b>
Gross Core Space Co-Funded	45,200	60,568	77,816	95,000

Program Spaces				
CT-P1 Program Type 1	4,850	5,365	7,300	12,460
CT-P2 Program Type 2	4,620	2,310	4,820	4,620
CT-P3 Program Type 3	3,700	5,840	9,070	11,360
CT-P4 Program Type 4	3,355	11,015	14,465	19,335
CT-P5 Program Type 5	10,128	18,752	19,252	15,398
CT-P6 Program Type 6	18,898	23,248	32,475	29,912
CT-P7 Program Type 7	0	0	0	10,000
<b>Net Program Space</b>	<b>50,560</b>	<b>68,548</b>	<b>87,782</b>	<b>102,078</b>
Mechanical/Electrical Space (5%)	2,528	3,427	4,389	5,104
Corridors (14%)	7,077	9,598	12,289	14,234
Total Program Space	60,165	81,573	104,461	121,416
Construction Factor (11%)	6,617	8,973	11,491	13,352
<b>Gross Program Space Developed</b>	<b>66,771</b>	<b>90,542</b>	<b>115,951</b>	<b>134,632</b>
Gross Program Space Co-Funded	67,600	97,500	116,800	136,800

Total Gross SF Developed	107,883	145,511	180,770	221,531
Total Gross SF Co-Funded	112,800	157,768	194,416	231,800
<b>Difference</b>	<b>4,917</b>	<b>12,257</b>	<b>13,646</b>	<b>9,269</b>

**CHAPTER 1: INTRODUCTION OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION****Chapter 3: School Site**

Chapter 3 contains information about site size, site circulation, and site amenities. Design requirements are also outlined for a multitude of factors that must be considered, including: various types of circulation and site access, drainage, play fields and playgrounds, fencing, lighting, mechanical/electrical yard, landscaping, site furnishings, and exterior security provisions.

**Key Points**

- Site size guidelines accommodate a variety of sizes for schools located in rural and suburban districts. Recommended site sizes are:
  - Elementary School: 10 acres plus 1 acre per 100 students
  - Middle School: 20 acres plus 1 acre per 100 students
  - High School or Career-Technical School: 35 acres plus 1 acre per 100 students
  - Combination Schools:
    - K-12 School: 40 acres plus 1 acre per 100 students
    - K-8 School: 20 acres plus 1 acre per 100 students
    - 6-12 School: 35 acres plus 1 acre per 100 students
- It is recognized that not all urban sites will be able to accommodate a new or replacement facility, even with the smallest site sizes recommended in the OSDM. The OSDM provides a list of possible site size reductions that may be considered. Strategies include decreasing the building footprint, decreasing the amount of parking, decreasing the size of the mechanical yard, providing curbside bus and parent drop-off, reducing the amount of greenspace, and reducing the size or decreasing the number of outdoor play spaces. These strategies are not intended to be all-inclusive and implementing these reductions should involve all interested parties. Chapter 3 identifies a process to determine the area required for an urban school's site needs.
- Deviations from the site size may be required due to extenuating circumstances. In such case, the OSFC will require the Design Professional to evaluate and recommend that the school district's educational program needs can be accomplished within a facility on the applicable site.
- Site selection applies to new construction. A review of the site selection criteria is required for additions to existing facilities to determine if the existing site can accommodate the site design requirements. The site selection is to be done by the school district with the assistance of a design professional.
- Factors to be used for judging the merits of a site are:
 

<ul style="list-style-type: none"> <li>- Adjacent Property</li> <li>- Aesthetic Considerations</li> <li>- Codes and Zoning</li> <li>- Easements/Right-of-way</li> <li>- Environmental Restrictions</li> </ul>	<ul style="list-style-type: none"> <li>- Safe Routes To Schools</li> <li>- Safety</li> <li>- Site Preparation</li> <li>- Site Size</li> <li>- Site Utilities</li> </ul>	<ul style="list-style-type: none"> <li>- Soil Characteristics</li> <li>- Testing</li> <li>- Topography</li> <li>- Vehicle Access</li> <li>- Walkability</li> </ul>
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- Site design requirements detail design considerations and provide diagrams for important site elements, including:
 

<ul style="list-style-type: none"> <li>- a. Vehicular circulation</li> <li>- b. Pedestrian circulation</li> <li>- c. Emergency vehicle access</li> <li>- d. Bicycle circulation</li> <li>- e. Storm drainage</li> </ul>	<ul style="list-style-type: none"> <li>- f. Sanitary sewerage</li> <li>- g. Directional signage</li> <li>- h. Physical education</li> <li>- i. Playgrounds</li> <li>- j. Fencing</li> <li>- k. Lighting/Light Pollution</li> </ul>	<ul style="list-style-type: none"> <li>- l. Mechanical/electrical yard</li> <li>- m. Landscaping</li> <li>- n. Site furnishings</li> <li>- o. Exterior security provisions</li> </ul>
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- Parent drop-off and bus drop-off areas are to be separate.
- Particular emphasis is placed on safety issues, such as separation of vehicular and pedestrian traffic.
- In addition to stating design requirements, this chapter indicates items that the school district and the design professional should "plan for" in future improvements. Items indicated to be "planned for" are not funded by the OSFC.



## EXECUTIVE SUMMARY

**OSDM ORGANIZATION**

## CHAPTER 1: INTRODUCTION

**Chapter 4: Elementary School**

Chapter 4 begins with an overall building diagram detailing the way in which various areas of an elementary school could be arranged. There are also program area diagrams throughout this chapter that demonstrate how specific spaces might relate to each other within a program area. Space plates are included for each type of space in the program area.

**Key Points**

The information in this diagram is referred to as a *space plate*. There is a space plate for each room in each program area in each school level.

Each room has a unique code that appears in the bracketing and on the space plate. In this case:  
E=Elementary  
AC=Academic Core  
1=Space Plate #1

## CHAPTER 4: ELEMENTARY SCHOOL

PRE-K/KINDERGARTEN CLASSROOM  
E-AC-1

## PROGRAM ACTIVITIES:

- Kindergarten instruction through active exploration
- Children practice with tangible articles and are encouraged to develop learning skills, creativity, and imagination.
- Activities include, but are not limited to: group discussions, demonstrations, music activities, listening skills, gross motor skills, art and science projects, and small group activities.

## SPATIAL RELATIONSHIPS:

- Near other pre-k/kindergarten classrooms
- Near teacher prep area/workroom
- Direct access to outdoor playground or access through adjacent corridor
- Near vehicle drop-off/pick-up drive
- Adjacent to pre-k/kindergarten restroom

## ENVIRONMENTAL CONSIDERATIONS:

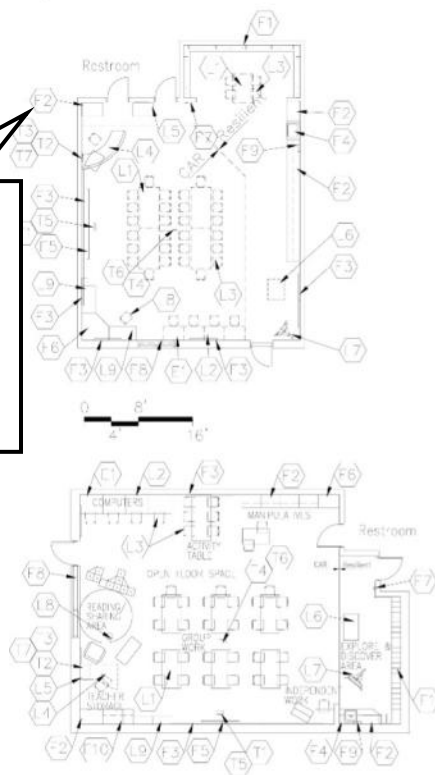
- Required: View glass – minimum 5% without daylighting design; minimum 3% with daylighting design.  
Recommended: Daylighting design with glazing area determined by design solution
- Environmental sound control – wall only minimum STC 45  
ceiling minimum CAC 35, NRC 0.70
- Resilient and stain-resistant floor covering
- Ergonomically appropriate furniture and equipment heights

Program activities indicate the type of activities that may occur in the space. These activities will vary from district to district depending on the educational program.

Relationships of a particular room to other spaces and activities have been identified to assist the A/E in the design of the facility.

Environmental considerations are items that may affect the educational program. They are the basis of some requirements of Finishes, Features, Plumbing, HVAC, Electrical, and Communications.

A diagram of the space shows how some of the features and loose furnishings may be organized. The space is not required to be designed in the configuration shown.



Size must be maintained except for tolerance previously noted.

CAPACITY: 25 students  
SIZE: 1,200 SF  
ANCILLARY SPACES: Pre-K/Kindergarten Restroom E-AC-2

## NOTES:

1. Loose furnishings shown represent one of many possible configurations based on educational program.
2. Depending upon the educational program of the district, a tall wardrobe may be located in this classroom or could be placed in a teacher prep area/workroom.
3. Second exit from space to meet code need not open to exterior.

**Chapter 4: Elementary School, continued**

## EXECUTIVE SUMMARY

CHAPTER 1: INTRODUCTION **OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION****Key Points, continued**

This is the subsequent page of information for each space.

Features identified on the space plates are required for the space. Features include: Fixed Items, Fire Suppression, Plumbing, HVAC, Electrical, Communications, and Electronic Safety & Security Systems.

Each room has a unique code that appears in the bracketing and on the space plate. In this case:  
E=Elementary  
AC=Academic Core  
1=Space Plate #1

**PRE-K/KINDERGARTEN CLASSROOM  
E-AC-1****FINISHES<sup>1</sup>:**

	Spec. Ref.#
<b>Flooring:</b>	
Combination carpet, carpet tile, with resilient options	096816
Optional: All linoleum, ET, sheet vinyl, or rubber	096500
	096516
	096813
<b>Base:</b>	
Resilient base	096500
<b>Ceiling:</b>	
Suspended, acoustical	095113
<b>Walls:</b>	
Painted concrete masonry units	042000/099100

**LOOSE FURNISHINGS:**

L1 Student desks/tables
L2 Computer workstation furniture (fixed or mobile)
L3 Student chairs
L4 Teacher workstation/computer support and chair (fixed or mobile)
L5 File cabinet
L6 Sand/water table
L7 Children's painting easel
L8 Teacher reading chair or stool
L9 8'-10' of low bookcases (fixed or mobile)
Loose carpet/rug (optional)
Wastebasket

**Electronic Safety and Security:**

Life safety devices per code	283111
------------------------------	--------

**Miscellaneous:**

Pencil sharpener (optional)
-----------------------------

**E1 Duplex receptacle with dedicated circuit for wireless devices**

**FEATURES:**

	Ref.#
<b>Fixed Items:</b>	
F1 Open casework - student coats and personal items, (cubbies) (optional wall cabinets above)	123550
F2 18'-24' combination tall wardrobe, base and wall cabinets	123550
F3 28'-36' combination marker board, tack board, & tackable surface	123550
F4 3' sink base cabinet	123550
F5 Projection screen (optional)	115213
F6 Technology support casework (could be mobile)	123550
F7 Pencil sharpener support (optional)	062000
F8 Window with integral blinds	085113
F9 Towel dispenser (optional)	102813
F10 36"- 42" high storage cabinet	123550
<b>Fire Suppression:</b>	
Fire suppression system	211000
<b>Plumbing:</b>	
Sink with drinking fountain	224000
Plumbing connections	224000/221116/221119
<b>HVAC:</b>	
Supply/return air system	Div. 23
Independent temperature control	230923
<b>Electrical:</b>	
Fluorescent lighting	265100
Illumination level: See Table 8600-5	
Multilevel switching	262726
4 duplex receptacles	262726
Double duplex receptacle adjacent to each data and video port	262726
Emergency lighting	265100
Means of egress lighting per code	265100
<b>Communications:</b>	
T1 1 projector video port	271543
T2 1 voice port and phone	271513/273123
T3 1 data port	
near teacher workstation	271513
T4 <b>Wireless access point cable above ceiling</b>	271513
Central sound system	275123
Clock	275313
Sound reinforcement system	275127
T5 <b>Ultra-short throw interactive</b> projector	274119
T6 <b>Wireless access point (WAP) as determined by design – refer to Note 4</b>	272133
T7 <b>Classroom technology center videoport</b>	271543, 274116, 274119, 275127

**NOTES:**

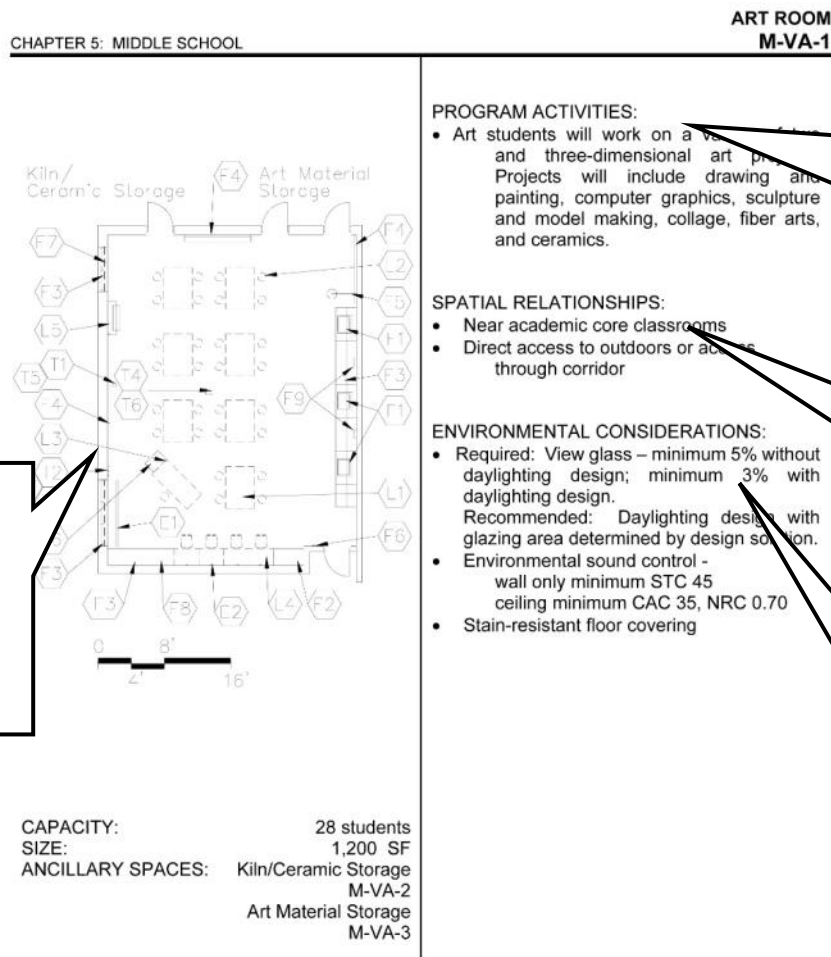
1. Finishes/Features: Refer to Chapter 9 for specification references.
2. Technology components may be placed in a separate small cabinet, or integrated in the other casework in the room.
3. Where appropriate, some casework may be mobile to add flexibility and become part of loose furnishings.
4. **Baseline includes WAP cable per classroom. WAP device quantity/placement per 272133 requirements.**

**EXECUTIVE SUMMARY****OSDM ORGANIZATION****CHAPTER 1: INTRODUCTION****Chapter 5: Middle School**

Chapter 5 begins with an overall building diagram showing how the various areas of a middle school could be arranged. There are also program area diagrams throughout this chapter that demonstrate how specific spaces might relate to each other within a program area. Space plates are included for each type of space in the program area.

**Key Points**

The following space plate is for a middle school art room.



Each room has a unique code that appears in the bracketing and on the space plate. In this case:  
M=Middle  
VA=Visual Arts  
1=Space Plate #1

Program activities indicate the type of activities that may occur in the space. These activities will vary from district to district depending on the educational program.

Relationships of a particular room to other spaces and activities have been identified to assist the A/E in the design of the facility.

Environmental considerations are items that may affect the educational program. They are the basis of some requirements of Finishes, Features, Plumbing, HVAC, Electrical, and Communications.

A diagram of the space shows how some of the features and loose furnishings may be organized. The space is not required to be designed in the configuration shown.

**NOTES:**

- Loose furnishings shown represent one of many possible arrangements.

## EXECUTIVE SUMMARY

CHAPTER 1: INTRODUCTION **OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION****Chapter 5: Middle School, continued****Key Points, continued**

This is the subsequent page of information for each space.

Features identified on the space plates are required for the space. Features include: Fixed Items, Fire Suppression, Plumbing, HVAC, Electrical, Communications, and Electronic Safety & Security Systems.

Each room has a unique code that appears in the bracketing and on the space plate. In this case:  
M=Middle  
VA=Visual Arts  
1=Space Plate #1

The loose furnishings shown on the space plates are often found in spaces of the room type. The list is not inclusive of all furniture that might be included. Loose furnishings are funded as part of the project cost.

**ART ROOM  
M-VA-1**

## CHAPTER 5: MIDDLE SCHOOL

<u>FINISHES<sup>1</sup>:</u>	<u>Spec. Ref.#</u>	<u>FEATURES<sup>1</sup>:</u>	<u>Spec. Ref.#</u>
Flooring:		<u>Fixed Items:</u>	
ET, sheet vinyl, rubber,	096500	F1 3'-5' sink base cabinets,	123550
sealed concrete,	033000	or several wash fountains	
polished concrete finishing, or	033510	F2 Tall wardrobe with file drawers	123550
colored concrete finishing	033519	F3 26'-34' combination tall cabinets,	123550
		base and wall cabinets	
Base:		F4 26'-34' combination marker board,	101100
Resilient base	096500	tack board & tackable wall surface	
		F5 Emergency eyewash (recommended)	224000
Ceiling:		F6 Pencil sharpener support (optional)	062000
Suspended, acoustical	095113	F7 Windows with integral blinds	085113
		F8 Technology support casework	123550
Walls:		F9 Towel dispenser (optional)	102813
Painted concrete masonry units		F10 Projection screen (optional)	115213
042000/099100		<u>Fire Suppression:</u>	
		Fire suppression system	211000
<u>LOOSE FURNISHINGS:</u>		<u>Plumbing:</u>	
L1 Student work tables		Sinks with solids interceptor	224000
L2 Student chairs or stools		Emergency eyewash connections	224500
L3 Teacher desk and chair/stool and teacher		Plumbing connections	224000/221116/221119
computer support			
L4 Computer workstation furniture		<u>HVAC:</u>	
L5 Desk height file cabinet		Supply/return air system	Div. 23
Wastebasket		Independent temperature control	230923
		Manually controlled general exhaust	Div. 23
<u>EQUIPMENT:</u>		<u>Electrical:</u>	
E1 Drying rack		Fluorescent lighting	265100
		Illumination level: See Table 8600-5	
		Multilevel switching	262726
		4 duplex receptacles	262726
		Double duplex receptacle adjacent to	
		each data and video port	262726
		Track lighting	265100
		Means of egress lighting per code	265100
		Emergency lighting per code	265100
		<u>Communications:</u>	
		T1 1 <b>projector</b> video port	271543
		T2 1 voice port and phone	271513/273123
		T3 1 data port	
		near teacher workstation	271513
		T4 <b>Wireless access point cable above ceiling</b>	271513
		Clock	275313
		Central sound system	275123
		Sound reinforcement system	275127
		T5 <b>Ultra-short throw interactive</b> projector	274119
		T6 <b>Wireless access point (WAP) as</b>	
		<b>determined by design – refer to Note 4</b>	272133
		T7 <b>Classroom technology center videopoint</b>	271543, 274116, 274119, 275127
<u>Electronic Safety and Security:</u>			
Life safety devices per code	283111		
<u>Miscellaneous:</u>			
Pencil sharpener (optional)			
<b>E2 Duplex receptacle with dedicated circuit</b>			
<b>for wireless devices</b>			

**NOTES:**

1. Finishes/Features: Refer to Chapter 9 for specification references.
2. **Baseline includes WAP cable per classroom. WAP device quantity/placement per 272133 requirements.**

## EXECUTIVE SUMMARY

**OSDM ORGANIZATION**

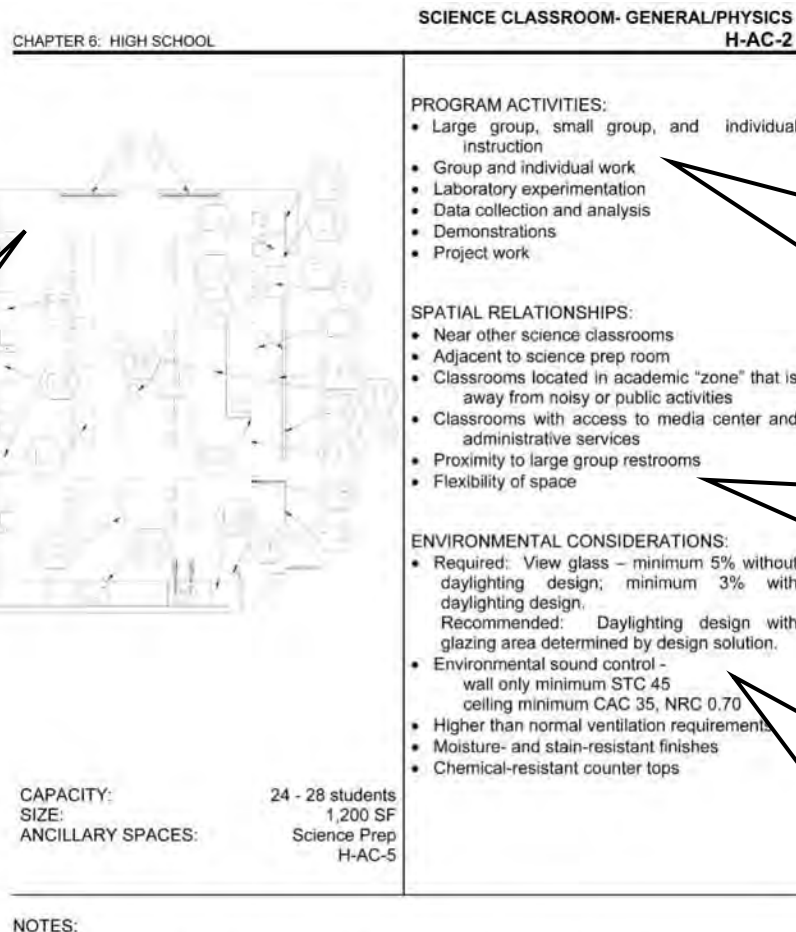
## CHAPTER 1: INTRODUCTION

**Chapter 6: High School**

Chapter 6 begins with an overall building diagram showing how the various areas of a high school could be arranged. There are also program area diagrams throughout this chapter that demonstrate how specific spaces might relate to each other within a program area. Space plates are included for each type of space in the program area.

