



U N I V E R S I T Y O F
SOUTH CAROLINA

AMENDMENT NO.6 TO SOLICITATION

TO: ALL VENDORS

FROM: Kevin Sanders, Procurement Manager

SUBJECT: SOLICITATION NUMBER: USC-IFB-2372-KS
Furnish and install Audio Visual System at Moore School building

DATE: May 7th, 2013

This Amendment **No.6** modifies the Request for quote only in the manner and to the extent as stated herein.

Vendor questions and answered.

Amendment to requirements.

Drawing index

Additional specifications for Package A “Interactive Video Wall”

Updated bid schedule

NOTE: DRAWING FILE #2 revised & #3 revised are available

BIDDER SHALL ACKNOWLEDGE RECEIPT OF AMENDMENT **NO.6** IN THE SPACE PROVIDED BELOW AND RETURN IT WITH THEIR BID RESPONSE. FAILURE TO DO SO MAY SUBJECT BID TO REJECTION.

Authorized Signature

Name of Offeror

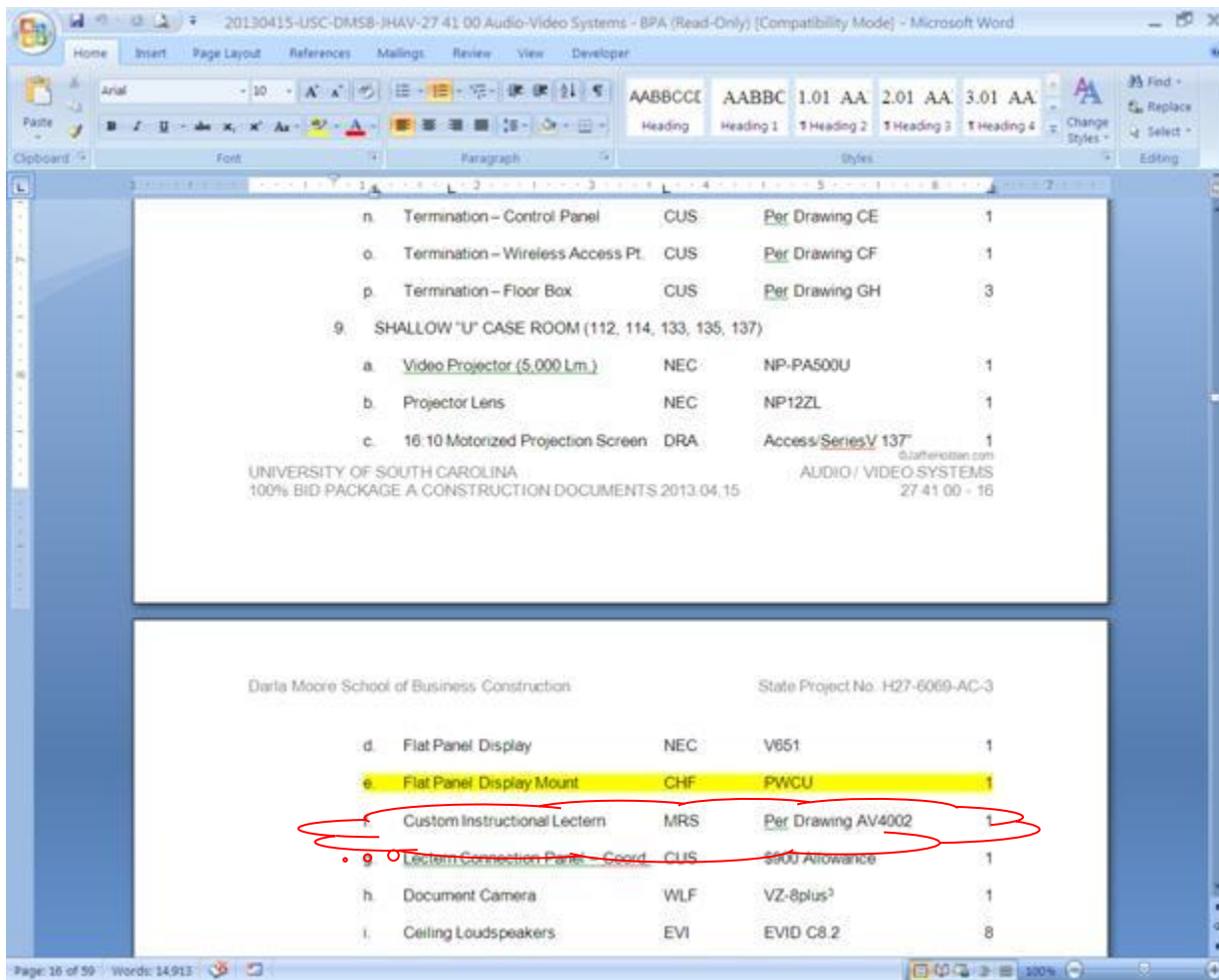
Date

~ in contact with Marshall Furniture, in regards to the lecterns for the project. It is my understanding that Adam Fischer, a representative of Marshall's, is attempting to obtain clarification from his USC contact and/or consultant.

Each individual lectern detail on plan sheet AV4002, list a choice of lectern styles to be "provided as required...". We would like to request that one specific lectern be listed for each detail (since details are referenced to specific room).

I have attached a copy of AV4002 (see details 1 through 4). Any assistance you can provide to clarify this issue will be appreciated.

. The lecterns are referenced in the drawings and the specs, for rooms that will require one.



EQUIPMENT PROPOSED FOR PRE-APPROVAL

1. PERFORMANCE HALL (101) – We request approval to utilize a Soundcraft “Si 2+” Digital Mixing Console with signal input and output routing provided to matching that of the specified Yamaha “CL3” console via Soundcraft “Mini Stagebox” interface units. The following link is provided to access information on the proposed Soundcraft “Si 2+” Digital Mixing Console:

<http://www.soundcraft.com/products/product.aspx?pid=185>

