SPACE TYPES & REQUIREMENTS

Career and Technical Education (CTE)

School Type: E M H

Functional Area Descriptions
Career and Technical Education (CTE), formerly Professional Technical Studies (PTS), offers career-related courses to middle and high school students. Schools offer different programs based on school size and staffing.

The number of CTE spaces provided corresponds with the student enrollment, but the programs offered will be determined by staff availability and student interest.

Future flexibility should be kept in mind when designing these spaces, as the CTE curriculum is continually changing to follow trends in future career paths.

1 Video Broadcast Studio (MS & HS)
A video/broadcast studio will be provided in all middle and high schools. This area provides space for students and instructors to record TV and audio visual material and conduct small group projects with instruction. This space will be used by the video communications program and should be located near a CTE Lab, but should not be solely accessed through the lab to encourage use by all programs throughout the school.

There are four distinct areas in this space; the studio, the control room, the sound vestibule, and storage. Minimum areas are suggested for the studio and storage; other areas shall be distributed to maximize

<table>
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<tr>
<th>Area Description</th>
<th>SF</th>
<th>M²</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Video/Broadcast Studio (MS&amp;HS)</td>
<td>600</td>
<td>55.7</td>
<td></td>
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<tr>
<td>CTE Lab (HS)</td>
<td>1,000</td>
<td>92.9</td>
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<tr>
<td>Family Consumer Science Lab (MS)/Culinary Arts Lab (HS)</td>
<td>1,400</td>
<td>130.0</td>
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<tr>
<td>Staff Collaboration (MS &amp; HS)**</td>
<td>175</td>
<td>16.3</td>
<td>Per staff position</td>
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<tr>
<td>Learning Hub Allowance (HS)</td>
<td>350</td>
<td>32.5</td>
<td>Per staff position</td>
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**Staff Collaboration includes 75 SF personal workstation; 25 SF personal storage; 10 SF kitchenette allowance; 30 SF collaboration allowance; 35 SF shared storage allowance.
the function of each space.

The studio should be a minimum of 300 SF (28 m²). Students produce TV and audio visual material in this multi-use room. They can broadcast material prepared in the studio throughout the school. The room incorporates specialized lighting, various backdrops, and whiteboard space for brainstorming, flow charts, storyboards, etc.

The control room provides space for recording and dubbing equipment. The room is set up to work like an actual control room in a recording studio with space for 3-4 people. The control room must have views of the studio.

The sound vestibule must allow people to enter the control/edit room without interfering with the studio. Provide a pair of double doors in the vestibule and into the studio to accommodate large equipment. The storage area should be to be a minimum of 100 SF (9 m²) and should have a combination of open shelving and lockable cabinets for storage of equipment and production materials. The storage area can either be combined with the studio space or have a separate room accessed via the sound vestibule.

2 CTE Lab (HS)
The CTE Lab spaces will serve a variety of programs and will be outfitted differently depending on the courses offered. This space will be technology intensive and should have access to both wired and wireless communications infrastructure. Furnishings will vary based on curriculum needs, but should be flexible to allow for configuration for multiple uses. Below is a description of the CTE courses that are offered in the DoDEA schools. Not all courses will be offered at all schools.

Some of these courses may also be offered at the middle school level, but staffing does not allow for additional CTE spaces to be provided above the Video/Broadcast Studio and the Family Consumer Science Lab. Where these programs are provided in middle schools, the Computing Center or a Learning Studio may be used for instructional space.

Video Communications
The Video Communications program encourages students to explore ideas using modern audio visual equipment and techniques. The CTE Lab for Video Communications will require the use of computers with high end graphics and editing programs. It is possible that the use of these computers could be shared with the graphic arts programs. This program will also use the video/broadcast studio to record TV and audio visual material.

Business Education
Business Education prepares students to become responsible citizens, capable of making astute personal and professional economic decisions, and is a good foundation for students wanting to pursue a business degree in college. Essentially a computer lab dedicated to Business Education, this space requires access to the technology integral to business education.

Computer Science
The Computer Science laboratory setting provides space for individual and group instruction in computer science applications. Essentially a computer lab dedicated to Computer Science, this space requires access to the technology integral to Computer Science.