**Key Points**

The following space plate is for a high school general science/physics classroom.



Each room has a unique code that appears in the bracketing and on the space plate. In this case:  
H=High  
AC=Academic Core  
2=Space Plate #2

Program activities indicate the type of activities that may occur in the space. These activities will vary from district to district depending on the educational program.

Relationships of a particular room to other spaces and activities have been identified to assist the A/E in the design of the facility.

Environmental considerations are items that may affect the educational program. They are the basis of some requirements of Finishes, Features, Plumbing, HVAC, Electrical, and Communications.

Diagrams of the space show how some of the features and loose furnishings may be organized. The space is not required to be designed in the configuration shown.

## EXECUTIVE SUMMARY

CHAPTER 1: INTRODUCTION **OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION****Chapter 6: High School, continued****Key Points, continued**

This is the subsequent page of information for each space.

Features identified on the space plates are required for the space. Features include: Fixed Items, Fire Suppression, Plumbing, HVAC, Electrical, Communications, and Electronic Safety & Security Systems.

Each room has a unique code that appears in the bracketing and on the space plate. In this case:  
H=High  
AC=Academic Core  
2=Space Plate #2

**SCIENCE CLASSROOM - GENERAL/PHYSICS  
H-AC-2**

## CHAPTER 6: HIGH SCHOOL

<u>FINISHES<sup>1</sup>:</u>	<u>Spec. Ref.#</u>	<u>FEATURES<sup>1</sup>:</u>	<u>Spec. Ref.#</u>
Flooring:		<u>Fixed Items:</u>	
Linoleum,	096500	F1 Tall wardrobe with file drawers	123553
rubber, ET, sheet vinyl,	096516	F2 Demonstration table/teacher desk	123553
polished concrete finishing, or	033510	F3 20'-32' combination marker board,	101100
colored concrete finishing	033519	tack board and tackable wall surface	
Base:		F4 Technology support casework	123553
Resilient base	096500	F5 40'-60' of lab casework with sinks	123553
Ceiling:		F6 Pencil sharpener support (optional)	062000
Suspended, acoustical	095113	F7 Windows with integral blinds	085113
Walls:		F8 Emergency shower/eyewash	224000
Painted concrete masonry units	042000/099100	F9 18'-24' of wall cabinets	123553
		F10 Towel dispensers (optional)	102813
		F11 2 eye hooks for demonstrations (optional)	055000
		F12 Projection screen (optional)	115213
		<u>Fire Suppression:</u>	
		Fire suppression system	211000
		<u>Plumbing:</u>	
		Plumbing connections	224000/221116/221119
		Emergency shower/eyewash	224000
		connections	226313
		Gas connections (optional)	226313
		Master shutoff for gas	221500
		Compressed air connections (optional)	
		<u>HVAC:</u>	
		Supply/return air system	Div. 23
		Independent temperature control	230923
		Manual exhaust	Div. 23
		<u>Electrical:</u>	
		Fluorescent lighting:	265100
		Illumination level: See Table 8600-5	
		Multilevel switching	262726
		Duplex receptacles at perimeter	262726
		workstations and teaching wall	
		Double duplex receptacle adjacent to	262726
		each data and video port	265100
		Emergency lighting	265100
		Means of egress lighting per code	265100
		<u>Communications:</u>	
		T1 1 <b>projector</b> video port	271543
		T2 1 voice port and phone	271513/273123
		T3 1 data port at demonstration table	271513
		T4 <b>Wireless access point cable above ceiling</b>	271513
		Clock	275313
		Central sound system	275123
		Sound reinforcement system	275127
		T5 <b>Ultra-short throw interactive projector</b>	274119
		T6 <b>Wireless access point (WAP) as determined by design – refer to Note 4</b>	272133
		T7 <b>Classroom technology center videoport</b>	271543, 274116, 274119, 275127

NOTES:

1. Finishes/Features: Refer to Chapter 9 for specification references.
2. Technology components may be placed in a separate small cabinet, or integrated in the other casework in the room.
3. Master gas shutoff valve shall be clearly labeled, easily accessible, and immediately operable by staff.
4. **Baseline includes WAP cable per classroom. WAP device quantity/placement per 272133 requirements.**

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## EXECUTIVE SUMMARY

**OSDM ORGANIZATION**

## CHAPTER 1: INTRODUCTION

**Chapter 6: Career-Technical School**

This Chapter begins with general information about the design and construction of Career-Technical schools. Two subject code/program tables are included with references to the space plates that follow. There are also program area diagrams throughout this chapter that demonstrate how specific spaces might relate to each other within a program area. Space plates are included for each type of space in the various program areas.

**Key Points**

The information in this diagram is referred to as a *space plate*.

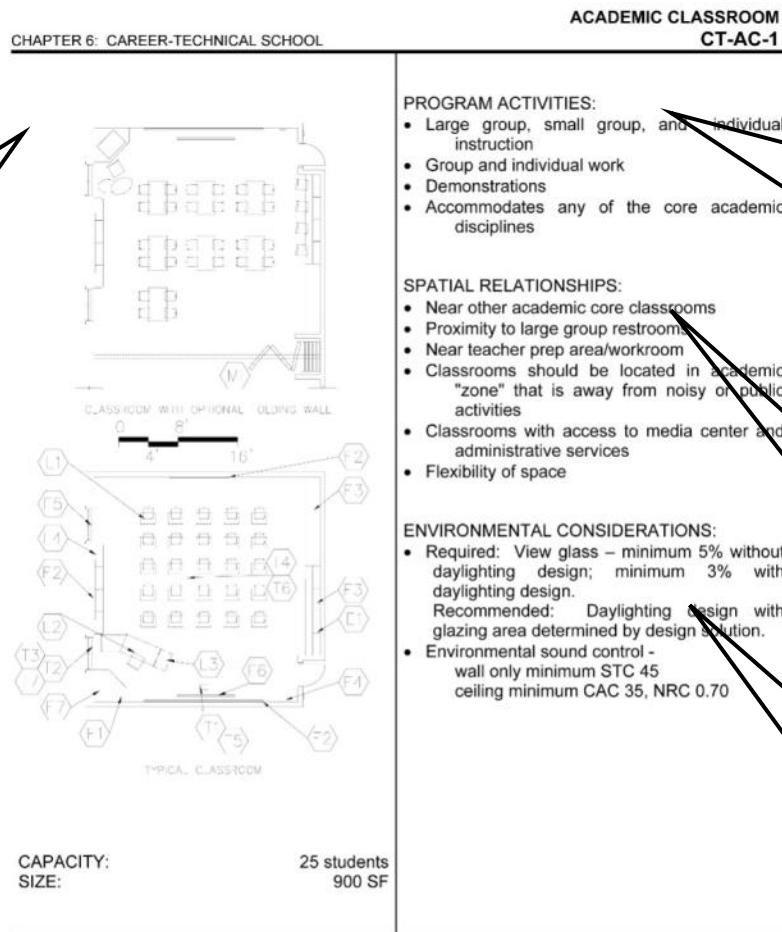
There is a space plate for each room in each program area and each program type.

Each room has a unique code that appears in the bracketing and on the space plate. In this case:  
CT=Career Tech  
AC=Academic  
Core  
1=Space Plate #1

Program activities indicate the type of activities that may occur in the space. These activities will vary from district to district depending on the educational program.

Relationships of a particular room to other spaces and activities have been identified to assist the A/E in the design of the facility.

Environmental considerations are items that may affect the educational program. They are the basis of some requirements of Finishes, Features, Plumbing, HVAC, Electrical, and Communications.

**NOTES:**

1. Loose furnishings shown represent one of many possible arrangements.
2. Depending upon the educational program of the district, a tall wardrobe may be placed in this classroom or could be placed in a teacher prep area/workroom.

## EXECUTIVE SUMMARY

CHAPTER 1: INTRODUCTION **OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION****Chapter 6: Career-Technical School****Key Points, continued**

This plate contains detailed information about the Career-Technical Academic Classroom.

Features identified on the space plates are required for the space. Features include: Fixed Items, Fire Suppression, Plumbing, HVAC, Electrical, Communications, and Electronic Safety & Security Systems.

Each room has a unique code that appears in the bracketing and on the space plate. In this case:  
CT=Career Tech  
AC=Academic Core  
1=Space Plate #1

**ACADEMIC CLASSROOM**  
**CT-AC-1**

<u>FINISHES<sup>1</sup>:</u>	Spec. Ref.#
Flooring:	
Carpet, carpet tile	096816
Optional: ET, sheet vinyl, linoleum, or rubber	096516 096500 096813
Base:	
Resilient base	096500
Ceiling:	
Suspended, acoustical	095113
Walls:	
Painted concrete masonry units	042000/099100

<u>LOOSE FURNISHINGS:</u>	
L1 Student desks and chairs	
L2 Teacher desk or workstation/computer support and chair	
L3 File cabinet	
L4 9' of low bookcases (fixed or mobile) Wastebasket	

<u>Electronic Safety and Security:</u>	
Life safety devices per code	283111

<u>Miscellaneous:</u>	
Pencil sharpener (optional)	
M1 Operable partitions between classrooms are optional	102226
<b>Duplex receptacle with dedicated circuit for wireless devices</b>	

## CHAPTER 6: CAREER-TECHNICAL SCHOOL

<u>FEATURES<sup>1</sup>:</u>	Spec. Ref.#
<u>Fixed Items:</u>	
F1 Tall wardrobe with file drawers	123550
F2 20'-32' combination marker board, tack board and tackable wall surface	101100
F3 18'-24' combination base and wall cabinets	123550
F4 Pencil sharpener support (optional)	062000
F5 Windows with integral blinds	085113
F6 Projection screen (optional)	115213
F7 Technology support casework	123550

<u>Fire Suppression:</u>	
Fire suppression system	211000

Plumbing: N/A

<u>HVAC:</u>	
Supply/return air system	Div. 23
Independent temperature control	230923

<u>Electrical:</u>	
Fluorescent lighting:	265100
Illumination level: See Table 8600-5	
Multilevel switching	262726
4 duplex receptacles	262726
Double duplex receptacle adjacent to each data and video port	262726

<u>Communications:</u>	
T1 1 <b>projector</b> video port	271543
T2 1 voice port and phone	271513/273123
T3 1 data port near teacher workstation	271513
T4 <b>Wireless access point cable above ceiling</b>	271513
Clock	275313
Central sound system	275123
Sound reinforcement system	275127
T5 <b>Ultra-short throw interactive projector</b>	274119
T6 <b>Wireless access point (WAP) as determined by design – refer to Note 4</b>	272133
T7 <b>Classroom technology center videoport</b>	271543, 274116, 274119, 275127

NOTES:

1. Finishes/Features: Refer to Chapter 9 for specification references.
2. Technology components may be placed in a separate small cabinet, or integrated in the other casework in the room.
3. Where appropriate, some casework may be mobile to add flexibility and become part of the loose furnishings.
4. **Baseline includes WAP cable per classroom. WAP device quantity/placement per 272133 requirements.**



## EXECUTIVE SUMMARY

**OSDM ORGANIZATION**

## CHAPTER 1: INTRODUCTION

**Chapter 6: Career-Technical School**

Following is a Program Space Plate for an Electronics lab in a Career-Technical School.

CHAPTER 6: CAREER-TECHNICAL SCHOOL		R1 / 1503 ELECTRONICS R0 / 17.0370 AUTOMATION & ROBOTICS CT-P1-1	
<b>PROGRAM DESCRIPTION:</b>		<b>FEATURES<sup>1</sup>:</b>	Spec. Ref.#
<u>Electronics:</u> Classroom, laboratory, and practical learning experiences that includes both theory and practice. Students learn construction, maintenance, and repair of digital, analog, and microprocessor circuits in applications such as communications equipment, consumer equipment, and industrial equipment.		<u>Fixed Items:</u>	
<u>Automation &amp; Robotics:</u> Utilizing business and Industry, math, English, science and technology standards, introduces concepts in Automation and Robotics technologies: Computer Numerical Control (CNC), Data Acquisition and Analysis, Electrical/Electronic controls, Fluid Power, Robotics and Programmable Logic Controllers (PLC).		F1 24' of marker board, tack board, or tackable wall surface	101100
<b>Program Type:</b> 1		F2 Reserved	
<b>Size Requirements:</b> 1,800 SF Lab		F3 60' of base and wall cabinets	123550
<b>Lab Requirements:</b>		F4 Reserved	
<b>FINISHES:</b>		F5 Pencil sharpener support (optional)	062000
<u>Flooring:</u>		F6 Windows with integral blinds	085113
Carpet	096816	F7 Projection screen, 6'x8'	115213
Optional: ET, sheet vinyl, or linoleum	096500	<u>Fire Suppression:</u>	
	096516	Fire suppression system	211000
Base:		<u>Plumbing:</u>	
Resilient	096500	N/A	
Ceiling:		<u>HVAC:</u>	
Suspended acoustical	095113	Supply/return air system	Div. 23
Walls:		Independent temperature control	230923
Painted concrete masonry units	042000/ 099100	<u>Electrical:</u>	
<b>LOOSE FURNISHINGS:</b>		Fluorescent lighting, parabolic lenses:	265100
(12) Two-person work tables w/storage below		Illumination level: See Table 8600-5	
(24) Computer workstation furniture & chairs		Multilevel switching	262726
(1) Teacher station & chair		6 duplex receptacles	262726
Wastebasket		Double duplex receptacle adjacent to each data and video port	262726
<b>NOTES:</b>		<u>Communications:</u>	
1. Finishes/Features: Refer to Chapter 9 for specification references.		1 <b>projector</b> video port	271543
2. <b>Baseline includes WAP cable per classroom. WAP device quantity/placement per 272133 requirements.</b>		1 voice port and phone	271513/273123
		1 data port near teacher workstation	271513
		<b>Wireless access point cable above ceiling</b>	271513
		Clock	275313
		Central sound system	275123
		Sound reinforcement system	275127
		<b>Ultra-short throw interactive projector</b>	274119
		<b>Wireless access point (WAP) as determined by design – refer to Note 4</b>	272133
		<b>Classroom technology center videoport</b>	271543, 274116, 274119, 275127
		<u>Electronic Safety and Security:</u>	
		Life safety devices per code	283111
		<u>Miscellaneous:</u>	
		Pencil sharpener (optional)	
		<b>Duplex receptacle with dedicated circuit for wireless devices</b>	

**CHAPTER 1: INTRODUCTION OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION****Chapter 7: Sustainable Design**

High performance buildings are in the forefront of today's construction. This product is the result of sustainable design and is judged by the United States Green Building Council's LEED rating system. Initially, this chapter indicates suggestions and good practices in daylighting considerations with emphasis on energy conservation.

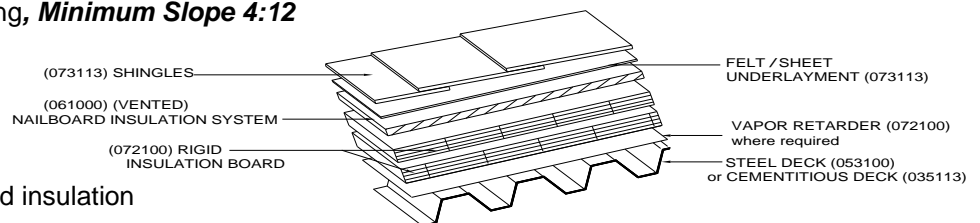
**Chapter 8: Systems and Materials**

Chapter 8 provides an overview and options of the various materials and systems that have been used to establish a design standard and level of quality for the systems and materials to be incorporated into new buildings. Systems and materials are described in the following categories

- Exterior walls
  - masonry cavity wall
  - veneer and metal framing
  - metal panel on concrete masonry wall
  - Plant pre-cast concrete insulated sandwich wall
  - Metal panel on metal framing
  - Exterior wall/roof closure
- Roofs
  - shingle roof & shingle roof system
  - metal roof with rigid insulation & metal roof with rigid insulation system
  - built-up roof
  - membrane roof
  - recommended roof ridge
  - exterior wall system
  - recommended wall-low roof
- Interior walls
- Structural
- Plumbing
- HVAC
  - central plant VAV system with hot water reheat terminals
  - central plant VAV system with fan powered reheat terminals
  - water-source heat pump system
- Technology
- Electrical

**EXAMPLE: Shingle Roof**

- Application - Steep Roofing, **Minimum Slope 4:12**
- Components
  1. Roof Membrane
    - Shingles
    - Underlayment
  2. Roof insulation
    - (Vented) nailboard insulation
    - Rigid insulation
  3. Vapor Retarder
    - Where required. Refer to Chapter 9.
  4. Structural Support
    - Steel deck or cementitious deck
  5. Air Barrier System Required
    - Self-adhering sheet or Closed-cell polyurethane insulation
- Performance
  1. Features
    - Impact Resistant, Moisture Resistant, Thermal Resistant



**EXECUTIVE SUMMARY****OSDM ORGANIZATION****CHAPTER 1: INTRODUCTION****Chapter 9: Specifications**

Chapter 9 identifies specifications, which are an element of construction documents, and defines the qualitative requirements for products, materials, and workmanship. This chapter is a guide for the Design Professional who will prepare detailed specifications for the project. The OSFC requires that the specifications for a project promote competition among manufacturers of materials, equipment, and furnishings incorporated into the project. At least three manufacturers should be listed for all materials and systems.