2. PERFORMANCE HALL (101) – We request approval to utilize a QSC “CORE 250i” Q-SYS Audio DSP with a QSC “I/O FRAME”. QSC model “CIML4” Analog Mic/Line Inputs Cards, “COL4” Balanced Line Level Output Cards, and “CAES4” Digital Audio Output Card will be supplied as required to match the signal input and output routing of the specified Symetrix “EDGE” DSP.

Note: Remote modular controls for the QSC Audio DSP will be provided and configured to provide equivalent functionality of the specified Symetrix “ARC” units.

The following link is provided to access information on the proposed QCS “CORE 250i” Q-SYS Audio DSP:

http://www.qsc.com/products/Q-SYS%20Integrated%20System%20Platform/Core%20Series/Core_250i--500i/

3. PERFORMANCE HALL (101) – We request approval to utilize a Crown DCi 4/600 4-Channel Audio Amplifier in-place of the specified Lab Gruppen C28:4 unit(s). The following link is provided to access information on the proposed Crown DCi 4/600 Amplifier:

<http://www.crownaudio.com/usa/installed-sound/drivecore-install-series.html>

4. NEC PRODUCTS – In regards to the NEC Display and Projectors listed in the contract specifications, I have been told by our sources that the “Darla Moore AV” project has been registered by a potential bidder with NEC. The registration of this project with NEC by a single bidder will provide the registered firm an additional product cost discount un-available to any other firm (only one firm can be granted “registered project” status. The intent of NEC’s registration discount is to help inspire firm to utilize NEC products in designs that they proposed to buyers. I do not believe the intent of the “project registration” discount was to provide an unfair pricing advantage for a firm that happened to contact NEC prior to any other bidder for a project designed by an esteemed consulting firm such-as Jaffe Holden Acoustic, Inc. Do to the large amount of NEC products specified for this project, any one bidder that may receive a “registration discount” will have an un-fair advantage over all other bidders, which could potentially be a basis for a bid protest (causing an undue delay in the project’s time-line).

