

OHIO SCHOOL
FACILITIES
COMMISSION

2008
OHIO
SCHOOL
DESIGN
MANUAL



The Ohio School Facilities Commission is pleased to present the 2008 Ohio School Design Manual (OSDM) update.

Each year the Commission updates 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.

The manual is a cornerstone of the Commission's school facilities programs. It provides guidelines that serve the diverse needs of local school communities and their students. It is the intent of the OSDM to provide a wide selection of high quality materials and systems to the designers and school districts. These materials and systems will 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.

This year's update incorporates materials and systems that meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) for Schools. These additions can be found in Chapter 9 of this manual. The LEED system is the national benchmark for high performance green buildings. The LEED for Schools certification program verifies that schools have been built to meet a high level of energy and environmental performance.

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

Sincerely,

Ohio School Facilities Commission

Michael Shoemaker
Executive Director

FOREWORD

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OHIO SCHOOL DESIGN MANUAL

Ohio School Facilities Commission

TABLE OF CONTENTS

0100 Foreword

0200 Table of Contents

VOLUME ONE

Chapter 1: Introduction

1000	Executive Summary
1010	Introduction
1020	Overview of the Planning, Design, and Construction Process
1030	<i>Design Manual Organization</i>
1040	Highlights of Planning and Funding Parameters
1050	Community Engagement
1060	Special Education Program Summary
1070	Career-Technical Education Summary
1100	Educational Programming
	1110 Special Education Program Overview
1200	<i>Cost Information</i>
1300	Definitions
1400	Abbreviations

Chapter 2: Bracketing

2000	Introduction
	<u>Summary of Spaces</u>
2100	Elementary Schools
2200	Middle Schools
2300	High Schools
2400	K – 12 Combination Schools
2500	K – 8 Combination Schools
2600	6 – 12 Combination Schools

Chapter 2: Bracketing (Career-Technical)

2700	Introduction
	<u>Summary of Spaces</u>
2800	<i>Career-Technical School</i>
2900	<i>Combination High School</i>

Chapter 3: School Site

3000	Introduction
	<u>Site Selection Criteria</u>
3100	<i>Introduction</i>
3101	<i>Site/Size</i>
3102	<i>Topography</i>
3103	<i>Vehicular Access</i>
3104	<i>Soil Characteristics</i>
3105	<i>Site Utilities</i>
3106	<i>Site Preparation</i>

TABLE OF CONTENTS (cont.)

3107	Codes and Zoning
3108	Adjacent Property Facilities
3109	Easements/Rights-of-Way
3110	Environmental Restrictions
3111	Testing
3112	Aesthetic Consideration
	<u>Site Design</u>
3200	Introduction
3201	Vehicular Circulation
3202	Pedestrian Circulation
3203	Emergency Vehicle Circulation
3204	Bicycle Circulation
3205	Storm Drainage
3206	Sanitary Sewerage
3207	Directional Signage
3208	Physical Education Facilities
3209	Playground
3210	Fencing
3211	Lighting
3212	Mechanical/Electrical Yard
3213	Landscaping
3214	Site Furnishings
3215	Site Security Provisions
	<u>Elementary School Site Design</u>
3301	Vehicular Circulation
3302	Physical Education Facilities
3303	Playground
	<u>Middle School Site Design</u>
3401	Vehicular Circulation
3402	Physical Education Facilities
3403	Playground
	<u>High School Site Design</u>
3501	Vehicular Circulation
3502	Physical Education Facilities
	<u>Combination School Site Design</u>
3601	Vehicular Circulation
3602	Physical Education Facilities
3603	Playground
	<u>Career-Technical School Site Design</u>
3701	Vehicular Circulation

TABLE OF CONTENTS (cont.)

Chapter 4: Elementary School

4000	Introduction	
4100	Spatial Relationship Diagram	
4101	E-AC	<u>Academic Core Spaces</u>
	E-AC-1	Pre-K/Kindergarten Classroom
	E-AC-2	Pre-K/Kindergarten Restroom
	E-AC-3	Elementary Classroom
	E-AC-4	Teacher Prep Area/Workroom
	E-AC-5	Individual Restroom
	E-AC-6	Instructional Material Storage
4102	E-SE	<u>Special Education Spaces</u>
	E-SE-1	Self-contained Classroom
	E-SE-2	Workroom/Conference
	E-SE-3	Restroom/Shower
	E-SE-4	Special Education/Resource
	E-SE-5	Small Self-Contained Classroom
4103	E-AD	<u>Administrative Spaces</u>
	Spatial Relationship Diagram	
	E-AD-1	Reception Area
	E-AD-2	Secretarial Area
	E-AD-3	Principal's Office
	E-AD-4	Assistant Principal's Office
	E-AD-5	Conference Room
	E-AD-6	Mail/Work/Copy Room
	E-AD-7	Administrative Storage
	E-AD-8	Vault/Records Storage
	E-AD-9	In-school Suspension
	E-AD-10	Restroom
	E-AD-11	Guidance Counselor's Office
	E-AD-12	Guidance Records/Storage
	E-AD-13	Parent/Volunteer Room
	E-AD-14	Health Clinic
	E-AD-15	Itinerant Personnel Office
	E-AD-16	Family Restroom
4104	E-MC	<u>Media Center Spaces</u>
	Spatial Relationship Diagram	
	E-MC-1	Reading Room/Circulation
	E-MC-2	Media Specialist Office
	E-MC-3	Workroom/Storage
	E-MC-4	Main Control/Equipment Room
	E-MC-5	Computer Lab
	E-MC-6	A/V Storage
	E-MC-7	Conference Room

TABLE OF CONTENTS (cont.)

4105	E-VA E-VA-1 E-VA-2 E-VA-3	<u>Visual Arts Spaces</u> Spatial Relationship Diagram Art Room Kiln/Ceramic Storage Art Material Storage
4106	E-MU E-MU-1	<u>Music Spaces</u> Spatial Relationship Diagram Music Room
4107	E-PE E-PE-1 E-PE-2	<u>Physical Education Spaces</u> Spatial Relationship Diagram Gymnasium P.E. Workroom/Storage
4108	E-SD E-SD-1 E-SD-2 E-SD-3 E-SD-4	<u>Student Dining Spaces</u> Spatial Relationship Diagram Student Dining Stage Staff Dining Table Storage
4109	E-FS E-FS-1 E-FS-0 E-FS-1a E-FS-1b E-FS-1c E-FS-1d E-FS-1e E-FS-2 E-FS-3 E-FS-4	<u>Food Service Spaces</u> Spatial Relationship Diagram Kitchen Warming Kitchen Preparation Area Serving Area Dry Food Storage Cooler/Freezer Ware Washing Dietician's Office Restroom Locker Room
4110	E-CU E-CU-1 E-CU-2	<u>Custodial Spaces</u> Spatial Relationship Diagram Workroom Custodial Office
4111	E-BS-1 E-BS-2 E-BS-3 E-BS-4 E-BS-5 E-BS-6 E-BS-7 E-BS-8 E-BS-9 E-BS-10	<u>Building Services</u> Large Group Restrooms Custodial Closet Electrical Closet Telecommunications Room Corridors Mechanical /Electrical Space/Decks Storage Area Central Storage Area Loading/Receiving Area Restroom

TABLE OF CONTENTS (cont.)

Chapter 5: Middle School

5000	Introduction	
5100	Spatial Relationship Diagram	
		<u>Academic Core Spaces</u>
5101	M-AC	Spatial Relationship Diagram
	M-AC-1	Middle School Classroom
	M-AC-2	Project Laboratory
	M-AC-3	Teacher Prep Area/Workroom
	M-AC-4	Individual Restroom
	M-AC-5	Instructional Material Storage
	M-AC-6	Small Group Room
		<u>Special Education Spaces</u>
5102	M-SE	Spatial Relationship Diagram
	M-SE-1	Self-contained Classroom
	M-SE-2	Workroom/Conference
	M-SE-3	Restroom/Shower
	M-SE-4	Special Education/Resource
	M-SE-5	Small Self-Contained Classroom
		<u>Administrative Spaces</u>
5103	M-AD	Spatial Relationship Diagram
	M-AD-1	Reception Area
	M-AD-2	Secretarial Area
	M-AD-3	Principal's Office
	M-AD-4	Assistant Principal's Office
	M-AD-5	Conference Room
	M-AD-6	Mail/Work/Copy Room
	M-AD-7	Administrative Storage
	M-AD-8	Vault/Records Storage
	M-AD-9	In-school Suspension
	M-AD-10	Restroom
	M-AD-11	Guidance Counselor's Office
	M-AD-12	Guidance Records/Storage
	M-AD-13	Parent/Volunteer Room
	M-AD-14	Health Clinic
	M-AD-15	Itinerant Personnel Office
	M-AD-16	Family Restroom
		<u>Media Center Spaces</u>
5104	M-MC	Spatial Relationship Diagram
	M-MC-1	Reading Room/Circulation
	M-MC-2	Media Specialist Office
	M-MC-3	Workroom/Storage
	M-MC-4	Main Control/Equipment Room
	M-MC-5	Computer Lab
	M-MC-6	A/V Storage
	M-MC-7	Conference Room
	M-MC-8	Multimedia Production Room

TABLE OF CONTENTS (cont.)

5105	M-VA M-VA-1 M-VA-2 M-VA-3	<u>Visual Arts Spaces</u> Spatial Relationship Diagram Art Room Kiln/Ceramic Storage Art Material Storage
5106	M-MU M-MU-1 M-MU-2 M-MU-3	<u>Music Spaces</u> Spatial Relationship Diagram Instrumental Room Vocal Room Music Library
5107	M-TE M-TE-1a M-TE-1b M-TE-2	<u>Technology Education Spaces</u> Spatial Relationship Diagram Modular Technology Lab Production Lab Storage
5108	M-FCS M-FCS-1 M-FCS-2	<u>Family and Consumer Science Spaces</u> Spatial Relationship Diagram Life Skills Lab Life Skills Storage
5109	M-PE M-PE-1 M-PE-2 M-PE-3 M-PE-4 M-PE-5 M-PE-6	<u>Physical Education Spaces</u> Spatial Relationship Diagram Gymnasium P.E./Athletic Office Staff Shower Student Locker Room Student Restroom/Shower Physical Education Storage
5110	M-SD M-SD-1 M-SD-2 M-SD-3 M-SD-4	<u>Student Dining Spaces</u> Spatial Relationship Diagram Student Dining Stage Staff Dining Table Storage
5111	M-FS M-FS-1 M-FS-0 M-FS-1a M-FS-1b M-FS-1c M-FS-1d M-FS-1e M-FS-2 M-FS-3 M-FS-4	<u>Food Service Spaces</u> Spatial Relationship Diagram Kitchen Warming Kitchen Preparation Area Serving Area Dry Food Storage Cooler/Freezer Ware Washing Dietician's Office Restroom Locker Room

TABLE OF CONTENTS (cont.)

5112	M-CU M-CU-1 M-CU-2	<u>Custodial Spaces</u> Spatial Relationship Diagram Workroom Custodial Office
5113	M-BS-1 M-BS-2 M-BS-3 M-BS-4 M-BS-5 M-BS-6 M-BS-7 M-BS-8 M-BS-9 M-BS-10	<u>Building Services</u> Large Group Restrooms Custodial Closet Electrical Closet Telecommunications Room Corridors Mechanical/Electrical Space/Decks Storage Area Central Storage Area Loading/Receiving Area Restroom

TABLE OF CONTENTS (cont.)

Chapter 6: High School

6000	Introduction	
6100	Spatial Relationships Diagram	
6101	H-AC	<u>Academic Core Spaces</u>
	H-AC-1	Spatial Relationship Diagram
	H-AC-2	High School Classroom
	H-AC-3	Science Classroom - General/Physics
	H-AC-4	Science Classroom - Chemistry
	H-AC-5	Science Classroom - Biology
	H-AC-6	Science Prep
	H-AC-7	Teacher Prep Area/Workroom
	H-AC-8	Individual Restroom
	H-AC-9	Project/Classroom
	H-AC-10	Small Group Room
	H-AC-11	Instructional Material Storage
	H-AC-12	Multi-use Room
		Science Laboratory
6102	H-SE	<u>Special Education Spaces</u>
	H-SE-1	Spatial Relationship Diagram
	H-SE-2	Self-contained Classroom
	H-SE-3	Workroom/Conference
	H-SE-4	Restroom/Shower
	H-SE-5	Special Education/Resource
		Small Self-Contained Classroom
6103	H-AD	<u>Administrative Spaces</u>
	H-AD-1	Spatial Relationship Diagram
	H-AD-2	Reception Area
	H-AD-3	Secretarial Area
	H-AD-4	Principal's Office
	H-AD-5	Assistant Principal's Office
	H-AD-6	Conference Room
	H-AD-7	Mail/Work/Copy Room
	H-AD-8	Administrative Storage
	H-AD-9	Vault/Records Storage
	H-AD-10	In-school Suspension
	H-AD-11	Restroom
	H-AD-12	Guidance Counselor's Office
	H-AD-13	Guidance Records/Storage
	H-AD-14	Guidance Conference Room
	H-AD-15	Parent/Volunteer Room
	H-AD-16	Health Clinic
	H-AD-17	Itinerant Personnel Office
	H-AD-18	Career Center
		Family Restroom

TABLE OF CONTENTS (cont.)

6104	H-MC H-MC-1 H-MC-2 H-MC-3 H-MC-4 H-MC-5 H-MC-6 H-MC-7 H-MC-8	<u>Media Center Spaces</u> Spatial Relationship Diagram Reading Room/Circulation Media Specialist Office Workroom/Storage Main Control/Equipment Room A/V Storage Conference Room Multimedia Production Room Document Storage
6105	H-VA H-VA-1 H-VA-2 H-VA-3	<u>Visual Arts Spaces</u> Spatial Relationship Diagram Art Room Kiln/Ceramic Storage Art Material Storage
6106	H-MU H-MU-1 H-MU-2 H-MU-3 H-MU-4 H-MU-5 H-MU-6 H-MU-7 H-MU-8 H-MU-9 H-MU-10	<u>Music Spaces</u> Spatial Relationship Diagram Instrumental Room Instrument Storage Orchestra Storage Instrumental Music Library Uniform Storage Vocal Room Vocal Storage Vocal Music Library Ensemble Room Practice Room
6107	H-TE H-TE-1 H-TE-1a H-TE-2 H-TE-3 H-TE-4	<u>Technology Education Spaces</u> Spatial Relationship Diagram Modular Technology Lab Ag-Ed Lab Storage CADD Lab Production Lab
6108	H-BE H-BE-1 H-BE-2 H-BE-3	<u>Business Education Spaces</u> Spatial Relationship Diagram Computer and Business Classroom Marketing Classroom Workroom/Storage
6109	H-FCS H-FCS-1 H-FCS-2 H-FCS-3 H-FCS-4	<u>Family and Consumer Science Spaces</u> Spatial Relationship Diagram Life Skills Lab Life Skills Storage Laundry Child Development

TABLE OF CONTENTS (cont.)

6110	H-PE H-PE-1 H-PE-2 H-PE-3 H-PE-4 H-PE-5 H-PE-6 H-PE-7 H-PE-8 H-PE-9 H-PE-10 H-PE-11 H-PE-12	<u>Physical Education Spaces</u> Spatial Relationship Diagram Gymnasium Auxiliary Gymnasium Student Locker Room Student Restroom/Shower Physical Education Storage P.E./Athletic Office Staff Shower Athletic Director's Office Lobby Services Training Room Physical Health Classroom Multi-use P.E. Room
6111	H-SD H-SD-1 H-SD-2 H-SD-3 H-SD-4 H-SD-5 H-SD-6 H-SD-7 H-SD-8	<u>Student Dining Spaces</u> Spatial Relationship Diagram Student Dining Stage Scene Shop and Storage Makeup/Dressing Rooms Theatrical Control Room Drama Storage Staff Dining Table Storage
6112	H-FS H-FS-1 H-FS-0 H-FS-1a H-FS-1b H-FS-1c H-FS-1d H-FS-1e H-FS-2 H-FS-3 H-FS-4	<u>Food Service Spaces</u> Spatial Relationship Diagram Kitchen Warming Kitchen Preparation Area Serving Area Dry Food Storage Cooler/Freezer Ware Washing Dietician's Office Restroom Locker Room
6113	H-CU H-CU-1 H-CU-2	<u>Custodial Spaces</u> Spatial Relationship Diagram Workroom Custodial Office
6114	H-BS-1 H-BS-2 H-BS-3 H-BS-4 H-BS-5 H-BS-6 H-BS-7 H-BS-8 H-BS-9 H-BS-10	<u>Building Services</u> Large Group Restrooms Custodial Closet Electrical Closet Telecommunications Room Corridors Mechanical/Electrical Space/Decks Storage Area Central Storage Area Loading/Receiving Area Restroom

TABLE OF CONTENTS (cont.)

VOLUME TWO

Chapter 6: Career-Technical School

6200	<i>Introduction</i>	
6300	Spatial Relationships Diagram	
	<u>Core Spaces</u>	
6301		<u>Academic Core Spaces</u>
	CT-AC	Spatial Relationship Diagram
	CT-AC-1	Academic Classroom
	CT-AC-2	Computer Room
	CT-AC-3	General Science/Physics
	CT-AC-4	Biology
	CT-AC-5	Chemistry
	CT-AC-6	Science Prep
	CT-AC-7	Teacher Prep/Workroom
	CT-AC-8	Individual Restroom
	CT-AC-9	Small Group Room
	CT-AC-10	Material Storage
	CT-AC-11	Multipurpose Room
		<u>Special Education/Student Services Spaces</u>
6302	CT-SE	Spatial Relationships Diagram
	CT-SE-1	Classroom
	CT-SE-2	Workroom/Conference
	CT-SE-3	Restroom/Shower
	CT-SE-4	Career Technical Evaluation
	CT-SE-5	Career Technical Evaluation Office
	CT-SE-6	Small Group Room
	CT-SE-7	Job Training Office
	CT-SE-8	Resource Room
		<u>Administrative Spaces</u>
6303	CT-AD	Spatial Relationships Diagram
	CT-AD-1	Reception Area
	CT-AD-2	Secretarial Area
	CT-AD-3	Director/Principal's Office
	CT-AD-4	Assistance Director/Principal's Office
	CT-AD-5	Supervisor's Office
	CT-AD-6	Coordinator's Office
	CT-AD-7	Conference Room
	CT-AD-8	Mail/Work/Copy Room
	CT-AD-9	Administrative Storage
	CT-AD-10	Vault/Records
	CT-AD-11	Restroom
	CT-AD-12	Guidance Counselor
	CT-AD-13	Guidance Records/Storage
	CT-AD-14	Guidance Conference
	CT-AD-15	Parent/Volunteer
	CT-AD-16	Health Clinic
	CT-AD-17	Itinerant Personnel
	CT-AD-18	In-School Suspension
	CT-AD-19	Clinic Restroom
	CT-AD-20	Family Restroom

TABLE OF CONTENTS (cont.)

		<u>Media Center Spaces</u>
6304	CT-MC	Spatial Relationships Diagram
	CT-MC-1	Reading Room/Circulation
	CT-MC-2	Media Specialist Office
	CT-MC-3	Workroom/Storage
	CT-MC-4	Main Control/Equipment Room
	CT-MC-5	A/V Storage
	CT-MC-6	Conference Room
	CT-MC-7	Multimedia Production Room
	CT-MC-8	Document Storage
		<u>Student Dining Spaces</u>
6305	CT-SD	Spatial Relationships Diagram
	CT-SD-1	Student Dining
	CT-SD-2	Stage
	CT-SD-3	Staff Dining
	CT-SD-4	Table Storage
		<u>Food Service Spaces</u>
6306	CT-FS	Spatial Relationships Diagram
	CT-FS-1	Kitchen
	CT-FS-0	Warming Kitchen
	CT-FS-1a	Preparation Area
	CT-FS-1b	Serving Area
	CT-FS-1c	Dry Food Storage
	CT-FS-1d	Cooler/Freezer
	CT-FS-1e	Ware Washing
	CT-FS-2	Dietician's Office
	CT-FS-3	Restroom
	CT-FS-4	Locker Room
		<u>Custodial Spaces</u>
6307	CT-CU	Spatial Relationships Diagram
	CT-CU-1	Workroom
	CT-CU-2	Custodial Office
		<u>General Spaces</u>
6308	CT-GS-1	Large Group Restrooms
	CT-GS-2	Custodial Closet
	CT-GS-3	Electrical Closet
	CT-GS-4	Telecommunications Room
	CT-GS-5	Storage Area
	CT-GS-6	Central Storage/Distribution Center
	CT-GS-7	Loading/Receiving/Warehouse Area
	CT-GS-8	Restroom
		<u>Building Spaces</u>
6309	CT-BS-1	Corridors
	CT-BS-2	Mechanical/Electrical/Space Decks

TABLE OF CONTENTS (cont.)

Program Spaces

6311

Program Type 1 - Table of Contents

Spatial Relationship Diagram

Example

CT-P1-1 Lab

Accounting

Administrative/Office Technology

Legal Office Management

Aviation Occupations

Business Management

Diversified Cooperative Health Occupations

Drafting Occupations

Civil Engineering & Architecture

Computer Integrated Manufacturing

Fuel Cell Technologies

Electronics

Automation & Robotics

Entertainment Marketing

Financial Services

Hospitality and Tourism

Information Support & Services

Interactive Media

Network Systems

Programming and Software Development

Medical Office Management

Telecommunications

CT-P1-2 Office

CT-P1-3 Storage Area

6312

Program Type 2 – Table of Contents

Spatial Relationship Diagram

Example

CT-P2-1 Lab

Biotechnology

Pharmacy Assisting

Chemical Laboratory Assisting

Industrial Laboratory Assisting

Medical Laboratory Technology

Criminal Science Technology

Community Health Aide

Home Health

Dental Laboratory Technology

Emergency Medical Technician

Exercise Science/Sports & Recreation Health Care

Health Support Pathway

Therapeutic Pathway

Health Unit Coordinator

Health Informatics Pathway

Practical Nursing

CT-P2-2 Office

CT-P2-3 Storage Area

CT-P2-4 Changing Room

TABLE OF CONTENTS (cont.)

6313

Program Type 3 – Table of Contents

Spatial Relationship Diagram

Example

CT-P3-1 Lab

Commercial Art Occupations

Darkroom

Commercial Photography Occupations

Print Darkroom / Film Darkroom / Film Loading Room

Early Childhood Education and Care

Observation Room / Infants Room / Kitchen/Break Room

Work Room / Toddler Restroom / Reception

Graphics Occupation

Darkroom

Ground Operations

Reference Room

Hotels and Resorts

Banquet Room

E-Commerce Marketing

Marketing Management and Research

Bookstore / Display

Marketing Technology

Bookstore / Display

Sports Marketing

Bookstore / Display

CT-P3-2 Office

CT-P3-3 Storage Area

6314

Program Type 4 – Table of Contents

Spatial Relationship Diagram

Example

CT-P4-1 Lab

Animal Science and Management (small animal)

Pet Shop/Clinic/Grooming/Animal Room #1/Animal Room #2/Kennel

Cosmetology

Dispensary / Laundry Room / Facial Room / Manicure Room /

Customer Toilet

Criminal Justice

Weight Room / Interrogation Room

Culinary Arts and Food Service Management

Restaurant / Dry Storage

Dental Assistant

X-Ray Room / Darkroom

Diversified Health Occupations

Exam Room

Fire Fighter Training

Weight Room

Medical Assistant

Training Restroom / Laundry Room

Nurse Assisting

Training Restroom / Laundry Room

Optometric Occupations

Exam Room

TABLE OF CONTENTS (cont.)