This chapter includes both performance (a statement of required results with criteria for verifying compliance, but without unnecessary limitations on the methods for achieving the required results) and reference (requirements set by authority, custom, or general consensus and are established as accepted criteria) standards.

The sections are organized into CSI's (Construction Specifications Institute) format:

- 9101 General Requirements
- 9102 Existing Conditions
- 9103 Concrete
- 9104 Masonry
- 9105 Metals
- 9106 Wood, Plastics, and Composites
- 9107 Thermal and Moisture Protection
- 9108 Openings
- 9109 Finishes
- 9110 Specialties
- 9111 Equipment
- 9112 Furnishings
- 9113 Special Construction
- 9114 Conveying Equipment
- 9121 Fire Suppression
- 9122 Plumbing
- 9123 Heating, Ventilating, and Air Conditioning
- 9126 Electrical
- 9127 Communications
- 9128 Electronic Safety and Security
- 9131 Earthwork
- 9132 Exterior Improvements
- 9133 Utilities

**Excerpt from Section 096816 Carpet Specification**

<b>FINISHES</b>		<b>CHAPTER 9: SPECIFICATIONS</b>
		<b>SECTION 096816 SHEET CARPETING</b>
<b>GENERAL GUIDELINES</b>		
1.1	SECTION INCLUDES	
A.	Qualitative requirements for carpet materials and accessories for a direct-glue down or pre-applied adhesive installation of one of the following:..	
1.	Tufted Broadloom	
2.	Variable Cushion Tufted Textile (VCTT)	
1.2	QUALITY ASSURANCE	
A.	Chemical Emission/Indoor Air Quality: All carpet specified must be in compliance with the Carpet and Rug Institute (CRI) "Green Label Plus" Indoor Air Quality Carpet Testing Program. The program label and registration number serve as evidence of compliance.	
1.3	PROJECT CONDITIONS	
A.	Concrete subfloors must meet the following requirements before carpet may be installed:	
1.	pH range of 5 to 9.	
2.	Moisture-emission rate of 3 lb/1000 sq.ft. per 24 hours or less.	
1.4	WARRANTY	
A.	Tufted Broadloom: 10 years (minimum)	
B.	Variable Cushion Tufted Textile: 15 years (minimum)	
1.5	CARPET	
A.	Carpet, Tufted Broadloom: Shall meet or exceed the following CRI guidelines:	
<b>SCHOOL CARPET MINIMUM AVERAGE SPECIFICATIONS</b>		
Carpet Property/Characteristic	Minimum Specifications	Test Method
Type/Yard	Solution or Yarn Dyed	--
Color	Multi-Colored Products (select colors complimentary to soil type/color in region)	--
Surface/Style	Level Loop, Multi-Level Loop, Textured Loop, or Cut & Loop	--
Static	3.5 kv (max – not to exceed)	AATCC-134 Step Method
Indoor Air Quality (IAQ)	CRI IAQ Certification "Green Label Plus"	CRI Test Program ASTM D-5116
In glue-down installation, include CRI IAQ Testing Program label for installation adhesives. Carpet over cushion, include CRI IAQ Testing Program label for carpet cushion.		
Flammability – Radiant Panel Test	Class I	ASTM E-648
NBS Smoke	<450 Flaming Mode	ASTM E-662
Tuft Bind (dry)	8 lbs, all products (16-20 lbs suggested for unitary backing)	ASTM D-1335
Delamination	Secondary backed products, 3.5 lbs	ASTM D-3936
Dimensional Stability	Removable modular products, 0.2% or less	ISO 2551
Colorfastness: light	4 or better (60 AFU 3 cycles)	AATCC 16-E
Colorfastness: ozone	4 or better after 2 cycles	AATCC 129
Colorfastness: crocking	4 or better (wet & dry)	AATCC 165
Colorfastness: water	4 or better, AATCC Transference Scale (only yarn dyed carpet) (grade change in color and staining)	AATCC 107
Soil Resistant Treatment	Minimum average of 350 ppm fluorine on pile fiber of 3 separate tests	CRI TM-102
B.	Carpet, Variable Cushion Tufted Textile (VCTT): Shall meet or exceed the following guidelines:	
<b>Ohio School Design Manual</b>		<b>096816 – Sheet Carpeting</b>
<b>Ohio School Facilities Commission</b>		<b>9109 - 28</b>
		<b>2012</b>

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**CHAPTER 1: INTRODUCTION OHIO SCHOOL DESIGN MANUAL (OSDM) ORGANIZATION**

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**Chapter 10: Miscellaneous**

Chapter 10 provides an overview explaining the importance of color in schools, including general recommendations regarding the use of color for various items and finishes; suggests loose furnishings and equipment for various spaces at each school level; and provides quality guidelines and furniture selection considerations. Additionally, this section contains information on the selection of Food Service Equipment.

For Elementary Schools Chapter 10 suggests warm base, background colors such as light salmon, beiges, soft yellows or peaches on the walls to produce a calming environment. Deeply saturated bright hues on architectural elements should be avoided, since the colors will create too much stimulation. Similar approaches are suggested for the upper grades. School colors can be integrated into the building color scheme in the athletic areas and possibly in the locker specifications. Color is also a very helpful tool in way finding, and this may be accomplished by identifying grade level or team areas with different colors.

Loose furnishings and equipment in the project are those items that are not attached to the building such as furniture, special subject equipment, appliances, trash receptacles, cleaning equipment, etc. The type of loose furnishings and equipment for a school should be selected to support the educational curriculum and the function of the spaces, but also provide flexibility for change and development in the future. The exact items and styles may vary from school to school.

**OHIO CONSTRUCTION REFORM**

On June 30, 2011, Governor Kasich signed House Bill 153, which included the first changes in the state's method of performing public construction in over 134 years. These changes collectively known as Ohio Construction Reform (OCR) will substantially alter how public improvement projects are completed and will allow for alternative construction delivery methods.

OCR retains the current multiple-prime design-bid-build project delivery method, but gives public owners a number of other project delivery options that could be:

- Faster
- Have less risk
- More flexible
- Lower cost

Now that OCR is in effect, state agencies, colleges/universities, counties, townships, municipal corporations, school districts, or other political subdivisions may use these various project delivery methods. Projects by the Ohio Turnpike or ODOT's road construction were not affected and will be completed using previous project delivery methods.

**Alternative Project Delivery Methods:**

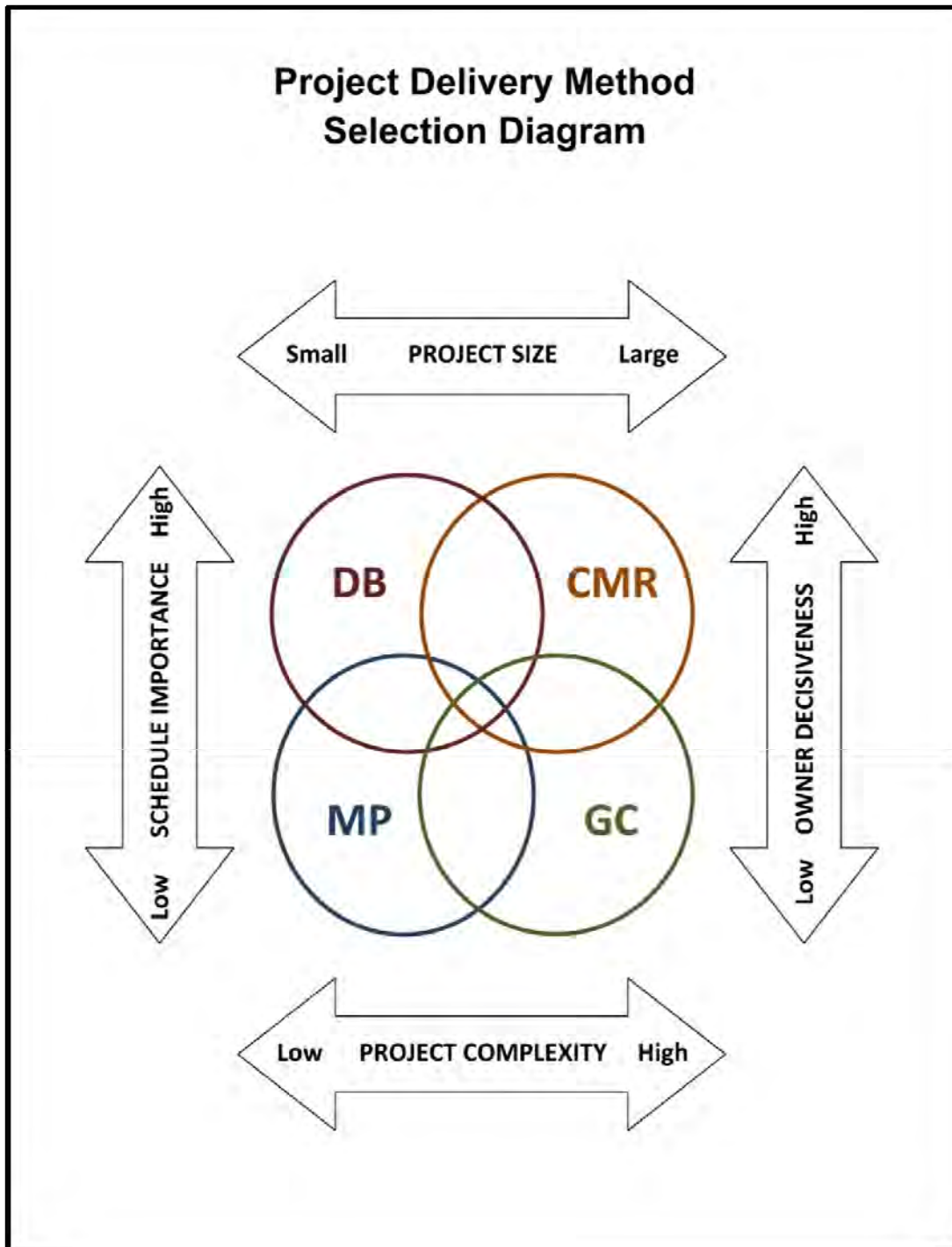
- Retains multi-prime design-bid-build project delivery
- Removes limitations on single-prime design-bid-build project delivery – General Contracting
- Allows design-build (D-B) project delivery – a single entity assumes risk for final design and construction of facility including cost overruns
- Retains construction manager (CM) as agent delivery – the CM acts as owner's agent
- Allows construction manager at risk delivery (CMR) – the CM holds subcontracts and assumes risk for cost overruns
- Allows for open-book Guaranteed Maximum Price, design-assist, and subcontractor prequalification within design-build and CM at risk delivery methods.

See next page for a Project Delivery Method Comparison Guide.

**EXECUTIVE SUMMARY**  
**OHIO CONSTRUCTION REFORM**

**CHAPTER 1: INTRODUCTION**

Project Delivery Method Comparison Guide			
	Description	Advantages	Disadvantages
MULTIPLE PRIME	Traditional approach in which the owner hires an A/E to fully document the project criteria and design prior to bidding. Multiple packages are separately bid and awarded to the lowest responsive and responsible prime contractors. The owner holds all prime contracts and is responsible for coordination during construction.	<ul style="list-style-type: none"> <li>Familiar delivery method</li> <li>Fully defined project scope</li> <li>Both designer and contractor accountable to owner</li> <li>Creates most prime bidding opportunities (lowest bonding)</li> <li>Lowest initial price</li> <li>Good for simple projects that are not schedule-driven and not subject to change</li> </ul>	<ul style="list-style-type: none"> <li>Linear process means longer schedule</li> <li>Limited control over contractor and subcontractor selection</li> <li>No design or cost input from contractor</li> <li>Lack of flexibility for change</li> <li>Can be adversarial in nature</li> <li>Not good for complex projects that are schedule-driven</li> </ul>
	CM as AGENT An owner's agent is hired through a qualifications based selection process during the design phase. The owner's criteria and full design is documented by a separate A/E. The CMA provides estimates during design, assists with bidding and coordinates prime contractors during construction. The owner bids and holds all contracts for construction.	<ul style="list-style-type: none"> <li>Fully defined project scope</li> <li>Supplements owner's staff</li> <li>Independent professional services &amp; expertise for owner</li> <li>Creates most prime bidding opportunities (lowest bonding)</li> </ul>	<ul style="list-style-type: none"> <li>Adds level of bureaucracy</li> <li>Limited control over contractor and subcontractor selection</li> <li>Owner still holds contracts for construction</li> <li>Not suited for small projects</li> <li>Drawbacks common to the design-bid-build process</li> </ul>
GENERAL CONTRACTING	A linear design-bid-build process in which the owner selects an A/E to fully document the project criteria and design prior to bidding. The lowest responsive and responsible GC (single prime) is awarded the contract. The owner holds a single contract with the GC.	<ul style="list-style-type: none"> <li>Familiar delivery method</li> <li>Fully defined project scope</li> <li>Both designer and contractor accountable to owner</li> <li>Simple procurement method</li> <li>Single contractor to manage</li> <li>Good for simple to moderately complex projects that are not schedule-driven</li> </ul>	<ul style="list-style-type: none"> <li>Sequential process means longer schedule</li> <li>Limited control over contractor and subcontractor selection</li> <li>No design or cost input from contractor</li> <li>Can be adversarial in nature</li> <li>Not good for complex projects that are schedule-driven</li> <li>Bonding requirements</li> </ul>
CM at RISK	A contractor is hired through a best value selection process during the design phase. The owner's criteria and full design is documented by a separate A/E. The CMR provides a guaranteed maximum price prior to bidding. The CMR bids to prequalified subcontractors and holds all subcontracts for construction.	<ul style="list-style-type: none"> <li>Contractor input on design</li> <li>Selection of contractor based on qualifications and price</li> <li>Open-book GMP</li> <li>Faster project delivery than traditional design-bid-build</li> <li>Provides flexibility to handle changes during design phase</li> <li>Good for large or complex schedule-driven projects</li> <li>More control selecting subs</li> </ul>	<ul style="list-style-type: none"> <li>Relationship changes during design to construction phase</li> <li>Increased contingency for assumption of risk</li> <li>Difficult to determine if best price has been achieved</li> <li>Bonding requirements</li> <li>Disputes if GMP scope not clear</li> </ul>
DESIGN-BUILD	A single entity is hired through a best value selection process to deliver a complete project. The owner's criteria and design intent is documented by a separate criteria architect. The design is completed by the DB entity and a guaranteed maximum price is provided prior to bidding. The DB entity bids to prequalified subcontractors and holds all subcontracts for construction.	<ul style="list-style-type: none"> <li>Single point of responsibility for design and construction</li> <li>Contractor selection based on qualifications and price</li> <li>Fastest project delivery</li> <li>Open-book GMP</li> <li>No changes orders for design errors and omissions</li> <li>Good for new construction that is time sensitive and not subject to change</li> <li>Good for less complex projects</li> <li>More control selecting sub's</li> </ul>	<ul style="list-style-type: none"> <li>Owner has less control over selecting designer</li> <li>Owner has less input in details</li> <li>Over emphasis on price may compromise quality</li> <li>Difficult to determine if best price has been achieved</li> <li>Owner required to make quick decisions</li> <li>Changes difficult &amp; expensive</li> <li>Bonding requirements</li> <li>Disputes if criteria not clear</li> </ul>



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**A. OBJECTIVE****New K-12 and Career Technical Buildings and Additions**

The objective of this section is to establish a baseline "cost per square foot per student" for new school buildings to be constructed under the funding mechanism administered by the Ohio School Facilities Commission. It is the intent of the "Design Manual" and the corresponding costs to establish a standard level of quality to be used by all Ohio schools. Under the classroom facilities assistance program and other applicable programs, the costs are to be used for new buildings as well as additions to existing buildings. The costs do not apply to renovation of existing structures.

**Renovations**

A separate document entitled "Assessment Cost Guidelines" addresses the costs of renovations, and is included herein. Since the approach for the renovations costing differs somewhat from the approach on the new school buildings and additions, all assumptions regarding the assessment cost guidelines are included within the Assessment Cost Guidelines document.

**B. CONSIDERATIONS**

There are dozens of variables that affect the cost of construction. They vary in degree, in the ability to be quantified, and the potential effect they may have on a project. An opinion of probable cost is just that—an opinion based on the best information known at the time of bidding. This report considers many variables that may affect construction and utilizes a baseline for purposes of establishing an initial starting point. Regional factors are then applied based on the area where the building is to be constructed within the state.

In addition to the considerations for K-12 facilities, the development of all inclusive construction square foot numbers for the Career-Technical school is a challenging exercise. These challenges include:

- **Limited** historical data on projects is available nationally.
- Each program space cost is different and there are over 80 programs.
- Some spaces are atypical, and include features such as high bays and thickened slabs.
- Few Career-Technical schools in Ohio have done any building recently, again limiting the availability of historical data.

Regardless of the challenges, much time and effort was put into developing realistic costs through various methods. The processes followed are outlined in detail herein.

**COST INFORMATION****CHAPTER 1: INTRODUCTION****C. NEW K-12 AND CAREER TECHNICAL APPROACH**

1. Modification Factors: Because the information is intended to be used to establish budgets throughout Ohio, it is important to establish cost modification factors for various State regions relative to ***the baseline region of Central Ohio***. The regions established correspond with the 9 regions identified in the 1990 Ohio Public School Facility Study. These modification factors were applied to both the K-12 and the Career Technical sections of the Design Manual.
2. Variables:
  - a. An opinion of probable cost developed by an estimating professional is "an opinion of cost." There are a number of factors and variables that can significantly affect these costs. Unfortunately, many of these issues are out of the control of the estimator, Ohio School Facilities Commission, Design Professional, and school district.
  - b. In an effort to establish a baseline cost for Central Ohio, the following factors were identified:
    - .1 Projects are to be bid approximately 15 to 18 months after bond issue passage.
    - .2 Projects are to be bid in the ***market conditions based on 100.00% Regional Factor***.
    - .3 Moderate bidding activity will be present during bidding.
    - .4 Projects may or may not include prevailing wage, as indicated by federal or Ohio law.
    - .5 All materials from the standards will be "middle of the road" as indicated in the Design Manual.
    - .6 Foundations will be standard spread footings.
    - .7 In most instances, buildings are priced as single story. However, allowances have been included in the two large high school projects for elevators. It is understood that some buildings in various locations may require additional stories. An analysis has shown reduced site needs and costs counterbalance any potential increased costs for multiple stories.
    - .8 The site size will be adequate for staging and material storage in most cases. Certain sites may be smaller and require specific security and laydown requirements. In these instances, it appears that reduced sitework costs will counterbalance the specific costs for these items.
    - .9 If the option is selected to use a construction manager with multi-prime bidding, the number of packages may vary by construction manager and could also be affected by market conditions, labor and material availability, project location, etc.
    - .10 Typical subsoil conditions.
    - .11 Excludes impact on contractor pricing due to private sector activity.

In addition to these factors and the variations that can occur, other variables can significantly affect the costs and should be considered when analyzing these costs.

- Availability of qualified contractors and tradesmen.
- Availability of materials. Lead times on materials in the current marketplace are significant, and can lead to higher costs.
- Anticipated weather conditions during construction.
- Final site selected and usability of the site.
- Project deadlines. A more aggressive schedule in a tight labor and material marketplace can lead to higher costs.
- Construction activity in the private sector market place.
- Efficiency of design. Redesign, engineering and structural details can significantly affect costs.
- Fluctuation in material prices and wages.
- The capacity of the Design firm selected.
- Exact locale (labor rates, major material costs).
- Market activity at project location and throughout the State (how busy is the market at any given moment.)
- Final selected materials for each project.
- Bidder competitiveness.
- Method of construction procurement.
- Final scope of work.
- Time of year / schedule of proposed construction.
- Mechanical and electrical systems to be utilized.
- Material price fluctuations: including steel, lumber, copper, brick, casework, HVAC materials, etc.
- Workers compensation and other insurance and tax rate modifications.
- Union strength / marketplace versus the non-prevailing wage rates.

The application of these variables to a particular cost/SF will be difficult. However, it is strongly urged that this be done to increase the accuracy of the project cost estimate.