In order to avoid any un-fair advantage that one bidder may have in regards to the acquisition of the specified NEC products, we recommend the following possible solutions:

1. If NEC is to remain as the only acceptable manufacture to be utilized in the bid, NEC should be provide verifiable documentation showing that all acceptable bidders receive the same base pricing (this is a practice that NEC has done in the past by providing a “job quote” - no “*project registration*” discount(s) applied.
2. The Consultant could provide a list of additional manufacturer(s) and model number to assure the availability of fair and competitive project pricing.
3. Grant acceptance of the following Mitsubishi products that we offer as a substitute to the associated NEC product listed in the specifications:

46” LCD Display - Mitsubishi model LDT462V

<http://www.mitsubishi-presentations.com/ldt462v/>

65” LCD Display - Mitsubishi model MDT652S

<http://www.mitsubishi-presentations.com/mdt652s/>

5000 Lumen Projector - Mitsubishi model MDT652S (WUXGA)

<http://www.mitsubishi-presentations.com/ul7400u/>

7500 Lumen Projector - Mitsubishi model UD8850U (WUXGA)

<http://www.mitsubishi-presentations.com/ud8850ubl/>

All are rejected for Bidding. Substitutions may be reviewed after bid has been awarded. NEC was selected in coordination with USC, specifically for the integrated Remote Desktop Protocol (RDP). Any other projectors specified must have RDP or additional equipment to provide this. –

On Amendment 3 the question is asked,

1)" The Contractor must be an InfoComm International Visual Solutions Provider (AVSP) and National Systems Contractors Association (NSCA) member." Since both trade organizations have over-lapping areas of expertise isn't one or the other sufficient?

In response to question #1: UTS is fine with the contractor being a member of either InfoComm or NSCA. Contractor does not have to a member of both.

1) On Amendment 3 the question is asked, " The Contractor must be an InfoComm International Visual Solutions Provider (AVSP) and National Systems Contractors Association (NSCA) member." Since both trade organizations have over-lapping areas of expertise isn't one or the other sufficient?

Answer- UTS/USC is fine with the contractor being a member of either InfoComm or NSCA. Contractor does not have to a member of both.

2) For scheduling purposes, does the university have a idea when the awarded contractor might be able to start pulling wire/cable?

Answer- It is estimated that the contractor will be able to start pulling cable in August, in phases to coordinate with construction. Bidder should anticipate that the installation range will vary and may extend to about 9 months, with specified training to follow. Coordinate with BP-3 contractor, Construction Manager and USC to confirm all delivery and install dates.

3) I have a question about the quantities associated with the following line items: 3. Control Room mm.

nn.

oo.

pp.

qq.

Answer-Refer to Jaffe addendum #1

~ in contact with Marshall Furniture, in regards to the lecterns for the project. It is my understanding that Adam Fischer, a representative of Marshall's, is attempting to obtain clarification from his USC contact and/or consultant.

Each individual lectern detail on plan sheet AV4002, list a choice of lectern styles to be "provided as required...". We would like to request that one specific lectern be listed for each detail (since details are referenced to specific room).

I have attached a copy of AV4002 (see details 1 through 4). Any assistance you can provide to clarify this issue will be appreciated.

The lecterns are referenced in the drawings and the specs, for rooms that will require one. Model MLP-50GC should be used for Rooms 112,114,133,135,137,324, and 334 (Details 1 & 2 on AV4002), and the MLP-33GC for the portable lecterns shown on Details 3 & 4 of AV4002.

Bid to include rack rails, touchscreen cutouts and other options as necessary for lectern, to accommodate the equipment to be installed.

DMSoB Project Bid Package Training Addendum

4/15/13

SYSTEM TRAINING

- I. Provide training in the operation and maintenance of the system for personnel designated by the owner. Record owner training sessions on DVD or other agreed upon media, and make training videos available to the owner at no charge. The training shall be organized as follows:

A. PERFORMANCE HALL (101)

1. Two (2) four-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems, (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.
3. Two (2) two-hour training classes for system technical operation and maintenance in the music performance configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review of manufacturers' recommended routine maintenance procedures.
 - f. Review & demonstration of control system software replacement/upgrade procedures.
 - g. How to reconfigure and move audio console and portable equipment.

