

## PROJECT DESCRIPTION AND SCOPE OF WORK

Diablo Valley College is seeking contractors to submit bids for an upgrade to the audio video systems (AVS) on the San Ramon Campus. This document addresses BOTH the infrastructure and equipment upgrade Scope of Work (SOW) on this project.

See the released bid document for dates and instructions for the job walk, RFI procedures, bid submission, and time line completion expectations.

Work is to be done when there are no students in the classrooms. This allows for install to be done at normal working hours during School breaks. However, if the contractor elects to get things done before breaks it will require evening, night, or weekend work when students are not around during class semesters. Therefore, if your company has a different rate for those hours, that will need to be accounted for in your quote (a change order will not be issued later). This project will be considered public works and public works wages will be required. However, It is not a PLA project.

*The selection of the contractor will be determined based on who is lowest bidder, but also demonstrates the inclusion of entire scope of work and materials required for a functional and aesthetically appealing installation (labels, velcro, raceway, conduit, etc.), as well as, timeline and warranty proposed with bids.*

### **Project Summary:**

Diablo Valley College San Ramon campus has **32** rooms that the school is looking to upgrade the AV systems. Any equipment not re-used for this project shall be removed by the contractor and handed over to the school after removal. All existing cabling that will not be re-used is to be removed and discarded by the contractor. Any cables that will be re-used the contractor is to re-terminate, test, and label with the new labeling scheme. If any new electrical outlets or conduit/outlet boxes are needed to complete this SOW, contractor is responsible to either subcontract or do as part of this bid.

All of the classrooms will be controlled with a new Owner Furnished Contractor Installed (OFCI) Crestron CP4N processor that will be located in a data closet. The projectors, touch panel interfaces, screen controllers, and video switches will all be controlled using LAN connections which will be cabled to data closet(s) near the classrooms and connected to an OFCI network switch. The contractor will be responsible for pulling new cables and terminating these new cables along with re-used cables onto new patch panels and patch with new patch cords. All cables shall be labeled on the cables, patch panels, faceplates, and patch cords.

Of the 32 rooms, 2 are conference rooms and the rest are classrooms. 28 of those classrooms will have the same base design for AV. There may be a few rooms (at least 1) that will have a 2nd projector and screen which are listed in this SOW.

The base design will be as follows:

(See the issued single line drawings for specific details including cable types and part numbers)

NOTE: When an item is listed as OFCI the contractor is responsible for ALL cabling between devices and to the data closet. Additionally, contractor is also responsible for ALL pathway materials (conduit, firestop, raceway, J-hooks, cable tray, etc.), Velcro for bundling (Zip ties are only allowed initially and are to be removed after being velcroed), labels for cables/plates/panels/patch cords, faceplates/panels and connectors. As well as materials to mount the devices in place at their locations. This is what is meant by OFCI when mentioned in this SOW.

All rooms shall be installed to match the approved installation of the example room and shall match the Single Line drawing provided.

Each room shall be provided with a new OFCI instructor desk that shall have the following devices installed:

- 1) Owner Furnished Contractor Installed (OFICI)Crestron DM Lite switcher with the following sources. The switcher will provide a mirrored output of the first DM Lite output so that the instructor can see the source being sent to the projector along with the controls for the AV system around the image.
  - a) A Contractor Furnished Contractor Installed (CFCI) HDMI patch cable connected to an OFE Room PC and switcher input 1, labeled "Room PC"at both ends.
  - b) A CFCI HDMI cable to switcher input 2, labeled "Laptop" at both ends. The HDMI cable shall be long enough to reach any position on the instructor's desk.
  - c) A CFCI HDMI cable from the OFE document camera to switcher input 3, labeled "Doc Cam" at both ends.
- 2) Connect the OFCI Crestron DM Lite Switcher to the following destinations.
  - a) HDMI Out to OFCI Cretron DGE 100 also mounted in the instructor's desk using CFCI HDMI patch cable labeled "DGE In" at both ends
  - b) DM Lite Out 1 to Projector 1 DM receiver using CFCI CAT6F/UTP cable labeled "Proj 1 DM" at both ends
  - c) If a second projector is specified in this room then DM Lite Out 2 to that projector's DM receiver using Cat6F/UTP cable labeled "Proj 2 DM" at both ends
- 3) An OFCI Crestron DGE shall be mounted inside the OFE desk with the following patch cables.
  - a) A CFCI HDMI patch cable from the switcher's HDMI output to the DGE's HDMI input and labled "DGE IN" at both ends.
  - b) CFCI HDMI and USB cables to an OFCI touch monitor on top of the desk. Both patch cables shall be labeled "To Touch Monitor".
- 4) Data connections on the wall shall connect to the devices listed below in the instructor's desk and patched at the OFCI switch in the data closet as well.
  - a) Crestron DM-Lite switcher
  - b) Crestron DGE 100
  - c) OFE Room PC

A new CFCI **Cat6F/UTP** shall be pulled from the DM-Lite switcher to an OFCI DM receiver at the projector. This DM receiver shall be connected to the projector's HDMI 1 input using a CFCI HDMI patch cable.