### 3. Career Technical Approach

#### a. Component Estimate

Because the Career-Technical sections contain over 80 different programs, with significant differences among programs, including the construction materials and types required for the programs, the following approach was taken on developing budgets for these buildings.

#### b. Specific Program Areas

- .1 Each program instructional space was evaluated separately and estimated as its own single entity. **Support spaces** also followed the same procedure, **based on the cost of the corresponding lab.**
- .2 By doing this, a standard list of components was identified that are common to all programs. For instance, each space has concrete masonry unit walls, ceilings, etc.

**COST INFORMATION****CHAPTER 1: INTRODUCTION**

- .3 After the standard list of components for each program and associated space was estimated for cost, the items specific to an individual program were then budgeted. For instance, this could include items such as the “kennel” which is specific only to the Animal Science and Management program. Other examples of considerations applicable to specific programs included ceiling heights, additional HVAC or electrical requirements, etc.
- .4 Furnishings were estimated for each specific program, and are included in the basic building cost.
- .5 In addition, technology infrastructure was estimated for each specific program and is included in the basic building cost.
- .6 A construction contingency is included that is a percentage of site costs, basic building construction costs, furnishings and technology.
- .7 Non-construction costs are included as a percentage of the total of site, construction, furnishings, technology infrastructure and contingency.
- .8 The final program area opinion of probable costs indicated includes site, building, non-construction costs and all contingencies.
- c. Core Areas
  - .1 It was determined that the academic area costs will be the same as OSDM high school costs.
- d. General Comments specific to both Program Areas and Core Areas
  - .1 Non-construction costs are calculated the same for both areas.
  - .2 The narrative and components of the Career-Technical sections were thoroughly reviewed and taken into consideration when establishing the costs for each system. The system costs were established using past project data and history. Where design guidelines were not yet completely identified, “middle of the road” costs were incorporated.
  - .3 Although no typical floor plans were available to use in quantifying the systems, proven design **best practices** were incorporated. Some examples include: ratio of exterior wall space to floor area, ratio of interior wall space to floor area and ratio of glazing to exterior wall area. These ratios do vary from one design to the next, but they generally fall into a fairly tight range. These ratios generally prove to be reliable when they are coupled with the programming and design approach of the Guidelines Developer.
  - .4 A general specifications outline for items included and assumptions made per particular category of construction was also developed.

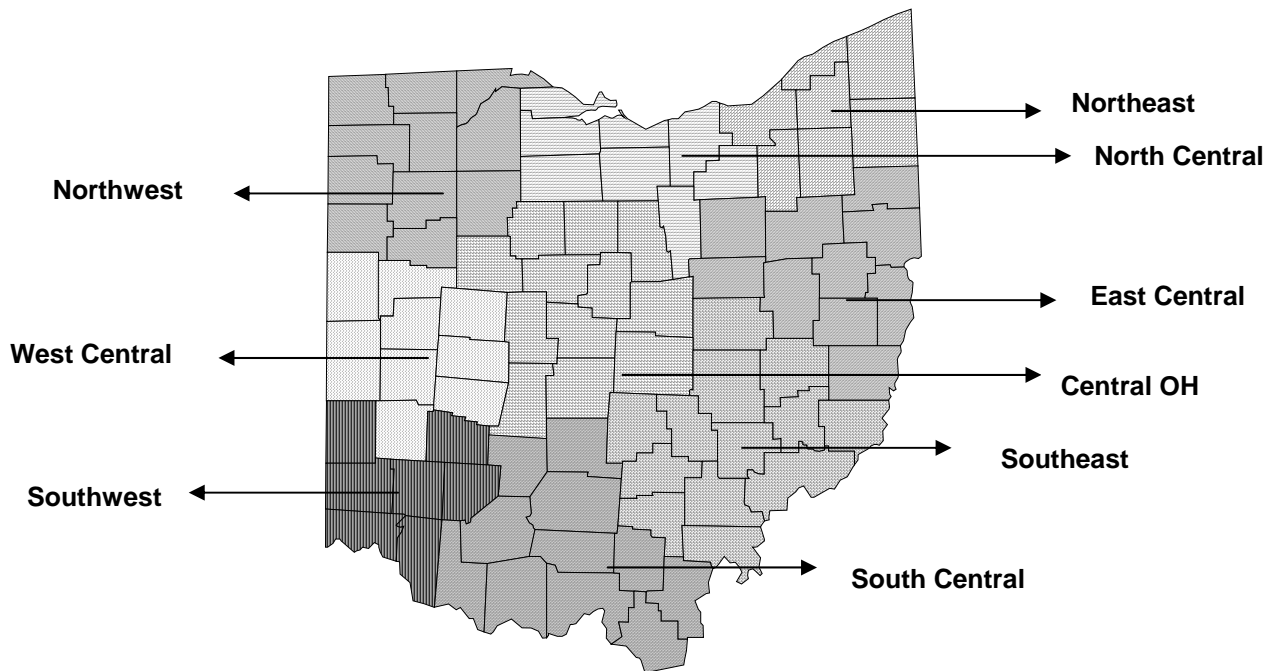
4. Other Considerations for both K-12 and Career Technical
  - a. Non-Construction Costs
    - .1 Non-Construction costs are included as part of the overall, all inclusive, square foot costs. Items included in non-construction costs are as follows:
      - Land Survey
      - **Soil Borings/Phase 1 Environmental Report**
      - Agency Approval Fees
      - Construction Testing
      - Printing - Bid Documents
      - Advertising For Bids
      - Builder's Risk Insurance
      - Design Professional Compensation
      - Construction Management Compensation
      - **Commissioning and Maintenance Plan Advisor**
      - Non-construction Contingency **including but not limited to:**
        - Partnering/Mediation Services
  - b. Square Foot Cost Inclusions
    - .1 Square foot costs presented on the matrix are all inclusive of all costs required to design and construct the building and include both construction and non-construction costs. The components of the “non-construction costs” are described above. The “construction costs” are described as follows and include the following major components:
      - Site Development Costs
      - Building Costs
      - Furnishings (including playgrounds for elementary)
      - Technology – see description below
      - Construction Contingency
  - c. Site Development Costs
    - .1 Site development costs are included in the square foot costs. A reasonable amount of cut and fill is assumed and overall site costs are based on the site described in the Design Manual. Many factors affect site work including cut/fill of soil, topography, location of adjacent utilities, tap-in fees, etc. Site costs do not include the cost to purchase land.
    - .2 The baseline square foot site development costs take into account standard tap fees and/or on-site water or wastewater treatment plants. However, since every site is unique, the overall allowed site costs should be used wisely by the professionals and the District, and care should be taken to select the most effective and efficient site that can be developed within the allowable cost.

**COST INFORMATION****CHAPTER 1: INTRODUCTION**

- d. Technology
  - .1 Technology costs include cable tray in academic areas, and voice, video, and data outlets. Also included is a fully digital telephone system with telephones in the classrooms and offices, and an integrated voice mail system. Additionally, there will be a video distribution system with projectors in the classrooms and access to cable systems and some additional media resources. There will also be a wireless computer network system with data locations throughout and electronics, patch panels, and patch cables as required.
- e. Security
  - .1 Within the total project cost budget, an allowance based on gross building area shall be set aside for exterior and interior building security systems and protection and utilized most effectively for the project conditions. Refer to Chapter 8, Section 8600.

**D. RESULTS**

The opinion of probable cost summary matrix for K-12 facilities and Career-Technical facilities and a diagram of the state showing the regions are included in this section.

**1-Southwest**

Butler  
Clermont  
Clinton  
Greene  
Hamilton  
Preble  
Warren

**2-West Central**

Auglaize  
Champaign  
Clark  
Darke  
Logan  
Mercer  
Miami  
Montgomery  
Shelby

**3-Northwest**

Allen  
Defiance  
Fulton  
Hancock  
Henry  
Lucas  
Paulding  
Putnam  
Van Wert  
Williams  
Wood

**4-North Central**

Ashland  
Huron  
Medina  
Sandusky  
Erie  
Lorain  
Ottawa  
Seneca  
Wayne

**5-South Central**

Adams  
Fayette  
Highland  
Lawrence  
Pike  
Scioto  
Brown  
Gallia  
Jackson  
Pickaway  
Ross

**6-Southeast**

Athens  
Fairfield  
Guernsey  
Hocking  
Meigs  
Monroe  
Morgan  
Muskingum  
Noble  
Perry  
Vinton  
Washington

**7-East Central**

Belmont  
Carroll  
Columbiana  
Coshocton  
Harrison  
Holmes  
Jefferson  
Mahoning  
Stark  
Tuscarawas

**8-Northeast**

Ashtabula  
Cuyahoga  
Geauga  
Lake  
Portage  
Summit  
Trumbull

**0-Central OH**

Crawford  
Delaware  
Franklin  
Hardin  
Knox  
Licking  
Madison  
Marion  
Morrow  
Richland  
Union  
Wyandot

## COST INFORMATION

## CHAPTER 1: INTRODUCTION

STATE OF OHIO SUMMARY OF NEW SCHOOL CONSTRUCTION "OPINION OF PROBABLE COSTS" PER SQUARE FOOT OF FLOOR AREA BASELINE; REGION 0 (CENTRAL OHIO) Revised March 21, 2014 for 2014 Design Manual Update													
Regions	REG. MODIF. FACTOR	ELEMENTARY SCHOOLS				MIDDLE SCHOOLS				HIGH SCHOOLS			
		350-400 Students 43,750 - 50,000 SF	401 - 600 Students 50,000 - 60,360 SF	601-865 Students 60,361 - 100,00 SF	866 Students and up 100,001 SF and up	350 - 450 Students 52,850 - 67,350 SF	451 - 650 Students 67,351 - 91,650 SF	651-709 Students 91,651-100,000 SF	710 Students and up 100,001 SF and up	350 - 488 Students 63,000 - 100,000 SF	489 - 600 Students 100,001 - 133,600 SF	601 - 1,200 Students 133,601 - 200,400 SF	1,201 Students and up 200,401 SF and up
0 - CENTRAL OH	100.00												
Site		\$21.97	\$19.86	\$19.18	\$18.62	\$22.36	\$20.86	\$20.85	\$20.26	\$21.23	\$20.62	\$23.29	\$22.00
Building		\$187.89	\$182.11	\$174.45	\$169.39	\$177.70	\$177.18	\$177.18	\$172.24	\$188.41	\$182.92	\$176.24	\$172.97
TOTAL		\$209.86	\$202.07	\$193.63	\$188.01	\$210.45	\$198.56	\$198.03	\$192.50	\$209.64	\$203.54	\$198.53	\$194.97
Non - Const. Costs		\$33.79	\$32.53	\$31.17	\$30.27	\$33.88	\$31.88	\$31.88	\$30.99	\$33.75	\$32.77	\$32.12	\$31.39
GRAND TOTAL		\$243.65	\$234.60	\$224.80	\$218.28	\$244.33	\$230.33	\$229.91	\$223.49	\$243.39	\$236.31	\$231.65	\$226.36
1 - SOUTH WEST	98.12												
Site		\$21.56	\$19.58	\$18.82	\$18.27	\$21.94	\$20.47	\$20.46	\$19.88	\$20.83	\$20.23	\$22.87	\$21.59
Building		\$184.36	\$176.69	\$171.16	\$166.20	\$184.54	\$174.36	\$173.85	\$169.01	\$184.88	\$173.48	\$172.93	\$168.72
TOTAL		\$205.92	\$196.27	\$189.98	\$184.47	\$206.48	\$194.83	\$194.31	\$188.89	\$205.71	\$196.71	\$195.80	\$191.31
Non - Const. Costs		\$33.15	\$31.92	\$30.98	\$30.70	\$33.24	\$31.37	\$31.28	\$30.41	\$33.12	\$32.15	\$31.52	\$30.80
GRAND TOTAL		\$239.07	\$228.19	\$220.96	\$215.17	\$239.72	\$226.20	\$225.59	\$219.30	\$238.83	\$228.86	\$227.32	\$222.11
2 - WEST CENTRAL	100.12												
Site		\$22.00	\$19.88	\$19.21	\$18.65	\$22.39	\$20.89	\$20.88	\$20.28	\$21.26	\$20.66	\$23.32	\$22.03
Building		\$188.12	\$182.33	\$174.66	\$169.59	\$177.91	\$177.91	\$177.39	\$172.45	\$188.65	\$173.14	\$176.45	\$173.18
TOTAL		\$210.12	\$202.31	\$193.87	\$188.24	\$201.69	\$198.80	\$198.27	\$192.73	\$209.91	\$203.80	\$199.77	\$195.21
Non - Const. Costs		\$33.83	\$32.57	\$31.21	\$30.31	\$33.92	\$32.01	\$31.92	\$31.03	\$33.79	\$32.81	\$32.16	\$31.43
GRAND TOTAL		\$243.95	\$234.88	\$225.08	\$218.55	\$244.61	\$230.81	\$230.19	\$223.76	\$243.70	\$236.61	\$238.93	\$226.64
3 - NORTHWEST	103.49												
Site		\$22.74	\$20.65	\$19.84	\$19.27	\$23.14	\$21.58	\$21.58	\$20.96	\$21.97	\$21.34	\$24.12	\$22.77
Building		\$194.45	\$188.48	\$180.54	\$175.30	\$194.65	\$183.90	\$183.35	\$178.25	\$194.99	\$180.31	\$182.39	\$179.01
TOTAL		\$217.19	\$209.13	\$200.38	\$194.57	\$217.79	\$205.48	\$204.93	\$199.21	\$216.96	\$201.65	\$206.51	\$201.76
Non - Const. Costs		\$34.97	\$33.67	\$32.26	\$31.33	\$35.06	\$33.09	\$32.99	\$32.07	\$34.93	\$33.91	\$33.24	\$32.49
GRAND TOTAL		\$252.16	\$242.80	\$232.64	\$225.90	\$252.85	\$238.57	\$237.92	\$231.28	\$251.89	\$244.56	\$238.75	\$234.27
4 - NORTH CENTRAL	102.44												
Site		\$22.50	\$20.44	\$19.64	\$19.08	\$22.91	\$21.37	\$21.37	\$20.75	\$21.75	\$21.13	\$23.86	\$22.54
Building		\$192.47	\$186.55	\$178.71	\$173.51	\$192.68	\$182.15	\$181.49	\$176.45	\$193.01	\$181.38	\$180.54	\$177.19
TOTAL		\$214.97	\$206.99	\$198.35	\$192.59	\$215.59	\$203.42	\$202.86	\$197.20	\$214.76	\$208.51	\$204.40	\$198.73
Non - Const. Costs		\$34.61	\$33.32	\$31.83	\$31.01	\$34.71	\$32.75	\$32.66	\$31.75	\$34.57	\$33.57	\$32.90	\$32.16
GRAND TOTAL		\$249.58	\$240.31	\$230.28	\$223.60	\$250.30	\$236.17	\$235.52	\$228.95	\$249.33	\$242.08	\$237.30	\$231.89
5 - SOUTH CENTRAL	100.31												
Site		\$22.03	\$20.02	\$19.24	\$18.68	\$22.43	\$20.93	\$20.92	\$20.32	\$21.30	\$20.69	\$23.37	\$22.08
Building		\$168.47	\$162.06	\$154.99	\$149.91	\$168.67	\$158.25	\$157.73	\$152.17	\$168.99	\$153.50	\$176.79	\$173.52
TOTAL		\$210.50	\$202.70	\$194.23	\$188.59	\$211.10	\$199.18	\$198.65	\$193.09	\$210.29	\$204.19	\$200.16	\$195.60
Non - Const. Costs		\$33.89	\$32.63	\$31.27	\$30.36	\$33.99	\$32.07	\$31.98	\$31.09	\$33.85	\$32.87	\$32.22	\$31.49
GRAND TOTAL		\$244.39	\$235.33	\$225.50	\$218.95	\$245.09	\$231.25	\$230.63	\$224.18	\$244.14	\$237.06	\$232.38	\$227.09
6 - SOUTHEAST	102.16												
Site		\$22.44	\$20.39	\$19.60	\$19.03	\$22.84	\$21.31	\$21.30	\$20.69	\$21.69	\$21.07	\$23.80	\$22.48
Building		\$191.95	\$186.06	\$178.22	\$173.04	\$192.15	\$181.54	\$181.00	\$175.97	\$192.48	\$186.87	\$180.05	\$176.71
TOTAL		\$214.39	\$206.44	\$197.82	\$192.07	\$214.99	\$202.85	\$202.30	\$196.66	\$214.17	\$207.94	\$203.85	\$198.19
Non - Const. Costs		\$34.52	\$33.23	\$31.84	\$30.92	\$34.61	\$32.66	\$32.57	\$31.66	\$34.48	\$33.48	\$32.81	\$32.07
GRAND TOTAL		\$248.91	\$239.67	\$229.66	\$222.99	\$249.60	\$235.51	\$234.87	\$228.32	\$248.65	\$241.42	\$236.66	\$231.26
7 - EAST CENTRAL	100.85												
Site		\$22.16	\$20.13	\$19.35	\$18.78	\$22.55	\$21.04	\$21.03	\$20.43	\$21.41	\$20.80	\$23.50	\$22.19
Building		\$169.49	\$163.66	\$155.93	\$150.83	\$179.21	\$168.69	\$178.69	\$173.70	\$190.01	\$184.47	\$177.74	\$174.44
TOTAL		\$211.65	\$203.79	\$195.28	\$189.61	\$212.24	\$200.25	\$199.72	\$194.13	\$211.42	\$205.27	\$201.24	\$196.63
Non - Const. Costs		\$34.08	\$32.81	\$31.43	\$30.53	\$34.17	\$32.24	\$32.15	\$31.25	\$34.04	\$33.05	\$32.39	\$31.66
GRAND TOTAL		\$245.73	\$236.60	\$226.71	\$220.14	\$246.41	\$232.49	\$231.87	\$225.38	\$245.46	\$238.32	\$233.63	\$228.29
8 - NORTHEAST	103.76												
Site		\$22.79	\$20.71	\$19.90	\$19.32	\$23.20	\$21.65	\$21.64	\$21.02	\$22.03	\$21.41	\$24.18	\$22.83
Building		\$179.95	\$174.95	\$168.96	\$163.75	\$195.16	\$184.38	\$183.84	\$178.73	\$195.49	\$189.80	\$182.87	\$179.47
TOTAL		\$217.74	\$209.67	\$200.91	\$195.07	\$218.36	\$206.03	\$206.48	\$199.75	\$217.52	\$211.21	\$207.05	\$202.30
Non - Const. Costs		\$35.06	\$33.75	\$32.34	\$31.41	\$35.15	\$33.17	\$33.08	\$32.16	\$35.02	\$34.00	\$33.33	\$32.57
GRAND TOTAL		\$252.80	\$243.42	\$233.25	\$226.48	\$253.51	\$239.20	\$239.56	\$231.91	\$252.54	\$245.21	\$240.38	\$234.87



### EXPLANATION OF K – 12 CHART OPINION OF PROBABLE COST

Regions	REGIONAL MODIFICATION FACTOR	ELEMENTARY SCHOOLS			TYPE OF SCHOOL FACILITY
		350-400 Students 43,750 - 50,000 SF	401-600 Students 50,001 - 69,360 SF	601 Students and up 69,361 SF and up	
<b>0- CENTRAL OH</b>	99.30				
Site		\$21.39	\$19.43	\$18.68	
Building		\$182.92	\$177.29	\$169.82	
<b>TOTAL</b>		\$204.31	\$196.72	\$188.50	
Non-Const. Costs		\$32.90	\$31.67	\$30.35	
<b>GRAND TOTAL</b>		\$237.21	\$228.39	\$218.85	
<b>1- SOUTH WEST</b>	98.14				
Site		\$21.14	\$19.20	\$18.46	
Building		\$180.78	\$175.22	\$167.84	
<b>TOTAL</b>		\$201.92	\$194.42	\$186.30	
Non-Const. Costs		\$32.51	\$31.30	\$29.99	
<b>GRAND TOTAL</b>		\$234.43	\$225.72	\$216.29	

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**OPINION OF PROBABLE CONSTRUCTION COSTS****Construction Costs**

Site Cost	See Chart
Building Cost	See Chart
Building cost to include loose furnishings, technology, and security systems.	
Division of project budgets for these areas is to be determined by project team.	
Construction Contingency	(new) 5.0%
	(renovation) 7.0%

<u>Non-Construction Costs (% of Site/Building Cost)</u>	<u>NEW</u>	<u>RENOV</u>
Land Survey .....	0.08%	0.03%
Soils/Environmental Report .....	0.07%	0.10%
Agency Approval Fees .....	0.30%	0.25%
Construction Testing .....	<b>0.87%</b>	<b>0.40%</b>
Printing – Bid Documents .....	<b>0.19%</b>	<b>0.15%</b>
Advertising for Bids .....	0.02%	<b>0.02%</b>
Builder's Risk Insurance .....	0.28%	<b>0.12%</b>
<b>Commissioning and Maintenance Plan Advisor .....</b>	<b>0.40%</b>	<b>0.60%</b>
Non-Construction Contingency .....	1.39%	<b>1.12%</b>

Design Professional Fee\*

Construction Management Fee\*

Note: A factor for inflation is intended to address the cost of inflation for the duration of the project.