NOTE: Images shown are intended to provide real-world examples and spark design creativity.
Health Science
The Health Science program may be offered in locations where there is a hospital on the installation to support the curriculum. The space should be designed to be divided into four stations for specialized training. There does not have to be a physical division of the space. Each station should have base and wall cabinets with a sink, similar to what would be found in a doctor’s examination room. An area should also be provided with a lateral file and computer workstation with a printer for medical records instruction. Provide tall cabinets for storage of medical supplies and small equipment.

Modular Technology/CADD/CISCO/CSS (HS)
The technology program involves four distinct programs that can coexist within a single space or be paired. The Modular Technology program allows students to work in teams of two to four on a variety of computerized modular workstations. The workstations permit hands-on activities such as: automation and robotics, electricity and electronics, instrumentation and process control, and information technology.

The CADD program instructs students on computer-drafting. This program often shares space with a Modular Technology lab.

A CISCO program instructs students how to create and maintain CISCO computer networks.

A Computer Service and Support (CSS) program provides instruction in the repair and maintenance of computer hardware. This program is often paired with the CISCO program.

The CTE Lab should be designed to accommodate up to 15 students.

The Modular Technology configuration will vary depending upon the particular courses and modules used. Some modules have specialized utility requirements.

The CADD program requires 15 high-end graphics computer stations and a large format plotter.

The CISCO program includes rack mounted equipment and several computer stations to form a self-contained network.

CSS requires tool storage and workbench space for computer repair. Mobile lab tables that can be separated for small group projects or pushed together for larger demonstrations offer flexibility in the arrangement of the lab area.

Storage should be provided along at least one wall. Items to be stored include multiple textbooks, workbooks, handouts, specialized equipment, and similar items. In many cases, technology education teachers are multi-tasking; teaching several different courses within the same class period.

Open space along one wall of the lab will accommodate large equipment such as plotters, scanners, or large format printers. A small counter area or mobile carts should be provided where printers will be needed.

Large CTE Lab: Canby Applied Technology Center (ATC), Dull Olson Weekes Architects, Canby, OR

NOTE: Images shown are intended to provide real-world examples and spark design creativity.
3 Family Consumer Science Lab (MS)/ Culinary Arts Lab (HS)

The Family Consumer Science Lab and Culinary Arts Lab will be built out with the specialized requirements of these programs. The two spaces are quite different in their outfitting and function, but require the same overall space allocation. A Family Consumer Science Lab will be provided in all elementary-middle and middle schools. In middle-high, high and unit schools, a Family Consumer Science Lab or Culinary Arts Lab will be provided based on the program offered at the school. Only one of these labs will be provided per school. Provision of a Family Consumer Science Lab or Culinary Arts Lab will be determined in conjunction with DoDEA-HQ during the development of the PFD.

Family Consumer Science Lab (MS)
The Family Consumer Science program provides individual and group instruction in personal, home, and family practices. This space is a multipurpose learning environment where students work as a group for general instruction, demonstration, and audiovisual presentations. The curriculum includes food preparation and nutrition, clothing care and fabrication, management and economics, and personal and family relationships. Access to an outside covered patio and garden area is desirable.

Approximately half of the area will be configured for food preparation. The food preparation area should have space for six kitchen workstations to accommodate up to 24 students. Workstations need approximately 10 linear feet of standard U.S. kitchen counter, a double sink, a standard U.S. stove/oven unit, and wall and base cabinets. The dishwasher can be provided in a teacher kitchen demonstration area rather than at each student workstation. A mirror above the demonstration area allows students to observe food preparation. Space should also be provided for equipment storage and two refrigerator/freezers. Space should be provided for a washer and dryer in a general clean up area.

The other half of the area must be multi-function for clothing care and fabrication, management and economics, and personal and family relationships. The furnishings must be flexible to accommodate not only group and individual instruction, but sewing stations, cutting and pressing stations, and a fitting booth. Provide storage along at least one wall of the lab for the storage of sewing machines, supplies, and other instructional items when not in use.

Culinary Arts Lab (HS)
The Culinary Arts program provides individual and group instruction for students planning a career in the food service/restaurant field. Students learn by group instruction, cooking demonstrations, computer and audiovisual presentations, independent work, and combined group work. Most of the class time will be in a group work situation in a complete simulated restaurant scenario with food prep, cooking, dish washer, wait staff, and managerial personnel. The facility will have restaurant kitchen equipment and a dining area to accommodate up to 15 people.

Consider locating the culinary arts space near the food service area of the school. It may be desirable to provide a large door that could be opened to the common shared space for larger gatherings.