B. LECTURE HALL (123)

1. Two (2) four-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.

2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

C. CONFERENCE / SEMINAR ROOM (108, 110)

1. Two (2) two-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.

2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

D. SHALLOW/DEEP “U” CASE ROOM (111, 112, 114, 133, 134, 135, 136, 137, 324, 334)

1. Two (2) two-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.

2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers’ recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

E. COMBINABLE DISCUSSION / RECITATION ROOMS (104, 105, 109, 113, 127, 128, 129)

1. Two (4) four-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.

2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers’ recommended routine maintenance procedures.

- g. Review & demonstration of control system software replacement/upgrade procedures.

F. DISCUSSION / RECITATION ROOM (103, 118, 119, 120, 121, 122, 124,125, 126, 140, 141, 142, 308, 487)

1. Two (2) two-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

G. BOOKABLE ROOM / GROUP STUDY ROOM (209, 210, 211, 212, 213, 223, 224, 225, 226, 231, 232, 233, 234, 235B, 307, 309, 325, 326, 327, 328, 333, 401O, 410F, 401I, 427, 451, 452H, 461F, 493)

1. Two (2) one-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) one-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.

- c. Review of initial equipment settings.
- d. Demonstration of all functional connections from a user perspective.
- e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
- f. Review of manufacturers' recommended routine maintenance procedures.
- g. Review & demonstration of control system software replacement/upgrade procedures.

H. PALMETTO COURT PAVILLION (200)

1. Two (2) one-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

I. VISITOR CENTER (201)

1. Two (2) one-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

J. VIDEO CONFERENCE ROOM (318, 320, 359, 361, 362, 363, 364, 365, 366, 367, 368)

1. Two (2) four-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.

2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

K. RECONFIGURABLE CLASSROOM (229, 246, 329, 330)

1. Two (2) two-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

L. DISTRIBUTED INFORMAL LEARNING / STUDY (505, 511)

1. Two (2) one-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.

g. Review & demonstration of control system software replacement/upgrade procedures.

II. Coordinate detailed specifics of the training session(s) time, date & location with the Owner. Training may take place after the systems are operational, up to a year following system acceptance. However, close out submittals shall be provided prior to any training classes.

AUDIO VIDEO ADDENDUM 2
UNIVERSITY OF SOUTH CAROLINA, DARLA MOORE SCHOOL OF BUSINESS
AUDIO/VIDEO SYSTEMS

The following addendum information is being provided for the Performance Audio/Video systems at the Darla Moore School of Business, University of South Carolina, Columbia, South Carolina. This Addendum contains revisions to the Visitor Center to include interactivity in the video wall. Also included are owner-requested revisions to owner training sections in the specification.. All changes to drawings are clouded with revision 6 tag, and changes to the specification section are highlighted.

Except where specifically noted otherwise below, this information is provided to supplement and extend but not replace the Contract Documents and any prior Addenda, and should be used in conjunction with those documents.

1. AV0003 – Schedule of Termination

A. AT – Wire Count (2412) revised.

2. AV0308 – AV System Signal Flow 8

A. Detail 02 - Signal flow revised.

3.

10. 27 41 00 – Audio Video Systems

A. 2.2 C 28b.c– Equipment List – USB Extender specified.

B. 3.16 Owner Training revised.

End of Supplemental Instruction

AUDIO VIDEO ADDENDUM
UNIVERSITY OF SOUTH CAROLINA, DARLA MOORE SCHOOL OF BUSINESS
AUDIO/VIDEO SYSTEMS

The following addendum information is being provided for the Performance Audio/Video systems at the Darla Moore School of Business, University of South Carolina, Columbia, South Carolina. This Addendum contains clarifications to technical power references, as well as revisions to classroom signal flows to eliminate the need to patch lectern locations at equipment racks. Additional revisions to the audio video systems specification section are also covered. All changes to drawings are clouded with revision 5 tag, and changes to the specification section are highlighted. Except where specifically noted otherwise below, this information is provided to supplement and extend but not replace the Contract Documents and any prior Addenda, and should be used in conjunction with those documents.