\* The Non-Construction Costs includes a budget of 6.5% for new and 7.5% for renovations for the Design Professional Fee, and 6.0% for the Construction Management Fee.

**COST INFORMATION****CHAPTER 1: INTRODUCTION**

OHIO SCHOOL FACILITIES COMMISSION  
CAREER-TECHNICAL  
OPINION OF PROBABLE COSTS FOR  
CORE AND PROGRAM AREAS FOR NEW SCHOOL/ADDITION CONSTRUCTION

“OVERALL PROJECT COST SUMMARY SHEET”

BASELINE IS REGION 0 (CENTRAL OHIO)

**Updated: 2013**

### Summary of Core Area and Program Costs

#### Core Spaces

Total SF of all Core Spaces

Total SF	\$/SF	Total
0	\$0.00	\$0.00

This figure is calculated from the bracketing sheets for the Core and is the total Core SF.

This figure is taken from the “Core SF Cost Summary Sheet” for the particular size school.

This figure is calculated by using the total SF for each specific Program from the Program bracketing sheets.

This figure is calculated by using the total cost of all Program Types from the Program bracketing sheets and dividing by the total square feet.

#### Program Spaces

Total SF of all Program Spaces

0	\$0.00	\$0.00
---	--------	--------

Subtotal

\$0.00

Regional Factor

(insert from Regional Factor List)

1.0000

Factor is taken from Regional Factor sheet. Subtotal is multiplied by Regional Factor.

**Total Funded Amount**

\$0.00

This amount is total funded amount and is a total of Core Program space funding.

Total Cost Per Square Foot

\$0.00

## OHIO SCHOOL FACILITIES COMMISSION

CAREER TECHNICAL  
OPINION OF PROBABLE COSTS FOR  
NEW SCHOOL/ADDITION CONSTRUCTION

## "REGIONAL FACTORS"

BASELINE IS REGION 0 (Central Ohio)

**Updated: 2013**

<u>Region</u>	<u>Approximate Location</u>	<u>2013 Final Regional Factor</u>
0	Central OH	<b>0.9930</b>
1	South West	<b>0.9814</b>
2	West Central	<b>1.0013</b>
3	North West	<b>1.0459</b>
4	North Central	<b>1.0087</b>
5	South Central	<b>1.0005</b>
6	South East	<b>1.0192</b>
7	East Central	<b>1.0139</b>
8	North East	<b>1.0479</b>

**Note:** The above Regional Factors are to be used on the "Overall Project Cost Summary " Sheet when calculating total funding for a particular Career-Technical District.

**COST INFORMATION****CHAPTER 1: INTRODUCTION****Program Type 1**

<b>OHIO SCHOOL FACILITIES COMMISSION</b> <b>CAREER-TECHNICAL SUPPLEMENT</b> <b>2014 OSDM Update - Career Tech</b> <b>Revised 3/21/2014</b>											
SUBJECT CODE	PROGRAM CODE	PROGRAM TYPE 1	QTY	PROG SF	2014 Site Cost (\$/SF)	2014 Basic Building Cost (\$/SF) (incl. Furn. and Tech.)	Contingency (\$/SF based on 5% of + BBC)	Total Construction Cost (incl. site, bldg., contingency.)	Total Non-Const. Costs (\$/SF based on 16.1% of Site +BBC + Cont.)	2014 Update Total Line Item Component Cost(\$/SF)	% Change From 2013 to 2014
14.0100	G0	<b>Accounting</b>									
		Lab	1	1,200	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
		Related Office	1	120	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
		Related Storage	1	200	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
14.0300	C0	<b>Administrative and Professional Support</b>									
14.0310	C2	<b>Legal Management and Support</b>									
		Lab	1	1,200	\$ 21.89	\$ 169.94	\$ 9.59	\$ 201.42	\$ 32.43	\$ 233.85	2.00%
		Related Office	1	120	\$ 21.89	\$ 169.94	\$ 9.59	\$ 201.42	\$ 32.43	\$ 233.85	2.00%
		Related Storage	1	200	\$ 21.89	\$ 169.94	\$ 9.59	\$ 201.42	\$ 32.43	\$ 233.85	2.00%
14.0320	C3	<b>Medical Management and Support</b>									
		Lab	1	1,200	\$ 21.89	\$ 169.94	\$ 9.59	\$ 201.42	\$ 32.43	\$ 233.85	2.00%
		Related Office	1	120	\$ 21.89	\$ 169.94	\$ 9.59	\$ 201.42	\$ 32.43	\$ 233.85	2.00%
		Related Storage	1	200	\$ 21.89	\$ 169.94	\$ 9.59	\$ 201.42	\$ 32.43	\$ 233.85	2.00%
17.0400	T4	<b>Aviation Occupations</b>									
		Lab	1	1,200	\$ 21.89	\$ 204.48	\$ 11.32	\$ 237.69	\$ 38.27	\$ 275.96	2.00%
		Related Office	1	120	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
		Related Storage	1	200	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
14.0800	C1	<b>Business Management</b>									
		Lab	1	1,200	\$ 21.89	\$ 194.28	\$ 10.81	\$ 226.98	\$ 36.54	\$ 263.52	2.00%
		Related Office	1	120	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
		Related Storage	1	200	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
14.0210	N0	<b>Information Support &amp; Services</b>									
14.0230	N3	<b>Programming &amp; Software Development</b>									
14.0240	N1	<b>Interactive Media</b>									
14.0220	N2	<b>Network Systems</b>									
34.0005	B2	<b>Visual Design and Imaging</b>									
		Lab	1	1,200	\$ 21.89	\$ 170.79	\$ 9.63	\$ 202.31	\$ 32.57	\$ 234.89	2.00%
		Related Office	1	120	\$ 21.89	\$ 170.79	\$ 9.63	\$ 202.31	\$ 32.57	\$ 234.89	2.00%
		Related Storage	1	200	\$ 21.89	\$ 170.79	\$ 9.63	\$ 202.31	\$ 32.57	\$ 234.89	2.00%
17.1503	R1	<b>Electronics</b>									
17.0370	R0	<b>Automation &amp; Robotics</b>									
		Lab	1	1,800	\$ 21.89	\$ 158.74	\$ 9.03	\$ 189.66	\$ 30.54	\$ 220.20	2.00%
		Related Office	1	120	\$ 21.89	\$ 158.74	\$ 9.03	\$ 189.66	\$ 30.54	\$ 220.20	2.00%
		Related Storage	1	200	\$ 21.89	\$ 158.74	\$ 9.03	\$ 189.66	\$ 30.54	\$ 220.20	2.00%
14.0110	G1	<b>Financial Services</b>									
		Lab	1	1,200	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
		Related Office	1	120	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
		Related Storage	1	200	\$ 21.89	\$ 173.34	\$ 9.76	\$ 204.99	\$ 33.00	\$ 238.00	2.00%
17.1504	F5	<b>Telecommunications</b>									
		Lab	1	1,200	\$ 21.89	\$ 169.94	\$ 9.59	\$ 201.42	\$ 32.43	\$ 233.85	2.00%
		Related Office	1	120	\$ 21.89	\$ 169.94	\$ 9.59	\$ 201.42	\$ 32.43	\$ 233.85	2.00%
		Related Storage	1	200	\$ 21.89	\$ 169.94	\$ 9.59	\$ 201.42	\$ 32.43	\$ 233.85	2.00%
33.0020	L2	<b>Travel and Tourism</b>									
		Lab	1	1,200	\$ 21.89	\$ 172.57	\$ 9.72	\$ 204.18	\$ 32.87	\$ 237.06	2.00%
		Related Office	1	120	\$ 21.89	\$ 172.57	\$ 9.72	\$ 204.18	\$ 32.87	\$ 237.06	2.00%
		Related Storage	1	200	\$ 21.89	\$ 172.57	\$ 9.72	\$ 204.18	\$ 32.87	\$ 237.06	2.00%

## CHAPTER 1: INTRODUCTION

## COST INFORMATION

## Program Type 2

<b>OHIO SCHOOL FACILITIES COMMISSION</b> <b>CAREER-TECHNICAL SUPPLEMENT</b> <b>2014 OSDM Update - Career Tech</b> <b>Revised 3/21/2014</b>											
SUBJECT CODE	PROGRAM CODE	PROGRAM TYPE 2	QTY	PROG SF	2014 Site Cost (\$/SF)	2014 Basic Building Cost (\$/SF) (incl. Furn. and Tech.)	Contingency (\$/SF based on 5% of + BBC)	Total Construction Cost (incl. site, bldg., contingency.)	Total Non-Const. Costs (\$/SF based on 16.1% of Site + BBC + Cont.)	2014 Update Total Line Item Component Cost(\$/SF)	% Change From 2013 to 2014
07.0913 07.4890	J9 J7	<b>Health Unit Coordinator</b> <b>Health Information Management</b> Lab	1	1,500	\$ 21.89	\$ 153.52	\$ 8.77	\$ 184.18	\$ 29.65	\$ 213.84	2.00%
		Related Office	1	120	\$ 21.89	\$ 153.52	\$ 8.77	\$ 184.18	\$ 29.65	\$ 213.84	2.00%
		Related Storage	1	200	\$ 21.89	\$ 153.52	\$ 8.77	\$ 184.18	\$ 29.65	\$ 213.84	2.00%
		Related Changing Room	1	490	\$ 21.89	\$ 153.52	\$ 8.77	\$ 184.18	\$ 29.65	\$ 213.84	2.00%
07.0307 07.0906	JA J2	<b>Home Health</b> <b>Community Health Aide</b> Lab	1	1,500	\$ 21.89	\$ 157.93	\$ 8.99	\$ 188.82	\$ 30.40	\$ 219.22	2.00%
		Related Office	1	120	\$ 21.89	\$ 157.93	\$ 8.99	\$ 188.82	\$ 30.40	\$ 219.22	2.00%
		Related Storage	1	200	\$ 21.89	\$ 157.93	\$ 8.99	\$ 188.82	\$ 30.40	\$ 219.22	2.00%
		Related Changing Room	1	490	\$ 21.89	\$ 157.93	\$ 8.99	\$ 188.82	\$ 30.40	\$ 219.22	2.00%
07.0103	J4	<b>Dental Laboratory Technology</b> Lab	1	1,500	\$ 21.89	\$ 190.98	\$ 10.64	\$ 223.52	\$ 35.99	\$ 259.50	2.00%
		Related Office	1	120	\$ 21.89	\$ 190.98	\$ 10.64	\$ 223.52	\$ 35.99	\$ 259.50	2.00%
		Related Storage	1	200	\$ 21.89	\$ 190.98	\$ 10.64	\$ 223.52	\$ 35.99	\$ 259.50	2.00%
		Related Changing Room	1	490	\$ 21.89	\$ 190.98	\$ 10.64	\$ 223.52	\$ 35.99	\$ 259.50	2.00%
17.2811	P3	<b>Emergency Medical Technician - Secondary</b> Lab	1	1,500	\$ 21.89	\$ 162.35	\$ 9.21	\$ 193.46	\$ 31.15	\$ 224.60	2.00%
		Related Office	1	120	\$ 21.89	\$ 162.35	\$ 9.21	\$ 193.46	\$ 31.15	\$ 224.60	2.00%
		Related Storage	1	200	\$ 21.89	\$ 162.35	\$ 9.21	\$ 193.46	\$ 31.15	\$ 224.60	2.00%
		Related Changing Room	1	490	\$ 21.89	\$ 162.35	\$ 9.21	\$ 193.46	\$ 31.15	\$ 224.60	2.00%
07.0410	J6	<b>Exercise Science and Sports Medicine</b> Lab	1	1,500	\$ 21.89	\$ 160.19	\$ 9.10	\$ 191.19	\$ 30.78	\$ 221.97	2.00%
		Related Office	1	120	\$ 21.89	\$ 160.19	\$ 9.10	\$ 191.19	\$ 30.78	\$ 221.97	2.00%
		Related Storage	1	200	\$ 21.89	\$ 160.19	\$ 9.10	\$ 191.19	\$ 30.78	\$ 221.97	2.00%
		Related Changing Room	1	490	\$ 21.89	\$ 160.19	\$ 9.10	\$ 191.19	\$ 30.78	\$ 221.97	2.00%
07.0203 17.2815 01.2000	JC P2 A3	<b>Medical Laboratory Technology</b> <b>Criminal Science Technology</b> <b>Biotechnology for Food, Plant &amp; Animal Sciences</b> Lab	1	1,500	\$ 21.89	\$ 187.76	\$ 10.48	\$ 220.14	\$ 35.44	\$ 255.58	2.00%
		Related Office	1	120	\$ 21.89	\$ 187.76	\$ 10.48	\$ 220.14	\$ 35.44	\$ 255.58	2.00%
		Related Storage	1	200	\$ 21.89	\$ 187.76	\$ 10.48	\$ 220.14	\$ 35.44	\$ 255.58	2.00%
		Related Changing Room	1	490	\$ 21.89	\$ 187.76	\$ 10.48	\$ 220.14	\$ 35.44	\$ 255.58	2.00%
07.4850 07.0912 17.1600	J0 F0 F2 F6 JG F1	<b>Medical Bioscience</b> <b>Biomedical Science</b> <b>Engineering Science</b> <b>Engineering and Design</b> <b>Pharmacy Technician</b> <b>Energy Science</b> Lab	1	1,500	\$ 21.89	\$ 193.72	\$ 10.78	\$ 226.40	\$ 36.45	\$ 262.85	2.00%
		Related Office	1	120	\$ 21.89	\$ 193.72	\$ 10.78	\$ 226.40	\$ 36.45	\$ 262.85	2.00%
		Related Storage	1	200	\$ 21.89	\$ 193.72	\$ 10.78	\$ 226.40	\$ 36.45	\$ 262.85	2.00%
		Related Changing Room	1	490	\$ 21.89	\$ 193.72	\$ 10.78	\$ 226.40	\$ 36.45	\$ 262.85	2.00%
07.0302	JJ JM	<b>Practical Nursing</b> <b>Allied Health and Nursing</b> Lab (includes optional restroom)	1	1,500	\$ 21.89	\$ 161.90	\$ 9.19	\$ 192.99	\$ 31.07	\$ 224.06	2.00%
		Related Office	1	120	\$ 21.89	\$ 161.90	\$ 9.19	\$ 192.99	\$ 31.07	\$ 224.06	2.00%
		Related Storage	1	200	\$ 21.89	\$ 161.90	\$ 9.19	\$ 192.99	\$ 31.07	\$ 224.06	2.00%
		Related Changing Room	1	490	\$ 21.89	\$ 161.90	\$ 9.19	\$ 192.99	\$ 31.07	\$ 224.06	2.00%
07.4840 07.4830	J8 JL	<b>Health Support Pathway</b> <b>Therapeutic Pathway</b> Lab	1	1,500	\$ 21.89	\$ 157.93	\$ 8.99	\$ 188.82	\$ 30.40	\$ 219.22	2.00%
		Related Office	1	120	\$ 21.89	\$ 157.93	\$ 8.99	\$ 188.82	\$ 30.40	\$ 219.22	2.00%
		Related Storage	1	200	\$ 21.89	\$ 157.93	\$ 8.99	\$ 188.82	\$ 30.40	\$ 219.22	2.00%
		Related Changing Room	1	490	\$ 21.89	\$ 157.93	\$ 8.99	\$ 188.82	\$ 30.40	\$ 219.22	2.00%

**COST INFORMATION****CHAPTER 1: INTRODUCTION****Program Type 3**

<b>OHIO SCHOOL FACILITIES COMMISSION</b> <b>CAREER-TECHNICAL SUPPLEMENT</b> <b>2014 OSDM Update - Career Tech</b> <b>Revised 3/21/2014</b>											
<b>SUBJECT CODE</b>	<b>PROGRAM CODE</b>	<b>PROGRAM TYPE 3</b>	<b>QTY</b>	<b>PROG SF</b>	<b>2014 Site Cost (\$/SF)</b>	<b>2014 Basic Building Cost (\$/SF) (incl. Furn. and Tech.)</b>	<b>Contingency (\$/SF based on 5% of + BBC)</b>	<b>Total Construction Cost (incl. site, bldg., contingency.)</b>	<b>Total Non-Const. Costs (\$/SF based on 16.1% of Site +BBC + Cont.)</b>	<b>2014 Update Total Line Item Component Cost(\$/SF)</b>	<b>% Change From 2013 to 2014</b>
17.0403	T5	<b>Ground Operations</b>									
		Lab	1	1,500	\$ 21.89	\$ 152.05	\$ 8.70	\$ 182.64	\$ 29.41	\$ 212.05	2.00%
		Related Office	1	120	\$ 21.89	\$ 152.05	\$ 8.70	\$ 182.64	\$ 29.41	\$ 212.05	2.00%
		Related Storage	1	200	\$ 21.89	\$ 152.05	\$ 8.70	\$ 182.64	\$ 29.41	\$ 212.05	2.00%
		Reference Room	1	150	\$ 21.89	\$ 152.05	\$ 8.70	\$ 182.64	\$ 29.41	\$ 212.05	2.00%
33.0010	L1	<b>Lodging</b>									
		Lab (includes optional restroom & laundry)	1	1,500	\$ 21.89	\$ 165.12	\$ 9.35	\$ 196.36	\$ 31.61	\$ 227.97	2.00%
		Related Office	1	120	\$ 21.89	\$ 165.12	\$ 9.35	\$ 196.36	\$ 31.61	\$ 227.97	2.00%
		Related Storage	1	200	\$ 21.89	\$ 165.12	\$ 9.35	\$ 196.36	\$ 31.61	\$ 227.97	2.00%
		Banquet Room	1	800	\$ 21.89	\$ 165.12	\$ 9.35	\$ 196.36	\$ 31.61	\$ 227.97	2.00%
04.0810	S4	<b>Marketing Management</b>									
		Lab	1	900	\$ 21.89	\$ 201.57	\$ 11.17	\$ 234.63	\$ 37.78	\$ 272.41	2.00%
		Bookstore	1	800	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%
		Display	1	100	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%
		Related Office	1	120	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%
		Related Storage	1	200	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%
04.4110	S1	<b>Entrepreneurship</b>									
04.0815	S3	<b>Marketing Communications</b>									
		Lab	1	1,000	\$ 21.89	\$ 201.57	\$ 11.17	\$ 234.63	\$ 37.78	\$ 272.41	2.00%
		Bookstore	1	800	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%
		Display	1	100	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%
		Related Office	1	120	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%
		Related Storage	1	200	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%
35.0201	E0	<b>Early Childhood Education</b>									
		Lab	1	1,500	\$ 21.89	\$ 166.13	\$ 9.40	\$ 197.43	\$ 31.79	\$ 229.22	2.00%
		Related Office	1	120	\$ 21.89	\$ 166.13	\$ 9.40	\$ 197.43	\$ 31.79	\$ 229.22	2.00%
		Related Storage	1	200	\$ 21.89	\$ 166.13	\$ 9.40	\$ 197.43	\$ 31.79	\$ 229.22	2.00%
		Observation	1	120	\$ 21.89	\$ 166.13	\$ 9.40	\$ 197.43	\$ 31.79	\$ 229.22	2.00%
		Infants	1	700	\$ 21.89	\$ 166.13	\$ 9.40	\$ 197.43	\$ 31.79	\$ 229.22	2.00%
		Kitchenette	1	350	\$ 21.89	\$ 166.13	\$ 9.40	\$ 197.43	\$ 31.79	\$ 229.22	2.00%
		Work Room	1	150	\$ 21.89	\$ 166.13	\$ 9.40	\$ 197.43	\$ 31.79	\$ 229.22	2.00%
		Toddler Restroom	1	60	\$ 21.89	\$ 166.13	\$ 9.40	\$ 197.43	\$ 31.79	\$ 229.22	2.00%
		Reception	1	500	\$ 21.89	\$ 166.13	\$ 9.40	\$ 197.43	\$ 31.79	\$ 229.22	2.00%
		Playground	1	1,300	\$ 21.89	\$ 81.06	\$ 5.15	\$ 108.10	\$ 17.40	\$ 125.50	2.00%
04.1900	S0	<b>Supply Chain Management</b>									
		Lab	1	900	\$ 21.89	\$ 201.57	\$ 11.17	\$ 234.63	\$ 37.78	\$ 272.41	2.00%
		Related Office	1	120	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%
		Related Storage	1	200	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.96	\$ 33.00	\$ 237.96	2.00%