All of the functions of the Culinary Arts program will occur in one large lab space. A dining and instruction area will be provided in the open kitchen area.
area shall be located at one end of the space. This area will provide space for group instruction, computer and audiovisual presentations, independent work, and consumption of food prepared in the kitchen. Provide space for four dining tables with four chairs each, two computers with LAN connections, television/DVD/VCR with cable TV connection, interactive white board, and shelving for cookbooks and video equipment. Provide a minimum of 20 lockers for storage of personal belongings while the students are in class wearing cooking attire. The locker area can be open to the dining/instruction area near the entrance to the culinary arts lab and away from the main food prep areas.

Provide a service area for use when the instruction area is set up for dining. Provide a counter and shelving for dishes, cups, mugs, silverware and bus items. Provide a sink with hot and cold water and utility connections for a coffee maker and ice machine.

The majority of the Culinary Arts Lab will be configured for the student kitchen.

This kitchen should be equipped with restaurant kitchen equipment and stainless steel work tables and counters. Special electrical utility service and a dedicated water heater will be provided. If natural gas is already supplied to the school, gas appliances may be installed. Natural gas will not be supplied to the school solely for the culinary arts program. The student kitchen should contain: a cooking area; a mixing/blending/microwave area; a refrigerator/freezer area; a food prep area; a wash area; a mop/laundry area; and an equipment/food storage space. These areas should be arranged around the perimeter of the room to provide open space in the center for portable food service work tables for student instruction.

The cooking area shall include a stove with a minimum of six burners. The area shall also accommodate a minimum 2 ft x 2 ft (61 cm x 61 cm) grill, deep fryer, char-broiler and two ovens (at least one convection) oven. The stove, grill, deep fryer, char-broiler, and ovens should be under a vented stainless steel hood. A stainless steel counter shall be provided near the food prep and cooking areas to accommodate the mixing/blending/microwave area. A refrigerator/freezer area shall also be provided near the food prep and the cooking areas. This area should have a stainless steel stand-up, double-door, large-capacity refrigerator and a stainless steel, stand-up, double door, large-capacity freezer.

The food prep area shall include a double sink for washing and draining foods. A garbage disposal shall be provided at the food prep sink. Provide open shelving above the sink and counter. A central area with at least eight portable food service work tables shall be provided for student instruction. At least one of these tables should also be a demonstration table. This area should be positioned near the food prep area so that it can be used for salad/vegetable/fruit preparation and chopping/slicing of non-vegetable and non-fruit foods. This central area may also be used for final preparation and staging of meals before serving. A storage rack should be provided within the kitchen area for storage of miscellaneous kitchen items such as mixers, locking knife rack, and frequently used kitchen equipment such as graters, blades, blenders, large pots/pans etc. A wash area shall be provided, separate from the food prep and cooking areas.

The wash area includes the dish washing machine and a counter with two stainless steel sinks for pot washing and scrubbing. One sink should be a deep sink for washing large items. Open shelving above the sink and counter should be installed for storage of recently washed items. A garbage disposal should be provided for the sink drain.

A mop/laundry area shall be provided. The mop area should have a deep sink for washing mops, space for storage of mop buckets, and a built-in wall rack for the storage of mops. The laundry area should have a full size washer and dryer and built-in shelving for detergent, bleach, and softeners. This mop/laundry area can be open to the student kitchen area, but should be away from the main food prep areas.

An equipment/food storage room should be provided for the storage of canned foods, oils, condiments, sealed non-perishable food containers, and food preparation/cooking equipment and accessories. This may be an open space within the student kitchen, or an enclosed storage room. If a separate room is provided it shall not be more than 100sf (9m²) and the space shall be deducted from the overall square footage allowance for the Culinary Arts Lab.
4 Staff Collaboration
The Staff Collaboration space provides a personal workstation/personal storage, kitchenette, collaboration space, and shared storage. Grouping of Staff Collaboration spaces is intended and highly desired. Access to staff Collaboration should be through shared spaces such as the Learning Hub or main building circulation. The shared space may be within a CTE suite or any other Staff Collaboration grouping.

5 Learning Hub Allowance
A Learning Hub allowance is provided in the high schools to allow the CTE labs to be arranged in their own Neighborhood or incorporated into the academic Neighborhoods. This will give the CTE spaces the same functionality for collaboration and project based learning that is provided in the academic Neighborhoods. Associating the CTE spaces with a Learning Hub also provides the ability to open the CTE Labs to the hub for additional instructional space.