

SECTION 102100 – CTec and GENERAL PURPOSE CLASSROOM STANDARDS

PART 1: GENERAL

1.1 Scope of Standard

- A. This standard provides general guidance concerning the specific preferences for General Purpose and CTec Classroom construction.
- B. Project conditions and requirements vary, thus precluding the absolute adherence to the items identified herein in all cases. However, unless there is adequate written justification, it is expected that these guidelines will govern the design and specifications.

1.2 Reference Standard

- A. Fixed Classroom Furniture. Division 12 Section 126100
- B. Tile Carpeting. Division 09 Section 096813
- C. Broadloom Carpeting. Division 09 Section 096816
- D. Painting. Division 09 Section 099100
- E. For further details on CTec Audio Visual technologies' classrooms visit <http://oit.wvu.edu/ctec/policies/installation/>

1.3 General Requirements

- A. Classroom sizing will be configured during the planning phase of design.
- B. Fixed auditorium seating to be minimum width of 24". Exact specifications for seating shall be determined during programming. Refer to Division 12 for seating specifications.
- C. ADA stations are required. One station per classroom as per ADA desk standard. Larger auditoriums shall include ADA station in front of room and table in back row if accessible.
- D. Shades – Solar / Mesh shades and black out shades shall be required. For classrooms with large numbers of windows, motorized operation shall be considered. WVU's preferred brand is MechoSystems.
- E. Provide two layers of shades for rooms with projection capabilities. The shade closest to the window is to be blackout type shade cloth with 0% openness and the secondary shade facing the room should be a 1-1/2% to 3%

SECTION 102100 – CTec and GENERAL PURPOSE CLASSROOM STANDARDS

openness shade cloth as appropriate for project conditions. The color shall be coordinated with room décor & approved by WVU Interior Design Manager.

- F. Acoustical Panels – Armstrong Soundsoak, Blue Plumb, is the basic standard for in-house design but other equivalent manufacturers and acoustical panels such as wood are acceptable.
- G. On-line card access shall be included at all general purpose classroom doors where possible.
- H. Door Type – Solid with narrow vision lite window to be comprised of safety glass and wire. No sidelites to be used.
- I. White boards – Shall be considered in conjunction with BLACK chalkboards in computer labs ONLY. No other general purpose classrooms will use whiteboards.
- J. Floor coverings – Carpet to be used in aisles and in instructor area. Slip Retardant, no-wax flooring or sealed and/or stained concrete beneath seats.
- K. All chalkboards shall have washer lights installed in the classrooms. Chalkboard luminaries should be evenly distributed across the chalkboard, be screened from the view of students, and shall not interfere with the motorized projection screen operation.

Part 2: PRODUCTS

- A. Projection Screens
 - 1. Da-Lite Senior Electrol.
 - 2. Controller – Da-Lite Model #82434 low voltage/IR controller.
 - 3. HDTV format.
- B. Projector Mount
 - 1. Chief RPA-U Universal mount
 - 2. CMS-445 ceiling panel.
 - 3. CMA-006W 6” extension. Actual length to be determined by ceiling height.
 - 4. Color – White
- C. Projector Lift – for larger classrooms with higher ceilings

SECTION 102100 – CTec and GENERAL PURPOSE CLASSROOM STANDARDS

1. Display Devices DL3B-12.5 Series Projector Lift
 2. RS-232 Serial control interface option OPT-9
 3. Field modification as required
 4. Lift control shall be installed and located inside the lectern
- D. Slip Retardant/Slip Resistant, No-Wax Vinyl Sheet/Tile Flooring
1. Sheet
 - a. Wear Layer- Cured by UV Process
 - b. Sizes- 6', 9', or 12'
 - c. Wear Layer Thickness- 0.080 (2.03 mm)
 - d. Overall Thickness- 0.080 (2.03mm)
 - e. Weight Per Square Yard- 3.5 lbs/yd² (3.53 Kg/m²)
 - f. Roll (Min.-Max.)- 30-68 sq yd (25.1-56.9 sq m)
 - g. Pattern Repeat- Random Repeat, Reverse Sheet for Seaming
 - h. Static Load Limit- 750 psi minimum
 2. Tile
 - a. Wear Layer- Cured by UV Process
 - b. Size- 18" x 18"
 - c. Wear Layer Thickness- 0.080 (2.03 mm)
 - d. Overall Thickness- 0.080 (2.03mm)
 - e. Static Load Limit- 750 psi minimum
- Note: The Coefficient of Friction shall meet or exceed ADA guideline of 0.6 or greater.
3. 5 Year Warranty
- E. Cove Base
- Roppe, Deep Navy P139.
- F. Acoustical Tile Ceilings
1. Armstrong Model #1713.
 2. Fine Fissured
 3. Size – 24"x24".
 4. Color White.
- G. Ceiling grid.