## CHAPTER 1: INTRODUCTION

## COST INFORMATION

## Program Type 4

OHIO SCHOOL FACILITIES COMMISSION CAREER-TECHNICAL SUPPLEMENT 2014 OSDM Update - Career Tech Revised 3/21/2014											
SUBJECT CODE	PROGRAM CODE	PROGRAM TYPE 4	QTY	PROG SF	2014 Site Cost (\$/SF)	2014 Basic Building Cost (\$/SF) (incl. Furn. and Tech.)	Contingency (\$/SF based on 5% of + BBC)	Total Construction Cost (incl. site, bldg., contingency.)	Total Non- Constr. Costs (\$/SF based on 16.1% of Site +BBC + Cont.)	2014 Update Total Line Item Component Cost(\$/SF)	% Change From 2013 to 2014
17.2602	M1	Cosmetology Lab	1	1,600	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
		Related Classrooms	1	900	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
		Related Office	1	120	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
		Related Storage	1	200	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
		Related Changing Room	1	450	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
		Dispensary	1	175	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
		Laundry Room	1	150	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
		Facial Room	1	200	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
		Manicure Room	1	200	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
		Customer Toilet	1	60	\$ 21.89	\$ 164.30	\$ 9.31	\$ 195.50	\$ 31.48	\$ 226.98	2.00%
17.2802	P1	Criminal Justice									
17.2808	P5	Private Security									
17.2810	P0	Career Paths for the Law Profession									
		Lab	1	1,200	\$ 21.89	\$ 160.43	\$ 9.12	\$ 191.44	\$ 30.82	\$ 222.27	2.00%
		Related Classrooms	1	900	\$ 21.89	\$ 160.43	\$ 9.12	\$ 191.44	\$ 30.82	\$ 222.27	2.00%
		Related Office	1	120	\$ 21.89	\$ 160.43	\$ 9.12	\$ 191.44	\$ 30.82	\$ 222.27	2.00%
		Related Storage	1	200	\$ 21.89	\$ 160.43	\$ 9.12	\$ 191.44	\$ 30.82	\$ 222.27	2.00%
		Related Changing Room	1	450	\$ 21.89	\$ 160.43	\$ 9.12	\$ 191.44	\$ 30.82	\$ 222.27	2.00%
		Weight Room	1	800	\$ 21.89	\$ 160.43	\$ 9.12	\$ 191.44	\$ 30.82	\$ 222.27	2.00%
		Interrogation Room	1	150	\$ 21.89	\$ 160.43	\$ 9.12	\$ 191.44	\$ 30.82	\$ 222.27	2.00%
33.0005	L0	Culinary and Food Service Operations									
		Lab	1	1,800	\$ 21.89	\$ 303.93	\$ 16.29	\$ 342.12	\$ 55.08	\$ 397.20	2.00%
		Related Classrooms	1	900	\$ 21.89	\$ 175.47	\$ 9.87	\$ 207.23	\$ 33.36	\$ 240.59	2.00%
		Related Office	1	120	\$ 21.89	\$ 175.47	\$ 9.87	\$ 207.23	\$ 33.36	\$ 240.59	2.00%
		Related Storage	1	200	\$ 21.89	\$ 175.47	\$ 9.87	\$ 207.23	\$ 33.36	\$ 240.59	2.00%
		Related Changing Room	1	450	\$ 21.89	\$ 175.47	\$ 9.87	\$ 207.23	\$ 33.36	\$ 240.59	2.00%
		Restaurant	1	1,500	\$ 21.89	\$ 175.47	\$ 9.87	\$ 207.23	\$ 33.36	\$ 240.59	2.00%
		Dry Storage	1	150	\$ 21.89	\$ 175.47	\$ 9.87	\$ 207.23	\$ 33.36	\$ 240.59	2.00%
07.0101	J3	Dental Assistant									
		Lab	1	1,500	\$ 21.89	\$ 193.20	\$ 10.75	\$ 225.85	\$ 36.36	\$ 262.21	2.00%
		Related Classrooms	1	900	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
		Related Office	1	120	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
		Related Storage	1	200	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
		Related Changing Room	1	450	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
		X-Ray Room	1	80	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
		Darkroom	1	80	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
07.0904	JB	Medical Assistant									
		Lab	1	1,200	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Related Classrooms	1	900	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Related Office	1	120	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Related Storage	1	200	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Related Changing Room	1	450	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Training Restroom	1	120	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Laundry Room	1	120	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
07.0303	JD	Nurse Assisting									
07.1100	J1	Clinical Health Care Services									
		Lab	1	1,200	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Related Classrooms	1	900	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Related Office	1	120	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Related Storage	1	200	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Related Changing Room	1	450	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Training Restroom	1	120	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
		Laundry Room	1	120	\$ 21.89	\$ 164.96	\$ 9.34	\$ 196.20	\$ 31.59	\$ 227.79	2.00%
07.0603	JE	Optometric Occupations									
		Lab	1	1,200	\$ 21.89	\$ 201.45	\$ 11.17	\$ 234.51	\$ 37.76	\$ 272.27	2.00%
		Related Classrooms	1	900	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
		Related Office	1	120	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
		Related Storage	1	200	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
		Related Changing Room	1	450	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%
		Exam Room	1	200	\$ 21.89	\$ 173.31	\$ 9.76	\$ 204.97	\$ 33.00	\$ 237.97	2.00%

**COST INFORMATION****CHAPTER 1: INTRODUCTION****Program Type 4 (continued)**

07.0994	JF	<b>Patient Care Technician</b>									
		Lab	1	1,500	\$	21.89	\$	162.61	\$	9.22	\$ 193.72 \$ 31.19 \$ 224.91 2.00%
		Related Classrooms	1	900	\$	21.89	\$	162.61	\$	9.22	\$ 193.72 \$ 31.19 \$ 224.91 2.00%
		Related Office	1	120	\$	21.89	\$	162.61	\$	9.22	\$ 193.72 \$ 31.19 \$ 224.91 2.00%
		Related Storage	1	200	\$	21.89	\$	162.61	\$	9.22	\$ 193.72 \$ 31.19 \$ 224.91 2.00%
		Related Changing Room	1	450	\$	21.89	\$	162.61	\$	9.22	\$ 193.72 \$ 31.19 \$ 224.91 2.00%
		Training Restroom	1	120	\$	21.89	\$	162.61	\$	9.22	\$ 193.72 \$ 31.19 \$ 224.91 2.00%
		Laundry Room	1	120	\$	21.89	\$	162.61	\$	9.22	\$ 193.72 \$ 31.19 \$ 224.91 2.00%
07.4820	J5	<b>Diagnostic Pathway</b>									
		Lab	1	1,200	\$	21.89	\$	157.06	\$	8.95	\$ 187.90 \$ 30.25 \$ 218.15 2.00%
		Related Classrooms	1	900	\$	21.89	\$	157.06	\$	8.95	\$ 187.90 \$ 30.25 \$ 218.15 2.00%
		Related Office	1	120	\$	21.89	\$	157.06	\$	8.95	\$ 187.90 \$ 30.25 \$ 218.15 2.00%
		Related Storage	1	200	\$	21.89	\$	157.06	\$	8.95	\$ 187.90 \$ 30.25 \$ 218.15 2.00%
		Related Changing Room	1	450	\$	21.89	\$	157.06	\$	8.95	\$ 187.90 \$ 30.25 \$ 218.15 2.00%
		Exam Room	1	200	\$	21.89	\$	157.06	\$	8.95	\$ 187.90 \$ 30.25 \$ 218.15 2.00%
01.0901	A2	<b>Animal Science and Management (small animal)</b>									
		Lab	1	1,000	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Related Classrooms	1	900	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Related Office	1	120	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Related Storage	1	200	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Related Changing Room	1	450	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Pet Shop	1	1,200	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Clinic	1	350	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Grooming	1	350	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Animal Room	1	200	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Animal Room	1	600	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
		Kennel	1	250	\$	21.89	\$	175.04	\$	9.85	\$ 206.78 \$ 33.29 \$ 240.08 2.00%
07.0305	JK	<b>Surgical Technology</b>									
		Lab	1	1,000	\$	21.89	\$	171.44	\$	9.67	\$ 203.00 \$ 32.68 \$ 235.68 2.00%
		Operating Room	1	800	\$	21.89	\$	171.44	\$	9.67	\$ 203.00 \$ 32.68 \$ 235.68 2.00%
		Instrument Room	1	700	\$	21.89	\$	171.44	\$	9.67	\$ 203.00 \$ 32.68 \$ 235.68 2.00%
		Scrub Room	1	500	\$	21.89	\$	171.44	\$	9.67	\$ 203.00 \$ 32.68 \$ 235.68 2.00%
		Related Classrooms	1	900	\$	21.89	\$	171.44	\$	9.67	\$ 203.00 \$ 32.68 \$ 235.68 2.00%
		Related Office	1	120	\$	21.89	\$	171.44	\$	9.67	\$ 203.00 \$ 32.68 \$ 235.68 2.00%
		Related Storage	1	200	\$	21.89	\$	171.44	\$	9.67	\$ 203.00 \$ 32.68 \$ 235.68 2.00%
		Related Changing Room	1	450	\$	21.89	\$	171.44	\$	9.67	\$ 203.00 \$ 32.68 \$ 235.68 2.00%
17.2801	P4 P6	<b>Fire Fighter Training</b>									
		<b>Firefighting and Emergency Medical Services</b>									
		Lab	1	1,500	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Related Classrooms	1	900	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Related Office	1	120	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Related Storage	1	200	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Related Changing Room	1	490	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Weight Room	1	800	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
34.0115	B0	<b>Media Arts</b>									
		Lab	1	1,500	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Media Arts Control Room/Edit	1	450	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Vestibule	1	84	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Related Classrooms	1	900	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Office	1	120	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Storage	1	200	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Changing Room	1	490	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
34.0020	B1	<b>Performing Arts</b>									
		Lab	1	1,500	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Practice Room	1	150	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Related Classrooms	1	900	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Office	1	120	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Storage	1	200	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%
		Changing Room	1	490	\$	21.89	\$	172.06	\$	9.70	\$ 203.66 \$ 32.79 \$ 236.45 2.00%

## CHAPTER 1: INTRODUCTION

## COST INFORMATION

## Program Type 5

<b>OHIO SCHOOL FACILITIES COMMISSION</b> <b>CAREER-TECHNICAL SUPPLEMENT</b> <b>2014 OSDM Update - Career Tech</b> <b>Revised 3/21/2014</b>											
SUBJECT CODE	PROGRAM CODE	PROGRAM TYPE 5	QTY	PROG SF	2014 Site Cost (\$/SF)	2014 Basic Building Cost (\$/SF) (incl. Furn. and Tech.)	Contingency (\$/SF based on 5% of + BBC)	Total Construction Cost (incl. site, bldg., contingency.)	Total Non- Constr. Costs (\$/SF based on 16.1% of Site +BBC + Cont.)	2014 Update Total Line Item Component Cost(\$/SF)	% Change From 2013 to 2014
01.0301	A0	<b>Agribusiness and Production</b> Lab	1	4,500	\$ 21.89	\$ 168.25	\$ 9.51	\$ 199.65	\$ 32.14	\$ 231.80	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 168.25	\$ 9.51	\$ 199.65	\$ 32.14	\$ 231.80	2.00%
		Related Office	1	120	\$ 21.89	\$ 168.25	\$ 9.51	\$ 199.65	\$ 32.14	\$ 231.80	2.00%
		Related Storage	1	200	\$ 21.89	\$ 168.25	\$ 9.51	\$ 199.65	\$ 32.14	\$ 231.80	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 168.25	\$ 9.51	\$ 199.65	\$ 32.14	\$ 231.80	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 168.25	\$ 9.51	\$ 199.65	\$ 32.14	\$ 231.80	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 168.25	\$ 9.51	\$ 199.65	\$ 32.14	\$ 231.80	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 168.25	\$ 9.51	\$ 199.65	\$ 32.14	\$ 231.80	2.00%
		Greenhouse	1	1,000	\$ 21.89	\$ 58.95	\$ 4.04	\$ 84.88	\$ 13.67	\$ 98.55	2.00%
17.0303	T2	<b>Auto Specialization</b> Lab	1	3,500	\$ 21.89	\$ 155.05	\$ 8.85	\$ 185.79	\$ 29.91	\$ 215.71	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 155.05	\$ 8.85	\$ 185.79	\$ 29.91	\$ 215.71	2.00%
		Related Office	1	120	\$ 21.89	\$ 155.05	\$ 8.85	\$ 185.79	\$ 29.91	\$ 215.71	2.00%
		Related Storage	1	200	\$ 21.89	\$ 155.05	\$ 8.85	\$ 185.79	\$ 29.91	\$ 215.71	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 155.05	\$ 8.85	\$ 185.79	\$ 29.91	\$ 215.71	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 155.05	\$ 8.85	\$ 185.79	\$ 29.91	\$ 215.71	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 155.05	\$ 8.85	\$ 185.79	\$ 29.91	\$ 215.71	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 155.05	\$ 8.85	\$ 185.79	\$ 29.91	\$ 215.71	2.00%
17.1011 17.1017	D1 D2	<b>Building &amp; Property Maintenance</b> <b>Building Technology</b> Lab	1	3,000	\$ 21.89	\$ 168.02	\$ 9.50	\$ 199.41	\$ 32.10	\$ 231.51	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 168.02	\$ 9.50	\$ 199.41	\$ 32.10	\$ 231.51	2.00%
		Related Office	1	120	\$ 21.89	\$ 168.02	\$ 9.50	\$ 199.41	\$ 32.10	\$ 231.51	2.00%
		Related Storage	1	200	\$ 21.89	\$ 168.02	\$ 9.50	\$ 199.41	\$ 32.10	\$ 231.51	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 168.02	\$ 9.50	\$ 199.41	\$ 32.10	\$ 231.51	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 168.02	\$ 9.50	\$ 199.41	\$ 32.10	\$ 231.51	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 168.02	\$ 9.50	\$ 199.41	\$ 32.10	\$ 231.51	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 168.02	\$ 9.50	\$ 199.41	\$ 32.10	\$ 231.51	2.00%
17.1100	D6	<b>Custodial Services</b> Lab	1	2,500	\$ 21.89	\$ 142.42	\$ 8.22	\$ 172.53	\$ 27.78	\$ 200.31	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 142.42	\$ 8.22	\$ 172.53	\$ 27.78	\$ 200.31	2.00%
		Related Office	1	120	\$ 21.89	\$ 142.42	\$ 8.22	\$ 172.53	\$ 27.78	\$ 200.31	2.00%
		Related Storage	1	200	\$ 21.89	\$ 142.42	\$ 8.22	\$ 172.53	\$ 27.78	\$ 200.31	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 142.42	\$ 8.22	\$ 172.53	\$ 27.78	\$ 200.31	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 142.42	\$ 8.22	\$ 172.53	\$ 27.78	\$ 200.31	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 142.42	\$ 8.22	\$ 172.53	\$ 27.78	\$ 200.31	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 142.42	\$ 8.22	\$ 172.53	\$ 27.78	\$ 200.31	2.00%
17.1002	D7	<b>Electrical Trades</b> Lab	1	3,000	\$ 21.89	\$ 145.76	\$ 8.38	\$ 176.04	\$ 28.34	\$ 204.38	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 145.76	\$ 8.38	\$ 176.04	\$ 28.34	\$ 204.38	2.00%
		Related Office	1	120	\$ 21.89	\$ 145.76	\$ 8.38	\$ 176.04	\$ 28.34	\$ 204.38	2.00%
		Related Storage	1	200	\$ 21.89	\$ 145.76	\$ 8.38	\$ 176.04	\$ 28.34	\$ 204.38	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 145.76	\$ 8.38	\$ 176.04	\$ 28.34	\$ 204.38	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 145.76	\$ 8.38	\$ 176.04	\$ 28.34	\$ 204.38	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 145.76	\$ 8.38	\$ 176.04	\$ 28.34	\$ 204.38	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 145.76	\$ 8.38	\$ 176.04	\$ 28.34	\$ 204.38	2.00%
17.0100	D8	<b>Environmental Control Technologies</b> Lab	1	3,000	\$ 21.89	\$ 147.21	\$ 8.45	\$ 177.55	\$ 28.59	\$ 206.14	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 147.21	\$ 8.45	\$ 177.55	\$ 28.59	\$ 206.14	2.00%
		Related Office	1	120	\$ 21.89	\$ 147.21	\$ 8.45	\$ 177.55	\$ 28.59	\$ 206.14	2.00%
		Related Storage	1	200	\$ 21.89	\$ 147.21	\$ 8.45	\$ 177.55	\$ 28.59	\$ 206.14	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 147.21	\$ 8.45	\$ 177.55	\$ 28.59	\$ 206.14	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 147.21	\$ 8.45	\$ 177.55	\$ 28.59	\$ 206.14	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 147.21	\$ 8.45	\$ 177.55	\$ 28.59	\$ 206.14	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 147.21	\$ 8.45	\$ 177.55	\$ 28.59	\$ 206.14	2.00%