Patient Care Technician
Training Restroom / Laundry Room
Surgical Technology
Operating Room / Instrument Room / Scrub Room
Diagnostic Pathway
Exam Room
Arts and Communications – Performing Arts Pathway
Practice Room
Arts and Communications – Media Arts Pathway
Media Arts Control Room/Edit / Vestibule

CT-P4-2 *Related Classroom*

CT-P4-3 *Office*

CT-P4-4 *Storage Area*

CT-P4-5 *Changing Room*

6315

Program Type 5 – Table of Contents

Spatial Relationship Diagram

Example

CT-P5-1 *Lab*

Acquisition and Logistics

Agribusiness and Production Systems

Appliance Repair

Auto Specialization

Masonry

Building and Property Maintenance

Building Technology

Custodial Services

Electrical Trades

Environmental Controls Technologies

Heavy Equipment (Construction)

Industrial Maintenance and Repair Occupations

Interior Design and Application

Manufacturing Occupations

Marine Maintenance

Natural Resource Management

Plastics Occupations

Plumbing and Pipefitting

Power Equipment Technology

Power Transmission

Welding and Cutting

CT-P5-2 *Related Classroom*

CT-P5-3 *Office*

CT-P5-4 *Storage Area*

CT-P5-5 *Changing Room*

CT-P5-6 *Tool Crib*

CT-P5-7 *Reference Room*

CT-P5-8 *Toilet Room*

TABLE OF CONTENTS (cont.)

6316

Program Type 6 – Table of Contents

Spatial Relationship Diagram

Example

CT-P6-1 Lab

Agriculture/Industrial Equipment

Engine Storage / Flammable Material Storage

Auto Collision Repair

Auto Parts Storage

Auto Technology

Engine Storage / Machine Room / Flammable Material Storage

Carpentry

Finishing Room / Material Storage

Construction (2 clusters)

Design/Build / Management / CADD Room

Engineering Technologies

Design / Process / Product/Service / Emerging / CADD Room

Material Joining Technologies

Food Science and Technology

Freezer / Cooler / Retail

Horticulture

Retail

Medium/Heavy Truck Technician

Engine Storage / Flammable Material Storage / Machine Room

Precision Machining

CNC Room / Inspection Room

Wood Product Technologies

Finishing Room / Material Storage

CT-P6-2 Related Classroom

CT-P6-3 Office

CT-P6-4 Storage Area

CT-P6-5 Changing Room

CT-P6-6 Tool Crib

CT-P6-7 Reference Room

CT-P6-8 Toilet Room

6317

Program Type 7 – Table of Contents

Spatial Relationship Diagram

Example

CT-P7-1 Lab

Aircraft Maintenance

Cleaning Room / Parts Storage / Hazardous Material Storage

Animal Science and Management – Equine

Stables

CT-P7-2 Related Classroom

CT-P7-3 Office

CT-P7-4 Storage Area

CT-P7-5 Changing Room

CT-P7-6 Tool Crib

CT-P7-7 Reference Room

CT-P7-8 Toilet Room

TABLE OF CONTENTS (cont.)

Chapter 7: Sustainable Design

7000	Introduction
7100	Daylighting Considerations
7100-1	Consider Human Factors
7100-3	Consider the Energy Ramifications
7100-9	Account for Site Constraints and Benefits
7100-9	Select Well-Integrated Daylighting Strategies
7100-14	Optimize the Most Appropriate Daylighting Strategies
7100-31	Accurately Simulate Daylighting Performance
7100-33	Verify and Modify Your Design Process
7200	Green Spec – Energy Efficient Plug Loads
7200-1	Commercial Food Service Equipment
7200-2	Cabinets
7200-3	Kitchen Ventilation Hood
7200-4	Ice Machines
7200-5	Computers and Servers
7200-6	Computer Monitors
7200-7	Notebook & Tablet Computers
7200-7	TV & Video Replay Equipment
7200-8	Vending Machines
7200-9	Screens in Daylit Spaces
7200-10	Digital Video Projector

TABLE OF CONTENTS (cont.)

Chapter 8: Systems and Materials

8000	Introduction
	<u>Exterior Walls</u>
8110	Masonry Cavity Wall
8111	Veneer and Metal Framing
8112	Metal Panel On Concrete Masonry Wall
8113	Plant-Precast Concrete Insulated Sandwich Wall
8114	Metal Panel on Metal Framing
8115	Metal Panel on Metal Framing
	<u>Roofs</u>
8120	Shingle Roof
8121	Shingle Roof System
8122	Metal Roof with Rigid Insulation
8123	Metal Roof with Rigid Insulation Roof
8124	Built-up Roof
8125	Membrane Roof
8126	<i>Exterior Wall/Roof Closure</i>
8127	<i>Exterior Wall System</i>
	<u>Interior Walls</u>
8130	Steel Stud and Wallboard
	<u>Structural</u>
8210	Materials and Systems
8220	Design Criteria/Evaluation
	<u>Plumbing</u>
8310	<i>Design Criteria</i>
	<u>HVAC</u>
8410	Systems Evaluation
8420	<i>Design Criteria</i>
8430	<i>Systems Description</i>
	<u>Technology</u>
8500	Systems
	<u>Electrical</u>
8600	<i>Systems</i>
Chapter 8:	Systems and Materials (Career-Technical)
8001	Introduction
8116	Manufactured Wall Panels
8126	Metal Roof with Batt Insulation
	<u>Plumbing</u>
8311	Design Criteria
	<u>HVAC</u>
8421	Design Criteria
	<u>Electrical</u>
8601	Systems

TABLE OF CONTENTS (cont.)

Chapter 9: Specifications

9100	Introduction
9101	<u>General Requirements</u>
	015800 Project Identification
	017419 Construction Waste Management and Disposal
	017700 Closeout Procedures
	018113 Sustainable Design Requirements
9102	<u>Existing Conditions</u>
	024116 Structural Demolition
	024119 Selective Structural Demolition
	025000 Site Remediation
9103	<u>Concrete</u>
	031119 Insulating Concrete Forming
	033000 Cast-In-Place Concrete
	033500 Concrete Finishing
	033519 Colored Concrete Finishing
	034100 Precast Structural Concrete
	034500 Precast Architectural Concrete
	035113 Cementitious Wood Fiber Decks
	035216 Lightweight Insulating Concrete
9104	<u>Masonry</u>
	042000 Unit Masonry
	042250 Autoclaved Aerated Concrete (AAC) Masonry
	042700 Glass Masonry Units
	047200 Cast Stone
9105	<u>Metals</u>
	051200 Structural Steel Framing
	052100 Steel Joists Framing
	053100 Steel Decking
	054000 Cold-Formed Metal Framing
	055000 Metal Fabrications
	055100 Metal Stairs
	055213 Pipe and Tube Railings
9106	<u>Wood, Plastics, and Composites</u>
	061000 Rough Carpentry
	061600 Sheathing
	062000 Finish Carpentry
	064023 Interior Architectural Woodwork
9107	<u>Thermal and Moisture Protection</u>
	071000 Dampproofing and Waterproofing
	072100 Thermal Insulation
	072700 Air Barriers
	073113 Asphalt Shingles
	074113 Metal Roof Panels
	074213 Metal Wall Panels
	074216 Insulated-Core Metal Wall Panels

TABLE OF CONTENTS (cont.)

075000	<i>Membrane Roofing</i>
075113	<i>Built-Up Asphalt Roofing</i>
075200	<i>Modified Bituminous Membrane Roofing</i>
075323	<i>EPDM Roofing</i>
075400	<i>Thermoplastic Membrane Roofing</i>
075700	<i>Coated Foamed Roofing</i>
076200	<i>Sheet Metal Flashing and Trim</i>
077100	<i>Roof Specialties</i>
077200	<i>Roof Accessories</i>
078100	<i>Applied Fireproofing</i>
078400	<i>Firestopping</i>
079200	<i>Joint Sealants</i>

9108

Openings

081113	<i>Hollow Metal Doors and Frames</i>
081116	<i>Aluminum Doors and Frames</i>
081416	<i>Flush Wood Doors</i>
081613	<i>Fiberglass Doors and Frames</i>
083113	<i>Access Doors and Frames</i>
083320	<i>Overhead Coiling Doors and Grilles</i>
083613	<i>Sectional Doors</i>
084113	<i>Aluminum-Framed Entrances and Storefronts</i>
084413	<i>Glazed Aluminum Curtain Walls</i>
085113	<i>Aluminum Windows</i>
085200	<i>Wood Windows</i>
085410	<i>Fiberglass Windows</i>
085656	<i>Security Window Screens</i>
086300	<i>Metal-Framed Skylights</i>
087100	<i>Door Hardware</i>
087113	<i>Automatic Door Operators</i>
088000	<i>Glazing</i>
088300	<i>Mirrors</i>
089000	<i>Louvers and Vents</i>

9109

Finishes

092116	<i>Gypsum Board Assemblies</i>
092400	<i>Portland Cement Plastering</i>
092513	<i>Acrylic Plaster Ceilings</i>
093000	<i>Tiling</i>
095113	<i>Acoustical Panel Ceilings</i>
096400	<i>Wood Flooring</i>
096466	<i>Wood Athletic Flooring</i>
096500	<i>Resilient Flooring</i>
096516	<i>Linoleum Flooring</i>
096566	<i>Resilient Athletic Flooring</i>
096616	<i>Terrazzo Floor Tile</i>
096723	<i>Resinous Flooring</i>
096766	<i>Fluid-Applied Athletic Flooring</i>
096813	<i>Tile Carpeting</i>
096816	<i>Sheet Carpeting</i>
096900	<i>Access Flooring</i>
098000	<i>Acoustic Treatment</i>
099100	<i>Painting</i>
099300	<i>Staining and Transparent Finishing</i>
099419	<i>Multicolored Coating System</i>
099600	<i>High-Performance Coatings</i>

TABLE OF CONTENTS (cont.)

9110	<u>Specialties</u>
	101100 Visual Display Surfaces
	101200 Display Cases
	101400 Signage
	101426 Post and Panel/Pylon Signage
	101453 Traffic Signage
	102113 Toilet Compartments
	102123 Cubicles
	102213 Wire Mesh Partitions
	102226 Operable Partitions
	102813 Toilet Accessories
	104400 Fire Protection Specialties
	105113 Lockers
	105613 Metal Storage Shelving
	105626 Mobile Storage Shelving
	107500 Flagpoles
9111	<u>Equipment</u>
	111300 Loading Dock Equipment
	113100 Residential Equipment
	114000 Food Service Equipment
	115123 Library Stack Systems
	115213 Projection Screens
	115313 Laboratory Fume Hoods
	116143 Stage Curtains
	116623 Gymnasium Equipment
	116643 Interior Scoreboards
	118226 Waste Compactors and Destructors
	119200 Art Room Equipment - Kilns
9112	<u>Furnishings</u>
	122113 Horizontal Louver Blinds
	122413 Roller Window Shades
	123550 Educational Casework
	123553 Laboratory Casework
	124813 Entrance Floor Mats and Frames
	124816 Entrance Floor Grilles
	126600 Telescoping Stands
	129100 Site Furnishings
9113	<u>Special Construction</u>
	134814 Sound Barriers
9114	<u>Conveying Equipment</u>
	142100 Electric Traction Elevators
	142400 Hydraulic Elevators
9121	<u>Fire Suppression</u>
	211000 Water-Based Fire-Suppression Systems

TABLE OF CONTENTS (cont.)

9122	<u>Plumbing</u>
	220519 Meters and Gages for Plumbing Piping
	221116 Domestic Water Piping System
	221119 Plumbing Piping Specialties
	221123 Plumbing Pumps and Accessories
	221316 Sanitary Piping System
	221323 Grease/Oil/Acid Interceptors
	221413 Storm Piping System
	221500 Compressed Air System
	223100 Domestic Water Softener Equipment
	223200 Domestic Water Filtration Equipment
	223400 Fuel-Fired Domestic Water Heaters
	224000 Plumbing Fixtures
	226313 Gas Piping for Laboratories
9123	<u>Heating, Ventilating, and Air Conditioning</u>
	230501 Common Work Results for HVAC
	230507 HVAC Piping
	230514 Variable Frequency Drives
	230519 Meters and Gages for HVAC Piping
	230523 General Duty Valves for HVAC Piping
	230525 Roof Curbs
	230529 Hangers and Supports for HVAC
	230548 Vibration and Seismic Control for HVAC
	230553 Identification for HVAC
	230593 Testing, Adjusting, and Balancing for HVAC
	230719 HVAC Insulation
	230800 Commissioning
	230923 HVAC Direct Digital Controls
	230993 Sequence of Operation for HVAC
	231101 Liquid Petroleum Gas Piping
	232113 HVAC Piping Specialties
	232117 Glycol Heat Transfer Fluid
	232119 HVAC Flow Control
	232123 HVAC Hydronic Pumps
	232300 Refrigerant Piping
	232500 HVAC Water Treatment
	233113 Low-Pressure Ductwork
	233115 Medium-Pressure Ductwork
	233117 Flexible Ductwork
	233300 Ductwork Accessories
	233313 Exterior Wall Louvers
	233400 HVAC Fans
	233423 Rooftop Intake, Exhaust, & Relief Ventilators
	233513 Dust Collection System
	233515 Welding Exhaust System
	233600 Variable Air Volume Terminals
	233713 Air Outlets and Inlets
	233716 Fabric Air Distribution Devices
	233718 Underfloor Air Distribution System
	233800 Kitchen Hood Ventilation System
	234323 Air Cleaning System
	235100 Breeching, Chimneys, and Stacks
	235213 Electric Boilers

TABLE OF CONTENTS (cont.)

235216	<i>Flue Gas Condensing Boilers</i>
235223	<i>Cast Iron Boilers</i>
235225	<i>Steel Firebox Boilers</i>
235233	<i>Flexible Water Tube Boilers</i>
235239	<i>Packaged Firetube Boilers</i>
235700	<i>Heat Exchangers</i>
236213	<i>Refrigerant Condensing Units</i>
236215	<i>Multiple-Compressor Refrigerant Condensing Units</i>
236416	<i>Packaged, Centrifugal Water Chiller</i>
236423	<i>Packaged, Scroll Water Chiller</i>
236426	<i>Packaged, Rotary Screw Water Chiller</i>
236440	<i>Refrigerant Monitoring Systems</i>
236500	<i>Packaged Cooling Towers</i>
236533	<i>Closed Circuit Fluid Coolers</i>
237119	<i>Ice Storage System</i>
237200	<i>Air to Air Energy Recovery Equipment</i>
237313	<i>Modular Indoor Air Handling Units</i>
237323	<i>Custom Indoor Air Handling Units</i>
238113	<i>Unitary Air Conditioning Equipment</i>
238123	<i>Computer Room Air Conditioners</i>
238146	<i>Water Source Unitary Heat Pumps</i>
238219	<i>Fan Coil Units – Four Pipe</i>
238223	<i>Unit Ventilators – Four Pipe</i>
238233	<i>Convectors</i>
238239	<i>Cabinet Unit Heaters</i>
238240	<i>Propeller Unit Heaters</i>
238316	<i>Radiant Heating Hydronic System</i>

9126

Electrical

260513	<i>Medium Voltage Cables 2001 to 35,000 v</i>
260519	<i>Low Voltage Electrical Power Conductors and Cables</i>
260526	<i>Grounding and Bonding of Electrical Systems</i>
260529	<i>Hangers and Supporting Devices</i>
260533	<i>Raceway and Boxes for Electrical Systems</i>
260536	<i>Cable Tray for Electrical Systems</i>
260543	<i>Underground Ducts and Raceways for Electric Systems</i>
260923	<i>Lighting Control Devices</i>
261200	<i>Medium Voltage Transformers</i>
261300	<i>Medium Voltage Switchgear</i>
262200	<i>Low Voltage Transformers</i>
262413	<i>Switchboards</i>
262416	<i>Panelboards</i>
262419	<i>Motor Control Centers</i>
262726	<i>Wiring Devices</i>
262813	<i>Fuses and Fuse Holders</i>
262816	<i>Enclosed Switches and Circuit Breakers</i>
262913	<i>Enclosed Controllers</i>
263213	<i>Package Engine Generators</i>
263600	<i>Transfer Switches</i>
264313	<i>Transient Voltage Suppression for Low-Voltage Electrical Power Circuits</i>
265100	<i>Interior Lighting</i>
265561	<i>Theatrical Dimming System</i>
265600	<i>Exterior Lighting</i>

TABLE OF CONTENTS (cont.)

9127	<u>Communications</u> 270526 <i>Grounding and Bonding for Communications Systems</i> 271100 <i>Communications Equipment Room Fittings</i> 271313 <i>Communications Copper Backbone Cabling</i> 271323 <i>Communications Optical Fiber Backbone Cabling</i> 271333 <i>Communications Coaxial Backbone Cabling</i> 271513 <i>Communications Copper Horizontal Cabling</i> 271533 <i>Coaxial Communications Horizontal Cabling</i> 271543 <i>Audio-Video Communications Horizontal Cabling</i> 272100 <i>Data Communications Network Equipment</i> 272133 <i>Data Communications Wireless Access Points</i> 273113 <i>IP-Enabled PABX System</i> 273123 <i>IP Only PABX System</i> 274117 <i>Broadband Video RF Distribution System</i> 274119 <i>Video Display Equipment</i> 274120 <i>Interactive Audio-Video Equipment</i> 274125 <i>Digital On-Demand Instruction Delivery System</i> 275121 <i>Student Dining / Auditoria Sound Reinforcement System – High School</i> 275122 <i>Student Dining / Cafeteria Sound Reinforcement System</i> 275123 <i>Central Sound and Paging System</i> 275124 <i>Gymnasium Sound Reinforcement System</i> 275125 <i>Music Room Audio Program Playback System - Middle School</i> 275126 <i>Music Room Audio Recording/Playback System - High School</i> 275127 <i>Classroom Sound Reinforcement System</i> 275313 <i>Clock Systems</i>
9128	<u>Electronic Safety and Security</u> 281300 <i>Access Control System</i> 281600 <i>Intrusion Detection System</i> 282300 <i>Video Surveillance System</i> 283111 <i>Digital, Addressable Fire-Alarm System</i>
9131	<u>Earthwork</u> 311000 <i>Site Clearing</i> 312000 <i>Earth Moving</i>
9132	<u>Exterior Improvements</u> 321216 <i>Asphalt Paving</i> 321313 <i>Concrete Paving</i> 321314 <i>Pervious Concrete Pavement</i> 321443 <i>Porous Unit Paving</i> 321816 <i>Playground Surfacing</i> 323113 <i>Fences and Gates</i> 329200 <i>Turf and Grasses</i>
9133	<u>Utilities</u> 330513 <i>Manholes and Structures</i> 331000 <i>Water Utilities</i> 333000 <i>Sanitary Sewerage Utilities</i> 334000 <i>Storm Drainage Utilities</i> 334600 <i>Subdrainage</i>

TABLE OF CONTENTS (cont.)

Chapter 9: Specifications (Career-Technical)

9200	Introduction
9203	<u>Concrete</u> 033516 Concrete Floor Hardener/Sealer
9206	<u>Wood, Plastics, and Composites</u> 060565 Slatwall Paneling 068200 Glass Fiber-Reinforced Plastic
9208	<u>Openings</u> 083416 Bottom Roll Slide Hanger Doors 083436 Revolving Darkroom Doors
9209	<u>Finishes</u> 096000 Wood Dance Floor 099600 High Performance Coatings
9211	<u>Equipment</u> 112713 Dark Room Equipment 113100 Residential Appliances 116135 Pipe Grid 116615 Ballet Bars 116800 Play Field Equipment and Structures
9213	<u>Special Construction</u> 131900 Kennels and Animal Shelter Equipment 133413 Glazed Structures (Greenhouses) 133419 Metal Building Systems
0923	<u>Heating, Ventilating, and Air Conditioning</u> 233500 Vehicle Fume Exhaust Equipment
0941	<u>Material Processing and Handling Equipment</u> 412223 Hoists and Cranes

Chapter 10: Miscellaneous

10010	Color Materials
10020	Loose Furnishings
10030	Food Service Equipment

Chapter 10: Miscellaneous (Career-Technical)

10100	Loose Furnishings
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The Ohio School Facilities Commission (OSFC) 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 OSFC Design Manual have 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 Design Manual establish a uniform level of quality for all public school buildings. The Design Manual will apply to new school facilities and new additions to existing buildings. Renovation to existing facilities should adhere to the Design Manual guidelines wherever possible.

Since the Design Manual must communicate so much information about so many issues, the length and quantity of the Manual can be intimidating. However, understanding how the Design Manual 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.

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 Design Manual 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 every school and school level. By designing classrooms and other instructional spaces to be flexible and adaptable, each individual district is better prepared to accommodate future educational program developments.

The Design Manual 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 three factors that must be considered and held in balance: quality, cost, and time (schedule). The Design Manual was created to provide parameters for balancing these three 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 Design Manual 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 Design Manual. 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 Design Manual 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 Ohio School Design Manual is the exclusive property of the Ohio School Facilities Commission of the State of Ohio, and the Ohio School Facilities Commission 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.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

A. ROLES OF PARTICIPANTS IN PLANNING, 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 various portions of the Design Manual to better understand his/her role and fulfill his/her responsibilities.

1. Participants in Creating the Master Facility Plan

Role: Assessment Consultant

Responsibilities: The Assessment Consultant assesses the condition of buildings, evaluates the overall building needs of the district, estimates costs and assists in developing the Master Facilities Plan.

Role: Educational Planner

Responsibilities: The Educational Planner develops and reports the most likely projected enrollment for the next ten years for assigned school districts. The following data is considered in developing the enrollment projections: historical enrollment of the school district, including special education enrollment; previously completed enrollment projections; grade level survival or transfer patterns and open enrollment numbers; federal and school district census data to include population, household, and economic information; live birth data for the district, county and municipalities; real estate transaction information; housing development patterns and building permits for single-family and multi-family units, including historical permits for the last ten years and projected permits for the next ten years; names and enrollments of private/parochial schools in the school district; and maps of the district. Career-Technical enrollment will be determined based on Commission guidelines.

Role: Regional Program Consultant (RPC)

Responsibilities: The Regional Program Consultant coordinates, manages, monitors, and plans the resources and schedule for the facilities assessment, student enrollment study, and Master Facilities Plan for assigned school districts. For the projects included in the Expedited Local Partnership Program (ELPP or VFAP ELPP), the RPC reviews plans and specifications for Design Manual compliance, reviews budget estimates prepared by the Design Professional (DP) and/or Construction Manager (CM), and provides various services during the construction phase.