SECTION 102100 – CTec and GENERAL PURPOSE CLASSROOM STANDARDS

1. Armstrong Prelude.
 2. Color – White
 3. 15/16” Tee System
- H. HVAC Diffusers *Alternate for high air flows*
1. Titus Model MB-30, Krueger Model ASDT 24 or equal.
 2. Color – White.
 3. Slotted 1”.
 4. Discharge air diffusers to be insulated.
- I. Ductwork Insulation
1. All supply ductwork shall be insulated externally only.
 2. 2” thick rolls of fiberglass batt, 0.75 pound per cubic foot density and a thermal conductivity (k value) of 0.29 @ 75 degrees F mean temperature.
 3. Blanket shall contain vapor barrier facing of an aluminum and kraft paper lamination sandwiching a fiberglass scrim, (FSK), for reinforcing.
 4. Insulation shall not be compressed more than 25%.
- J. Painting
1. SW6372 - Inviting Ivory
 2. SW6244 – Naval
- K. Sprinkler Heads
1. Reliable Model G4 or equivalent approved by WVU.
 2. Color - White.
- L. BLACK Chalkboards
1. Approved vendors.
 - i. A-1 Visual Systems
 - ii. AARCO Products Inc.
 - iii. ADP/Lemco Inc.
 - iv. Bangor Cork Company Inc.
 - v. Best-Rite Manufacturing
 - vi. Claridge Products & Equipment Inc
 - vii. Ghent Manufacturing Inc.
 - viii. Marsh Industries Inc.

SECTION 102100 – CTec and GENERAL PURPOSE CLASSROOM STANDARDS

- ix. Platnum Visual Systems-A division of ABC School Equipment Inc.
- x. PolyVision Corporation
- 2. Porcelain-Enamel Chalkboard Assembly
 - i. Balanced
 - ii. High pressure
 - iii. 3-ply construction consisting of backing sheet, core material, and porcelain-enamel face sheet with matte finish.
- 3. Accessories
 - i. Aluminum frames and trim not less than 0.062” thick, extruded aluminum; manufacturers standard chalktray-continuous extruded aluminum, box type with slanted front, grooved tray and cast aluminum end closures.
 - ii. Continuous map rail 1 to 2 inches wide, end stops at each end of map rail, extruded aluminum paper holder.
- 4. Installation
 - i. Board to be 4’-0” high with maximum allowable length (to be determined by project).
 - ii. Install with bottom 3’-0” AFF.
 - iii. Center on wall leaving enough room for lectern polytrack.
- M. Ceiling Speakers
 - 1. KSI 8081.
 - 2. Transformer – KSI PZ90WJ, 70 volts. In rooms with 4 or less speakers, transformer is not required.
 - 3. Reinforce ceiling grid with 4 wires.
- N. Lighting
 - 1. Ceiling lights
 - i. Day-Brite Lighting Arioso or Lightolier - Coffaire HP
 - ii. 2’x2’ fixtures Model 2AVLG2CF55-PMW-120/277 or 2’x2’ fixtures Models CFS2GHP2FT, CFS2GHP217 or 317, or CFS2GHP224 or 324
 - iii. 55 Watt Biax lamps, T8 lamps
 - iv. Lightolier ballasts Model HDF254T5, universal ballasts.
 - 2. Emergency Lighting
 - i. Day-Brite Lighting Arioso.