**COST INFORMATION****CHAPTER 1: INTRODUCTION****Program Type 5 (continued)**

17.1003	D9	<b>Heavy Equipment Operations</b>								
		Lab	1	<b>4,500</b>	\$ 21.89	\$ 137.46	\$ 7.97	\$ 167.32	\$ 26.94	\$ 194.26 2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 137.46	\$ 7.97	\$ 167.32	\$ 26.94	\$ 194.26 2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 137.46	\$ 7.97	\$ 167.32	\$ 26.94	\$ 194.26 2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 137.46	\$ 7.97	\$ 167.32	\$ 26.94	\$ 194.26 2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 137.46	\$ 7.97	\$ 167.32	\$ 26.94	\$ 194.26 2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 137.46	\$ 7.97	\$ 167.32	\$ 26.94	\$ 194.26 2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 137.46	\$ 7.97	\$ 167.32	\$ 26.94	\$ 194.26 2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 137.46	\$ 7.97	\$ 167.32	\$ 26.94	\$ 194.26 2.00%
17.1012	R2	<b>Integrated Systems Technology</b>								
		Lab	1	<b>3,500</b>	\$ 21.89	\$ 171.16	\$ 9.65	\$ 202.71	\$ 32.64	\$ 235.34 2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 171.16	\$ 9.65	\$ 202.71	\$ 32.64	\$ 235.34 2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 171.16	\$ 9.65	\$ 202.71	\$ 32.64	\$ 235.34 2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 171.16	\$ 9.65	\$ 202.71	\$ 32.64	\$ 235.34 2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 171.16	\$ 9.65	\$ 202.71	\$ 32.64	\$ 235.34 2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 171.16	\$ 9.65	\$ 202.71	\$ 32.64	\$ 235.34 2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 171.16	\$ 9.65	\$ 202.71	\$ 32.64	\$ 235.34 2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 171.16	\$ 9.65	\$ 202.71	\$ 32.64	\$ 235.34 2.00%
17.1300	R3	<b>Manufacturing Design and Development</b>								
		Lab	1	<b>4,500</b>	\$ 21.89	\$ 137.91	\$ 7.99	\$ 167.79	\$ 27.01	\$ 194.81 2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 137.91	\$ 7.99	\$ 167.79	\$ 27.01	\$ 194.81 2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 137.91	\$ 7.99	\$ 167.79	\$ 27.01	\$ 194.81 2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 137.91	\$ 7.99	\$ 167.79	\$ 27.01	\$ 194.81 2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 137.91	\$ 7.99	\$ 167.79	\$ 27.01	\$ 194.81 2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 137.91	\$ 7.99	\$ 167.79	\$ 27.01	\$ 194.81 2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 137.91	\$ 7.99	\$ 167.79	\$ 27.01	\$ 194.81 2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 137.91	\$ 7.99	\$ 167.79	\$ 27.01	\$ 194.81 2.00%
17.1004	D0	<b>Brick, Block and Cement Masonry</b>								
		Lab	1	<b>3,500</b>	\$ 21.89	\$ 137.89	\$ 7.99	\$ 167.77	\$ 27.01	\$ 194.78 2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 137.89	\$ 7.99	\$ 167.77	\$ 27.01	\$ 194.78 2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 137.89	\$ 7.99	\$ 167.77	\$ 27.01	\$ 194.78 2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 137.89	\$ 7.99	\$ 167.77	\$ 27.01	\$ 194.78 2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 137.89	\$ 7.99	\$ 167.77	\$ 27.01	\$ 194.78 2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 137.89	\$ 7.99	\$ 167.77	\$ 27.01	\$ 194.78 2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 137.89	\$ 7.99	\$ 167.77	\$ 27.01	\$ 194.78 2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 137.89	\$ 7.99	\$ 167.77	\$ 27.01	\$ 194.78 2.00%
01.0701	A6	<b>Natural Resource Management</b>								
		Lab	1	<b>3,000</b>	\$ 21.89	\$ 167.04	\$ 9.45	\$ 198.38	\$ 31.94	\$ 230.32 2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 167.04	\$ 9.45	\$ 198.38	\$ 31.94	\$ 230.32 2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 167.04	\$ 9.45	\$ 198.38	\$ 31.94	\$ 230.32 2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 167.04	\$ 9.45	\$ 198.38	\$ 31.94	\$ 230.32 2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 167.04	\$ 9.45	\$ 198.38	\$ 31.94	\$ 230.32 2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 167.04	\$ 9.45	\$ 198.38	\$ 31.94	\$ 230.32 2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 167.04	\$ 9.45	\$ 198.38	\$ 31.94	\$ 230.32 2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 167.04	\$ 9.45	\$ 198.38	\$ 31.94	\$ 230.32 2.00%
		Greenhouse	1	<b>1,000</b>	\$ 21.89	\$ 58.95	\$ 4.04	\$ 84.88	\$ 13.67	\$ 98.55 2.00%
17.1005	DA	<b>Interior Design Applications</b>								
		Lab	1	<b>3,000</b>	\$ 21.89	\$ 144.88	\$ 8.34	\$ 175.11	\$ 28.19	\$ 203.31 2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 144.88	\$ 8.34	\$ 175.11	\$ 28.19	\$ 203.31 2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 144.88	\$ 8.34	\$ 175.11	\$ 28.19	\$ 203.31 2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 144.88	\$ 8.34	\$ 175.11	\$ 28.19	\$ 203.31 2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 144.88	\$ 8.34	\$ 175.11	\$ 28.19	\$ 203.31 2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 144.88	\$ 8.34	\$ 175.11	\$ 28.19	\$ 203.31 2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 144.88	\$ 8.34	\$ 175.11	\$ 28.19	\$ 203.31 2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 144.88	\$ 8.34	\$ 175.11	\$ 28.19	\$ 203.31 2.00%
17.1007	DB	<b>Plumbing &amp; Pipefitting</b>								
		Lab	1	<b>3,000</b>	\$ 21.89	\$ 151.42	\$ 8.67	\$ 181.98	\$ 29.30	\$ 211.27 2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 151.42	\$ 8.67	\$ 181.98	\$ 29.30	\$ 211.27 2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 151.42	\$ 8.67	\$ 181.98	\$ 29.30	\$ 211.27 2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 151.42	\$ 8.67	\$ 181.98	\$ 29.30	\$ 211.27 2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 151.42	\$ 8.67	\$ 181.98	\$ 29.30	\$ 211.27 2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 151.42	\$ 8.67	\$ 181.98	\$ 29.30	\$ 211.27 2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 151.42	\$ 8.67	\$ 181.98	\$ 29.30	\$ 211.27 2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 151.42	\$ 8.67	\$ 181.98	\$ 29.30	\$ 211.27 2.00%

## CHAPTER 1: INTRODUCTION

## COST INFORMATION

## Program Type 5 (continued)

17.3100	T8	<b>Power Equipment Technology Lab</b>	1	<b>3,500</b>	\$ 21.89	\$ 157.11	\$ 8.95	\$ 187.96	\$ 30.26	<b>\$ 218.22</b>	2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 157.11	\$ 8.95	\$ 187.96	\$ 30.26	<b>\$ 218.22</b>	2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 157.11	\$ 8.95	\$ 187.96	\$ 30.26	<b>\$ 218.22</b>	2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 157.11	\$ 8.95	\$ 187.96	\$ 30.26	<b>\$ 218.22</b>	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 157.11	\$ 8.95	\$ 187.96	\$ 30.26	<b>\$ 218.22</b>	2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 157.11	\$ 8.95	\$ 187.96	\$ 30.26	<b>\$ 218.22</b>	2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 157.11	\$ 8.95	\$ 187.96	\$ 30.26	<b>\$ 218.22</b>	2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 157.11	\$ 8.95	\$ 187.96	\$ 30.26	<b>\$ 218.22</b>	2.00%
17.1402	F4	<b>Power Transmission Lab</b>	1	<b>3,500</b>	\$ 21.89	\$ 149.31	\$ 8.56	\$ 179.77	\$ 28.94	<b>\$ 208.71</b>	2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 149.31	\$ 8.56	\$ 179.77	\$ 28.94	<b>\$ 208.71</b>	2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 149.31	\$ 8.56	\$ 179.77	\$ 28.94	<b>\$ 208.71</b>	2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 149.31	\$ 8.56	\$ 179.77	\$ 28.94	<b>\$ 208.71</b>	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 149.31	\$ 8.56	\$ 179.77	\$ 28.94	<b>\$ 208.71</b>	2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 149.31	\$ 8.56	\$ 179.77	\$ 28.94	<b>\$ 208.71</b>	2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 149.31	\$ 8.56	\$ 179.77	\$ 28.94	<b>\$ 208.71</b>	2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 149.31	\$ 8.56	\$ 179.77	\$ 28.94	<b>\$ 208.71</b>	2.00%
17.2306	R6	<b>Welding &amp; Cutting Lab</b>	1	<b>3,500</b>	\$ 21.89	\$ 184.03	\$ 10.30	\$ 216.22	\$ 34.81	<b>\$ 251.03</b>	2.00%
		Related Classroom	1	<b>900</b>	\$ 21.89	\$ 184.03	\$ 10.30	\$ 216.22	\$ 34.81	<b>\$ 251.03</b>	2.00%
		Related Office	1	<b>120</b>	\$ 21.89	\$ 184.03	\$ 10.30	\$ 216.22	\$ 34.81	<b>\$ 251.03</b>	2.00%
		Related Storage	1	<b>200</b>	\$ 21.89	\$ 184.03	\$ 10.30	\$ 216.22	\$ 34.81	<b>\$ 251.03</b>	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	<b>270</b>	\$ 21.89	\$ 184.03	\$ 10.30	\$ 216.22	\$ 34.81	<b>\$ 251.03</b>	2.00%
		Related Restroom	1	<b>68</b>	\$ 21.89	\$ 184.03	\$ 10.30	\$ 216.22	\$ 34.81	<b>\$ 251.03</b>	2.00%
		Related Tool Crib	1	<b>550</b>	\$ 21.89	\$ 184.03	\$ 10.30	\$ 216.22	\$ 34.81	<b>\$ 251.03</b>	2.00%
		Related Reference Room	1	<b>200</b>	\$ 21.89	\$ 184.03	\$ 10.30	\$ 216.22	\$ 34.81	<b>\$ 251.03</b>	2.00%

**COST INFORMATION****CHAPTER 1: INTRODUCTION****Program Type 6**

<b>OHIO SCHOOL FACILITIES COMMISSION</b> <b>CAREER-TECHNICAL SUPPLEMENT</b> <b>2014 OSDM Update - Career Tech</b> <b>Revised 3/21/2014</b>											
SUBJECT CODE	PROGRAM CODE	PROGRAM TYPE 6	QTY	PROG SF	2014 Site Cost (\$/SF)	2014 Basic Building Cost (\$/SF) (incl. Furn. and Tech.)	Contingency (\$/SF based on 5% of + BBC)	Total Construction Cost (incl. site, bldg., contingency.)	Total Non-Const. Costs (\$/SF based on 16.1% of Site +BBC + Cont.)	2014 Update Total Line Item Component Cost(\$/SF)	% Change From 2013 to 2014
01.0201	A1	<b>Industrial Power Technology</b>									
		Lab	1	5,000	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
		Related Office	1	120	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
		Related Storage	1	200	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
		Engine Storage	1	1,000	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
		Flammable Storage	1	200	\$ 21.89	\$ 140.02	\$ 8.10	\$ 170.01	\$ 27.37	\$ 197.38	2.00%
17.0301	T1	<b>Auto Collision Repair</b>									
		Lab	1	5,000	\$ 21.89	\$ 155.52	\$ 8.87	\$ 186.28	\$ 29.99	\$ 216.27	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 155.52	\$ 8.87	\$ 186.28	\$ 29.99	\$ 216.27	2.00%
		Related Office	1	120	\$ 21.89	\$ 155.52	\$ 8.87	\$ 186.28	\$ 29.99	\$ 216.27	2.00%
		Related Storage	1	200	\$ 21.89	\$ 155.52	\$ 8.87	\$ 186.28	\$ 29.99	\$ 216.27	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 155.52	\$ 8.87	\$ 186.28	\$ 29.99	\$ 216.27	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 155.52	\$ 8.87	\$ 186.28	\$ 29.99	\$ 216.27	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 155.52	\$ 8.87	\$ 186.28	\$ 29.99	\$ 216.27	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 155.52	\$ 8.87	\$ 186.28	\$ 29.99	\$ 216.27	2.00%
		Auto Parts Storage	1	300	\$ 21.89	\$ 155.52	\$ 8.87	\$ 186.28	\$ 29.99	\$ 216.27	2.00%
17.0302	T3 T9	<b>Auto Technology</b>									
		<b>Ground Transportation</b>									
		Lab	1	5,000	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Related Office	1	120	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Related Storage	1	200	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Engine Storage	1	800	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Machine Room	1	900	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
		Flammable Material Storage	1	60	\$ 21.89	\$ 138.94	\$ 8.04	\$ 168.87	\$ 27.19	\$ 196.06	2.00%
17.1001	D3	<b>Carpentry</b>									
		Lab	1	4,000	\$ 21.89	\$ 147.31	\$ 8.46	\$ 177.67	\$ 28.60	\$ 206.27	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 147.31	\$ 8.46	\$ 177.67	\$ 28.60	\$ 206.27	2.00%
		Related Office	1	120	\$ 21.89	\$ 147.31	\$ 8.46	\$ 177.67	\$ 28.60	\$ 206.27	2.00%
		Related Storage	1	200	\$ 21.89	\$ 147.31	\$ 8.46	\$ 177.67	\$ 28.60	\$ 206.27	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 147.31	\$ 8.46	\$ 177.67	\$ 28.60	\$ 206.27	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 147.31	\$ 8.46	\$ 177.67	\$ 28.60	\$ 206.27	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 147.31	\$ 8.46	\$ 177.67	\$ 28.60	\$ 206.27	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 147.31	\$ 8.46	\$ 177.67	\$ 28.60	\$ 206.27	2.00%
		Finishing Room	1	500	\$ 21.89	\$ 147.81	\$ 8.49	\$ 178.19	\$ 28.69	\$ 206.88	2.00%
		Material Storage	1	800	\$ 21.89	\$ 147.31	\$ 8.46	\$ 177.67	\$ 28.60	\$ 206.27	2.00%
17.1810	F3 DD DE DF	<b>Engineering Technology</b>									
		<b>Structural Systems</b>									
		<b>Mechanical, Electrical and Plumbing</b>									
		<b>Construction Design and Management</b>									
		Lab	1	1,500	\$ 21.89	\$ 194.76	\$ 10.83	\$ 227.48	\$ 36.62	\$ 264.11	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 194.76	\$ 10.83	\$ 227.48	\$ 36.62	\$ 264.11	2.00%
		Related Office	1	120	\$ 21.89	\$ 194.76	\$ 10.83	\$ 227.48	\$ 36.62	\$ 264.11	2.00%
		Related Storage	1	200	\$ 21.89	\$ 194.76	\$ 10.83	\$ 227.48	\$ 36.62	\$ 264.11	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 194.76	\$ 10.83	\$ 227.48	\$ 36.62	\$ 264.11	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 194.76	\$ 10.83	\$ 227.48	\$ 36.62	\$ 264.11	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 194.76	\$ 10.83	\$ 227.48	\$ 36.62	\$ 264.11	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 194.76	\$ 10.83	\$ 227.48	\$ 36.62	\$ 264.11	2.00%
		CAD Room	1	400	\$ 21.89	\$ 194.76	\$ 10.83	\$ 227.48	\$ 36.62	\$ 264.11	2.00%
01.1001	A4	<b>Food Science and Technology</b>									
		Lab	1	2,000	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Related Office	1	120	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Related Storage	1	200	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Freezer	1	400	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Cooler	1	400	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%
		Retail	1	400	\$ 21.89	\$ 146.33	\$ 8.41	\$ 176.64	\$ 28.44	\$ 205.08	2.00%

01.0601	A5	Horticulture Lab	1	2,000	\$	21.89	\$	149.88	\$	8.59	\$	180.36	\$	29.04	\$	209.40	2.00%
		Related Classroom	1	900	\$	21.89	\$	149.88	\$	8.59	\$	180.36	\$	29.04	\$	209.40	2.00%
		Related Office	1	120	\$	21.89	\$	149.88	\$	8.59	\$	180.36	\$	29.04	\$	209.40	2.00%
		Related Storage	1	200	\$	21.89	\$	149.88	\$	8.59	\$	180.36	\$	29.04	\$	209.40	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$	21.89	\$	149.88	\$	8.59	\$	180.36	\$	29.04	\$	209.40	2.00%
		Related Restroom	1	68	\$	21.89	\$	149.88	\$	8.59	\$	180.36	\$	29.04	\$	209.40	2.00%
		Related Tool Crib	1	550	\$	21.89	\$	149.88	\$	8.59	\$	180.36	\$	29.04	\$	209.40	2.00%
		Related Reference Room	1	200	\$	21.89	\$	149.88	\$	8.59	\$	180.36	\$	29.04	\$	209.40	2.00%
		Retail	1	400	\$	21.89	\$	149.88	\$	8.59	\$	180.36	\$	29.04	\$	209.40	2.00%
		Greenhouse	1	3,000	\$	21.89	\$	58.95	\$	4.04	\$	84.88	\$	13.67	\$	98.55	2.00%
17.1200	T7	Medium/Heavy Truck Technician Lab	1	6,000	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
		Related Classroom	1	900	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
		Related Office	1	120	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
		Related Storage	1	200	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
		Related Restroom	1	68	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
		Related Tool Crib	1	550	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
		Related Reference Room	1	200	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
		Engine Storage	1	800	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
		Machine Room	1	900	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%
Flammable Material Storage	1	60	\$	21.89	\$	139.65	\$	8.08	\$	169.62	\$	27.31	\$	196.93	2.00%		
17.1806 17.1805	D5 D4	Construction - Management Lab	1	3,000	\$	21.89	\$	166.88	\$	9.44	\$	198.22	\$	31.91	\$	230.13	2.00%
		Related Classroom	1	900	\$	21.89	\$	166.88	\$	9.44	\$	198.22	\$	31.91	\$	230.13	2.00%
		Related Office	1	120	\$	21.89	\$	166.88	\$	9.44	\$	198.22	\$	31.91	\$	230.13	2.00%
		Related Storage	1	200	\$	21.89	\$	166.88	\$	9.44	\$	198.22	\$	31.91	\$	230.13	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$	21.89	\$	166.88	\$	9.44	\$	198.22	\$	31.91	\$	230.13	2.00%
		Related Restroom	1	68	\$	21.89	\$	166.88	\$	9.44	\$	198.22	\$	31.91	\$	230.13	2.00%
		Related Tool Crib	1	550	\$	21.89	\$	166.88	\$	9.44	\$	198.22	\$	31.91	\$	230.13	2.00%
		Related Reference Room	1	200	\$	21.89	\$	166.88	\$	9.44	\$	198.22	\$	31.91	\$	230.13	2.00%
		CAD Room	1	400	\$	21.89	\$	166.88	\$	9.44	\$	198.22	\$	31.91	\$	230.13	2.00%
		17.3601	DC	Wood Product Technologies Lab	1	3,000	\$	21.89	\$	160.32	\$	9.11	\$	191.33	\$	30.80	\$



**COST INFORMATION****CHAPTER 1: INTRODUCTION****Program Type 7**

<b>OHIO SCHOOL FACILITIES COMMISSION</b> <b>CAREER-TECHNICAL SUPPLEMENT</b> <b>2014 OSDM Update - Career Tech</b> <b>Revised 3/21/2014</b>											
SUBJECT CODE	PROGRAM CODE	PROGRAM TYPE 7	QTY	PROG SF	2014 Site Cost (\$/SF)	2014 Basic Building Cost (\$/SF) (incl. Furn. and Tech.)	Contingency (\$/SF based on 5% of + BBC)	Total Construction Cost (incl. site, bldg., contingency.)	Total Non- Constr. Costs (\$/SF based on 16.1% of Site +BBC + Cont.)	2014 Update Total Line Item Component Cost(\$/SF)	% Change From 2013 to 2014
17.0401	T0 TA	<b>Aircraft Maintenance</b> <b>Air Transportation</b>									
		Lab	1	13,000	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Related Office	1	120	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Related Storage	1	200	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Cleaning Room	1	400	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Parts Storage	1	300	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
		Hazardous Material Storage	1	60	\$ 21.89	\$ 170.10	\$ 9.60	\$ 201.60	\$ 32.46	\$ 234.05	2.00%
01.0901	A2	<b>Animal Science and Management (Equine)</b>									
		Lab	1	8,000	\$ 21.89	\$ 67.62	\$ 4.48	\$ 93.99	\$ 15.13	\$ 109.12	2.00%
		Stables	1	6,800	\$ 21.89	\$ 79.08	\$ 5.05	\$ 106.02	\$ 17.07	\$ 123.09	2.00%
		Related Classroom	1	900	\$ 21.89	\$ 170.42	\$ 9.62	\$ 201.93	\$ 32.51	\$ 234.44	2.00%
		Related Office	1	120	\$ 21.89	\$ 170.42	\$ 9.62	\$ 201.93	\$ 32.51	\$ 234.44	2.00%
		Related Storage	1	200	\$ 21.89	\$ 170.42	\$ 9.62	\$ 201.93	\$ 32.51	\$ 234.44	2.00%
		Related Changing Room (one per type 5, 6 & 7)	1	270	\$ 21.89	\$ 170.42	\$ 9.62	\$ 201.93	\$ 32.51	\$ 234.44	2.00%
		Related Restroom	1	68	\$ 21.89	\$ 170.42	\$ 9.62	\$ 201.93	\$ 32.51	\$ 234.44	2.00%
		Related Tool Crib	1	550	\$ 21.89	\$ 170.42	\$ 9.62	\$ 201.93	\$ 32.51	\$ 234.44	2.00%
		Related Reference Room	1	200	\$ 21.89	\$ 170.42	\$ 9.62	\$ 201.93	\$ 32.51	\$ 234.44	2.00%



**A. GENERAL DESIGN MANUAL DEFINITIONS**

<b>Auditeria</b>	A student dining area with characteristics of an auditorium: sound, acoustical treatment, lighting, etc.
<b>Composite</b>	Two or more play structures attached or functionally linked, to create one integral unit that provides more than one play activity. The term "modular play structure" is also used interchangeable with this term.
<b>Construction Factor</b>	The construction factor shown is the area of a building which is used for <b>wall thickness, pipe chase, etc. in the wall.</b>
<b>Distance Learning</b>	The process of transmitting and/or receiving instruction and demonstration via video and/or audio means.
<b>Modular Play Structure</b>	Two or more play structures attached or functionally linked, to create one integral unit that provides more than one play activity. The term "composite" is also used interchangeable with this term.
<b>ORFF</b>	Large instruments capable of being beat upon by children.
<b>Plan for</b>	The design is to accommodate the item. The item will be funded by the school district.
<b>Provide for</b>	The item is to be part of the project. The item will be funded by the Classroom Facilities Assistance Program.
<b>School District</b>	A general term applied to a legally constituted school entity which is governed by a Board of Education. They may include city, local, exempted village, and joint vocational school districts.