2. Participants in Creating and Implementing the Master Facility Plan

Role: School District Representative

Responsibilities: Depending on the size of the district and the complexity of the projects, the school district representatives may include the Superintendent, a Principal, and/or the district's Facility Director. The school district representative is responsible for representing and making decisions on behalf of the school district in planning, design, and construction throughout the process.

Role: OSFC Staff

Responsibilities: Various OSFC staff members provide comprehensive support for the Project Team. A Planner is responsible for using the facility assessment information and enrollment study information to develop the Master Facility Plan for a district. Additional staff members with varying expertise participate as needed and serve as information resources throughout the project.

3. Participants in *Implementing* the Master Facility Plan

Role: The Design Professional (DP)

Responsibilities: The DP is involved in developing the Program of Requirements 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 Manager (CM)

Responsibilities: The CM is responsible for scheduling, estimating, and providing overall coordination for projects.

Role: OSFC Project Administrator (PA)

Responsibilities: A Project Administrator is the primary interface for the school district, the CM, and the DP. The PA accommodates the unique needs of the school district within the framework of Commission policies and procedures.

Role: Maintenance Plan Advisor (MPA)

Responsibilities: The MPA is hired by the district to provide a detailed plan to service, maintain, and prolong the life of the facilities using the maintenance fund.

Role: Commissioning Agent

Responsibilities: The Commissioning Agent is hired by the 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.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

B. SUMMARY OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

PRE-PLANNING

The school district establishes partnerships with the community, establishes and refines their educational program, and connects their educational program and with their shared vision of the facilities.

PLANNING, APPROVAL & FUNDING

An enrollment study is developed and facility assessments are conducted to help establish the planning parameters. A master facility plan is developed, a site is selected with assistance from the Design Professional (DP), and funding is secured.

CONTRACTING

Agreements and contracts are established between the state and the district for the project, between the district and the DP, and between OSFC and the CM.

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

DESIGN

- Schematic Design Phase: 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.
- Design Development Phase: 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: 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.

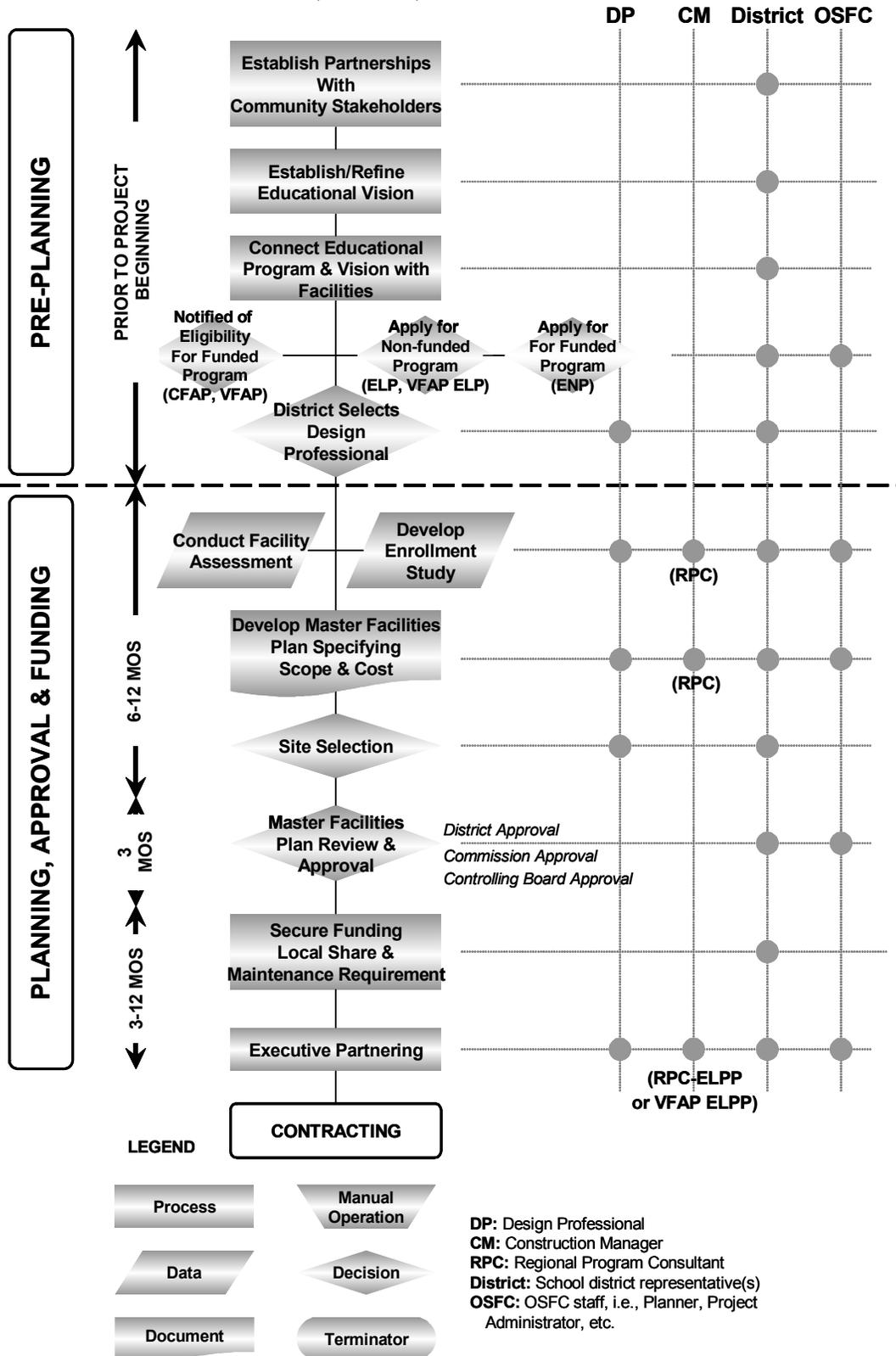
POST- OCCUPANCY

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

The following diagrams illustrate the planning, design, and construction process; the participants in each step, and the estimated timeline for each phase.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

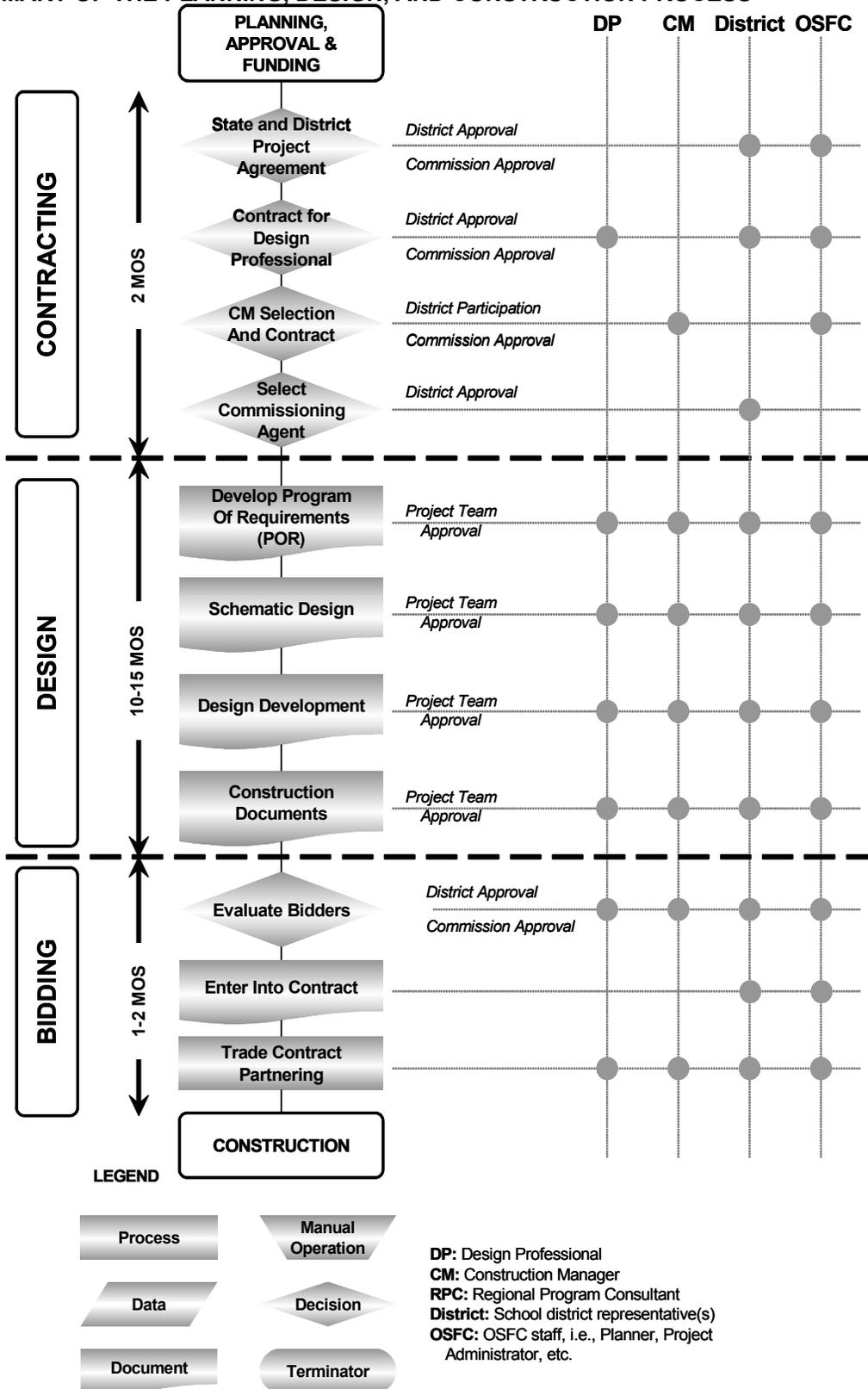
B. SUMMARY OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS



OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

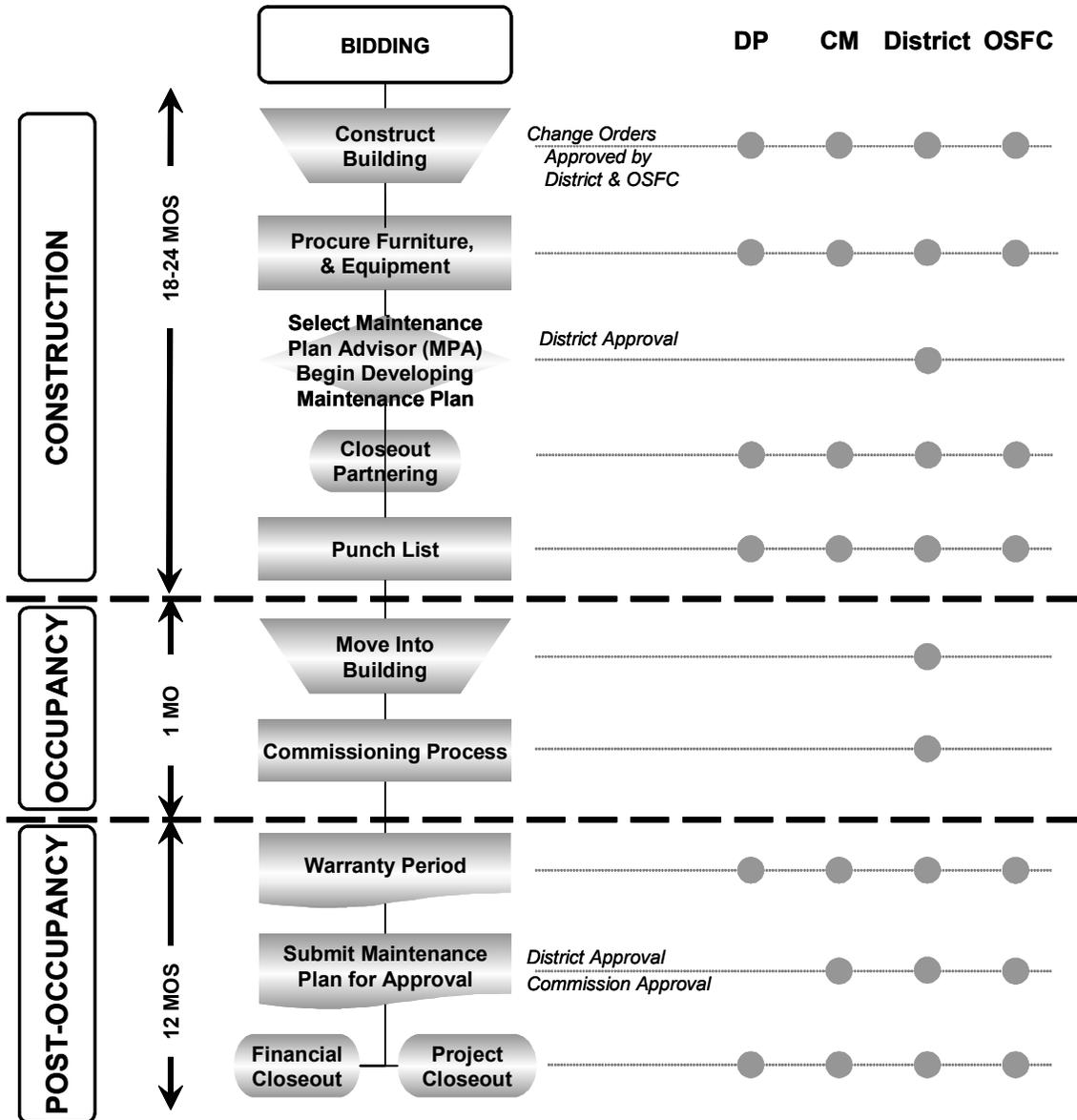
CHAPTER 1: INTRODUCTION

B. SUMMARY OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

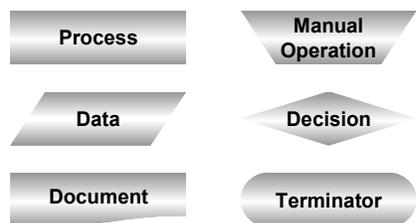


OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

B. SUMMARY OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS



LEGEND



DP: Design Professional
CM: Construction Manager
RPC: Regional Program Consultant
District: School district representative(s)
OSFC: OSFC staff, i.e., Planner, Project Administrator, etc.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

PRE-PLANNING

Establish Partnerships with Community Stakeholders

It is important to address the real need to include the community in the educational planning process. Critical links should be established among students, building administrators, faculty members, parents, school board members, and the community. These connections ensure a good outcome and continued support of construction endeavors.

Establish/Refine Educational Vision

Stakeholders should work together to develop an educational vision. Questions that may be answered include:

- What are the most appropriate program areas and delivery systems for the district?
- What does educational research suggest?
- What is the most appropriate grade organization or school size?
- What areas are working? What needs to be changed?

Connect Educational Program and Vision with Facilities

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:

- What are the future educational programs and/or systems that will impact facilities?
- What priorities should be addressed regarding the educational program and facilities?

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 only program at any time to determine the condition of their classroom facilities.

Apply for Assessment Only Program 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 their facilities.

Apply for Non-funded Program (Expedited Local Partnership Program – ELPP or Vocational Facilities Assistance Program (VFAP) ELPP)

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 Commission. The Commission 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.

Apply for Funded Program (Exceptional Needs Program – ENP)

ENP is a building replacement program that provides low wealth 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. Eligibility is open only to those districts with a ranking on the yearly Ohio Department of Education "Equity List" of lower than the 50th percentile. Districts that can be expected to be served by the CFAP within a 3-year period are ineligible to participate.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

PRE-PLANNING

Notification of Eligibility for Funded Program (CFAP, VFAP or ENP)

CFAP is the largest of the OSFC programs and provides funding for the entire facility needs of a school district. Each district is ranked on the Equity Aid Distribution List supplied to the Commission by the Ohio Department of Education.

District Selects Design Professional

The district is responsible for interviewing and selecting the Design Professional (DP) for the project(s). The DP is responsible for securing sub-consultants, such as mechanical and electrical engineers and technology experts, to design the building. ***In making this selection, factors include: experience in school design, energy efficient design, and sustainable design.*** The Commission approves the district's agreement with the Design Professional.

PLANNING, APPROVAL & FUNDING

The Planning, Approval, and Funding portion of the OSFC process includes data-gathering activities (developing enrollment projections and assessing existing facilities), incorporating the data into a Master Facilities Plan, site selection, approvals of the Master Facilities Plan, and securing funding for the district's building program.

OSFC Conducts Facility Assessment

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 assessing consultants 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.

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.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

Example of Building Assessment Summary

PLANNING, APPROVAL & FUNDING

District: _____ County: _____ Area: _____			
Name: _____		Contact: _____	
Address: _____		Phone: _____	
Bldg. IRN: _____		Date Prepared: _____	
Date Revised: _____			
Current Grades	9-12	Acreage:	12
Proposed Grades	N/A	Teaching Stations:	31
Current Enrollment	395	Classrooms:	
Projected Enrollment	N/A		
Cover Sheet			
Section		Points Possible	Points Earned
Percentage		Rating Category	
1.0 The School Site		100	44
2.0 Structural and Mechanical Features		200	109
3.0 Plant Maintainability		100	51
4.0 Building Safety and Security		200	97
5.0 Educational Adequacy		200	82
6.0 Environment for Education		200	88
Commentary			
Total		1000	471
		47%	
		Poor	
C=Under Contract			
Handicapped Access		Satisfactory	
Roads Repair		=3 Needs Replacement	
Const P/S=		Present Scheduled Construction	
Renovation Cost Factor		96.73%	
Cost to Renovate (Cost Factor applied)		\$4,293,230.86	
The Replacement Cost Per SF and the Renovate/Repair ratio are only provided when this summary is requested from a Master Plan.			
FACILITY ASSESSMENT		Rating	Dollar Assessment
[IMAGE] A.	Heating System	1	\$0.00
[IMAGE] B.	Roofing	3	\$148,280.00
[IMAGE] C.	Ventilation / Air Conditioning	3	\$730,780.00
[IMAGE] D.	Electrical Systems	3	\$529,335.00
[IMAGE] E.	Plumbing and Fixtures	3	\$23,500.00
[IMAGE] F.	Windows	3	\$259,450.00
[IMAGE] G.	Structure: Foundation	1	\$0.00
[IMAGE] H.	Structure: Walls and Chimneys	2	\$2,000.00
[IMAGE] I.	Structure: Floors and Roofs	1	\$0.00
[IMAGE] J.	General Finishes	2	\$623,439.00
[IMAGE] K.	Interior Lighting	2	\$88,222.50
[IMAGE] L.	Security Systems	3	\$117,830.00
[IMAGE] M.	Emergency/Egress Lighting	3	\$29,407.50
[IMAGE] N.	Fire Alarm	2	\$73,518.75
[IMAGE] O.	Handicapped Access	3	\$44,890.75
[IMAGE] P.	Site Condition	1	\$0.00
[IMAGE] Q.	Sewage System	1	\$0.00
[IMAGE] R.	Water Supply	1	\$0.00
[IMAGE] S.	Exterior Doors	1	\$0.00
[IMAGE] T.	Hazardous Material	3	\$62,691.00
[IMAGE] U.	Life Safety	3	\$366,148.75
[IMAGE] V.	Loose Furnishings	3	\$235,260.00
[IMAGE] W.	Technology	2	\$165,858.30
[IMAGE] X.	Construction Contingency / Non-Construction Cost	-	\$848,044.71
Total			\$4,348,456.26

The Summary includes inventory details about all the buildings that were assessed.

The Facility Assessment Summary indicates the rating of each of the 23 building systems.

Ratings:
1=Satisfactory
2=Needs Repair
3=Needs Replacement

The CEFPI Appraisal is an instrument that yields information about the ability of the building to support the educational program.

Each item on the summary is linked to a detailed description of the assessor's findings and recommendations

B. Roofing

Description: The existing roof membrane system was installed in 1989 and 1990. There were no significant problems observed with the roofs on any of the buildings. However, all roofs are at least 10 years old.

Rating: 3 Needs Replacement

Recommendations: Replace membrane roofs.

Item	Cost	Unit	Whole Building	Mechanicsburg High School (1934)	Mechanicsburg High School (1950)	Mechanicsburg High School (1957)	Mechanicsburg High School (1976)	Sum	
Other: Membranes	\$148,280.00	ump sum		7,425 ft ² Required	26,460 ft ²	11,160 ft ²	13,770 ft ²	\$148,280.00	replace membrane roofs \$5.00 x 29656 SF
Sum:			\$148,280.00	\$148,280.00	\$0.00	\$0.00	\$0.00		

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

Develop Enrollment Study for a Typical K-12 School

An important component of the OSFC planning protocol is the development of student enrollment projections. Upon entering a program, OSFC assigns an educational planner 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 district is obtained through a district questionnaire. District demographics such as live birth statistics, housing starts and survival rates are all combined to project the district's enrollment 10 years into the future.

An Enrollment Projections Report will generally include the following information:

Historical Enrollment

For example:

Over the past eight years, student enrollment in the _____ School District has increased by 108 students in grades K – 12, including full-time JVS students. Total K - 12 enrollment for the 2002-03 school year was 1,438 students, including the full-time JVS students. The approximate percentages of mainstreamed special education students [K - 12] for the current school year are as follows:

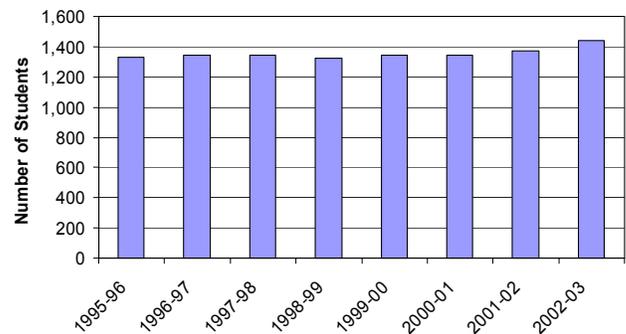
- K-5 – 9%
- 6-8 – 11%
- 9-12 – 10%

The approximate percentages of self-contained special education students [K - 12] for the current school year are as follows:

- K-5 – 0%
- 6-8 – 0%
- 9-12 – 0%

This graph illustrates the District's K-12 enrollment history from 1995 through 2002.

School District Historical Enrollment



The report itemizes historic enrollment by grade, by grade group, and by year.

Live Birth Data

Utilization of live birth data is recommended when projecting future enrollments. This provides a helpful overall trend, as well as a useful estimation of kindergarten enrollment five or six years in the future. Large bubbles in birth rates, either up or down, can also be planned for and anticipated by the district.

Live Birth Rates 1987-2001		
Year	Village of _____	_____ County
1987		1,663
1988		1,633
1989		1,742
1990		1,736
1991		1,780
1992		1,736
1993		1,833
1994		1,883
1995		1,925
1996		1,902
1997		2,036
1998		2,242
1999		2,328
2000	38	2,472
2001	28	2,520

Source: Ohio Department of Health, Statistical Analysis Unit

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS
 CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

PLANNING, APPROVAL & FUNDING

Develop Enrollment Study for a Typical K-12 School, continued

Demographics

Tables such as the following are developed to show important demographic information.

