General Purpose Classrooms

Typical Signal Flow, Wiring, and Installation Detail Diagrams for CTec Designated GPC Technology Facility Upgrades

Classroom Designations (by Type):
1. Dual-Projector HD Auditorium Diagrams
2. Single-Projector HD Auditorium Diagrams
3. Dual-Projector HD Classroom Diagrams
4. Single-Projector HD Classroom Diagrams
5. Small HD Classroom Diagrams

Additional Installation Details:
6. Above Ceiling Projector Lift Install for Auditoriums
7. Above Ceiling Projector Plate Install for Classrooms
8. Multimedia Lectern Floor Box Plate Allocation

Note: This is only a guide with examples. Each classroom space has characteristics that could necessitate adapting the “typical” design to meet that room’s needs. Contact CTec for more information.
Dual-Projector HD Auditorium Signal Flow Example:

(Featuring Webcam, All Mic Types, Lifts, and Personal ADA Monitors)

Notes: See equipment list for more info. Power requirements not shown.
Dual Projection Example using DVX-3250HD with Nexia in HD Auditorium
(without Personal ADA Monitors)

Note: When wiring DVX Audio Output 2 & 3 as “Left” only, also configure those to Mono in DVX settings.
When wiring DVX Audio Input 11 for PC audio (from 3.5mm jack), jumper the grounds.

Classroom Technology Diagram
West Virginia University
Sept 27, 2023
Dual-Projector HD Auditorium Wiring Paths Example:

- Lights
- Speaker
- Additional Speaker(s)
- Screen Control Switches
- Projector Lift Ceiling Mount
- Projector
- Motorized Projection Screen
- Floorbox
- Building Power
- Building Data Closet
-洪墙
- (Behind Lectern)
- Chalkboard
- Front Wall (By Door)
- Classroom Door
- Classroom Technology Diagram
- West Virginia University
- Sept 27, 2023

LEGEND:
- AV Cat6a STP cabling
- Data Cat6 UTP cabling
- Speaker cabling
- Misc. Control cabling
- Power cabling

(Does not indicate sole number of cables per run)
Dual-Projector HD Auditorium Wiring Paths Example:

- Lights
- Preset Switches
- Ceiling Mount Power
- Projector Lift
- Speaker
- Additional Speaker(s)
- Projector
- Ceiling Mount
- Light
- RS232 Control Interface
- Fixed Frame (Non-Motorized) Projection Screen
- Chalkboard
- Lectern
- Floorbox
- Building Data Closet

**LEGEND:**

- AV Cat6a STP cabling
- Data Cat6 UTP cabling
- Speaker cabling
- Misc. Control cabling
- Power cabling

(Does not indicate sole number of cables per run)
Single-Projector HD Auditorium Signal Flow Example:

(Featuring Webcam, Multiple Mic Types, Lift, and Personal ADA Monitors)

Optional: Personal ADA’s only needed in rear-entry auditoriums without ADA access to front.

Notes: See equipment list for more info.

Power requirements not shown.
Dual-Projector HD Classroom Signal Flow Example: (Featuring Webcam and Multiple Mic Types)

Notes: See equipment list for more info. Power requirements not shown.
Single-Projector HD Classroom Signal Flow Example:
(Featuring Webcam, PTZ Camera, and Multiple Mic Types)

Notes: See equipment list for more info.
Power requirements not shown.
Single Projection Example using D VX-2250HD with Nexia in HD Classroom

Note: When wiring D VX Audio Output 2 as “Left” only, also configure it to Mono in D VX settings.

When wiring D VX Audio Input 11 for PC audio (from 3.5mm jack), jumper the grounds.
Single-Projector HD Classroom Wiring Paths Example:

Legend:
- AV Cat6a STP cabling
- Data Cat6 UTP cabling
- Speaker cabling
- Misc. Control cabling
- Power cabling

(Does not indicate sole number of cables per run)

Classroom Technology Diagram
West Virginia University
Sept 27, 2023
Small HD Classroom Signal Flow Example:

(Featuring Webcam, Multiple Mic Types, and DVX Used as Amplifier*)

Notes: See equipment list for more info. Power requirements not shown.
Example Signal Flow When DVX Used as Audio Amplifier in Small HD Classroom (Most Wiring Same As Previous Diagrams Until Final Output)

Note: Go back through DXV, but this time act as amplifier only
Above Ceiling Projector Lift Install Detail for HD Auditorium

- AV Conduit (≥1”) to lectern floor box
- Cat6aSTP AV cables
- Power Conduit (¾”)

Auditorium Ceiling Height

- Lift operation is only needed for technician access to the projector.
- Projector lift is installed so that the daily use is the lift’s “closed” (full up) position, with projector mounting pole extending through the finish plate to within 6 inches of the top of the screen so the projector lens is lined up with the top of the image when the screen is deployed.

Appropriately-sized Chief extension column “projector pole” extending down through projector lift’s “finish plate” into classroom for attaching the projector.

Classroom Technology Diagram
West Virginia University
Sept 27, 2023
Conduit to junction box and lectern floor box (1” TYP)

AV signal cabling to projector routed through mounting pole

Appropriately-sized (typically 6” long for 11’ ceiling) extension column “projector mounting pole” extending down into classroom for attaching to the projector mount adapter and to the projector.

Security cable for projector

Power for standard 110V duplex outlet (faces down to connect projector’s power cable below ceiling)
Multimedia Lectern Floor Box Plate Typical Allocation:

Concrete Recessed With Cover

- To Network Closet: 1¼” conduit typical
- ¾” conduit typical
- 1½” conduit typical (or 2” for dual-projection rooms)
- To Power Circuitry: ¾” conduit typical

Without Cover

- Data
- Duplex Power
- Speakers
- AV
- AV
- AV

“AV” cabling typically consists of:
- Cat6a-STP cable for signal and control to each display
- Belden 8723 cable for control to the lighting system interface
- Belden 8451 cable for control to each projector screen interface
- Belden 1309a cable for speaker audio to each speaker set
- Manufacturer-specific cable for control to each projector lift

Recessed floor box by GC/EC able to accommodate up to 8 plates:
1 Data Plate (six total RJ45 jacks, run to IT network closet) by WVU
2 Duplex Power (each duplex outlet on separate circuit) by Electrical Contractor
Up to 4 gangs available for AV & speaker pass-thru (see notes above)