WVU Classroom Technology Renovation Standards Guide:

“General Purpose Classrooms”

Signal Flow, Wiring, and Installation Detail Diagrams for Designated “GPC” Technology Facility Upgrades

Technology Classroom Designations (by Section #):
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

Also:
6. Above Ceiling Projector Lift Install Detail for Auditoriums
7. Above Ceiling Projector Plate Install Detail for Classrooms
8. Multimedia Lectern Floor Box Plate Allocation
Dual Projection using DVX-3250HD-SP with DX-RX and Nexia in HD Standard Auditorium
### TLC Classroom Technology Diagram
West Virginia University
March 12, 2018

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

(Does not indicate number of cables per run)

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**Legend:**
- **Lights:**
- **Power:**
- **Additional Speaker(s):**
- **Screen Control Switches:**
- **Lighting System:**
- **Contact Closure Interface:**
- **Projector Lift Ceiling Mount:**
- **Speaker:**
- **Motor:**
- **Motorized Projection Screen:**
- **Ceiling Mount Power:**
- **Projector Lift:**
- **Power:**
- **Floorbox:**
- **Data Closet:**
- **Contact Closure Interface:**
#2 Single-Projector HD Auditorium Signal Flow Diagram Example

Legend:
- @Lectern
- @Floor
- @Wall
- @Mobile

Cabling / Connectivity:
- HDMI or DVI
- Composite Video
- VGA/RGB
- Stereo-Audio
- Speaker
- Radio Frequency Network (Cat6)
- AV (Cat6a STP)
- Control Cabling
- USB Cabling

Note: Personal ADA’s only needed in rear-entry auditoriums

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Single Projection using DVX-2250HD-SP with DX-RX and Nexia in HD Standard Auditorium
#2 Single-Projector HD Auditorium Floor/Wall/Ceiling Wiring Paths Example

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

(Does not indicate number of cables per run)

**Diagram Description:**
- **Projector Lift:** Ceiling Mount
- **Speaker:** Ceiling Mount
- **Projector:** Motor
- **Additional Speaker(s):**
- **Lectern:**
- **Motor:**
- **Lighting System:**
- **Power:**
- **Floorbox:**
- **Front Wall:** (Behind Lectern)
- **Side Wall:**
- **Floor:**
- **Lights:**
- **Screen Control Switch:**
- **Lighting System Interface:**
- **Lighting System Switches:**
- **Screen Control Switch:**
- **Contact Closure Interface:**
- **Classroom Door:**

**TLC Classroom Technology Diagram**
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Dual Projection using DVX-3250HD-SP with DX-RX and Nexia in HD Standard Classroom
Single Projection using DVX-2250HD-SP with DX-RX and Nexia in HD Standard Classroom
TLC Classroom Technology Diagram
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Small HD Classroom Signal Flow Diagram Example

LEGEND
- @Lectern
- @Ceiling
- @Floor
- @Wall
- @Mobile

CABLING / CONNECTIVITY:
- HDMI or DVI
- Radio Frequency Network (Cat6)
- Radio Frequency Network (Cat5e)
- Composite Video
- VGA/RGB
- AV (Cat6a STP)
- USB Cabling
- Low Voltage Interface
- Motorized Screen
- Low Voltage Interface
- Audio Recorder
- Wall Switches
- XLR Connection
- Personal Assistive Listening System Tx
- Ceiling Fan
- Wall Speakers
- Network Switch
- DXLINK Rx
- Gooseneck Mic
- Audio Mixer w/ DSP
- AMX Touch Panel
- AMX DVX Controller & AV Matrix Switch
- Cabled Mic Input
- Cabled Laptop Inputs
- A/V Input Panel
- Cable Cubby Inputs
- Document Camera
- PC w/ DV Output
- Network Switch
- AMX POE
- Lectern ADA Output Connection Plate
- Lectern Floor Box (pass-thru)
- ADA Monitor
- ADA
- Monitor
- Motorized Screen
- Wall Switches
- Speaker
- Network (Cat6)
- Stereo-Audio
- USB Cabling
- Telephone
- Fan
- Interaction Pen Display Monitor
- Interactive Pen
- Interactive Pen
- Wireless Presenter
- Presenter Rx
- Keyboard
- Mouse
- Low Voltage Interface
- Low Voltage Interface
- LCD Classroom Technology Diagram
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TLC Classroom Technology Diagram
West Virginia University
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Single Projection using DVX-2250HD-SP with DX-RX and Nexia in Small HD Standard Classroom
Example Signal Flow When DVX Used as Audio Amplifier in Small HD Classroom

These are actually the same device, just used for different things.

Note: Throughputs audio signal, acting as amplifier only

TLC Classroom Technology Diagram
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Above Ceiling Projector Lift Install Detail for HD Auditorium

AV Conduit (≥1") to lectern floor box

Auditorium Ceiling Height

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.

Lift operation is only needed for technician access to the projector.

AMX DXLink Receiver box sits on top of projector lift “finish plate”

Pass-through plate for cabling to projector.

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

DXLink Rx

Cat6a AV cables

Power connectivity for projector

Power Conduit (3/4"

Pass-through plate for cabling to projector.

Lift operation is only needed for technician access to the projector.

AMX DXLink Receiver box sits on top of projector lift “finish plate”

Pass-through plate for cabling to projector.

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

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Projector mounting plate is a white 2'x2' replacement for ceiling-tile, with weight-bearing steel cable supports. Appropriately-sized (typically 12" long for 11' ceiling) extension column “projector mounting pole” extending down into classroom for attaching to the projector mount adapter and to the projector.

Conduit to junction box and lectern floor box (typ 1"

DXLink receiver box sits on top of projector mount tile (power over DXLink cable, preferred)

AV signal cabling to projector routed through mounting pole

Projector mounting plate is a white 2’x2’ replacement for ceiling-tile, with weight-bearing steel cable supports

Mounting Plate

Mount Adapter

Projector

Power for standard 110V duplex outlet (faces down to connect projector’s power cable below ceiling)

Power Conduit (typ ¾”)

TLC Classroom Technology Diagram
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Multimedia Lectern Floor Box Plate Typical Allocation:

To Power Circuitry:
- ¾” conduit typical

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

With Cover

To Ceiling for Distribution:
- ¾” conduit typical

Without Cover

“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:
2 Data Plates (six total RJ45 jacks, run to IT network closet) by WVU (either ITS or Facilities)
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)