Village/Township General Demographic Information Total Population		
	1990	2000
Township	5,703	7,250
Village of _____	1,978	2,558
Village of _____	223	256
_____	N/A	N/A
_____	N/A	N/A
_____ Township	13,448	20,974

Source: ODOD Office of Strategic Research

_____ County General Demographic Information	
Total Population (1990)	113,973
Total Population (2000)	158,383
Income:	
Adjusted Per Capita Income (2001)	\$27,509
Median Family Income (1999)	\$55,955

Source: US Census Bureau; Bureau of Economic Analysis

In addition to the tables, a map is generated to illustrate the percent of population change for the entire district. The maps are color-coded by growth intensity, and percentage ranges are grouped in 4 separate categories, so they can easily be analyzed spatially. Additional tables provide information about district population, household size, and family size. This data provides important information about in- and out-migration rates for the district.

Housing Information

Various tables are also developed to enumerate the likely growth in housing units in the district.

Building Permits Issued for Single Family Dwellings					
Year	_____ Township # of Permits Issued	Village of _____ # of Permits Issued	Village of _____ # of Permits Issued	_____ Township # of Permits Issued	_____ County # of Permits Issued
1991					949
1992					1,302
1993					1,466
1994	N/A	N/A	N/A	N/A	1,520
1995					1,508
1996					1,858
1997					2,165
1998	48	2	9	130	2,516
1999	55	2	12	165	2,725
2000	40	4	12	136	2,353
2001	50	1	9	148	2,649
2002	51	7	8	216	2,650
2003	44**	1**	8**	239***	1,220*
Total	288	17	58	1,034	24,881

Source: SOCDs Building Permits Database; _____ County Building Inspection Department

_____ Township					
Subdivision	Number of Lots	Section Number	Final Plat Year	Number of Zoning Permits Issued	Number of Lots Remaining
_____	29	1	1994	26	3
_____	19	1	1993	17	2
_____	1	2	1998	1	0
_____	11	3	1998	7	4
_____	1	3	2002	1	0
_____	4	4	2003	0	4
Total	65			52	13

Source: _____ Township Planning and Zoning

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

PLANNING, APPROVAL & FUNDING

Develop Enrollment Study for a Typical K-12 School, continued

Projected Enrollment

Tables (by grade and by grade group) and graphs detail the projected enrollment for a 10-year period.

_____ School District										
Projected Enrollment by Grade Group										
Grade	2003-04*	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
K - 5	588	619	646	656	707	746	750	758	760	757
6 - 8	321	301	318	332	318	305	305	352	395	407
9 - 12	431	412	374	382	365	360	396	361	352	383
K - 12 Total	1,340	1,332	1,338	1,370	1,390	1,411	1,451	1,471	1,507	1,547

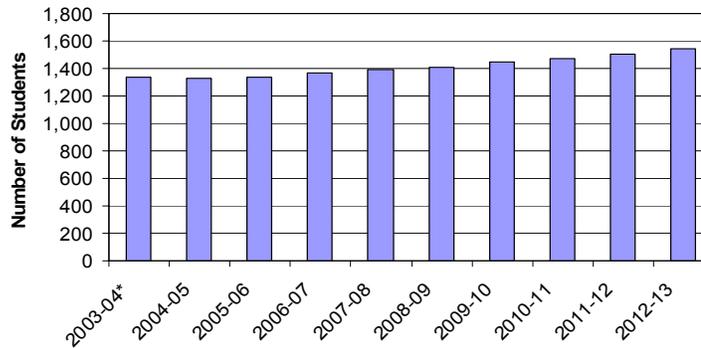
Source: DeJONG

*2003-04 projected enrollment is unofficial October enrollment provided to DeJONG by _____ School District.

_____ School District	
Master Planning Year Projected Enrollment	
Grade	2012-13
K - 12 Total	1,547
Ungraded	0
Career Tech Comprehensive	0
Career Tech On-Site	0
Career Tech Off-Site	0
Total	1,547

Source: DeJONG

_____ School District Projected Enrollment



OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

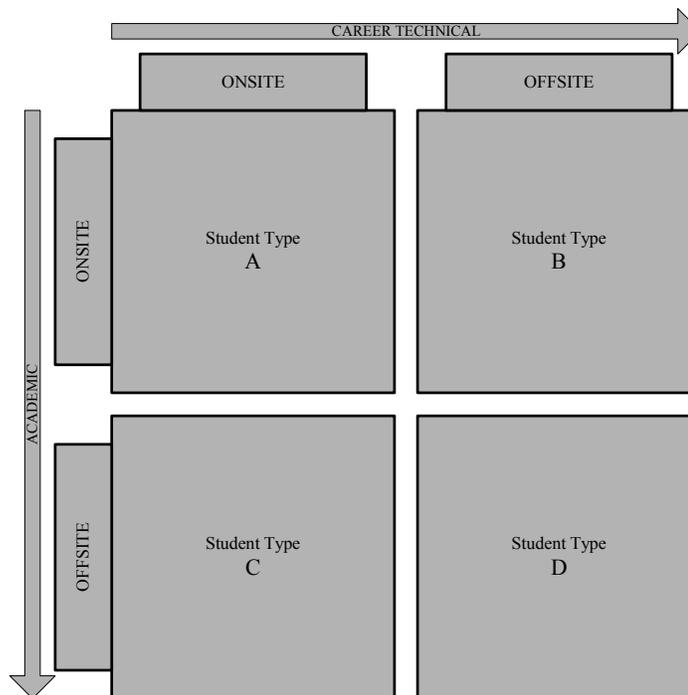
C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

PLANNING, APPROVAL & FUNDING

Develop Enrollment Study for a Career-Technical School

An important component of the OSFC planning protocol is the development of student enrollment. Upon entering the VFAP ELPP or VFAP the OSFC assigns an educational planner to produce the enrollment. The objective is to determine the number of students for which the buildings should be designed. The enrollment history of the district is obtained through a district questionnaire. Additional enrollment information is obtained from the Ohio Department of Education.

The following “Student Type” matrix illustrates the way that career-technical students are assigned to categories and enrollment is apportioned among the various secondary school types:



Student Type A – Comprehensive Career-Technical Student

Spends entire day at home high school attending academics and career-technical courses on single campus

Student Type B – Career-Technical Off-Site Student

Attends academic courses at home high school and attends career-technical courses at another location, i.e. JVS, comprehensive high school in another district, etc.

Student Type C – Career-Technical On-Site Student

Attends career-technical courses at home high school and attends academics at another location, i.e., high school in another district or high school within same district.

Student Type D – Full-Time Career-Technical Student

Attends both academic and career-technical courses at a site other than the home high school.

Student Type E – does not attend Career-Technical courses at all

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

PLANNING, APPROVAL & FUNDING

Develop Enrollment Study for a Career-Technical School, continued

An Enrollment Projections Report will generally include the following information:

Historical Enrollment

For example:

Over the past three years, student enrollment in the _____ Joint Vocational School District has decreased by 41 students in grades 11 and 12. The grand total enrollment for the 2002-03 school year was 303 11th and 12th grade students.

The following table and graph illustrate the 11-12-enrollment history from 2000 through 2003.

_____ JVS 3-YEAR HISTORICAL ENROLLMENT BY GRADE			
Grade	00-01	01-02	02-03
11	168	196	174
12	111	137	128
Total	279	333	303

The report itemizes historic enrollment by grade and by program area. For example, grade 11 might be:

TOTAL 3-YEAR HISTORICAL CAREER-TECHNICAL SCHOOL ENROLLMENT [11 GRADE ONLY]				
Program	Subject Code	00-01	01-02	02-03
Administration/ Office Technology	14.0300	20	9	9
Agriculture/ I.E.	01.0300	14	12	9
Auto Technology	17.0302	15	19	24
Carpentry	17.1001	15	13	21
Cosmetology	17.2602	21	18	20
Criminal Justice	17.2802	10	13	9
Diversified Health Occupations	07.0998	11	21	21
Early Childhood Education & Care	09.0201	20	9	14
Graphics Occupations	17.1900	7	19	14
Machine Tool Operation	17.2303	14	19	14
Marketing	04.0800			
Welding & Cutting	17.2306	10	13	10

Source: _____

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

Develop Master Facilities Plan Specifying Scope and Cost for K-12 Schools

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 district's classroom facilities. The number of students projected for each school is entered into the grade level-appropriate spreadsheet in the Design Manual 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 Design Manual. 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.

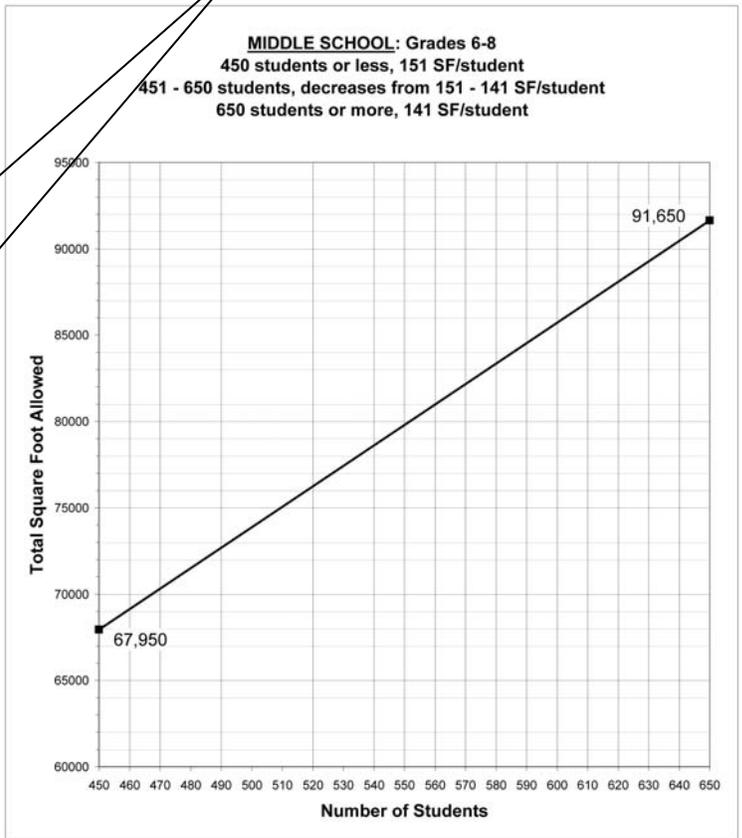
The square footage for each school is then multiplied by the allowable cost per square foot for that school level and school size (data found in Section 1200 of the Design Manual). All buildings in the district are aggregated to determine the overall budget for the Master Facilities Plan.

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

MIDDLE SCHOOLS SQUARE FOOT ALLOWANCE

CHAPTER 2: BRACKETING

Enter # of students
SF/student 147.75
Total SF for building 73,875



PLANNING, APPROVAL & FUNDING

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

PLANNING, APPROVAL & FUNDING

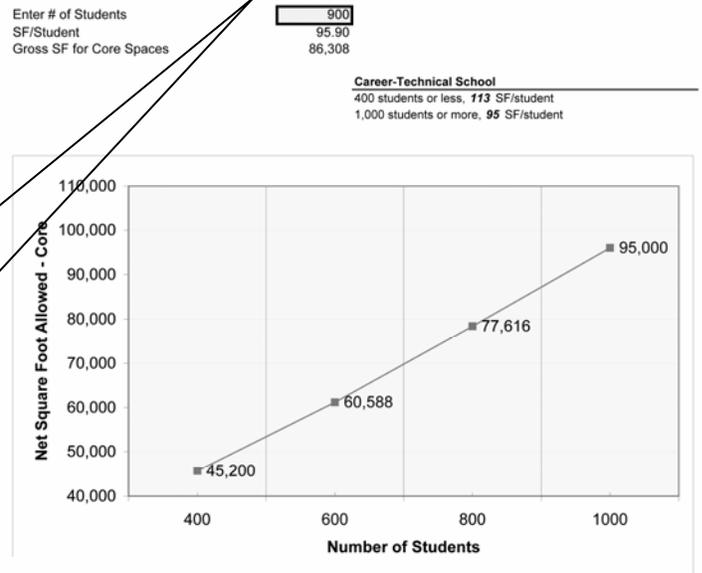
Develop Master Facilities Plan Specifying Scope and Cost for Career-Technical Schools

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 Design Manual (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 Design Manual (Career-Technical section).

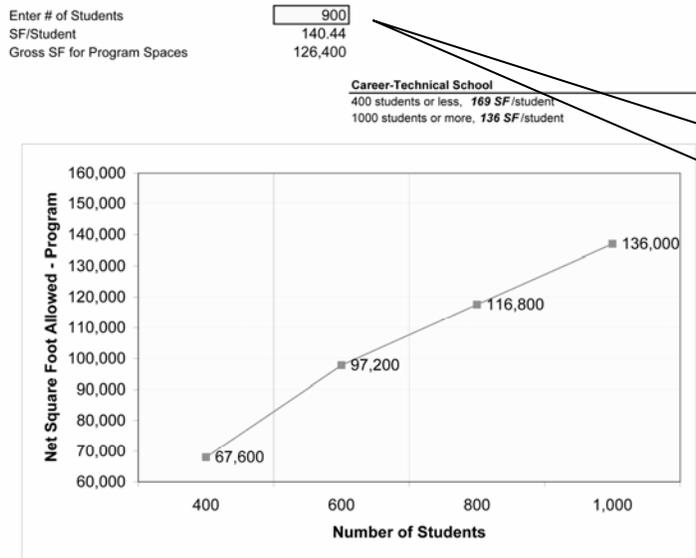
The core square footage for each school is then multiplied by the allowable cost per square foot for that school level and school size (data found in Section 1200 of the Design Manual). All buildings in the district are aggregated to determine the overall budget for the Master Facilities Plan.

To determine the maximum gross core square footage for the Core Spaces enter the number of students.

CAREER-TECHNICAL SCHOOLS
GROSS SQUARE FOOT MAXIMUM - CORE SPACES CHAPTER 2: BRACKETING



CHAPTER 2: BRACKETING CAREER-TECHNICAL SCHOOLS
GROSS SQUARE FOOT MAXIMUM - PROGRAM SPACES



To determine the maximum gross square footage for the Program Spaces enter the number of students.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

PLANNING, APPROVAL & FUNDING

Develop Master Facilities Plan Specifying Scope and Cost for Career-Technical Schools, continued

Due to the unique nature of Career-Technical program spaces, the methodology for determining space (square footage) requirements for program areas is different than the methodology used for core academic areas.

The space requirements for program areas is program driven: Each of the 80+ Career-Technical Programs recognized by the Ohio Department of Education is assigned to one of seven Program Types which outlines the general lab space, general support spaces, and program specific support spaces identified for a given Career-Technical Program.

The space requirements for the core academic areas of a stand alone Career-Technical facility is student population driven: Much like the methodology in the K-12 Design Manual, the number of students in a facility drives the space requirements for core facilities including areas such as academic classrooms, science & computer labs, administration, media centers, dining & kitchen areas, custodial & general service spaces.

Because of the unique challenges presented by Career-Technical facilities in developing an appropriate and equitable Program of Requirements (POR), there are several guidelines adopted by the OSFC to manage the development of the POR and the subsequent facilitation of a funding level for a given project.

Program of Requirements (POR) Guidelines

1. The OSFC will use the highest enrollment in the preceding 3 years for the student enrollment.
2. The assessment of existing facilities will take into account Career-Technical Programs that are approved by (not just applied for) the Ohio Department of Education for the specific Career-Technical facility.
3. Program spaces and core spaces are considered separately in determining the square footage deficiencies and credits in a POR. Additional space allowed for program areas cannot be applied to core area deficiencies or vice-versa. The final use of existing space is not restricted, however, as existing core space could be converted to program space and vice-versa if it balances with allowable programming guidelines and the efficient disposition of space within the facility.
4. Spaces in existing facilities which are not indicated in the Career-Technical sections as approved and funded core or program spaces will be disregarded in the assessment of a career-technical facility and the development of a fundable POR. For example, adult education only spaces, district administration, county service offices, auditoriums and convocation spaces, etc. will not be included in assessment or determination of net and gross square footage calculations.
5. Core space assessment which determine square footage deficiencies and allowed expansion must address academic classroom requirements first before addressing any other areas of allowed core spaces.
6. As a cap to the POR, the ratio of total students to program spaces must be a minimum of 30:1 for Lab Types 5-7 and a minimum of 50:1 for Lab Types 1-4.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

PLANNING, APPROVAL & FUNDING

Develop Master Facilities Plan Specifying Scope and Cost for Career-Technical Schools, continued

7. As a cap to the development of program and core space requirements, the gross funded square footage indicated in a fundable POR cannot exceed the sq.ft. per student per the Gross Square Foot Allowance Chart on page 2000-2.
8. Program Type 7 covers extraordinary sized programs. The fundable limit for Program Type 7 areas shall be 10,000 sq.ft.
9. Any existing lab space which is assessed at less than 75% of its recommended square footage will be eligible to receive funding for an addition and/or a renovation of other available existing space within the facility. The total fundable square footage is still subject to all other guidelines as listed.
10. The square footage calculations for the master plan are based on the assumption of all day student participation. Deviation from this assumption will be addressed on a case by case basis.
11. The career-technical facility must complete the POR phase of pre-design prior to final acceptance/approval of the Master Facilities Plan. The district has the option of using the OSFC assessment consultant or their selected design professional to complete this phase.
12. Renovations and expansion of core and program spaces in excess of these guidelines must be funded by local initiative in addition to the local + state share of the master plan.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

Example of a High School Master Facilities Plan including Career-Technical Areas

Master Plan Name

Classroom Facilities Assessment Program
 Rank
 School District
 School District IRN
 County
 Cost Region
 Assessing Consultant
 Educational Planner

When additions are highlighted for an existing school, this is an indication these additions are to be demolished.

Assessment summary

Number of students to be housed in facility by grade group and allowable square feet

Estimated project cost based on square footage by grade group

Building	K-12
Type	High
Acres	
Grades Housed	9th - 12th
Current Enrollment	NA
Additions to Demolish	
Grades Housed - Proposed	PK-12
Projected Enrollment	851
CT Projected Enrollment	130
Scope of Work	New
CEFP Rating	
Existing ft ² (all)	
Cost/ft ² (DM)	
Cost to Replace	\$0
Cost to Renovate	
Renovate+Replace	
CT Core Cost to Replace	—
CT Core Cost to Renovate	—
CT Core Renovate+Replace	—
CT Program Cost to Replace	—
CT Program Cost to Renovate	—
CT Program Renovate+Replace	—
Total Renovate+Replace	—
Addition Required	
	Addition ft²
Elementary (PK-5)	
Projected Enrollment	435
ft ² /Student	116.58
ft ² Required	50712
Middle (6-8)	
Projected Enrollment	213
ft ² /Student	143.43
ft ² Required	30551
High (9-12)	
Projected Enrollment	203
ft ² /Student	170.98
ft ² Required	34,709
Career Technical Core Space	
Projected Enrollment	130
ft ² /Student	118.00
ft ² Required	15,340
Total ft ² Required	131,312
ft ² Existing	0
Oversized ft ²	
Less Oversized ft ²	0
CT ft ² Existing (subtract)	0
CT ft ² Not Programmed (add)	0
Less CT ft ²	0
Addition ft ² Needed	131,312
Cost per ft ²	
Total Addition Cost	\$0
	Cost of Additions
Elementary (PK-5)	
Total ft ² Required	50712
Cost/ft ² (DM)	153.38
Cost to Rebuild	\$7,778,252.57
Middle (6-8)	
Total ft ² Required	30551
Cost/ft ² (DM)	157.36
Cost to Rebuild	\$4,807,440.84
High (9-12)	
Total ft ² Required	50,049
Cost/ft ² (DM)	164.48
Cost to Rebuild	\$8,232,049.65
Career Technical Program Space (from CT Summary)	

Projected Enrollment (10 Yr)

Grade	PE (10 Yr)	Grade Configurations
	2007-08	
PK	3	
K	70	PK-5
1	71	435
2	65	6th-8th
3	67	213
4	84	9th-12th
5	75	203
6	64	PK-8th
7*	80	648
8	69	6th-12th
9	81	416
10	80	PK-3
11	22	276
12	20	
***	851	

CT-Comp	82
CT off	48

981

Enrollment projections summary

PLANNING, APPROVAL & FUNDING

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

Example of a Career-Technical Program of Requirements (POR)

PLANNING, APPROVAL & FUNDING

	Taxonomy Number	SF EXIST	SF ALLOW	SF REPROG	COST REPROG	SF NEW	COST NEW			COST TOTAL	Final SF
Number of Students - Total		82	2 Programs								EXISTING
Number of Students - Low Bay		50	1 Program								
Number of Students - High Bay		32	1 Program								
Gross SF per Student Funded											+
Total Gross SF Funded											NEW
Program Type 1											
Program Type 2											
Program Type 3											
Marketing Technology	14.0830		2,220			2,220	\$ 511,571		\$ 511,571		2,220
Program Type 4											
Program Type 5											
Agrbusiness and Production Systems	1.0301		6,763			6,763	\$ 1,412,091		\$ 1,412,091		6,763
Program Type 6											
Net Program Spaces						8,983	\$ 1,923,662		\$ 1,923,662		8,983
								Regional Cost Factor	1.0000	\$ 1,923,662	
Mech./Electrical Space (5.0%)						449		Mech./Electrical Space (5.0%)	\$189.13	\$ 84,948	449
Corridors (14%)						1,258		Corridors (14%)	\$189.13	\$ 237,854	1,258
Total Program Space						10,690		Total Program Space		\$ 2,246,464	10,690
Construction Factor (11%)						1,176		Construction Factor (11%)	\$189.13	\$ 222,417	1,176
Total Gross Program Space						11,866		Total Gross Program Space		\$ 2,468,880	11,866
Maximum Gross Program SF Co-Funded											
Program SF/Student			0 SF per Student			145 SF per Student				SF per Student	145
SF NOT USED IN POR		0								Allowable SF	169

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS
 CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

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.

Example of a Classroom Facilities Assistance Program (CFAP) Calculation Worksheet

_____ SCHOOL DISTRICT
 _____ COUNTY
 _____ DATE
 Draft

PLANNING, APPROVAL & FUNDING

Step 1. Assessed Valuation	\$	<u>77,975,820</u>
Step 2. Net Bonded Indebtedness	\$	<u>-</u>
Step 3. Project Cost	\$	<u>29,856,780</u>
Step 4. Required level of indebtedness .05 + [.0002 x (21percentile** - 1)] of assessed valuation*		5.40%
	\$	<u>4,210,694</u>

Step 5. To increase the district's net bonded indebtedness to within \$5,000 of the required level of indebtedness, the district would need additional bond debt of:

	<u>Worth of Local Share</u>
Step 4:	\$ <u>4,210,694</u>
minus Step 2:	\$ <u>-</u>
Total	\$ <u>4,210,694</u>

Step 6. Required percentage of the project costs equals (.01 x basic project costs) x 21 percentile**	21.00% **
	\$ <u>6,269,924</u>

Step 7. Amount of Bond issue or Alternative Funding must be the greater of:

- a. a required percentage of the project costs \$ 6,269,924
- b. the amount necessary to raise the net bonded indebtedness of the district to within \$5,000 of the required level of indebtedness \$ 4,210,694
- c. Therefore, the district's share would be for \$ 6,270,000

STATE	\$ <u>23,586,780</u>	79%
LOCAL	\$ <u>6,270,000</u>	21%
TOTAL	\$ <u>29,856,780</u>	

*District's valuation for the year preceding the year in which the Controlling Board approved the project under 3318.04 of the O.R.C.

