General Purpose Classrooms

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

iDesign-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
Lectern Floor Box Data Jack Plate to Network Closet

Lectern Floor Box

Network Switch

AMX POE

Document Camera

PC w/ Dual DV Output

AMX Touch Panel

AMX DVX Controller & AV Matrix Switch

Interactive Pen Display (Primary Monitor)

Standard Flat Panel Display (Secondary Monitor)

DV Extender Left

DV Extender Right

DV Extender Left

DV Extender Right

Audio Mixer w/ DSP

 DX1

 DX3

 AMX HP POE

 Left Projector Lift Control

 Right Projector Lift Control

 Lectern Floor Box (pass-thru to seats)

 Lectern ADA Output Connection Plate

 Left Large Display ADA Monitor

 Left Large Display ADA Monitor

 Right Large Display ADA Monitor

 Audio Recorder

 DXLINK Rx

 DXLINK Rx

 Left Projector

 Right Projector

 Left Projector Lift

 Right Projector Lift

 Ceiling Speakers

 Can be expanded...

 Personal Assistive Listening System Tx

 PALS Rx

 Low Voltage Interface

 Low Voltage Interface

 Low Voltage Interface

 Wall Switches

 Wall Switch

 Wall Switch

 Telephone

 Fan

 Gooseneck Mic

 Wireless Handheld Mic 1

 Wireless Handheld Mic 2

 Wireless Lapel Mic

 Cabled Laptop Inputs

 Cabled Mic Input

 A/V Input Panel

 Radio Frequency Network (Cat6)

 Composite Video

 VGA/RGB

 Stereo-Audio

 Speaker

 Audio Amplifier

 Cable Cubby Inputs

 CABLING / CONNECTIVITY:

 HDMI or DVI

 Composite Video

 VGA/RGB

 Stereo-Audio

 Speaker

 USB Cabling

 Cable cubby inputs

 1, 7, 8

 2

 3

 4

 5

 1, 2

 6

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Dual Projection using DVX-3250HD-SP with DX-RX and Nexia in HD Standard Auditorium
#1 Dual-Projector HD Auditorium Floor/Wall/Ceiling Wiring Paths Example

**Lighting System**
- Lights [Power]
- Light Preset Switches
- Screen Control Switches

**Front Wall (Behind Lectern)**
- Additional Speaker(s)
- Contact Closure Interface

**Floor**
- Ceiling Mount Power
- Projector Lift Ceiling Mount
- Projector
- Motorized Projection Screen
- Motor
- Chalkboard
- Floorbox
- Data Closet

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

(Does not indicate number of cables per run)
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)

**Equipment:**
- **Projector**
- **Projector Lift (Ceiling Mount)**
- **Speaker(s)**
- **Lectern**
- **Chalkboard**
- **Motorized Projection Screen**
- **Floorbox**
- **Lighting System**
- **Lighting System (Front Wall (Behind Lectern))**
- **Light Switch (on/off)**
- **Light Switch (preset switches)**
- **Screen (control switch)**
- **Contact Closure Interface**
- **RS232 Control Interface**
- **Data Closet**
- **Additional Speaker(s)**
- **Classroom Door**
- **Side Wall**
- **Front Wall (By Door)**
- **Front Wall (Behind Lectern)**

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February 5, 2016

*IDesign Classroom Technology Diagram*
Dual Projection using DVX-3250HD-SP with DX-RX and Nexia in HD Standard Classroom
#3 Dual-Projector HD Classroom Floor/Wall/Ceiling Wiring Paths Example

- **Speaker**
- **Additional Speaker(s)**
- **Projector**
- **Ceiling Plate Mounts for 2x2 Drop-Ceilings**
- **Power**
- **Lectern**
- **Lights**
- **Chalkboard**
- **Data Closet**
- **Floorbox**
- **Motorized Projection Screen (Right from Instructor POV)**
- **Motorized Projection Screen (Left from Instructor POV)**

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

(Does not indicate number of cables per run)

iDesign Classroom Technology Diagram
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Single-Projector HD Standard Classroom Signal Flow Diagram

Equipment:
- @Lectern
- @Ceiling
- @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
- Wireless
- Lapel Mic
- Handheld Mic
- Presenter Rx
- Telephone
- Fan

Legend:
- Wireless
- POE
- Personal Assistive Listening System Tx
- XLR Connection
- Ceiling Speakers
- Can be expanded...
- Wall Switches
- Motorized Screen
- Light Dimming System
- DXLINK Rx
- ADA Monitor
- Large Display
- Projector
- Audio Recorder
- Document Camera
- A/V Input Panel
- Cabled Mic Input
- Cabled Laptop Inputs
- Network Switch
- Cable Cubby Inputs
- PC w/ DV Output
- Keyboard
- Mouse
- Interactive Pen Display Monitor
- AMX Touch Panel
- AMX DVX Controller & AV Matrix Switch
- Audio Amplifier
- Audio Mixer w/ DSP
- Lectern ADA Output Connection Plate
- Lectern Floor Box (pass-thru)
- DX1
- S1
- V2
- V3
- V5
- V6
- M1&2
- A2
- 1, 2, 3, 4, 5, 6
- 1, 2, 3, 4, 5, 6
- 1, 2, 3, 4, 5, 6
- 1, 2, 3, 4, 5, 6
- 1, 2, 3, 4, 5, 6
- 1, 2, 3, 4, 5, 6
- 1, 2, 3, 4, 5, 6

Wireless Presenter

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#4
Single Projection using DVX-2250HD-SP with DX-RX and Nexia in HD Standard Classroom
#4 Single-Projector HD Classroom Floor/Wall/Ceiling Wiring Paths Example

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

(iDesign Classroom Technology Diagram
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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.
Small HD Classroom Floor/Wall/Ceiling Wiring Paths Example

- Power: Ceiling, Side Wall, Floor
- Lights: Ceiling, Side Wall
- Ceiling Plate Mount for 2x2 Drop-Ceilings
- Motorized Projection Screen
- Chalkboard
- Wall Speaker: Front Wall (Behind Lectern), Side Wall (By Door)
- Lectern
- Floorbox
- Contact Closure Interface
- RS232 Control Switch
- Screen Control Switch
- Light Switch (on/off)
- #5

**LEGEND:**
- 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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Above Ceiling Projector Lift Install Detail for HD Auditorium

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.

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.

AV Conduit ( ≥1” ) to lectern floor box

Control cable

Cat6a AV cables

DXLink Rx

Cat6a cable

HDMI patch cord

Power cable

Power Conduit ( ¾” )

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

Ceiling Cable Access Plate

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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”)

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

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

AV signal cabling to projector routed through mounting pole

Serial

Projector Mounting Pole

Mount Adapter

Projector

DXLink

Serial

HDMI

Cat6a cable

Power Conduit (typ ¾“)
Multimedia Lectern Floor Box Plate Typical Allocation:

**Concrete Recessed With Cover**

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

**Without Cover**

- **To Power Circuitry:** ¾” conduit typical

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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)

**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

*Important: Remove cover before placing lectern on top, for ease of access*