1. AV0003 – Schedule of Termination

A. AF – Power circuit revised to AVTP

B. AG – Power circuit revised to AVTP

C. HG – Power circuit revised to AVTP

2. AV0302 – AV System Signal Flow 2

A. Detail 02 - Signal flow revised.

3. AV0303 – AV System Signal Flow 3

A. Detail 02 - Signal flow revised.

4. AV0304 – AV System Signal Flow 4

A. Detail 01 - Signal flow revised.

5. AV0306 – AV System Signal Flow 6

A. Detail 01 - Signal flow revised.

B. Detail 02 - Signal flow revised.

6. AV0307 – AV System Signal Flow 7

A. Detail 01 - Signal flow revised.

C. Detail 02 - Signal flow revised.

7. AV0308 – AV System Signal Flow 8

A. Detail 01 - Signal flow revised.

8. AV0309 – AV System Signal Flow 9

A. Detail 01 - Signal flow revised.

9. AV0310 – AV System Signal Flow 10

A. Detail 01 - Signal flow revised.

University of Houston, University Center January 23, 2013 Houston, Texas Performance AV Supplemental Instruction #1B
JaffeHolden.com

10. 27 41 00 – Audio Video Systems

A. 2.2 C – Equipment List – LCD Display mounting hardware specification added.

B. 2.2 C – Equipment List – Room Scheduling Panel Patch Cables added.

C. 2.2 C 50 – Equipment List – Wireless microphone system revised.

D. 2.2 C 50 – Equipment List – Audio DSP revised.

End of Supplemental Instruction

No.	Drawing Title	Scale
AV0001	GENERAL INFO	NTS
AV0002	SCHEDULE OF TERMINATIONS - AUDITORIUM PERFORMANCE SYSTEM	NTS
AV0003	SCHEDULE OF TERMINATIONS - CLASSROOMS SCHOOL OF BUSINESS	NTS
AV0301	SIGNAL FLOW 1	NTS
AV0302	SIGNAL FLOW 2	NTS
AV0303	SIGNAL FLOW 3	NTS
AV0304	SIGNAL FLOW 4	NTS
AV0305	SIGNAL FLOW 5	NTS
AV0306	SIGNAL FLOW 6	NTS
AV0307	SIGNAL FLOW 7	NTS
AV0308	SIGNAL FLOW 8	NTS
AV0309	SIGNAL FLOW 9	NTS
AV0310	SIGNAL FLOW 10	NTS
AV0311	SIGNAL FLOW 11	NTS
AV0312	SIGNAL FLOW 12	NTS
AV1100	DEVICE LOCATIONS - LEVEL 0 - OVERALL FLOOR PLAN	1/16" = 1'-0"
AV1100B	DEVICE LOCAITONS - LEVEL 0 - ZONE B	1/8" = 1'-0"
AV1110	DEVICE LOCATIONS - LEVEL 1 - OVERALL FLOOR PLAN	1/16" = 1'-0"
AV1110A	DEVICE LOCAITONS - LEVEL 1 - ZONE A	1/8" = 1'-0"
AV1110B	DEVICE LOCAITONS - LEVEL 1 - ZONE B	1/8" = 1'-0"
AV1110C	DEVICE LOCAITONS - LEVEL 1 - ZONE C	1/8" = 1'-0"
AV1110D	DEVICE LOCAITONS - LEVEL 1 - ZONE D	1/8" = 1'-0"
AV1110E	DEVICE LOCAITONS - LEVEL 1 - ZONE E	1/8" = 1'-0"
AV1110F	DEVICE LOCAITONS - LEVEL 1 - ZONE F	1/8" = 1'-0"
AV1111	DEVICE LOCATIONS - AUDITORIUM RCP - ZONE C	1/4" = 1'-0"
AV1120	DEVICE LOCATIONS - LEVEL 2 - OVERALL FLOOR PLAN	1/16" = 1'-0"
AV1120A	DEVICE LOCAITONS - LEVEL 2 - ZONE A	1/8" = 1'-0"
AV1120B	DEVICE LOCAITONS - LEVEL 2 - ZONE B	1/8" = 1'-0"
AV1120C	DEVICE LOCAITONS - LEVEL 2 - ZONE C	1/8" = 1'-0"
AV1120D	DEVICE LOCAITONS - LEVEL 2 - ZONE D	1/8" = 1'-0"
AV1130	DEVICE LOCATIONS - LEVEL 3 - OVERALL FLOOR PLAN	1/16" = 1'-0"
AV1130A	DEVICE LOCAITONS - LEVEL 3 - ZONE A	1/8" = 1'-0"
AV1130B	DEVICE LOCAITONS - LEVEL 3 - ZONE B	1/8" = 1'-0"