If the room is getting a new projector, the OFCI projector shall be mounted to a CFCI ceiling mount system. The contractor shall install electrical power at each projector's location if there is no existing projector. The AC power shall be extended to the electric screen for new and future screens. IF rooms have an existing projector the existing mounting system should be able to be re-used. **After the job walk a list will be issued of rooms that will need new ceiling mounting systems or new power.** The OFCI receiver at the projector will connect via CFCI HDMI cabling to the OFCI Panasonic projector's HDMI 1 input.

The projector shall have a CFCI 3.5mm audio cable connection to the CFCI speaker amplifier. The amplifier shall be connected to two CFCI speakers located to the left and right of the screen. If the screen is not yet an electric model, mount the speakers an appropriate distance apart to allow for a future electric screen without needing to move the speakers.

The projection screen shall be a new CFCI electric screen. Refer to the specified equipment list for sizing and part number. This screen shall be connected to AC power in accordance with electrical codes. The screen shall be controlled using a CFCI Crestron Relay module. The contractor shall install signal cable to the screen(s) from the relay control outputs. It is the contractor's choice to install one Relay Control Module for every two single projector rooms or to provide one Relay Control Module for each room. The preferred option is to be documented in the bid submittal.

In some rooms there are existing AV systems with ceiling speakers. Those speakers will be re-used instead of new CFCI surface speakers. In those rooms, a different amplifier may be needed to provide enough power or to account for the difference between LZ and CV type of speakers. That amp shall be CFCI. At the end of this document is a list of rooms for the SRC project. The rooms with touch screen systems are the rooms with existing ceiling speakers.

NOTE: On this project, we will reuse all existing projectors and displays. Therefore, no new power or mounts should be needed unless noted in a future addendum. Some of the rooms have existing electric screens. All other rooms ON THIS PROJECT will have new power installed for a FUTURE electric screen. The contractor is also ON THIS PROJECT to furnish and install the Crestron Relay controllers and pre-cable for these future screens.

There are 2 additional rooms that will have more than 2 displays. Single Line drawings and details will be included in this package. These two rooms will also be a part of this SOW.

**Project Bill of Materials:**

The contractor is responsible for providing a complete system and installation, including materials and consumables as needed to complete the system. All items will be the responsibility of the contractor to furnish (except OFCI items). This includes materials needed to install and mount OFCI equipment as well as contractor F&I equipment as well. This also includes power needs and pathway materials. All cables will be terminated with jacks and terminated in modular patch panels at the data racks and faceplates in outlet boxes or surface mount "biscuit" blocks and connected to the network switch and devices using a patch cord. This will allow the basic link to not be tampered with and only patch cords replaced with future change outs.

Provide with the quote a list of materials or a material submittal so that a comparison can be made when evaluating pricing from bids.

**Exceptions to Single-line drawing room design:**

All rooms will be installed per the design with the following exceptions listed below:

1. Room 212 – NOTE: This room will be a dual projection room
  - a. re-use the speakers in the room. Provide a new amplifier for the speakers – 12 total
2. The following rooms have manual screens and will need a new electrical for a FUTURE screen (install all per design)
  - a. 135
  - b. 160
  - c. 162
  - d. 168
  - e. 176
  - f. 187
  - g. 188
  - h. 217
  - i. 218
  - j. 219
  - k. 220
  - l. 225
  - m. 226
  - n. 235
  - o. 237
  - p. 238
  - q. 240
3. The following rooms also had noted:

- a. 227 (This room has a broken tile. Contractor is not responsible to replace that tile. Budget for replacing any tiles that get broken during this project)
4. Room 229 (Cadaver) and Room 164 (multi-display), contractor will do the following:
  - a. All items will stay as is – speakers, switcher, displays, screen, touch panels, etc – with the following changes:
    - i. Contractor will install OFCI DGE at the desk and that is to connect to one of the new network cables with a CFCI patch cord.
    - ii. Test, re-label and document the cabling like the rest of the rooms
    - iii. Contractor will then connect OFCI HDMI and usb cables to an OFCI touch monitor.
    - iv. An HDMI cable will also connect from the DM switch to the DGE for video preview
5. Room 181 – will be a dual projector room. The Short Throw projector will stay as the 2<sup>nd</sup> display. We will also re-use the electric screen and over head speakers. Provide a new amplifier
6. Room 148 – this room has a short throw projector. We will re-use that instead of a new projector. There will be NO SCREEN as the short throw goes into the whiteboard
7. Here is a list of the data closets and what rooms each closet feeds: (cables are already installed to each room – contractor is to test and re-label per above)
  - a. East Building 233 –
    - i. 225
    - ii. 226
    - iii. 227
    - iv. 229
    - v. 230
    - vi. 235
    - vii. 237
    - viii. 238
    - ix. 240
  - b. East Building 189 –
    - i. 160
    - ii. 161
    - iii. 162
    - iv. 164
    - v. 166
    - vi. 168
  - c. West Building 202 –
    - i. 204
    - ii. 212
    - iii. 216
    - iv. 217
    - v. 218
    - vi. 219
    - vii. 220
    - viii. 221
    - ix. 222
    - x. 212- 2<sup>nd</sup> Projector

- d. West Building 105 – **(NOTE: In this closet the cables were not as clearly labeled and I am not certain they pulled enough. Provide an alternate to pull new cables in this room – preferably if we could get the cables upstairs in IDF 202 that would be best)**
  - i. 148
  - ii. 135
- e. MDF 180 –
  - i. 174
  - ii. 176
  - iii. 181
  - iv. 187
  - v. 188

**Cabling:**

**In the bid proposal please state which cabling solution will be used and show verification that contractor can provide at least a 15-year warranty (preferably a lifetime warranty).**

The contractor will be responsible to provide the cable, any material required for the pathway to the locations (J-hooks, raceways, cable trays, etc.), the jacks, outlet boxes/plates at the station side and rack, patch cord of appropriate lengths to connect network switches and devices at the station. All cables, jacks (on both ends), and patch cords shall be labeled with computer generated labels at the switch to easily identify where they are going (devices/purposes).

All cables shall be tested to ensure TIA standards are met. If the cabling is already in place and a cable fails initial testing contractor shall notify school so appropriate corrections can be implemented.

Cabling shall be Cat6 for data and for DM extensions shall be Cat6F/UTP. Provide an alternate for Cat6A cabling.

The labeling for the cabling shall identify which patch panel and which port the cable will be terminated at.

For cables that are already in place and passed testing the old labeling shall be removed and replaced with labels per this SOW. Labeling format shall be Room #, Rack #, Patch Panel #, Port #. Room # shall be the room the cable is going to. At the classroom, Room # shall be the room where the data rack is located. At the data rack Room # shall be the Classroom number.

Patch panels shall be modular so that color coding can be used for jack identification if requested by the owner. Unless told otherwise, patch cords and jacks for AV shall be grey. Contractor is also responsible to locate all cabling terminations in the data closet for the AV system near the OFCI AV LAN switch(es).

IF cables are being re-used plan to relocate to the new patch panels and to re-terminate and test and label to match the new cabling. Cables shall NOT be re-used unless they are Cat6 or greater.

In rooms cables shall terminate on walls. To get to the tables use flat patch cords and/or cable protection so that pathway between the wall and table will not be a trip hazard. This protection shall be held in place and not moveable when walked on or kicked. The cable protection shall be in accordance with ADA standards and shall not pose a trip hazard.

Cables at ceiling locations do NOT have to be in conduit or raceway, but shall be installed aesthetically and held in place with proper supports. Cables going down walls and to the teacher desk shall be in conduit, raceway, or appropriate cable pathway. Colors for pathway shall be matched to the site or blend in aesthetically.

Jacks for Crestron DM Cabling shall be Cat6A Shielded type. Cabling and jacks do NOT have to be Crestron DM, but the proposed solution shall be a manufacturer partnered solution and offer a minimum of 15 year cabling warranty (ex: Panduit, Leviton, etc).

If local code requires, plenum cabling in the space shall be used. Otherwise, plenum cabling is not needed since the cabling exits each room individually and shall have contractor F&I firestop.