**Percentile in which the district ranks. (By law, the minimum State share is 5%; therefore, all districts in the 95-100 percentile are shown as 95%).

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

PLANNING, APPROVAL & FUNDING

The following example illustrates the methodology for calculating the local share for a VFAP.

Example of a Vocational Facilities Assistance Program (VFAP) Calculation Worksheet

	SCHOOL DISTRICT
	COUNTY
	DATE
Draft	
Step 1. Project Cost	\$ <u>32,721,546</u>
Step 2. Required percentage of the project costs equals (basic project costs x 25 percentile)**	<u>25.00%</u> \$ <u>8,180,387</u>
Step 3. Amount of Bond issue or Alternative Funding must be the greater of:	
a. A required percentage of the project costs	\$ <u>8,180,387</u>
b. Therefore, the district's share would be for	\$ <u>8,180,387</u>
STATE \$	<u>24,541,160</u> 75%
LOCAL \$	<u>8,180,387</u> 25%
TOTAL \$	<u>32,721,546</u>

(**Percentile in which the district ranks. By law, the minimum State share is 5%; minimum local share is 25%)

Site Selection

Site acquisition is the responsibility of the school district. Chapter 3 of the Design Manual provides criteria upon which to base selection decisions. Each potential site must be analyzed in terms of size, topography, soils characteristics, utility infrastructure, environmental restrictions and other criteria indicated in the Design Manual. The district's Design Professional should be involved in this process.

Master Facilities Plan Review and Approval

The Master Facilities Plan is reviewed and approved by the district, the Commission, and the Ohio Controlling Board.

Secure Funding for Local Share and Maintenance Requirement

The district secures funding for the local share portion of the project and the maintenance fund requirement.

Executive Partnering

Soon after the Project Scope and Budget are established, an Executive Partnering Meeting is scheduled. Board members, the Superintendent, building Principals, department heads, building operations staff, technology coordinators, architects, engineers, and representatives of the OSFC come together for the first time. With the aid of a professional facilitator, the stakeholders have an opportunity to establish working relationships with other members of the design/planning team. Roles are defined along with schedules and other objectives that must be met for the project to be successful. Best practices as well as pitfalls are discussed and efficient communication channels are established.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

CONTRACTING

State and District Project Agreement

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 district, the CM's agreement, and the General Conditions or the Contracts for Construction.

Contract for Design Professional

The selection of the Design Professional to provide services for the Design/Bid/Build process is made by the school district 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 does the district enter into fee negotiations. OSFC must approve the DP's contract.

CM Selection and Contract

While the Architect is selected by the District, the selection of the Construction Management Firm is made by the OSFC with input from the District. 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 OSFC.

Select Commissioning Agent

The Commissioning Agent, employed directly by the District, acts independently of the HVAC Designers to assure that the Building Mechanical Systems will function within the parameters established as the basis for their design. Early in the design process the agent establishes a Commissioning Plan to be followed throughout design and construction efforts. The Plan establishes operational objectives, monitors installation procedures, and incorporates functional testing protocols.

The Cx is an independent third party with no other ties to the project. The Cx cannot be tasked with conducting any subsequent corrective actions beyond that of their Cx role.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

DESIGN

Develop Program of Requirements (POR)

The Development of the Program of Requirements (identification of space needs) is accomplished by the Design Professional working directly with the District Administration, OSFC staff, students and interested community members. In the beginning of this process, the grades to be housed, the number of students per grade and the square footage per student are entered into the Design Manual's active Excel spreadsheets yielding the Total Gross Building Square Footage. Using the Bracketing Chapter of the Design Manual, 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 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 Program of Requirements has been completed and approved by the Project Team.

If the district elects to proceed with components not listed as acceptable in the Design Manual, the 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.

K-12 BRACKETING EXAMPLE

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. Spaces in each of the program areas will be included in every school.

The top table shows examples of programs for various school size levels.

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

SUMMARY OF SPACES

CHAPTER 2: BRACKETING Sample School District, SAMPLE MIDDLE SCHOOL SUMMARY OF SPACES

The following is an example of three sizes of middle schools. The examples are intended to assist in the development of the summary of spaces.

EXAMPLE	450 Students	600 Students	750 Students
	SF	SF	SF
Grade Configuration: 6-8			750
Number of Students	450	600	141.00
Square Feet Per Student	151.00	142.88	
Total Gross Square Feet Funded	67,950	85,725	105,750
PROGRAM AREA			
M-AC Academic Core Spaces	18,450	24,450	29,850
M-SE Special Education Spaces	1,750	2,350	3,700
M-AD Administrative Spaces	2,237	2,705	3,415
M-MC Media Center Spaces	3,795	4,473	5,745
M-VA Visual Arts Spaces	1,400	1,450	2,700
M-MU Music Spaces	1,600	2,900	3,000
M-TE Technology Education Spaces	1,450	1,450	2,750
M-FCS Family and Consumer Science Spaces	0	1,200	1,200
M-PE Physical Education Spaces	9,300	10,325	11,100
M-SD Student Dining Spaces	4,150	4,300	5,732
M-FS Food Service Spaces	1,625	2,350	2,875
M-CU Custodial Spaces	300	400	600
M-BS Building Services	14,960	18,876	23,304
Facility Total	67,216	77,229	95,270
Construction Factor	0.11	0.11	0.11
Gross Square Feet Developed	67,950	85,725	105,750

WORKSHEET

Enter Grade Configuration: _____

Enter Student Capacity: _____

Square Feet Per Student from Page 2000-3: _____

Total Gross Square Feet Funded: _____

SELECT ONE: Single Story Building Multistory Building

Plus Vertical Circulation (for Multistory Buildings) Area Allowable: _____

Total Adjusted POR Gross Square Footage: _____

PROGRAM AREA	New SF	Existing SF	TOTAL SF
M-AC Academic Core Spaces	0	0	0
M-SE Special Education Spaces	0	0	0
M-AD Administrative Spaces	0	0	0
M-MC Media Center Spaces	0	0	0
M-VA Visual Arts Spaces	0	0	0
M-MU Music Spaces	0	0	0
M-TE Technology Education Spaces	0	0	0
M-FCS Family and Consumer Science Spaces	0	0	0
M-PE Physical Education Spaces	0	0	0
M-SD Student Dining Spaces	0	0	0
M-FS Food Service Spaces	0	0	0
M-CU Custodial Spaces	0	0	0
M-BS Building Services	0	0	0
Facility Total	0	0	0
Construction Factor (11% multiplied by the facility total)	0.11	na	na
Actual Gross Square Feet Developed	0	0	0
Minus existing Oversize Area from Master Plan			
Adjusted Existing Area	0	0	0
Total Adjusted Gross Square Footage Developed (without Oversize Area)	0	0	0
Difference of SF developed from SF allowable			

Vertical Circulation (multistory buildings) refers only to stairways/stairtowers, monumental stairs, elevators and elevator equipment rooms.

see note 1
see note 2

PROGRAM AREA

Sample School District, SAMPLE MIDDLE SCHOOL
ACADEMIC CORE SPACES
M-AC

The following is an example of three sizes of middle schools. The examples are intended to assist in the development of the summary of spaces.

EXAMPLE	450 Students			600 Students			750 Students		
Space	Qty	SF	Area	Qty	SF	Area	Qty	SF	Area
M-AC-1 Middle School Classroom	15	900	13,500	18	900	16,200	24	900	21,600
M-AC-2 Project Laboratory	3	1,100	3,300	6	1,100	6,600	6	1,100	6,600
M-AC-3 Teacher Prep Area/Workroom	3	300	900	3	300	900	3	300	900
M-AC-4 Individual Restroom	3	50	150	3	50	150	3	50	150
M-AC-5 Instructional Material Storage	3	200	600	3	200	600	3	200	600
M-AC-6 Small Group Room	0	150	0	0	150	0	0	150	0
Academic Core Total			18,450			24,450			29,850

WORKSHEET	New SF			Existing SF			TOTAL SF		
Space	Qty	SF	Area	Qty	SF	Area	Qty	SF	Area
M-AC-1 Middle School Classroom	0		0	0	0	0	0	varies	0
M-AC-2 Project Laboratory	0	1,100	0	0	0	0	0	varies	0
M-AC-3 Teacher Prep Area/Workroom	0	300	0	0	0	0	0	varies	0
M-AC-4 Individual Restrooms	0	50	0	0	0	0	0	varies	0
M-AC-5 Instructional Material Storage	0	200	0	0	0	0	0	varies	0
M-AC-6 Small Group Room	0	150	0	0	0	0	0	varies	0
Academic Core Total			0			0			0

When the number of rooms is entered into the spreadsheet, the total square footage for that program area is automatically calculated. The total is also automatically linked to the program area summary of spaces.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

DESIGN

Develop Program of Requirements (POR), continued

CAREER-TECHNICAL BRACKETING (example)

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. Spaces in each of the program areas will be included in every school.

The top table shows examples of programs for various school size levels.

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

CHAPTER 2: BRACKETING

The following is an example of four sizes of Career-Technical Schools. The examples are intended to assist in the development of the summary of spaces.

	400	600	800	1,000
Number of Students	400	600	800	1,000
Core SF/student Funded	113	101	97	95
Total Core Space Funded	45,200	60,588	77,616	95,000
Program SF/student Funded	169	162	146	136
Total Program Space Funded	67,600	97,200	116,800	136,000
Total Gross SF Funded	112,800	157,788	194,416	231,000

Core Spaces				
CT-AC Academic Core	14,400	20,500	26,850	33,330
CT-SE Spec. Ed./Student Svs.	4,000	4,000	5,170	5,290
CT-AD Administration	3,020	3,900	4,900	6,160
CT-MC Media Center	2,820	4,120	4,890	6,040
CT-SD Student Dining	4,400	5,650	7,367	9,344
CT-FS Food Service	1,650	2,350	3,050	3,750
CT-CU Custodial	300	400	500	500
CT-GS General Services	3,091	4,228	5,110	6,376
Net Core Space	33,681	45,148	57,837	70,790
Mechanical/Electrical Space (6.9%)	2,324	3,115	3,991	4,885
Corridors (14%)	4,715	6,321	8,097	9,911
Total Core Space	40,720	54,584	69,925	85,586
Construction Factor (11%)	4,479	6,004	7,692	9,414
Gross Core Space Developed	45,200	60,588	77,616	95,000
Gross Core Space Co-Funded	45,200	60,588	77,616	95,000

Program Spaces				
CT-P1 Program Type 1	4,860	6,380	7,900	12,460
CT-P2 Program Type 2	4,620	2,310	4,620	4,620
CT-P3 Program Type 3	3,700	7,990	9,070	11,360
CT-P4 Program Type 4	8,355	14,465	14,465	19,335
CT-P5 Program Type 5	10,126	18,752	19,252	15,389
CT-P6 Program Type 6	18,889	23,249	32,475	28,912
CT-P7 Program Type 7	0	0	0	10,000
Net Program Space	50,550	73,146	87,782	102,076
Mechanical/Electrical Space (5%)	2,528	3,657	4,389	5,104
Corridors (14%)	7,077	10,240	12,289	14,291
Total Program Space	60,155	87,044	104,461	121,470
Construction Factor (11%)	6,617	9,575	11,491	13,362
Gross Program Space Developed	66,771	96,619	115,951	134,832
Gross Program Space Co-Funded	67,600	97,200	116,800	136,000

Total Gross SF Developed	111,971	157,207	193,567	229,832
Total Gross SF Co-Funded	112,800	157,788	194,416	231,000
Difference	829	581	849	1,168

CAREER-TECHNICAL PROGRAM SPREADSHEET

School District Name, School Building Name
LABORATORY AND SUPPORT SPACES
CT-P2

CHAPTER 2: BRACKETING

The following lists all of the programs within Type 2 with the laboratory space requirements as well as related spaces requirements. In this example of a 600 student Career-Technical School, it is indicated that one program is being offered.

EXAMPLE				
Laboratory Space	Quantity	SF	Area	
Biotechnology	07.4850	1500	0	
Chemical Laboratory Assisting	17.2000	1500	0	
Community Health Aide	07.0906	0	1500	0
Dental Laboratory Technology	07.0103	1500	0	
Emergency Medical Technician	07.0907	1500	0	
Fitness Aide/Athletics Trainer Assisting	07.0410	1500	0	
Health Support Pathway	07.4840	1500	0	
Health Unit Coordinator	07.0913	1500	0	
Home Health Aide	07.0307	1500	0	
Industrial Laboratory Assisting	17.2004	1500	0	
Medical Laboratory Technology	07.0203	1500	1500	
Pharmacy Assisting	07.0912	1500	0	
Practical Vocational Nurse	07.0302	1500	0	
Health Informatics Pathway	07.4890	1500	0	
Therapeutic Pathway	07.4830	1500	0	
Total Lab Spaces	1			
Related Space				
CT-P2-2 Office	1	120	120	
CT-P2-3 Storage	1	200	200	
CT-P2-4 Changing Room	1	490	490	
Total Program Type 2				2,310

When the number of rooms is entered into the spreadsheet, the total square footage for that program area is automatically calculated. The total is also automatically linked to the program area summary of spaces.

DESIGN

Schematic Design (SD)

During the Schematic Design Phase, the required spaces developed during the POR process are organized in functional groupings and orientated around building circulation and service systems. The Schematic Design is reviewed and approved by the Project Team before starting the Design Development Phase.

Design Development (DD)

During the Design Development 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 CM. The Design Development documents are reviewed and approved by the Project Team before starting the Construction Documents Phase.

Construction Documents (CD)

At the conclusion of the Design Development 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 Construction Documents Phase is to prepare documentation that will accurately and precisely convey that design to the prime contractors who will construct it. In essence the Design Development 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. These documents are used as the basis of the final CM Estimate of Construction Cost necessary for a recommendation to the Board of Education and OSFC prior to entering the Bidding Phase. These documents are submitted for agency approval necessary for the issuance of a building permit.

The structure of the bidding process 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.

BIDDING

Evaluate Bidders

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 CM for compliance with the Bidding Requirements.

Enter Into Contracts

Within 60 days of the receipt of bids the CM 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 Board of Education and the Commission.

Trade Contractor Partnering

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.

OVERVIEW OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS

CHAPTER 1: INTRODUCTION

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

CONSTRUCTION

Construct Building

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.

Procure Furniture and Equipment

While the furniture plan for a school 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.

Select Maintenance Plan Advisor (MPA)

Develop Maintenance Plan

The District Maintenance Plan is normally prepared by a Maintenance Plan Advisor (MPA). Aided by a comprehensive web tool, the MPA 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 district for their use.

Closeout Partnering

The Closeout Partnering Meeting brings all stakeholders together in a session to focus on the smooth completion of each participant's obligations under their contracts. A professional facilitator guides all parties step by step through the requirements.

Punch List

Having been notified by the Prime Contractors that their work is complete and compliant with the project documents, the Architect and Construction Manager inspect the work and prepare a "punchlist" of missing or deficient items. The items on this list must be completed, repaired or replaced by the Prime Contractors. When the corrections are accomplished and all items are accounted for on the punch list, the A/E Team and the CM are notified to make a final inspection.

OCCUPANCY

Move Into Building

Time must be allocated in the schedule to deliver and set up loose furnishings and move equipment, supplies, and materials into the building.

Commissioning Process

While the Commissioning Agent 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.***

C. DETAILS OF THE PLANNING, DESIGN, AND CONSTRUCTION PROCESS, continued

POST-OCCUPANCY

Warranty Period

Normally the Project Specifications call for the Contractor to provide a labor guarantee for a period of one year commencing when the 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 Architect and CM and deficiencies are listed. The Contractor is obligated to correct those deficiencies much as he is obligated to do in the punch listing process.

Project Closeout

The Project Closeout focuses more on the relationships between the District and the Prime Contractors than on the District and the OSFC. The Closeout Process is necessary to monitor and verify the submission of Owner/Operator Manuals, Owner Training, attic material stock, Certificates Contract Completion and other documentation. The Design Professional shall provide record documents to the 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.

Financial Closeout

The Financial Closeout primarily focuses on reconciling and concluding the fiscal relationship between the 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 district in proportion of the original State and district shares. Remaining interest earned on State and district funds is returned to the State and deposited in the district maintenance fund.

The Design Manual is organized into ten chapters that explain the planning, 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 chapters included in the Design Manual are:

- Chapter 1: Introductory Information
- Chapter 2: Bracketing
- Chapter 2: Bracketing (Career-Technical)
- 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)

Chapter 1: Introduction

Chapter 1 contains introductory information that provides a general overview of the planning, 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.

Chapter 2: Design Manual 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 child.

K-12 Key Points

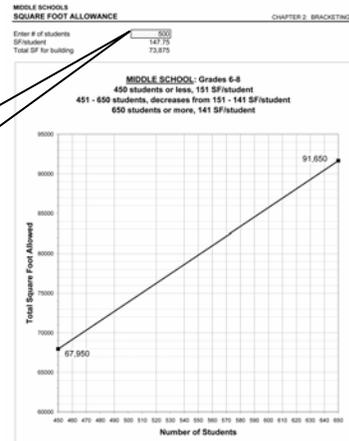
- The formula for determining the overall square footage of a school facility is:

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

Additional Key Points in Chapter 2:

- The minimum school size at any grade configuration is 350 students (per 3318.03 ORC).
- The ranges of 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 design manual 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 Design Manual.
 - For **all grade levels**: Classrooms may be no greater or less than 3% of the sizes listed in the Design Manual.
 - The total square footage developed must be equal to or be no more than one-tenth (0.10) percent 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.



Academic Classroom 10% Tolerance

During the development of the original Design Manual, 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, special needs students, and multiple program delivery methods.

As part of the implementation of the Design Manual, it was found that a tolerance of 10% was needed to allow flexibility when designing schools and to allow districts to reduce overall elementary classroom size to no less than 810 SF. The extra space is to be used for additional instruction areas or it can be applied to other instructional areas such as art and music. This reduction allows elementary school classrooms to remain adequately sized to meet student educational needs. The 10% reduction was not allowed for middle and high school academic spaces.

With an increased understanding of how to organize schools to facilitate learning opportunities, flexibility is needed to allow the School District and Design Professional the freedom to re-allocate space to other learning areas. Therefore, the following tolerances will be allowed:

- » Reduction in Classroom Size at the Elementary Schools
A reduction in the size of the classroom at 10% for the development of additional learning areas and classrooms and to increase the size of other educational spaces is an acceptable re-assignment of square footage for elementary schools.
- » Reduction in Classroom Size at the Middle, High, and Career-Technical Schools
A 10% reduction of the middle, high, and career-technical classroom is NOT allowed, unless the space is reallocated to develop an extended learning area adjacent to a group of academic classrooms.

Extended Learning Areas or Commons

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 a "commons" or "extended learning area" where students can receive instruction, conduct small group activities, practice drama, and engage in other learning activities.

Extended Learning Areas [ELA's] or commons 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 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 of 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 other forms of informal social interaction**
- ◆ **Make-up tests (proficiency and school subject exams)**
- ◆ **Showing of films, class parties, fun activities**

When designing commons or extended learning areas, it is important to note some of the characteristics that define what an ELA 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.

Extended Learning ARE:

- ◆ **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**

Extended Learning Areas ARE NOT:

- ◆ **Enclosed with walls and/or doors**
- ◆ **A room**
- ◆ **A “teaching station”**
- ◆ **A room with desks, chairs, a teacher’s desk, or fixed furniture**

Chapter 2: Career-Technical Bracketing

Chapter 2 assists the school district in establishing gross square footage for a new 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.
 - 50% of classrooms may be no greater or less than 3% of the sizes listed.
 - The total square footage developed must be equal to or be no more than one-tenth (0.10) percent 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
The following is an example of four sizes of Career-Technical Schools.
The examples are intended to assist in the development of the summary of spaces.

Number of Students	400	600	800	1,000
Core SF/Student Funded	113	101	97	95
Total Core Space Funded	45,200	60,588	77,616	95,000
Program SF/Student Funded	169	162	146	136
Total Program Space Funded	67,600	97,200	116,800	136,000
Total Gross SF Funded	112,800	157,788	194,416	231,000

Core Spaces				
CT-AC Academic Core	14,400	20,500	26,850	33,334
CT-SE Spec. Ed./Student Svcs.	4,000	4,000	5,170	5,290
CT-AD Administration	3,020	3,900	4,900	6,160
CT-MC Media Center	2,820	4,120	4,890	6,040
CT-SD Student Dining	4,400	5,650	7,367	9,344
CT-FS Food Service	1,650	2,350	3,050	3,750
CT-CU Custodial	300	400	500	500
CT-GS General Services	3,091	4,228	5,110	6,376
Net Core Space	33,681	45,148	57,837	70,790
Mechanical/Electrical Space (6.9%)	2,324	3,115	3,991	4,885
Corridors (14%)	4,715	6,321	8,097	9,911
Total Core Space	40,720	54,584	69,925	85,586
Construction Factor (11%)	4,479	6,004	7,692	9,414
Gross Core Space Developed	45,200	60,588	77,616	95,000
Gross Core Space Co-Funded	45,200	60,588	77,616	95,000

Program Spaces				
CT-P1 Program Type 1	4,650	6,380	7,900	12,460
CT-P2 Program Type 2	4,620	2,310	4,620	4,620
CT-P3 Program Type 3	3,700	7,990	9,070	11,360
CT-P4 Program Type 4	8,355	14,465	14,465	19,335
CT-P5 Program Type 5	16,126	18,752	19,252	15,389
CT-P6 Program Type 6	16,889	23,249	32,475	28,912
CT-P7 Program Type 7	0	0	0	10,000
Net Program Space	50,550	73,146	87,782	102,076
Mechanical/Electrical Space (5%)	2,528	3,657	4,389	5,104
Corridors (14%)	7,077	10,240	12,289	14,291
Total Program Space	60,155	87,044	104,461	121,470
Construction Factor (11%)	6,617	9,575	11,491	13,362
Gross Program Space Developed	66,771	96,619	115,951	134,832
Gross Program Space Co-Funded	67,600	97,200	116,800	136,000

Total Gross SF Developed	111,971	157,207	193,567	229,832
Total Gross SF Co-Funded	112,800	157,788	194,416	231,000
Difference	829	581	849	1,168

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 Design Manual. The Design Manual 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 within the assistance of a design professional.
- Factors to be used for judging the merits of a site are:
 - Adjacent Property
 - Aesthetic Considerations
 - Codes and Zoning
 - Easements/Right-of-way
 - Environmental Restrictions
 - Site preparation
 - Site Size
 - Site Utilities
 - Soil Characteristics
 - Testing
 - Topography
 - Vehicle Access
- Site design requirements detail design considerations and provide diagrams for important site elements, including:
 - a. Vehicular circulation
 - b. Pedestrian circulation
 - c. Emergency vehicle access
 - d. Bicycle circulation
 - e. Storm drainage
 - f. Sanitary sewerage
 - g. Directional signage
 - h. Physical education
 - i. Playgrounds
 - j. Fencing
 - k. Lighting
 - l. Mechanical/electrical yard
 - m. Landscaping
 - n. Site furnishings
 - o. Exterior security provisions
- 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.