**SECTION 102100 – CTec and GENERAL PURPOSE CLASSROOM
STANDARDS**

- ii. 2'x2' fixtures Model 2AVLG2CF55-PMW-120/277.
 - iii. 55 Watt Biax lamps.
 - iv. Day-Brite ballasts Model E7LP.
3. Washer Lights
- i. Omega Lighting OM241H39BXWW 24" Recessed Biax Wall Wash or Lightolier – Wal-Lyter (WLRN124120SB), Wal-Master (WMRL124120SB).
 - ii. Color – White.
 - iii. ETHDF 140TT5 ballasts, universal ballasts.
 - iv. 40 Watt Biax lamps, T8 lamps.
4. Aisle Lighting
- i. Tivoli SoftStep II
 - ii. Color - Amber
5. Control Systems
- i. Interface MS232-1 for remote control at lectern.
 - ii. If room is 277V - DA10HDFI 277 or DA20HDFI 277, 1 per scene. If room is 120V – MSP600VA - 1 per scene.
 - iii. MSPRW-1 per entrance door.
 - iv. MSP5AVES (Ellipse Series) – 1 per room.
- O. Lectern
- 1. Refer to WVU drawings for Standing and Sitting Lecterns
 - 2. Lecterns containing computer and multimedia system equipment will be of sturdy wooden (golden- oak) construction and designed to meet WVU general purpose classroom technology needs. Lecterns will have an instructor side (facing the chalkboard and screen of a typical classroom) and a student side (facing the audience). All designations of left and right will be made from the instructor side point-of-view.
 - 3. The lectern frame will be constructed with solid oak. The interior shall be $\frac{3}{4}$ " oak veneer plywood with $\frac{1}{4}$ " solid oak banding. All shelves, drawers, pull out shelves, lectern top will have (Wilson-Art 4623-06 Graphite Nebula). Levelers must be included on all bottom corners. Locks must be installed on all doors and access doors (lock 1 for user access and lock 2 for technician access). Piano hinges are to be brass. All grommets must have plastic sleeve inserts.
 - 4. Underneath the lectern allow enough room to allow the many cables connected to the floor plate. The current floor box is the

**SECTION 102100 – CTec and GENERAL PURPOSE CLASSROOM
STANDARDS**

Hubbell HBLCFB501BASE or Hubbell CFB11G4. A large hole in the floor of the lectern close to the student-side will allow the cables to come up through the lectern and connect to the equipment inside, as well as allow a technician to reach through and connect cables to the floor plate with adequate visibility. Throughout the lectern, a ventilation system is to be provided that quietly forces air flow through to keep internal equipment cool, yet not allow visibility into the lectern. Currently used is the Middle Atlantic brand Cab-Cool product.

5. The “user” side door will enclose a tower computer (CPU) beside two pull out drawers. The top drawer will be a flat tray and allow for a standard size Cisco or SRX telephone (phone by others) to be mounted onto it. The bottom drawer will have small sides and be deep enough to contain multiple small items such as a wireless lapel microphone, two wireless handheld microphones, a detachable gooseneck microphone, a key on a large-width dowel rod, a handheld wireless mouse, and a small battery box.
6. The “technician” side should be flush with the lectern and have the ability to be locked and secured; it should not allow anyone to pull on the door. The “technician” side of the lectern should contain a minimum of 14 standard rack spaces utilizing the Middle Atlantic brand Slim 5 series 5-14 equipment rack to be installed inside.
7. There will be a collapsible shelf that will be attached to the side of the lectern that can fold down against the side of the lectern or pulled up for normal use to match the level of the flat surface provided for the document camera. This shelf must be able to hold multiple pieces of mobile equipment for connection to the input or output panels, support 300 lbs, and meet ADA height standards from the floor.
8. On the lower side of the lectern in the far corner (near the student side by the floor) there will be cut out for an Extron AAP 102 panel (by AV Vendor). Just slightly above first hole will be a single-gang electrical box installed.
9. On the top of the lectern, there will be a cut out for an Extron Cable Cubby 300S (by AV Vendor).
10. An alternate version of this lectern will be made available that is a mirror-image.
11. Sit Down – Another version of this lectern will be required. The top surface will be flat instead of sloped. An opening for wheelchair accessibility, as well as the pull-out keyboard and mouse tray will be in between the “technician” and “user” sides of the lectern. A minimum of 14 total rack spaces is still required;

SECTION 102100 – CTec and GENERAL PURPOSE CLASSROOM STANDARDS

shorter Middle Atlantic brand Slim 5 series equipment racks will be installed.

P. Pencil Sharpener

1. Sanford Giant Pencil Sharpener, Model #51131 (or approved equal).
2. Color – Tan.
3. Installed to right of blackboard.

Q. Chair rail

1. Brand Name - Pawling.
2. Color Alexis Blue #583.
3. Height – 12 inches.
4. Install 36” AFF to top

R. Wire Mold

1. Hubbell PS3BC super base track
2. Wiremold 5500 Series
3. Color – Office White or approved WVU blue.
4. Includes all fittings and accessories.

PART 3 : EXECUTION – (Not Applicable)