AV1130C	DEVICE LOCAITONS - LEVEL 3 - ZONE C	1/8" = 1'-0"
AV1130D	DEVICE LOCAITONS - LEVEL 3 - ZONE D	1/8" = 1'-0"
AV1140	DEVICE LOCATIONS - LEVEL 4 - OVERALL FLOOR PLAN	1/16" = 1'-0"
AV1140A	DEVICE LOCAITONS - LEVEL 4 - ZONE A	1/8" = 1'-0"
AV1140B	DEVICE LOCAITONS - LEVEL 4 - ZONE B	1/8" = 1'-0"
AV1140C	DEVICE LOCAITONS - LEVEL 4 - ZONE C	1/8" = 1'-0"
AV1140D	DEVICE LOCAITONS - LEVEL 4 - ZONE D	1/8" = 1'-0"
AV1150	DEVICE LOCATIONS - LEVEL 5 - OVERALL FLOOR PLAN	1/16" = 1'-0"
AV1150C	DEVICE LOCAITONS - LEVEL 5 - ZONE C	1/8" = 1'-0"
AV1150D	DEVICE LOCAITONS - LEVEL 5 - ZONE D	1/8" = 1'-0"
AV2000	ENLARGED SECTION - LEVEL 1 - AUDITORIUM AND PERFORMANCE HALL	1/4" = 1'-0"
AV3001	CONNECTION PANEL DETAILS 1	HALF SIZE
AV3002	CONNECTION PANEL DETAILS 2	HALF SIZE
AV3003	CONNECTION PANEL DETAILS 3	HALF SIZE
AV3004	CONNECTION PANEL DETAILS 4	HALF SIZE
AV3005	CONNECTION PANEL DETAILS 5	HALF SIZE
AV3006	CONNECTION PANEL DETAILS 6	HALF SIZE
AV4001	AUDITORIUM EQUIPMENT RACK DETAILS	AS NOTED
AV4002	CLASSROOM EQUIPMENT RACK DETAILS 1	AS NOTED
AV4003	CLASSROOM EQUIPMENT RACK DETAILS 2	AS NOTED

SECTION 27 41 00 - AUDIO/VIDEO SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to the work specified in this Section.
- B. Coordinate work of this Section with work of other Sections as required to properly execute the Work and as necessary to maintain satisfactory progress of the work of other Sections.

1.2 SCOPE OF SPECIFICATION

- A. The following terms are defined for this specification section:
 - 1. "Systems" are the audio/video systems.
 - 2. "Designer" or "Systems Designer" is the designer of the audio/video systems.
 - 3. "Contractor" or "Systems Contractor" is the specialty contractor responsible for the installation of the audio/video systems.
- B. This specification covers all Systems as described below for the project. The objective is to provide professional systems, installed, acceptance tested, and ready for use.
- C. The written specification and large format drawings AV0001 through AV4003 shall be collectively referred to herein as the Contract documents. System features which are mentioned in one part may not be shown in the others. In case of conflict between the written specification and the drawings, Contractor must seek clarification from the Systems Designer. In the event that the Contractor fails to obtain such clarification, the interpretation of the Systems Designer will prevail.