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

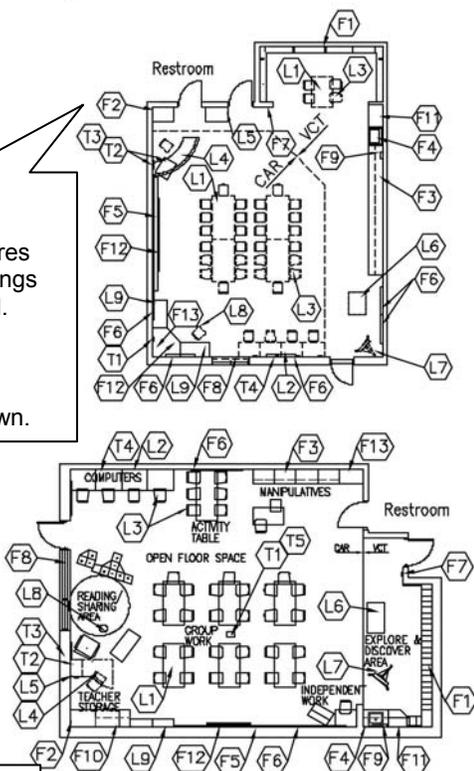
The information in this diagram is referred to as a *space plate*. There is a space plate for each room in each program area in each school level.

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

**PRE-K/KINDERGARTEN CLASSROOM
E-AC-1**

CHAPTER 4: ELEMENTARY SCHOOL

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.



- 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.

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.

- SPATIAL RELATIONSHIPS:**
- Near other pre-k/kindergarten classroom
 - Near teacher prep area/workroom
 - Direct access to outdoor playground
 - Near vehicle drop-off/pick-up drive
 - Adjacent to pre-k/kindergarten restroom

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:**
- Uniform lighting
 - Natural light opening equal to minimum 5% of floor area, with an operable vent
 - Environmental sound control – wall minimum STC 50 ceiling minimum CAC 35, NRC 0.65
 - Resilient and stain-resistant floor covering
 - Ergonomically appropriate furniture and equipment heights

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

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

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 Equipment, Plumbing, HVAC, Electrical, and Technology 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**

CHAPTER 4: ELEMENTARY SCHOOL

<u>FINISHES¹:</u>	Spec. Ref.#	<u>FEATURES¹:</u>	Spec. Ref.#
<u>Flooring:</u>		<u>Fixed Items:</u>	
Combination carpet with vinyl composition tile	096816	F1 Open casework - student coats and personal items, with wall cabinets above	123550
Optional: All vinyl composition tile, linoleum, VET, VCTT, or sheet vinyl	096500	F2 3' of tall wardrobe w/file drawers, optional	123550
		F3 15'-18" of base & wall cabinets	123550
<u>Base:</u>		F4 3' sink base cabinet	123550
Resilient base	096500	F5 12'-16" of chalk/marker board	101100
		F6 16'-20" of tack board or tackable wall surface or combination	101100
<u>Ceiling:</u>		F7 Pencil sharpener support	062000
Suspended, acoustical	095113	F8 Window with integral blinds	085116
		F9 Towel dispenser (optional)	102813
<u>Walls:</u>		F10 36"- 42" high storage cabinet	123550
Painted concrete masonry units	042200/099100	F11 3' of tall cabinets (could have tote trays, optional)	123550
		F12 Projection screen (optional)	115213
		F13 Technology support casework (could be mobile)	123550
<u>LOOSE FURNISHINGS:</u>		<u>Fire Suppression:</u>	
L1 Student desks/tables		Fire suppression system	211000
L2 Computer workstation furniture (fixed or mobile)		<u>Plumbing:</u>	
L3 Student chairs		Sink with drinking fountain	224000
L4 Teacher workstation/computer support and chair (fixed or mobile)		Plumbing connections	224000/221113/221116/221119
L5 File cabinet		<u>HVAC:</u>	
L6 Sand/water table		Supply/return air system	Div. 23
L7 Children's painting easel		Independent temperature control	230923
L8 Teacher reading chair or stool		<u>Electrical:</u>	
L9 8'-10" of low bookcases (fixed or mobile)		Fluorescent lighting	265100
Wastebasket		Illumination level: See Table 8600-10	
Pencil sharpener		Multilevel switching	262726
		4 duplex receptacles	262726
<u>Miscellaneous:</u>		Double duplex receptacle adjacent to each data and video port	262726
N/A		Emergency lighting	265100
		Means of egress lighting per code	265100
		<u>Communications:</u>	
		T1 1 video port	271533/271543
		T2 1 voice port and phone	271513/273113
		T3 1 data port near teacher workstation	271523
		T4 4 data ports (minimum) for student use	271523
		Central sound system	275123
		Clock	275313
		Sound reinforcement system	275127
		T5 Overhead projector	274119
		<u>Electronic Safety and Security:</u>	
		Life safety devices per code	283111

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.

NOTES:

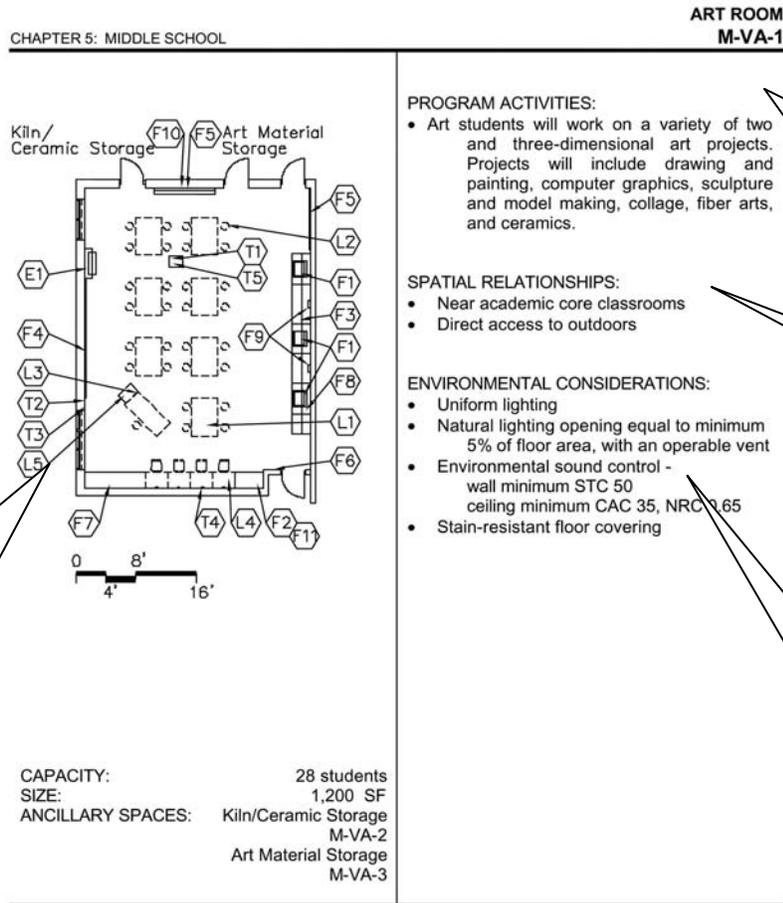
1. Finishes/Features: Refer to Chapter 9 for specification references.
2. Technology components may be placed in a separate small cabinet, or integrated in the other casework in the room.

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.



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.

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 Technology.

NOTES:

1. Loose furnishings shown represent one of many possible arrangements.

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 Equipment, Plumbing, HVAC, Electrical, and Technology 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		CHAPTER 5: MIDDLE SCHOOL	
M-VA-1			
	Spec. Ref.#		Spec. Ref.#
FINISHES¹:			
Flooring:			
Vinyl composition tile, sealed concrete, VET, or sheet vinyl	096500	Fixed Items:	
Base:		F1 3'-4' sink base cabinet, or several wash fountains	123550
Resilient base	096500	F2 3' of tall wardrobe with file drawers	123550
Ceiling:		F3 10'-12' of base cabinets	123550
Suspended, acoustical	095113	F4 12'-16' of tack board or tackable wall surface	101100
Walls:		F5 12'-16' of chalk/marker board	101100
Painted concrete masonry units	042200/099100	F6 Pencil sharpener support	062000
		F7 6'-10' of tall storage cabinets	123550
		F8 10'-12' of wall cabinets	123550
		F9 Towel dispenser (optional)	102813
		F10 Projection screen (optional)	115213
		F11 Technology support casework	123550
		Fire Suppression:	
		Fire suppression system	211000
		Plumbing:	
		Sinks with solids interceptor	224000
		Plumbing connections	224000/221113/221116/221119
		HVAC:	
		Supply/return air system	Div. 23
		Independent temperature control	230923
		Manually controlled general exhaust	Div. 23
		Electrical:	
		Fluorescent lighting	265100
		Illumination level: See Table 8600-10	
		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
		Communications:	
		T1 1 video port	271533/271543
		T2 1 voice port and phone	271513/273113
		T3 1 data port near teacher workstation	271523
		T4 4 data ports (minimum) for student use	271523
		Clock	275313
		Central sound system	275123
		Sound reinforcement system	275127
		T5 Overhead projector	274119
		Electronic Safety and Security:	
		Life safety devices per code	283111
		Miscellaneous:	
		Windows with integral blinds	081113/088000

NOTES:

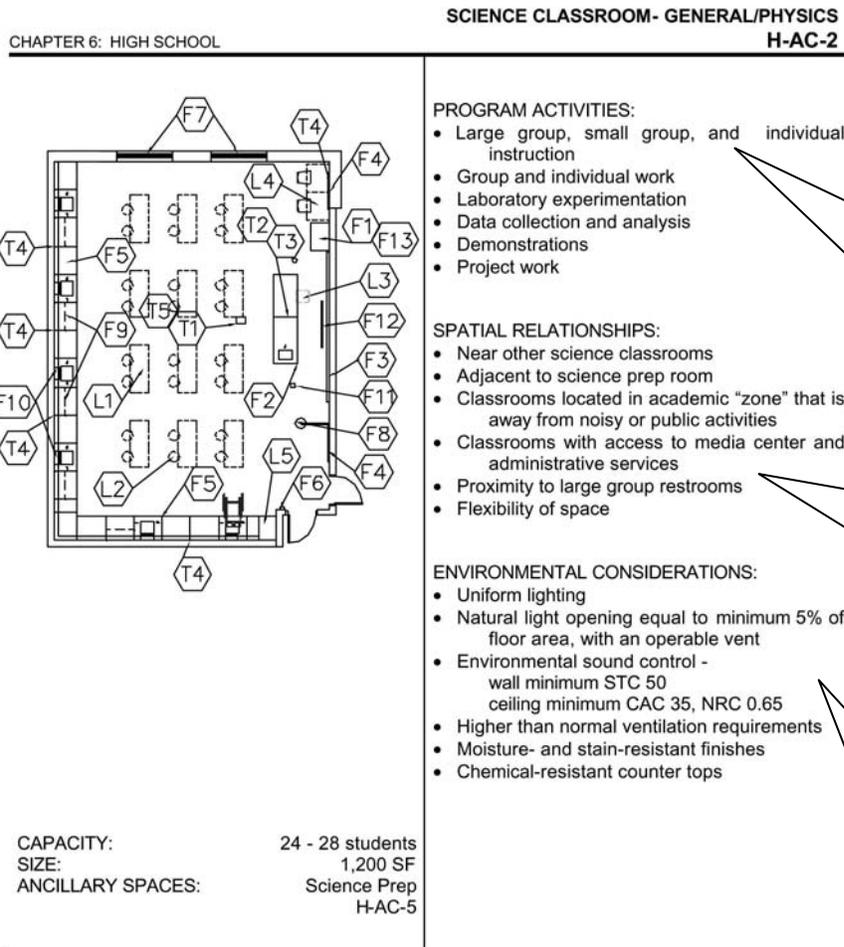
1. Finishes/Features: Refer to Chapter 9 for specification references.

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.



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.

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 Technology.

- NOTES:**
1. Loose furnishings shown represent two of many possible arrangements.
 2. Science casework layout to be determined by the school district.
 3. 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.
 4. The layouts shown do not restrict or reflect the variety of arrangements available to the Design Professional.

Chapter 6: High School, continued

Key Points, continued

This is the subsequent page of information for each space.

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

Features identified on the space plates are required for the space. Features include: Fixed Equipment, Plumbing, HVAC, Electrical, and Technology Systems.

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

CHAPTER 6: HIGH SCHOOL

	Spec. Ref.#		Spec. Ref.#
FINISHES¹:		FEATURES:	
Flooring:		<u>Fixed Items:</u>	
Vinyl composition tile, linoleum,	096500	F1 3' of tall wardrobe with file drawers	123553
Rubber, VET, or sheet vinyl	096516	F2 Demonstration table/teacher desk	123553
Base:		F3 10'-16' of chalk/marker board	101100
Resilient base	096500	F4 10'-16' of tack board	101100
Ceiling:		F5 40'-60' of lab casework with sinks	123553
Suspended, acoustical	095113	F6 Pencil sharpener support	062000
Walls:		F7 Windows with integral blinds	085116
Painted concrete masonry units	042200/099100	F8 Emergency shower/eyewash	224000
		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
		F13 Technology support casework	123553
		Fire Suppression:	
		Fire suppression system	211000
		Plumbing:	
		Plumbing connections	224000/221113/221116/221119
		Emergency shower/eyewash connections	224500
		Gas connections (optional)	226313
		Master shutoff for gas	226313
		Compressed air connections (optional)	221513
		HVAC:	
		Supply/return air system	Div. 23
		Independent temperature control	230923
		Manual exhaust	Div. 23
		Electrical:	
		Fluorescent lighting:	265100
		Illumination level: See Table 8600-10	
		Multilevel switching	262726
		Duplex receptacles at perimeter workstations and teaching wall	262726
		Double duplex receptacle adjacent to each data and video port	262726
		Emergency lighting	265100
		Means of egress lighting per code	265100
		Communications:	
		T1 1 video port	271533/271543
		T2 1 voice port and phone	271513/273113
		T3 1 data port at demonstration table	271523
		T4 4 data ports (minimum) for student use	271523
		Clock	275313
		Central sound system	275123
		Sound reinforcement system	275127
		T5 Overhead projector	274119
		Electronic Safety and Security:	
		Life safety devices per code	283111

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.

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 include 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.

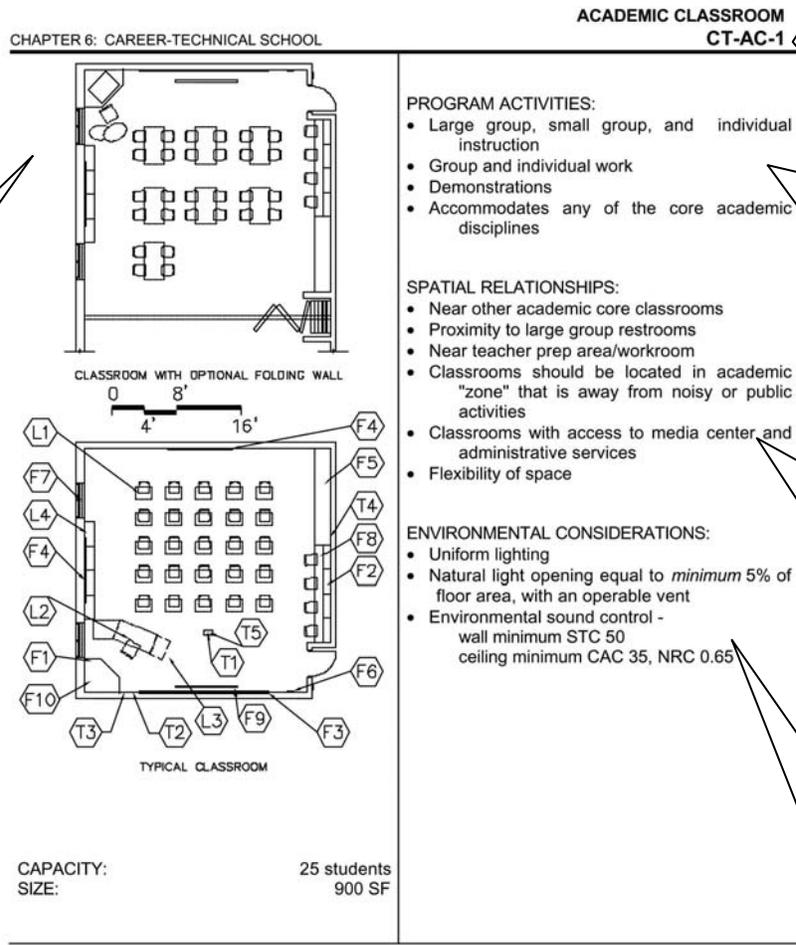
Each room has a unique code that appears in the bracketing and on the space plate. In this case:
CT=Career Tech
AC=Academic
Core
1=Space Plate #1

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 Technology.

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:
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.

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 Equipment, Plumbing, HVAC, Electrical, and Technology 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

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.

ACADEMIC CLASSROOM		CHAPTER 6: CAREER-TECHNICAL SCHOOL	
CT-AC-1		Spec. Ref.#	Spec. Ref.#
FINISHES¹:		FEATURES¹:	
Flooring:		Fixed Items:	
Carpet	096816	F1 3' of tall wardrobe with file drawers	123550
Optional: Vinyl composition tile, linoleum, VET, or sheet vinyl	096516 096500	F2 Computer work surface (could be loose)	123550 101100
Base:		F3 10'-16' of chalk/marker board	101100
Resilient base	096500	F4 10'-16' of tack board	123550
Ceiling:		F5 8'-12' of base & wall cabinets	062000
Suspended, acoustical	095113	F6 Pencil sharpener support	085116
Walls:		F7 Windows with integral blinds	123550
Painted concrete masonry units	042200/099100	F8 About 10' of wall cabinets	115213
		F9 Projection screen (optional)	123550
		F10 Technology support casework	
LOOSE FURNISHINGS:		Fire Suppression:	
L1 Student desks and chairs		Fire suppression system	211000
L2 Teacher desk or workstation/computer support and chair		Plumbing:	
L3 File cabinet		N/A	
L4 9' of low bookcases (fixed or mobile)		HVAC:	
Wastebasket		Supply/return air system	Div. 23
Pencil sharpener		Independent temperature control	230923
		Electrical:	
		Fluorescent lighting:	265100
		Illumination level: See Table 8600-10	262726
		Multilevel switching	262726
		4 duplex receptacles	262726
		Double duplex receptacle adjacent to each data and video port	262726
		Communications:	
		T1 1 video port	271533/271543
		T2 1 voice port and phone	271513/273113
		T3 1 data port near teacher workstation	271523
		T4 4 data ports (minimum) for student use	271523
		Clock	275313
		Central sound system	275123
		Sound reinforcement system	275127
		T5 Overhead projector	274119
		Electronic Safety and Security:	
		Life safety devices per code	283111
		Miscellaneous:	
		M1 Operable partitions between classrooms are optional	102226

- 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.

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		ELECTRONICS CT-P1-1	
PROGRAM DESCRIPTION: 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.		FEATURES¹: <u>Fixed Items:</u>	
			Spec. Ref.#
		16' of chalk/marker board	101100
		8' of tack board	101100
		30' of base cabinets	123550
		30' of wall cabinets	123550
		12' of tall storage cabinets	123550
		Pencil sharpener support	062000
		Windows with integral blinds	085116
		Projection screen, 6'x8'	115213
Program Type: 1		Fire Suppression:	
Size Requirements: 1,800 SF Lab		Fire <i>suppression</i> system	211000
Lab Requirements:		<u>Plumbing:</u>	
		N/A	
FINISHES:	Spec. Ref #	<u>HVAC:</u>	
<u>Flooring:</u>		Supply/return air system	Div. 23
Carpet	096816	Independent temperature control	230923
Optional: vinyl composition tile, VET, sheet vinyl, or linoleum	096500 096516		
<u>Base:</u>		<u>Electrical:</u>	
Resilient	096500	Fluorescent lighting, parabolic lenses:	265100
		Illumination level: See Table 8600-10	
<u>Ceiling:</u>		Multilevel switching	262726
Suspended acoustical	095113	6 duplex receptacles	262726
		Double duplex receptacle adjacent to each data and video port	262726
<u>Walls:</u>		Communications:	
Painted concrete masonry units	042200/ 099100	1 video port	271533/271543
		1 voice port and phone	271513/273113
LOOSE FURNISHINGS:		1 data port near teacher workstation	271523
(12) Two-person work tables w/storage below		26 data ports	271523
(24) Computer workstation furniture & chairs		Clock	275313
(1) Teacher station & chair		Central sound system	275123
Wastebasket		Sound reinforcement system	275127
Pencil sharpener		Overhead projector	274119
		Electronic Safety and Security:	
		Life safety devices per code	283111
		<u>Miscellaneous:</u>	
		N/A	

NOTES:

1. Finishes/Features: Refer to Chapter 9 for specification references.

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.

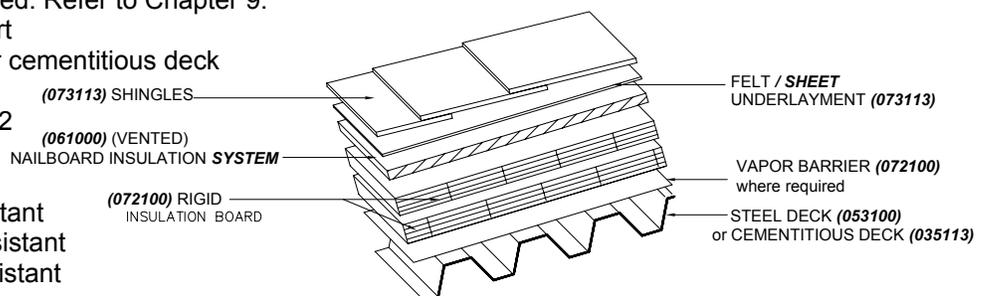
Chapter 8: Systems and Materials

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
 - windows
- Roofs
 - shingle roof system
 - metal roof with batt insulation
 - metal roof with rigid insulation
 - built-up roof
 - membrane 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 System

- Application - Steep Roofing
- Components
 1. Roof Membrane
 - Shingles
 - Underlayment/membrane flashing
 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. Slope
 - minimum 3:12
- Performance
 1. Features
 - Impact Resistant
 - Moisture Resistant
 - Thermal Resistant



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.