**DEFINITIONS****CHAPTER 1: INTRODUCTION****B. CAREER-TECHNICAL DEFINITIONS****Academies**

Many Career-Technical Schools and Comprehensive High Schools group similar cluster programs into units called Academies. An Academy may contain 75 to 100 students in a general area such as Arts & Communications, Health Services, Business and Management, , etc. These units may be the equivalent of three to five individual program types within the Career-Technical clusters. The Ohio School Facilities Commission Design Manual defines instructional spaces such as laboratory and related spaces in terms of individual programs since academies can vary in the combination of programs making up the academy.

**Career Clusters**

The Ohio Department of Education, Career-Technical and Adult Education Division has created career fields under which programs/coursework are organized into pathways or specializations of study. ODE defines career field as “a grouping of occupations and broad industries based on commonalities.” “The career field concept calls for balancing broad-based, career-technical education and the specialized training necessary for success in employment, further study and adaptation of an ever-changing economy.” The career fields are listed below. Additional information regarding the scope of each career field can be found on ODE’s website. They are shown here for definition purposes only and are not intended to directly relate to the seven program types found in the Program of Requirements.

**Agricultural and Environmental Systems**

**Arts and Communication**

**Business and Administrative Services**

**Construction Technologies**

**Education and Training**

**Engineering and Science Technologies**

**Finance**

**Government and Public Administration**

**Health Science**

**Hospitality and Tourism**

**Human Services**

**Information Technology**

**Law and Public Safety**

**Manufacturing Technologies**

**Marketing**

**Transportation Systems**

**Career-Technical Education**

Organized education programs that (a) offer a sequence of courses that provide individuals with the academic knowledge and skills the individuals need to prepare for further education and careers in current or emerging employment sectors; and (b) include competency-based applied learning that contributes to the academic knowledge higher-order reasoning and problem-solving skills, work attitudes, general employability skills, and occupational-specific skills of an individual.

**B. CAREER-TECHNICAL DEFINITIONS, continued**

<b>Career-Technical School Districts</b>	<p>Synonymous with Vocational Education and the term that is utilized within the Career-Technical sections when addressing vocational programming.</p> <p><u>Career-Technical Planning District (CT)</u> by the Department of Education as being responsible for the planning and provision of Career-Technical Education services to students within the district or group of districts.</p> <p><u>Compact CTPD</u> – a vocational educational planning district composed of a group of school districts which contract within the group to deliver Career-Technical Education. A “lead district” acts as the funding agent and usually offers the majority of the programs.</p> <p><u>Comprehensive CTPD</u> – a vocational education planning district composed of a single school district. The high school providing such service is a Comprehensive High School.</p> <p><u>Joint Career-Technical School District VEPD</u> – a School district formed by a group of city, local, or exempted village school districts to offer Career-Technical education to students of all of the participating districts.</p>
<b>Instructional Spaces</b>	<p>The Ohio School Facilities Commission Design Manual defines instructional spaces such as laboratory and related spaces in terms of individual programs since academies can vary in the combination of programs making up the academy. The space needed to house an academy is generally the combined totals for the individual programs within the academy. Some economy of space should be realized in areas such as related classrooms and perhaps office, storage, and specialized facilities. These decisions will need to be determined on a case-by-case basis.</p>
<b>Satellite Program</b>	<p>A program offered by a Career-Technical, comprehensive, or compact school at an off-site location which could include a member school, a business, or any other facility properly equipped to house the program.</p>
<b>Subject Codes</b>	<p>The term utilized by the Ohio Department of Education, Career-Technical and Adult Division, to classify the various programs which may be approved for operation within a school district.</p>
<b>VE-26</b>	<p>The vocational education form which must be submitted by a school district to the Ohio Department of Education in order to gain approval to offer and conduct a vocational program.</p>
<b>VE-26A</b>	<p>The adult education equivalent of the VE-26 form.</p>

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## ABBREVIATIONS

<b>AABC</b>	Associated Air Balance Council
<b>AAMA</b>	American Architectural Manufacturers Association
<b>AASHTO</b>	American Association of State Highway and Transportation Officials
<b>AATCC</b>	American Association of Textile Chemists and Colorists
<b>ABAA</b>	<b><i>Air Barrier Association of America</i></b>
<b>ABMA</b>	American Boiler Manufacturers Council
<b>AC</b>	Alternating Current
<b>ACI</b>	American Concrete Institute
<b>ADA</b>	American with Disabilities Act
<b>ADC</b>	American Diffusion Council
<b>ADDM</b>	Addendum Administration
<b>AGA</b>	American Gas Association
<b>AHA</b>	American Hardboard Association
<b>AIA</b>	American Institute of Architects
<b>AISC</b>	American Institute of Steel Construction, Inc.
<b>AISI</b>	American Iron and Steel Institute
<b>AITC</b>	American Institute of Timber Construction
<b>AMCA</b>	Air Movement and Control Association, Inc.
<b>ANSI</b>	American National Standards Institute
<b>AP</b>	Access Point
<b>APA</b>	American Plywood Association
<b>API</b>	American Petroleum Institute
<b>APP</b>	Atactic polypropylene
<b>ARI</b>	Air Condition and Refrigeration Institute
<b>ARMA</b>	Asphalt Roofing Manufacturers Association
<b>ASCE</b>	American Society of Civil Engineers
<b>ASHRAE</b>	American Society of Heating, Refrigerating and Air Conditioning Engineers
<b>ASLA</b>	American Society of Landscape Architects
<b>ASME</b>	American Society of Civil Engineers
<b>ASSE</b>	American Society of Sanitary Engineering
<b>ASTM</b>	American Society for Testing and Materials
<b>ATM</b>	Asynchronous Transfer Mode
<b>AWCI</b>	Association of the Wall and Ceiling Industries
<b>AWG</b>	American Wire Gauge
<b>AWI</b>	Architectural Woodwork Institute
<b>AWS</b>	American Welding Society
<b>AWWA</b>	American Waste Water Association
<b>AWWA</b>	American Water Work Association
<b>B-B-G</b>	Blinds between glass
<b>BHMA</b>	Builders Hardware Manufacturers Association
<b>bhp</b>	Brake Horsepower
<b>BIA</b>	Brick Institute of America
<b>BICSI</b>	Building Industry Consulting Services International
<b>CAC</b>	Ceiling Attenuation Class
<b>CADD</b>	Computer Aided Design Drafting
<b>Carrier HAP</b>	Carrier Hourly Analysis Program
<b>CAT-5e</b>	Category 5e
<b>CATV</b>	Community Antenna Television (Cable Television)

**ABBREVIATIONS****CHAPTER 1: INTRODUCTION****ABBREVIATIONS**

<b>CCTV</b>	Closed Circuit Television
<b>CD</b>	Construction Documents
<b>CD</b>	Compact Disk
<b>CDF</b>	Combined Distributing Frame
<b>CDS</b>	Customer Direct Service
<b>CFM</b>	Cubic Feet per Minute
<b>CFR</b>	Code of Federal Regulations
<b>CISCA</b>	Ceilings and Interior Systems Construction Association
<b>CISPI</b>	Cast Iron Soil Pipe Institute
<b>CL</b>	Lighting Contactor
<b>CM</b>	Construction Manager
<b>CMP</b>	Communications Plenum Cable
<b>CMU</b>	Concrete Masonry Unit
<b>COAX</b>	Coaxial Cable
<b>COE</b>	Corps of Engineers
<b>CPSC</b>	Consumer Product Safety Commission
<b>CPVC</b>	Chlorinated Polyvinyl Chloride
<b>CRI</b>	Carpet and Rug Institute
<b>CRI</b>	Color Rendering Index
<b>CRSI</b>	Concrete Reinforcing Steel Institute
<b>CS</b>	Commercial Standards
<b>CSE</b>	Central Switching Exchange
<b>CSI</b>	Construction Specification Institute
<b>CTI</b>	Cooling Tower Institute
<b>CX</b>	Commissioning
<b>DB</b>	Decibel
<b>DC</b>	Direct Current
<b>DD</b>	Design Development
<b>DDC</b>	Direct Digital Control
<b>DEMARC</b>	Demarcation
<b>DFT</b>	Dry Film Thickness
<b>Div.</b>	Division
<b>DNR</b>	Department of Natural Resources
<b>DOE</b>	Department of Energy
<b>DSL</b>	Digital Subscriber Line
<b>DVD</b>	Digital Versatile Disk
<b>DX</b>	Direct Expansion
<b>EIA</b>	Electronic Industries Association
<b>EIFS</b>	Exterior Insulation and Finish System
<b>EIMA</b>	EIFS Industry Members Association
<b>EIMA</b>	Exterior Insulation Manufacturer Association
<b>EIT</b>	Engineer in Training
<b>EJMA</b>	Expansion Joint Manufacturers Association, Inc.
<b>EF</b>	Entrance Facilities
<b>ELA</b>	Extended Learning Area
<b>EMT</b>	Electrical Metallic Tubing
<b>EPA</b>	Environmental Protection Agency or Effective Projected Area
<b>EPDM</b>	Ethylene Propylene Diene Monomers
<b>EPS</b>	Expanded Polystyrene

## ABBREVIATIONS

ER	Main Control/Equipment Room
<b>ET</b>	<b>Enhanced Tile</b>
ETL	Electrical Testing Laboratories
f'c	Specified Compressive Strength (Concrete at the age of 28 days)
FCAN	Full Capacity Above Normal
FCBN	Full Capacity Below Normal
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FEP	Front End Processor
FF/FL	Floor Flatness/Floor Levelness
FGMA	Flat Glass Marketing Association
Flt-Fn	Float Finish
FM	Factory Mutual
FS	Federal Specification
Gb	Gigabit (billion bits)
Gbps	Gigabits (billions of bits) per Second
GC	General Contractor
GG	Geogrid
Gnd	Ground
gpm	Gallon per Minute
GRI	Geosynthetic Research Institute
Grt-CI-Fn	Grout Clean Finish
HCFC	Hydrochlorofluorocarbons
HDPE	High Density Polyethylene
HI	Hydronics Institute
HID	High Intensity Discharge
HPMA	Hardwood Plywood Manufacturers Association
HPVA	Hardwood Plywood and Veneer Association
HSS	Hollow Structural Sections
HUD/FHA	U.S. Department of Housing and Urban Development/Federal Housing
HVAC	Heating, Ventilating, and Air Conditioning
IAPMO	International Association of Plumbing and Mechanical Officials
ICEA	Insulated Cable Engineers Association
ID	Inside Dimension
IDF	Intermediate Distribution Frame Closets
IEEE	Institute of Electrical and Electronics Engineers, Inc.
IEP	Individual Education Programs
IES	Illuminating Engineers Society
IP	Internet Protocol
IPCEA	Insulated Power Cable Engineers Association
IR	Infrared
ISDN	Integrated Services Digital Network
ITL	Independent Testing Laboratories
IVDL	Interactive Video Distance Learning
kb	Kilobit
kB	KiloByte
kbps	Kilo (thousand) bits per second
L/H	Length/Height
LAN	Local Area Network

**ABBREVIATIONS****CHAPTER 1: INTRODUCTION****ABBREVIATIONS**

<b>LEC</b>	Local Exchange Carrier (Now Service Provider [SP])
<b>LED</b>	Light Emitting Diode
<b>LP</b>	Liquid Petroleum
<b>LP</b>	Liquid Propane
<b>MB</b>	MegaByte
<b>Mb</b>	Megabit
<b>MBA</b>	Modified Bitumen APP
<b>Mbps</b>	Millions of bits per Second
<b>MC</b>	Main Cross-connect (aka Technology Control Center)
<b>MERV</b>	Minimum Efficiency Reporting Value
<b>MFMA</b>	Maple Flooring Manufacturers Association
<b>MHz</b>	Million Hertz (Cycles per Second)
<b>MIA</b>	Masonry Institute of America
<b>MLMA</b>	Metal Lath Manufacturer Association
<b>mm</b>	Multi-Mode
<b>MSS</b>	Manufacturers Standardization Society of the Valve and Fitting Industry
<b>MW</b>	Moderate Weather
<b>NAB</b>	National Association of Broadcasters
<b>NAEB</b>	National Association of Educational Broadcasters
<b>NBC</b>	National Building Code
<b>NBS</b>	National Bureau of Standards
<b>NCMA</b>	National Concrete Masonry Association
<b>NCPI</b>	National Clay Pipe Institute
<b>NDL</b>	No Dollar Limit
<b>NEBB</b>	National Environmental Balancing Bureau
<b>NEC</b>	Nation Electric Code-Latest Edition
<b>NEMA</b>	National Electrical Manufacturers Association
<b>NESC</b>	National Electrical Safety Code
<b>NFPA</b>	National Fire Protection Association
<b>NMC</b>	National Mechanical Code
<b>NPA</b>	National Particleboard Association
<b>NPC</b>	National Plumbing Code
<b>NRC</b>	Noise Reduction Coefficient
<b>NRCA</b>	National Roofing Contractors Association
<b>NsBrm-Fn</b>	Non-slip Broom Finish
<b>NSF</b>	National Sanitation Foundation
<b>NWWDA</b>	National Wood Window and Door Association
<b>OBC</b>	Ohio Building Code
<b>ODOT</b>	Ohio Department of Transportation
<b>OEPA</b>	Ohio Environmental Protection Agency
<b>ORC</b>	Ohio Revised Code
<b>OSFC</b>	Ohio School Facilities Commission
<b>OSN</b>	Ohio SchoolNet Commission
<b>OSP</b>	Outside Plant
<b>OTDR</b>	Optical Time Division Reflectometer
<b>PA</b>	Project Administrator
<b>PABX</b>	Private Automatic Branch Exchange
<b>PC</b>	Personal Computer
<b>PCA</b>	Portland Cement Association



## CHAPTER 1: INTRODUCTION

## ABBREVIATIONS

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<b>PDI</b>	Plumbing and Drainage Institute
<b>PID</b>	Proportional, Integral, Derivative
<b>PPM</b>	Parts per Million
<b>PRI</b>	Primary Rate Interface
<b>psi</b>	Pounds per Square Inch
<b>psig</b>	Pounds per Square Inch Gauge
<b>PSTN</b>	Public Switched Telephone Network
<b>PVC</b>	Polyvinyl Chloride
<b>PVC</b>	Permanent Virtual Circuit
<b>QoS</b>	Quality of Service
<b>RCDD</b>	Registered Communications Distribution Designer
<b>RF</b>	Radio Frequency
<b>RfFm-Fn</b>	Rough Formed Finish
<b>RFI</b>	Request for Information
<b>RIS</b>	Redwood Inspection Service
<b>RJ</b>	Residential Jack
<b>SACMU</b>	Sound Absorbing Concrete Masonry Unit
<b>SBS</b>	Styrene-Butadiene-Styrene
<b>SC</b>	Subscriber Connector (Fiber-Optic Connector)
<b>SCP</b>	System Control Processor
<b>SD</b>	Schematic Design
<b>SDI</b>	Steel Deck Institute
<b>SDI</b>	Steel Door Institute
<b>SF</b>	Square Feet or Square Foot
<b>SFRM</b>	<b>Sprayed Fire Resistive Material</b>
<b>SJI</b>	Steel Joist Institute
<b>sm</b>	Single-Mode
<b>SMACNA</b>	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
<b>SmFm-Fn</b>	Smooth Formed Finish
<b>SNMP</b>	Simple Network Management Protocol
<b>SP</b>	Service Provider
<b>SPL</b>	Sound Pressure Level
<b>SPRI</b>	Single Ply Roofing Institute
<b>ST</b>	Straight Tip (Fiber-Optic Connector)
<b>STC</b>	Sound Transmission Coefficient
<b>STI</b>	Steel Tank Institute
<b>SVC</b>	Switched Virtual Circuit
<b>SW</b>	Severe Weather
<b>SWP</b>	Standard Water Pressure
<b>TBB</b>	Telecommunications Bonding Backbone
<b>TC</b>	Telecommunications Closet (aka Telecommunications Room)
<b>TCA</b>	Tile Council of America
<b>TCC</b>	Technology Control Center (aka Main Cross-Connect)
<b>TCP/IP</b>	Transmission Control Protocol/Internet Protocol
<b>TDM</b>	Time Division Multiplexing
<b>TGB</b>	Telecommunications Grounding Busbar
<b>THHN</b>	Heat Resistant Thermoplastic Conductor
<b>THWN</b>	Moisture and Heat Resistant Thermoplastic Conductor
<b>TIA</b>	Telecommunications Industry Association
<b>TIS</b>	Traffic Impact Study
<b>TMGB</b>	Telecommunications Main Grounding Busbar

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**ABBREVIATIONS****CHAPTER 1: INTRODUCTION****ABBREVIATIONS**

<b>THWN</b>	Moisture and Heat Resistant Thermoplastic Conductor
<b>TIA</b>	Telecommunications Industry Association
<b>TIS</b>	Traffic Impact Study
<b>TMGB</b>	Telecommunications Main Grounding Busbar
<b>TMS</b>	The Masonry Society
<b>TR</b>	Telecommunications Room (aka Telecommunications Closet)
<b>Tr-Fn</b>	Trowel Finish
<b>TV</b>	Television
<b>TWS</b>	Tackable Wall Surface
<b>UL</b>	Underwriters Laboratories
<b>UL</b>	Underwriter's Lab
<b>UPS</b>	Uninterruptible Power Supply
<b>UTP</b>	Unshielded Twisted Pair
<b>VAV</b>	Variable Air Volume
<b>VCP</b>	Visual Comfort Probability
<b>VCR</b>	Video Cassette Recorder
<b>VCT</b>	Vinyl Composition Tile
<b>VCTT</b>	Vinyl Cushion Tufted Textiles
<b>VET</b>	Vinyl Enhanced Tile
<b>VGA</b>	Video Graphic Array (800 x 640)
<b>VLAN</b>	Virtual Local Area Network
<b>VOC</b>	Volatile Organic Compound
<b>VoIP</b>	Voice over IP
<b>WAN</b>	Wide Area Network
<b>WLAN</b>	Wireless Local Area Network
<b>WSP</b>	Working Steam Pressure
<b>WWF</b>	Welded Wire Fabric
<b>WWPA</b>	Western Wood Products Association
<b>XGA</b>	Extended Graphic Array (1024 x 768)