**Other Materials:**

For contractor F&I materials the following is suggested as a baseline comparison or to use:

- Stewart Audio Compact Amplifier at the projector DSP100-2-CV-D (or Equal – provide a submittal if a similar model is proposed): <https://stewartaudio.com/products/dsp100-2-cv-d/>
- Draper 101640U Screen (or Equal – provide a submittal if a similar model is proposed) <https://www.draperinc.com/projectionscreens/productdetail.aspx?detail=243&part=101640U#tabs-4>
- Bose DesignMax DM5SE 829705-0110 ( equal or better alternative is acceptable as long as it does not exceed 80 watts since the amp has 100 watt channels and a submittal is provided if a similar model is proposed). [https://assets.bose.com/content/dam/Bose\\_DAM/Web/pro/global/products/loudspeakers/designmax\\_dm5se/downloads/tds\\_designmax\\_dm5se\\_en.pdf](https://assets.bose.com/content/dam/Bose_DAM/Web/pro/global/products/loudspeakers/designmax_dm5se/downloads/tds_designmax_dm5se_en.pdf)

**Additional Installation/Project Requirements:**

1. Contractor is to furnish as built drawings showing the cable pathway, the locations of the stations, and what they are labeled. This submittal can be given electronically. The as-builts shall be given in original ACAD, Stardraw, or Viso format as well as in PDF format. Post a binder or a laminated drawing in the data closet for easy reference.
2. Contractor is responsible to work with the school programmer and IT departments to use the provided IP schedule and document the MAC address, serial numbers, With the assigned IP addresses for each device in each room onto a excel or google spreadsheet. The contractor is to also configure each device with the addresses on the sheet so that the programmer can connect to the system in one location and upload the program and configure the devices.
3. Contractor is responsible for adjusting the projector's image to fill the screen and be square and in focus.
4. Contractor is to provide an installer at least a half day to work with the school's programmer to test an initial room and then to make adjustments/corrections resulting from that meeting afterwards to ensure proper connections and functionality. This shall be done with the first room. Provide an installer at project end to check the rooms and adjust if anything requiring correction is discovered.
5. Contractors will furnish TIA test results using a Fluke or equivalent tester that has been calibrated within the last six months. In addition to the results, provide a document that lists all the settings used while taking the tests. These tests can be submitted in PDF format.
6. Provide a digital folder or document with pictures showing the installation at the data rack, station, displays, teacher's desk, projector, and screen with speakers.
7. At the data rack, provide a slide out shelf at a heigh that a technician can set a laptop on it and type comfortably.
8. Deliver all removed existing AV equipment to the school's representative unless told to discard in writing.
9. Provide the following warranties:
  - a. a one-year contractor warranty
  - b. Manufacturer material warranties
  - c. Cabling manufacturer 15 year or greater warranty
10. Confirm before submitting bid that contractor has all addendum as those will provide additional clarification and SOW when responding to RFI.

Changes to SOW:

The following changes to the SOW are to be followed:

1. No new projectors unless specified
2. Owner is not replacing any projection screens in all classrooms (HOWEVER, rooms with manual screens are to have electrical installed for FUTURE electric screens)
3. All Crestron CEN IO0 RY 104 relay control modules will be CFCI and each room is to have installed whether it has an electric screen or not. All cabling is to be in place for the FUTURE electric screen and connected to existing electric screens.

## DVC - San Ramon Campus Room Listing

March, 2022

CT.	Room	Comment
1	135	Conference room - will get base system and new projector
2	148	Has touch screen system - Replace with Base System, BUT Re-use Speakers
3	160	
4	161	
5	162	Has touch screen system - Replace with Base System, BUT Re-use Speakers
6	164	Has touch screen system. - Single line to come in addendum as this room has multiple displays
7	166	Has touch screen system - Replace with Base System, BUT Re-use Speakers
8	168	Has touch screen system - Replace with Base System, BUT Re-use Speakers
9	174	
10	176	
11	181	Has both long and short throw projectors. - 2 projector system (re-use short throw)
12	187	
13	188	
14	204	Conference Room.will get base system (Has overhead projector - will replace)
15	212	
16	216	
17	217	
18	218	
19	219	
20	220	
21	221	
22	222	
23	225	
24	226	
25	227	
26	229	Shares touch screen system with 229A. - Single line to come in addendum
27	229A	3 cadaver station cameras w/remote, 1 Lg flat panel mon w/remote
28	230	
29	235	
30	237	
31	238	
32	240	