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

FINISHES

CHAPTER 9: SPECIFICATIONS

SECTION 096816

SHEET CARPETING

GENERAL GUIDELINES

1.1 SECTION INCLUDES

- A. Qualitative requirements for carpet materials and accessories for a direct-glue down or preapplied adhesive installation of one of the following:
1. Tufted Broadloom
 2. Vinyl Cushion Tufted Textile (VCTT)

1.2 QUALITY ASSURANCE

- A. *Carpet shall meet or exceed Carpet and Rug Institute's (CRI) Appearance Retention Rating of 3.5 ARR.*
- B. Chemical Emission/Indoor Air Quality: All carpet specified must be in compliance with the Carpet and Rug Institute (CRI) "Green Label" 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. *Sheet Carpet: 10 years (minimum).*

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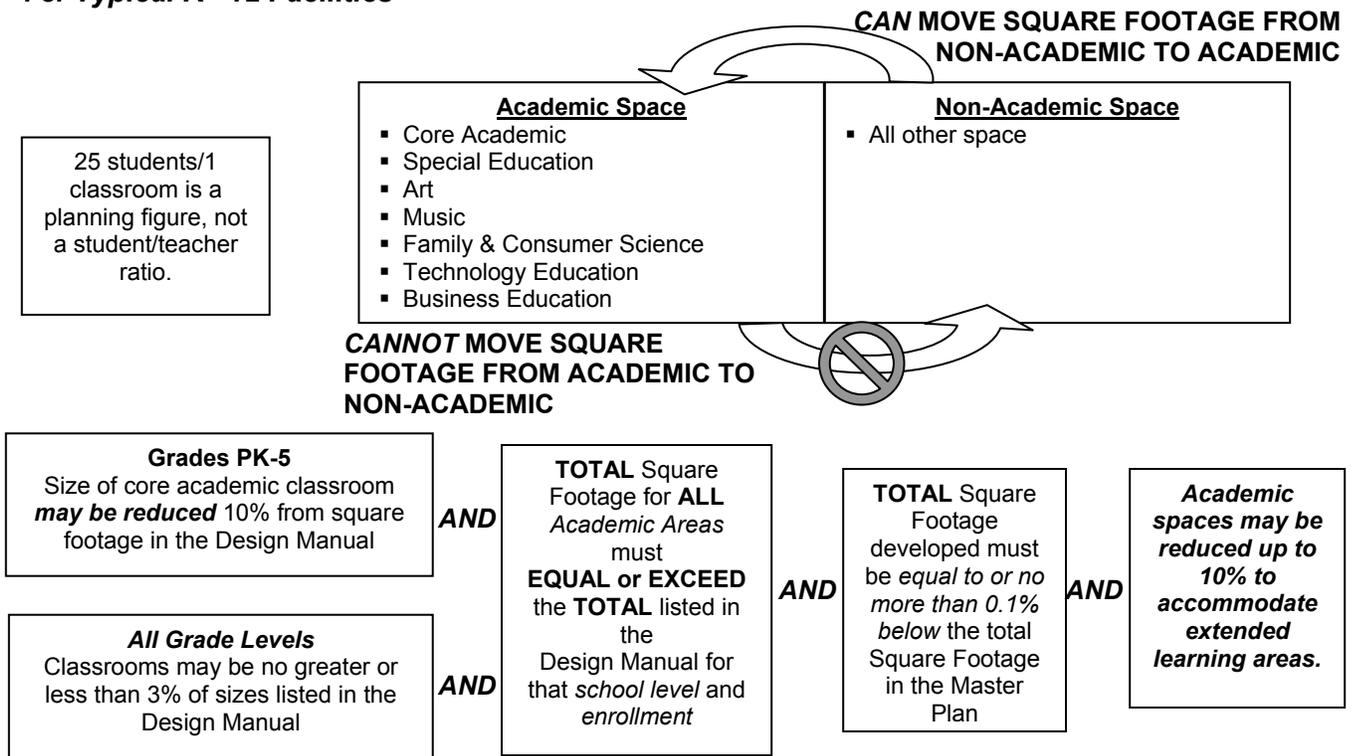
Chapter 10: Miscellaneous

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.

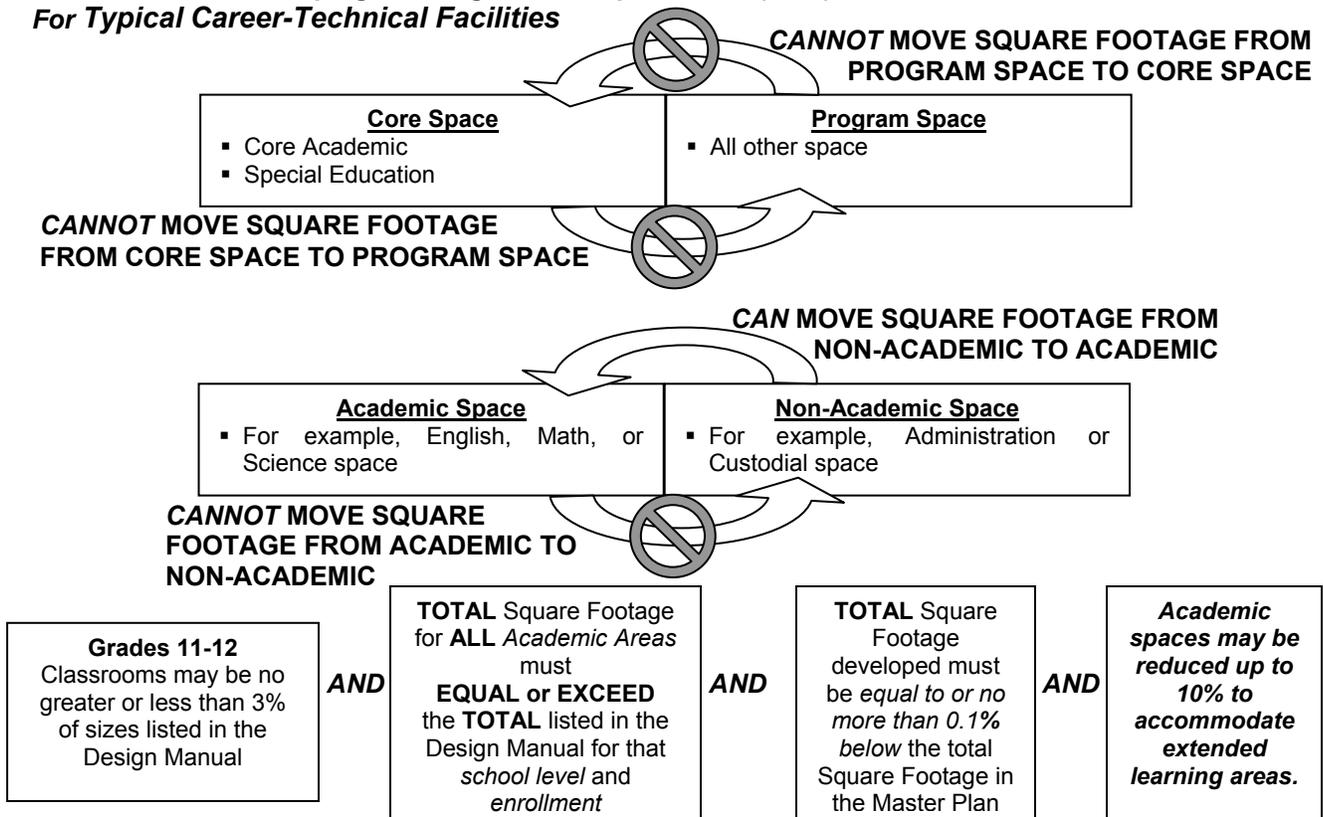
For Elementary Schools Chapter 10 suggests warm base, background colors such as light salmon, beiges, soft yellows or peaches on the walls to produce a calming environment. Deeply saturated bright hues on architectural elements should be avoided, since the colors will create too much stimulation. Similar 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 wayfinding, 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.

**Parameters for Developing the Program of Requirements (POR)
For Typical K –12 Facilities**



**Parameters for Developing the Program of Requirements (POR)
For Typical Career-Technical Facilities**



Parameters for Funding *Typical K –12 Facilities*

- Sources for Project Cost Local Share:**
- Bond Issue
 - Permanent Improvement Tax
 - School District Income Tax
 - Local Donated Contribution

- Basic Project Cost Calculation** considers:
- Square footage (SF) and \$/SF for grade levels to be housed
 - Variation across 9 regions in the state in construction & related costs
 - Cost of site utilities & preparation (based on average anticipated conditions)
 - Cost of insuring the project until completion
 - Partnering sessions
 - Professional planning, administration & design fees
 - Allowances for security, loose furnishings & technology

Costs Included in the Project	<p>Non-Construction Costs</p> <ul style="list-style-type: none"> ▪ Land Survey ▪ Soils/Environmental Report ▪ Agency Approval Fees ▪ Construction Testing ▪ Printing – Bid Documents ▪ Advertising for Bids ▪ Builder’s Risk Insurance ▪ Design Professional Compensation ▪ Construction Management Compensation ▪ Non-construction Contingency may include Partnering/Mediation Services, Maintenance Plan Advisor Fees, and Commissioning Agent
<p>Construction Costs</p> <ul style="list-style-type: none"> ▪ Site Costs ▪ Building Costs ▪ Furnishings (including playgrounds for elementary) ▪ Technology infrastructure, telephone system, video distribution system, computer network system ▪ Construction Contingency 	

Parameters for Funding *Typical Career-Technical Facilities*

- Sources for Project Cost Local Share:**
- Bond Issue
 - Permanent Improvement Tax
 - School District Income Tax
 - Local Donated Contribution

- Basic Project Cost Calculation** considers:
- Square footage (SF) and \$/SF for students and programs to be housed
 - Variation across 9 regions in the state in construction & related costs
 - Cost of site utilities & preparation (based on average anticipated conditions)
 - Cost of insuring the project until completion
 - Partnering sessions
 - Professional planning, administration & design fees
 - Allowances for security, loose furnishings & technology

Costs Included in the Project	<p>Non-Construction Costs</p> <ul style="list-style-type: none"> ▪ Land Survey ▪ Soils/Environmental Report ▪ Agency Approval Fees ▪ Construction Testing ▪ Printing – Bid Documents ▪ Advertising for Bids ▪ Builder’s Risk Insurance ▪ Design Professional Compensation ▪ Construction Management Compensation ▪ Non-construction Contingency may include Partnering/Mediation Services, Maintenance Plan Advisor Fees, and Commissioning Agent
<p>Construction Costs</p> <ul style="list-style-type: none"> ▪ Site Costs ▪ Building Costs ▪ Furnishings (including playgrounds for elementary) ▪ Technology infrastructure, telephone system, video distribution system, computer network system ▪ Construction Contingency 	

Parameters for Funding, continued

If the school district elects to proceed with components not listed as acceptable in the Design Manual, the school district may proceed with a locally funded initiative in addition to the required local share. Deviations should be discussed with the OSFC staff during the early planning phases of the project.

ELIGIBLE USE OF PROJECT FUNDS

- Advertising for bids
- Agency approval fees
- Allowance for abatement and demolition of facilities to be abandoned by the school district
- Builder's risk insurance
- Building construction costs
- Construction testing
- Data/computer hardware (Head-End)
- Design and construction management fees
- Land survey
- Loose furnishings
- Maintenance plan advisor fee
- Multipurpose field(s) – grading & seeding only
- Partnering (Facilitation Services & Facilities)
- Phasing and Staging Costs
- Printing of bid documents
- Project insurance (Professional Liability Insurance)
- Renovation scope as defined in the Master Facilities Plan
- Softball field(s) – grading only
- Soil borings/Phase I environmental report
- Technology infrastructure and wiring

NON-ELIGIBLE USE OF PROJECT FUNDS

- Baseball fields
- Board offices (unless included in the allowed project square footage)
- Bus compounds or garages
- Community outreach programs
- Computers/software
- Consulting services to support property acquisition
- Consulting services (supplemental to the funded architectural design and construction manager services)
- Costs associated with bond sales and other financing arrangements
- Equipment or tool sheds
- Fixed-seating auditoriums and natatoriums
- Legal representation, unless Joint Defense and Confidentiality Agreement approved by the Commission and school district
- Levy support services
- Modular tech equipment
- Multipurpose field(s) – imported fill
- Nature areas
- Off-site utilities
- Running tracks
- Site acquisition and preparation
- Soccer fields
- Sports stadiums
- Tennis courts

NOTE: This list is not necessarily all-inclusive.

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Well in advance of application for a non-funded program (ELPP or VFAP ELPP) or notification of eligibility for a funded program (CFAP, ENP or VFAP), 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.

There are many processes that have been developed to engage the community in this dialogue. Key elements of any successful process include:

- **Educational Visioning** – The purpose of these activities is to provide an in-depth discussion of “best practices” for education and ways in which that influences facility needs. This is often done through a series of visionary workshops to address national trends and current research in the areas of early childhood, elementary, middle school, and high school education. Based on this framework, the group determines how this information influences facility needs.
- **Site Meetings** – Site meetings provide the opportunity for a large number of stakeholders to share their ideas, issues, and concerns regarding the long-range facility needs of the district. This also provides an opportunity to ascertain some of the short term needs and concerns of each building. These meetings provide the opportunity for a large number of constituents to participate and are a recruitment tool for participants in subsequent Key Communicator meetings.
- **Business Community Meetings** – Meetings with a number of local business and community groups are held to share information and obtain input.
- **Steering Committee/Stakeholder Group** – The primary purpose of this group is to “arm” the participants with information about the schools. This group considers the needs of the entire District and processes the information from all the Site Meetings as well as the data assembled for all the schools. This information will be organized to enable the Steering Committee/Stakeholder Group to process and understand it. Each participant becomes a “key communicator” within the community [and at the subsequent Community Forums/Dialogues] to discuss the issues/concerns facing the schools. This level of engagement also forms a large number of persons who are strongly invested in the planning process and the ultimate outcome.
- **Options Development** – The stakeholder group develops and considers options for the district’s facilities to narrow these options to a reasonable number for further consideration. Workshops are conducted with stakeholder volunteers and district staff to develop options with consideration for the financial, facility, educational, social, political, and community implications.
- **Community Forums/Dialogues** – Community Forums/Dialogues are held to inform and obtain feedback from the community regarding the options under consideration. The volunteers involved with authoring the various options will be actively involved with presenting the options at the Community Forums/Dialogues. The comments from the Community Forums/Dialogues serve as essential feedback in obtaining the reaction of the community to the proposed direction of the district’s educational program and vision as it relates to facilities.

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Just as every student is unique as represented in their IEP (Individualized Education Program), so is every school district in addressing the specific needs of the students they serve. It is the intent of the OSFC Design Manual to accommodate the specific needs of all students, realizing that a large majority of those students identified with special needs may utilize a variety of spaces throughout the school day to address their IEP. Since Ohio is experiencing a continued increase in the number of students identified with special needs, the facility requirements must provide the flexibility to address the changing demographics as well.

Since the Design Manual serves as a guide, it is necessary during the planning process to identify the specific needs of the school in meeting the special needs population and plan early in the process to ensure that those needs are being met through the design.

Section 1110 of the Design Manual contains a detailed overview of Special Education programs in the State of Ohio.

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Career technical education has been and continues to be an evolving part of the academic curriculum. Historically, career technical education was identified as vocational training and associated with programming such as woodshop, auto mechanics, and agriculture courses. These programs were designed to teach the student technical skills to prepare them for work in factory jobs.

With the infusion of technology into everyday life, the focus of vocational schools, now referred to as career-technical schools, has shifted to preparing students for a lifetime of learning in areas such as electronics, criminal justice, dental assistant, engineering technology, and health care. These areas of study provide students with an opportunity to obtain sufficient knowledge to enter the workforce or prepare them to pursue more advanced educational training upon graduation.

The Ohio Department of Education has identified six career clusters/pathways: Arts and Communication, Business and Management, Environmental and Agricultural Systems, Health Services, Human Resources/Services, and Industrial and Engineering Systems. These career clusters/pathways are being implemented in comprehensive high schools, as well as career technical facilities, throughout Ohio. Spaces required for this coursework are similar to core academic classrooms and include administrative and support spaces. However, most of the career pathway learning occurs in spaces that are designed and equipped to support the specialized curriculum. The Career-Technical sections of the OSFC Design Manual were developed to guide the programming, design, and construction of Career-Technical School Facilities within career-technical school districts constructed under the Vocational Facilities Assistance Program. The information may also be used when planning a comprehensive high school.

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A. Introduction

The Ohio Department of Education - Office for Exceptional Children complies with the Federal Regulations for the Individuals with Disabilities Education Act (IDEA) and the OSFC Design Manual provides square footage guidelines to comply with the educational program requirements. IDEA requires a district to provide a full continuum of services in a student's neighborhood/home school to the greatest extent possible in the Least Restrictive Environment.

The Ohio educational management information system guidelines (rev 11-25-03) provide placement option codes for students with disabilities to meet the Least Restrictive Environment requirement for all special needs students. These codes assist in differentiating the type and number of spaces that are needed in each school to address the facility needs for students with disabilities. As each school district is planning for specific educational program needs in their new or renovated facilities, identifying the number of students in each of these options is important to appropriately provide the unique space requirements. The specific codes are provided as part of this document to assist in identifying all of the students who need to be considered in the facility program needs. An asterisk denotes placement options, which may impact facility needs.

210000 - PLACEMENT OPTIONS FOR STUDENTS WITH DISABILITIES: A continuum of placements to meet the needs of students with disabilities for special education and related services. These programs consist of instructional services at the elementary and secondary levels.

CODE 210021* - Full-time in a regular class with special education/related services provided within the regular class.

210022* - Regular class with special education/related services provided outside the regular class for less than 21% of the time.

210023* - Regular class with special education/related services provided outside the regular class at least 21% and no more than 50% of the time.

210024* - Regular class with special education/related services provided outside the regular class at least 51% and no more than 60% of the time.

210025* - Regular class with special education/related services provided outside the regular class 61% of the time.

210026* - Self-contained special education class (100% of the time) operated by and located in a regular public or Community school building.

210027* - Self-contained special education class at least 50% of the time in a separated facility, and the remainder of the time in a regular public or Community school building.

210028 - Self-contained special education class (100% of the time) operated by the public school and located in a separate building exclusively for students with disabilities.

210029* - Special education/related services provided by CBMR/DD in a chartered public school building 100% of the time, and students participate (academically or non-academically) outside the regular class for less than 21% of the time.

A. Introduction, continued

210030* - Special education/related services provided by CBMR/DD in a regular public or Community school building 100% of the time, and students participate (academically or non-academically) outside the regular class at least 21% of the time and no more than 60% of the time.

210031* - Special education/related services provided by CBMR/DD in a regular public or Community school building 100% of the time, and students participate (academically or non-academically) outside the regular class at least 61% of the time.

210032 - Special education/related services, provided by CBMR/DD, 100% of the time located in a CBMR/DD building.

210033 - Special education/related services provided at a private separate facility at public expense.

210034 - Special education/related services provided in a public residential facility (Ohio State School for the Blind, Ohio School for the Deaf, the Department of Youth Services, the Department of Rehabilitation and Correction, the Department of Mental Retardation and the Department of Mental Health).

210035 - Special education/related services provided in a private residential facility, at public expense.

210036 - Special education/related services provided in a hospital setting.

210037 - Special education/related services provided in a homebound setting (home instruction)

210038 - A student with a disability placed in a state-approved non-public school by a public school district and receives services through an IEP.

210039 - A student with a disability placed in a state-approved non-public school by the student's parent(s) and receives services through a Services Plan.

210041 - No special education provided

210042 - IEP review process incomplete

210043 - No special education services provided due to parent refusal

211001 - Alternative Educational Setting (AES) is an educational setting where a special education student may be temporarily placed for up to 45 days and for the same amount of time as children and youth without disabilities would be subject to discipline. This setting, where the student will continue to receive instruction, is different from the student's current placement setting.

In addition to the classroom space needs for special needs students, there are also additional services that need to be provided which will impact facility needs as well. Those areas that need to be considered within the educational facility program, are identified with an asterisk. The OSFC Design Manual provides flexibility in meeting these varied educational needs through its guidelines.

A. Introduction, continued**Adaptive Physical Education and Related Services for Children With Disabilities**

215001* - Adapted Physical Education Services: Specially designed instruction in physical education to meet the unique needs of a handicapped child, including individual and/or group instruction.

215002* - Aide Services: Services include assisting the teacher in a special class/learning center and assisting the professional in other areas of handicap.

215003* - Attendant Services: Services include assisting the orthopedically and/or other health handicapped or multihandicapped child with personal health care needs within the confines of the educational setting.

215004* - Audiological Services: Those activities organized for identification of children with hearing loss; determination of range, nature, and degree of hearing loss' referral for medical or other professional attention when indicated for the habilitation of hearing handicapped children; the counseling and guidance of pupils, parents, and teachers regarding hearing loss; determination of the child's need for group and individual amplification; evaluation of the effectiveness of amplification; and creation and coordination of hearing conservation programs.

215005* -Guide Services: Services of a guide shall include assisting the visually handicapped child in his or her travels within the confines of the educational setting.

215006* - Interpreter Services: Services of an interpreter shall include providing oral, simultaneous, or manual interpreter service depending on the needs of the children served and may include interpreting, translating (transliterating), reverse interpreting (the verbal rephrasing of the message of hearing impaired), and reverse translating (the intelligible vocal presentation of the exact words of a hearing impaired speaker).

215007* - Medical Services: Those diagnostic and evaluation services that are required for initial or continued placement in an appropriated special education program or for provision of related special education services.

215008* - Occupational Therapy Services: Services include providing an occupational therapy evaluation as part of the multi-factored evaluation; and providing occupational therapy services in accordance with the individualized education program.

215009* - Orientation and Mobility Services: Services include providing an orientation and mobility evaluation and the provision of orientation and mobility services in accordance with the individualized education program

215010* - Physical Therapy Services: Activities include providing a physical therapy evaluation as prescribed by a licensed physician and as part of the multi-factored evaluation, and providing physical therapy services in accordance with the individualized education program.

215011* - Reader Services: Reading orally the school assignments for the visually handicapped child for whom this service is deemed appropriate.

A. Introduction, continued

215012* - School Psychological Services: Activities concerned with conducting and interpreting psycho-educational assessments focused upon pupil learning and behavior; designing instructional and behavioral interventions to help pupils attain specific pupil outcomes; consulting with educators; parents and community agencies to coordinate resources necessary to support needed interventions; providing in-service training to parents and educators regarding effective learning and behavioral techniques to promote student performance; and provision of counseling to pupils and parents on an individual and group basis.

215013* - Speech and Language Services: Those activities organized for the identification of children with speech and language disorders; referral for medical or other professional attention necessary; provision of speech and language services for the prevention of communicative handicaps; and counseling and guidance of children, parents, and teachers regarding speech and language handicaps.

215014* - Supervisory Services: Services include assisting and implementing educational programs to special education personnel, parents, aides, administrators, and general education personnel regarding the education of handicapped children.

215015* - Vocational Special Education Coordinator Services: Services include providing work evaluation of handicapped students referred to a vocational education planning district or vocational school district for placement and providing supplemental instruction in accordance with goals and objectives set forth in the individualized education program.

215016* - Work-Study Services: Services include providing assistance in placement and adjustment of handicapped students and delivering a continuum of work-related services in accordance with goals and objectives set forth in the individualized educational program.

215017* - Parent Involvement: Services provided to parents to assist them in understanding the special needs of the child and to provide the parent with information about child development and the educational implications of the handicapping condition.

215018* - Counseling Services: Counseling services means services provided by school psychologists, guidance counselors, or other qualified personnel in accordance with an individualized education program.

215019* - Adaptive Equipment and Services: Services provided to students with disabilities which include the adaptation of equipment or the introduction of assistive devices that are needed to implement the goals and objectives set forth in the individualized education program.

215020* - Recreational Services: Services provided to students with disabilities which include assessment of leisure functions; therapeutic recreation; recreation programs in schools and community agencies; and leisure education, if required to provide related services in accordance with the individualized program.

215021 - Special Transportation: The term means transportation which is established solely for the purpose of transporting students with disabilities attending a regular public school or non-public school. Special transportation must be uniquely designed for each student in accordance with an individualized education program.

A. Introduction, continued

215022* - Social Work Services: Social work services include group and individual counseling with the children and their families; working with those problems in a child's living situation that affect the child's adjustment in school and mobilizing school and community resources to enable the child to receive maximum benefit from his or her educational program. (proposed federal definition)

215023 - Other: Services not specifically listed above which can reasonably be expected to benefit students with disabilities and which are included in the student's individualized education program.

215024 - Braille Services: Braille services for visually disabled children consist of such services as brailled materials and braillewriter which are provided to children with visual disability in order to meet their unique educational needs in accordance with an individualized education program.

215025 - Transitional Services: The term means a coordinated set of activities designed within an outcome-oriented process which promotes movement from school to post-school activities. The coordinated set of activities shall be based upon the individual student's needs in accordance with an individualized education program.

Just as every student is unique as represented in their IEP (Individualized Education Program), so is every school district in addressing the specific needs of the students they serve. It is the intent of the OSFC Design Manual to accommodate the specific needs of all students, realizing that a large majority of those students identified with special needs may utilize a variety of spaces throughout the school day to address their IEP. Since Ohio is experiencing a continued increase in the number of students identified with special needs, the facility requirements must provide the flexibility to address the changing demographics as well.

In addressing the requirement to provide the least restrictive environment for each student, accommodations must also be made for the mandated age span requirements established in the rules (48-60 months, depending on the disability).

Another factor that must be taken into consideration when determining space needs is based on research as well as common practice. A large majority of special needs students participate in a regular classroom setting with their "teacher of record" being the special education resource teacher. Typically, those students are scheduled in the regular classroom for activities for which they can benefit and then spend time in the Resource Room based on their IEP. Students are often in the Resource Room and the Core Classroom several times each day. Therefore, it is difficult to arbitrarily assume that each student in a building has only one "home base" in determining space needs.

Since the Design Manual serves as a guide, it is necessary during the planning process to identify the specific needs of the school in meeting the special needs population and plan early in the process to ensure that those needs are being met through the design.

Another document that must be taken into consideration in the facility planning process is the Ohio Administrative code (September, 2001). Sections 3301-51-03 and 3301-51-04 and 3301-54-05 provide requirements as to the space needed to meet the continuum of services provided to special needs students. For instance, in addressing individual instruction and small group instruction, the code states that the individual teacher shall not serve more than one child during any single instructional period. The small group instructional teacher shall serve two or three children during any single instruction period.

A. Introduction, continued

In section 3301-51-04, teacher/pupil ratio states that there will be at least one full-time aide in each special class for multi-handicapped children. One special class teacher shall serve six to eight children. If there is a hearing handicapped program within the facility, the room for instruction shall have acoustical treatment to reduce the ambient noise level to sixty decibels or below. (ANSI)

In section 3301-51-05 related services for handicapped children, one of the requirements for adapted physical education instruction that impacts facilities is that the program needs to be housed in existing physical education facilities that are designated for the use of the adapted physical educator during the scheduled times. When such an arrangement is not possible, an open floor area, which is barrier free, shall be provided to accommodate motor activities, games, and sports on an individual or group basis.

There are a number of other facility implications for special needs students in the Ohio Administrative Code. As each School District is addressing their specific educational program needs, the code should be consulted.

B. OSFC Design Manual Square Footage Allocations

In order to accommodate the uniqueness of each district in meeting the special needs population, OSFC has provided space for: a Self-contained Classroom(s), Workroom /Conference Room, Restroom/Shower, Resource Room and Small Self-contained Classroom. The student population will determine the number and type of spaces needed in each area. In addition, square footage has been allocated for Guidance Services, Health Clinic and other support service spaces, as needed for the special needs students.

As each school district addresses their specific student requirements, the square footage allocated for classrooms may be utilized to address special needs students as well as regular education students. It is important for the district to identify the current student population requiring special needs based on their IEP's and recognize the trends that have been established within the district in terms of special needs students to justify space allocations.

The square footage and layout guidelines for special needs spaces will be identified in the Elementary, Middle, and High School program areas.

C. Service Provider Ratios for Delivery of Services

Disability	Grades K-8	Grades 9-12	Age Span
Cognitive Disabilities	16 (12 at one time)	24 (16 at one time)	60 mos. (in 1 period)
Learning Disabilities	16 (12 at one time)	24 (12 at one time)	60 mos. (in 1 period)
Hearing, Visual, Orthopedic Impairments	10 (8 at one time)	10(8 at one time)	48 mos. (in 1 period)
Emotional Disturbances (If no plan, one FT paraprofessional) (see 3301-51-09 3.diii)	12 (10 at one time)	12(10 at one time)	48 mos. (in 1 period)
Multiple Disabilities (plus one FT paraprofessional)	8	8	60 mos. (in 1 period)
Autism, deaf-blind, traumatic brain injury Specialist can serve more than one category (plus one FT paraprofessional)	16	24	60 mos. (in 1 period)

Related Services	K-12 # of Students	Preschool Students
Adapted P.E.	100	100
Audiologist	100	75
Occupational Therapy	50	40
Mobility Instructor	50	40
Physical Therapist	50	40
Speech, language, Pathologist (1SLP for 2000 students)	80	50
School Psychologist (1 Psychologist per 2500 students)	125	75

Preschool Services – Requirements for Class Size, Age Span, and Personnel Services

- 10-20 students - 4 hours per month for itinerant services
- 10 hours per week for special classes
- 6-8 students with disabilities in a full day program
- 12-16 students in a half day program
- 36 mos. age range
- No more than 8 children at one time
- 7 or more children in a class setting requires one additional "responsible" adult

(Source: Based on the Operating Standards for Ohio's School Serving Children with Disabilities 3301-51-09, 2002 (#3))

**EDUCATIONAL PROGRAMMING
SPECIAL EDUCATION PROGRAM OVERVIEW**

D. Matrix For Use of Space By Disability

	Regular Classroom (900 SF)	Self-Contained CR (900 SF)	Restroom	Workroom/ Conference	Resource (900 SF)	Small Self-Contained Classroom (600 SF)
Disability						
Autism	●			●	●	●
Cognitive Disability (Mental Retardation)	●	●	●		●	●
Deaf-Blindness	●				●	●
Emotional Disturbance	●	●			●	●
Hearing Impairment	●				●	●
Multiple Disabilities	●	●	●		●	
Orthopedic Impairment	●			●	●	●
Specific Learning Disability	●				●	●
Speech Language Impairment	●			●		
Visual Impairment	●				●	●
Traumatic Brain Injury	●				●	●
Support Services						
Occupational Therapy				●	●	●
Physical Therapy				●	●	●

- Disabilities are based on the Operating Standards for Ohio's School Serving Children with Disabilities 3301-51-09, 2002 (#3)
- The possible room location is based on the OSFC Design Manual Guidelines
- Other square footage that could be allocated to meet Special Education program needs includes:
 - Project Laboratory
 - Instructional Material Storage
 - Staff Dining
 - Small Group Room
 - Multi-Use Room
 - Teacher Prep Area/Workroom
 - InSchool Suspension
 - Itinerant Personnel Office

E. Definition of Terms

THE FOLLOWING TERMS ARE DEFINED AS THEY ARE USED IN THE OPERATING STANDARDS FOR OHIO'S SCHOOLS SERVING CHILDREN WITH DISABILITIES, 2002

These terms and definitions will provide a better understanding of the program needs of special education students.

(3301-51-01 Definitions)

"Assistive technology device" means any item, piece of equipment, or products system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of a child with a disability.

"Assistive technology service" means any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device.

"Child with a disability" means a child evaluated in accordance with rule 3301-51-06 of the administrative Code having a cognitive disability (mental retardation), a hearing impairment including deafness, a speech or language impairment, a visual impairment including blindness, emotional disturbance, an orthopedic impairment, autism, traumatic brain injury, an other health impairment, a specific learning disability, deaf-blindness, or multiple disabilities, and who, by reason thereof, needs special education and related services.

The terms used in this definition are defined as follows:

Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that adversely affects a child's educational performance. Other characteristics often associated with autism are:

- Engagement in repetitive activities and stereotyped movements;
- Resistance to environmental change or change in daily routines; and
- Unusual responses to sensory experiences

Cognitive disability (mental retardation) means significantly subaverage general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child's educational performance.

Counseling service means services provided by qualified social workers, psychologists, guidance counselors, or other qualified personnel.

Deaf-blindness means concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness.

Deafness means a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, and that adversely affects a child's educational performance.

E. Definition of Terms, continued

Developmentally appropriate means curriculum, instruction, environments, and activities that reflect the cognitive, social, and emotional level of the learner, which are age appropriate to meet the needs of a particular chronological age span; and are appropriate to address the unique abilities or characteristics of a learner or group including learners with disabilities; unique ethnic and or cultural characteristics, and unique life experience.

Early identification and assessment of disabilities in children means the implementation of a formal plan for identifying a disability as early as possible in a child's life.

Emotional disturbance means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance.

Guide services includes assisting learners with disabilities as they travel within the appropriate learning environment.

Hearing impairment means an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness in this section.

Individualized education program or **IEP** means a written statement for a child with disability that is developed, reviewed, and revised in a meeting in accordance with the Administrative Code of Ohio, rule 3301-51-07.

Interpreter services includes assisting learners with hearing impairments and deaf learners by providing interpretation in English and American Sign Language, transliteration in a manual form of coded English or other coded forms of English.

Medical services means services provided by a licensed physician to determine a child's medically-related disability that results in the child's need for special education and related services.

Multiple disabilities means concomitant impairments (such as mental retardation-blindness, mental retardation-orthopedic impairment, etc.), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. The term does not include deaf-blindness.

Occupational therapy means services provided by a qualified occupational therapist and includes:

Improving, developing or restoring functions impaired or lost through illness, injury, or deprivation.

Improving ability to perform tasks for independent functioning if functions are impaired or lost; and

Preventing, through early intervention, initial or further impairment or loss of function.

E. Definition of Terms, continued

Orthopedic impairment means a severe orthopedic impairment that adversely affects a child's educational performance.

Other health impairment means having limited strength, vitality or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that is due to chronic or acute health problems.

Physical therapy means services provided by a qualified physical therapist.

Rehabilitation counseling services means services provided by qualified personnel in individual or group sessions that focus specifically on career development, employment preparation, achieving independence, and integration in the workplace and community of a student with a disability.

Related services means transportation and such developmental, corrective, and other supportive services as are identified on the child's IEP and required to assist a child with a disability to benefit from special education. The terms used in this definition are defined as follows:

- **Attendant services** are those that assist children with disabilities with personal health care needs.
- **Audiology** includes identification of children with hearing loss;

School psychological services include but are not limited to consulting with others to plan and develop school programs and interventions to meet specific needs of children or groups of children; conducting and monitoring interventions; conducting interviews; performing observation; administering psychological tests and other assessment procedures; interpreting assessment results; obtaining, integrating, and interpreting, information about child behavior related to learning; diagnosing psychological disorders that effect learning and/or behavior; participating in provision of a program of mental health services, including counseling for children and/or parents.

Significantly subaverage general intellectual functioning refers to an intelligence quotient of seventy or below as determined through a measure of cognitive functioning administered by a school psychologist using a test designed for individual administration.

Social work services in schools includes:

- Preparing a social or developmental history on a child with a disability;
- Group and individual counseling with the child and family;

Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

Speech or language impairment means a communication disorder, such as stuttering.

Speech-language pathology services include

- Identification of children with speech or language impairments;
- Diagnosis and appraisal of specific speech or language impairments.
- Therapy services to address the specific speech or language impairments.

E. Definition of Terms, continued

Traumatic brain injury means an acquired injury to the brain caused by an external physical force or by other medical conditions, including but not limited to stroke, anoxia, infectious disease, aneurysm, brain tumors and neurological insults resulting from medical or surgical treatments. The injury results in total or partial functional disability or psychosocial impairment or both, that adversely affects a child's educational performance.

Visual impairment, including blindness, means an impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness.

F. Glossary of Legal Terms and Special Education Terms and Acronyms

This glossary provides another tool for better understanding of Special Education Programs and Services and how they impact facility design and utilization.

ADA - American's with Disabilities Act of 1990. This law provides for the protection from discrimination of persons with disabilities and allows claims for compensatory and punitive damages

Adaptive Physical Education - A special physical education program developed to fit the limits and disabilities of persons with disabilities.

ADD - Attention Deficit Disorder - A term frequently used to describe the academic and behavioral problems of children who have difficulty focusing and maintaining attention.

ADHD - Attention Deficit Hyperactive Disorder - A condition identified as a medical diagnosis by the American Psychiatric Association's Diagnostic and Statistical Manual III-Revised (DSM III-R). This condition is also often called attention Deficit Disorder (ADD) because of that usage in a previous edition of DSM. Although it is not a service category under IDEA, children with this condition may be eligible for service under other categories or under Section 504, or may be eligible under IDEA as health impaired.

AES - Alternative Education Setting

Americans with Disabilities Act of 1990 (ADA) - Legislation enacted to prohibit discrimination based on disability.

Assistive technology device - Equipment used to maintain or improve the capabilities of a child with a disability.

Audiology - Related service; includes identification, determination of hearing loss, and referral for habilitation of hearing

Behavior intervention plan - A plan of positive behavioral interventions in the IEP of a child whose behaviors interfere with his/her learning or that of others

Continuum of services - The range of services which must be available to the students of a school district so that they may be served in the least restrictive environment

Cross Categorical - Refers to a system in which a teacher addresses more than one disabling condition within one instructional period.

F. Glossary of Legal Terms and Special Education Terms and Acronyms, continued

EBD - Emotional Behavioral Disorder

Fine Motor - The use of small muscles for precision tasks such as writing, tying bows, zipping a zipper, typing, doing puzzles.

Gross Motor - The use of large muscles for activities requiring strength and balance. Examples are walking, running, and jumping.

IDEA - Individuals with Disabilities Education Act - Law that modifies and extends the Education for All Handicapped Children Act (EHA).

Itinerant Teacher - Special Education or other teacher who is shared by more than one school.

LRE - Least restrictive environment; requirement of IDEA to educate special needs children with children who are not disabled to the maximum extent possible.

Mainstreaming - The practice of placing disabled children with special educational needs into regular classrooms for at least a part of the children's school programs.

Multi-Categorical - A special education classroom model in which students with more than one disabling condition are assigned to a special education teacher.

Multiple disabilities - Disability category under IDEA; concomitant impairments (such as Mental retardation-blindness, mental retardation-orthopedic impairment, etc.) that cause such severe educational problems that problems cannot be accommodated in special education programs solely for one of the impairments; does not include deaf-blindness.

Related services - Services that are necessary for a child to benefit from special education; includes speech-language pathology and audiology services, psychological services, physical and occupational therapy, recreation, early identification and assessment, counseling, rehabilitation counseling, orientation and mobility services, school health services, social work services, parent counseling and training, IDEA requires that school districts provide whatever related services (other than medical care which is not for diagnostic purposes) a child needs in order to benefit from his or her special education program.

Resource Room - An instructional setting to which a special education student goes for specified periods of time on a regularly scheduled basis.

Self-Contained Classroom - Special class for specific types of disabled students who spend all or the largest portion of the school day away from non-disabled.

SLP - Speech-language pathology services - Related service; includes identification and diagnosis of speech or language impairments, speech or language therapy, counseling and guidance.

For additional information about the Special Education Programs there are some excellent resources to obtain. One can be obtained from the OSFC office entitled "Planning Your School Facilities Construction Project with Sensitivity to the Needs of Students with Disabilities." The second document is the "Operating Standards for Ohio Schools Serving Children with Disabilities" from the Ohio Department of Education.

**G. Physical Therapy (PT) or Occupational Therapy (OT) Services
Overview of Program**

Physical Therapy is designed to help restore and maintain useful movement or function. Some of the examples of physical therapy are:

- Stretching and range of motion exercises
- Exercises to develop trunk control and upper arm muscles
- Assistance in obtaining appropriate assistive equipment, including ambulatory aids, braces and wheelchairs, etc.
- Training in walking and appropriate use of assistive devices, such as ambulatory aids, braces, and wheelchairs, etc.
- Transfer training-how to get from one spot to another, such as from student chair to wheelchair or from wheelchair to car
- Training in how to fall safely in order to cause the least possible damage
- Patient and family education

(Source: MS Information Sourcebook, produced by the National MS Society
<http://www.nationalmssociety.org/Sourcebook-pt.asp>)

Connections Between Program Requirements and Physical Facilities

The need for a specialized physical therapy space is based on the Individual Education Plan (IEP) of each student that is housed in the educational facility. The program information that is provided in the design manual is based on a physical therapy space that can accommodate the three fundamental requirements in a physical therapy area: exercise; treatment; and hydrotherapy. However, the space needs to support the individual needs of each student and must be flexible to accommodate all students within an educational facility who require physical therapy as an integral part of the services indicated in the IEP. Typically, in the school environment, a limited number of students require physical therapy and the space needs are much less structured as those indicated in this document. In order to determine the appropriate space requirements, it is essential that each District identify all students receiving PT services based on the historical, current and projected enrollment data.

The Exercise Area needs to be:

- Well lighted with flexible lighting (dimmer switches)
- Large enough to allow for unencumbered use of all rehabilitative exercise equipment including: treadmills, bicycles, wall mounted weights, mat tables (Including curtain tracks for privacy), and a reinforced wall of installation of stall bars

The Treatment Area should provide:

- Considerable patient privacy by use of curtains, cubicles or enclosed rooms.
- Flexible lighting (dimmer switches) for student comfort
- Equipment needs may include: massage tables; ultrasonics; thermotherapy (using wet or dry heat) and diathermy (dry heat treatment using short wave or microwave).

Hydrotherapy is the use of water to treat injuries and disease where the water conducts heat and makes motion easier and less painful. If hydrotherapy space is provided, the wet areas require additional engineering to structurally accommodate Hubbard tanks (large tanks of heated moving water big enough to float the whole body) and overhead lifts. Special plumbing, especially for whirlpool baths, is required for mixing valves that control water temperature in the tubs. Floor drains are required and floor surfaces in all wet areas are of a nonskid surface. Hydrotherapy areas include: full baths, footbaths, whirlpool baths and hot and cold baths.

G. Physical Therapy (PT) or Occupational Therapy (OT) Services, continued

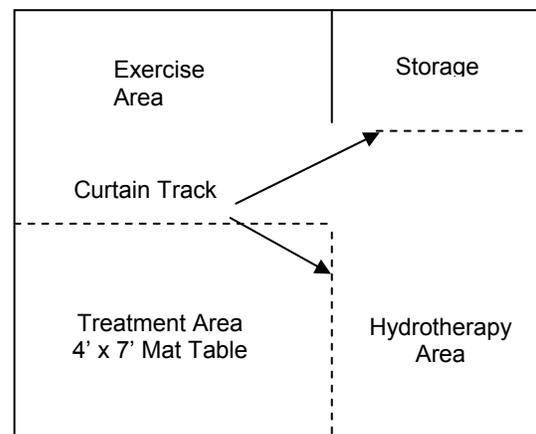
Even though there are three fundamental requirements for physical therapy, no absolute requirements for the type of space can be recommended since the program must be based on the individual needs of the students being housed in the facility. In the event there are a limited number of students requiring these services, (which is most often the case in most educational facilities), an open unobstructed space which allows for maximum flexibility which can be rearranged based on each student's needs is highly recommended. The use of hydrotherapy as defined in the paragraphs above, requires a more specialized space and would not be indicated in most student IEPs. There are other methods of providing hydrotherapy to students without the space requirement of full baths, whirlpools and other water requirements.

Other facility considerations for a physical therapy area need to be considered. One very important area is the need for storage for the variety of therapy equipment that is needed. Controlled ventilation much be considered since many of the treatment procedures require the use of dry or moist heat or active exercise, which raise body temperature. Air conditioning is also recommended for the therapy area. Often wall-mounted equipment is needed for some students and the recommendation is to line the walls with plywood or particleboard and then cover with the finish material of drywall, plaster or paneling. As has been indicated earlier in this section, the need for a specialized, dedicated physical therapy space is not required or recommended for most educational facilities housing a limited number of students requiring specialized physical therapy. The information included as a brief overview of the physical therapy program to provide an understanding of the requirements of the program to better assist the educators in determining appropriate space needs.

(Source: <http://www.schemmer.com/resource/mfrn/therapy.htm>)

Facility Considerations

- Ability to hang equipment from ceiling
- Dimmable lights
- Tile floor
- Access to water
- Large storage area for:
 - balance beam
 - balls
 - mats
 - small therapy equipment
 - scooter board
 - ramp
 - portable stairs
 - hanging equipment
 - braces
 - wheelchairs

Example of Physical Therapy Space

Occupational therapists who work with children are knowledgeable about stage of development and the appropriate milestones in a child's physical, mental, and behavioral development. For example, a child with delayed development may not show behaviors and abilities that are typical of the child's age. A child may have difficulty achieving independence in feeding, dressing, and using the bathroom; understanding relationships between people, objects, time and space; and development problem-solving and coping strategies.

Occupational Therapists can evaluate a child's level of performance, observe the child's environment, and develop a plan of treatment. They can develop age-appropriate self-care routines and habits and recommend adaptive equipment to facilitate the development of age-appropriate abilities.

Most often the space requirements for the OT program can be shared with the PT and/or the SLP because typically PT and OT are only part-time services in each building. Most often, the caseload is seen individually or in small groups with therapy consisting of hands-on activities. If on occasion larger space is needed, alternative arrangements can be made.

**Additional Facility Considerations for Special Needs Students
Housed in Special Needs Classrooms**

Disability	Group 1 – Areas Inside the Classroom										Group 2 – Areas Outside the Classroom			
	Art Area	Quiet Area	OT/PT Area	Science Area	Floor Mat Area	Mirrors Floor to Ceiling	Mirror on the Wall	Life Skills Area	Changing Area	Restroom	Shower Area	Wheelchair Storage Area		
Autism	X	X	X	X					X	X				
Cognitive Disability (Mental Retardation)	X	X	X	X	X	X		X	X	X	X	X		
Deaf-Blindness*	X		X	X			X	X						
Emotional Disturbance	X	X		X					X					
Hearing Impairment				X			X							
Multiple Disabilities*	X		X	X	X	X		X	X	X	X	X		
Orthopedic Impairment	X		X	X					X	X	X			
Specific Learning Disability				X			X							
Speech Language Impairment*							X							
Visual Impairment			X											
Traumatic Brain Injury	X	X	X	X			X		X					

* Acoustical treatment is critical in these areas

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