1.3 CONTRACTOR RESPONSIBILITY

- A. Specification drawings are detailed only to the extent necessary to show design intent and signal flow. It is understood and agreed by the Contractor that the work herein described shall be complete in every detail to supply a complete working system.
- B. Equipment not mentioned herein nor shown on drawings but necessary to meet this requirement shall be provided without claim for additional payment.

1.4 SUMMARY DESCRIPTION

- A. The following Systems are included in the specification:
 - 1. Auditorium and Classroom audio/video systems
 - 2. Video conference / Telepresence systems
 - 3. Assorted playback and production equipment
 - 4. ADA compliant audio systems
 - 5. Interactive voting systems

6. Portable reinforcement and playback loudspeaker system
7. Assorted mixing and processing equipment
8. Digital signage
9. Public address and background music systems
10. Auditorium performer stage monitor system
11. Production intercom and paging system
12. Backstage paging and program system
13. Lobby program, paging and chime system
14. Technical video distribution system
15. Video/data projection systems
16. Video/data display systems
17. Audio/video control systems
18. Equipment rack enclosures and custom instructor lecterns to house audio/video equipment

1.5 SCOPE OF WORK

- A. Furnish all materials, labor and any engineering services to provide complete and professionally installed Systems in working order as described herein. Labor furnished shall be specialized and experienced in Systems installation.
- B. Coordinate installation with back boxes and enclosures provided by BP3 contractor.
- C. Deliver to the job site any back boxes which are to be installed by others.
- D. Furnish and install all wire and cable.
- E. Furnish any additional items, not specifically mentioned herein, to meet system requirements as specified, without claim for additional payment. Such items may include hardware, transformers, line/distribution amplifiers and other devices for proper installation, interface, isolation or gain structure.
- F. Furnish shop drawings and receive approval, prior to fabrication and installation.
- G. Perform initial adjustments and verification tests. Submit verification test report.
- H. Participate in acceptance tests and perform final adjustments.
- I. Participate in user training.
- J. Provide system documentation including copies of all relevant drawings and equipment manuals.
- K. Provide maintenance services for the specified period from the date of acceptance.
- L. Guarantee all equipment and components for the specified period from the date of acceptance.
- M. Requirements and materials that apply to the work of others related to the Systems are listed to define and establish Systems requirements.
- N. Work scope does not include the AC power system except as shown in the drawings.
- O. Coordination with the Electrical Contractor is required to assure correct Systems conduit routing, Systems backbox locations, and clean power circuit locations as specified in Division 26 - Electrical.

- P. See Work Scope Summary Table at the end of Part One (Paragraph 1.12).

1.6 SUBMITTALS

A. Bid Submittals:

1. Contractors shall examine all drawings and read all divisions of this specification in order to avoid omissions and duplications and to ensure a complete job. No allowances shall be made for failure to read and understand these documents. Discrepancies between drawings and specifications or obvious omissions shall be referred to the Systems Designer for clarification before the bid date. Where discrepancies occur and pre-bid instructions have not been obtained, the contractor agrees to abide by the Systems Designer's decision.
2. Bid proposals shall include all work and all equipment as specified, as well as any other equipment and materials to be used in assembling the system.
3. Requests for clarification of specification intent shall be made, in writing, not later than ten (10) days prior to bid date.
4. No portion of the work herein may be assigned or sub-contracted to others unless the following requirements have been satisfied:
 - a. The names of any proposed sub-contractors shall have been disclosed in the bid proposal.
 - b. All terms of this contract, including bidding and qualification requirements, shall apply to the sub-contractor.
5. The bid submittals shall include the following:
 - a. The total Contract price
 - b. An itemized list of all equipment and materials to be used in assembling the system
 - c. Unit pricing for all items on the specified equipment list
 - d. Lot pricing for miscellaneous items not on the specified equipment list
 - e. A breakdown of the number of staff hours allotted for:
 - i. Preparation of submittals, shop drawings, and system documentation
 - ii. On site coordination meetings and supervision
 - iii. In shop engineering, fabrication, and assembly
 - iv. On site fabrication, assembly, and installation
 - v. On site verification and acceptance testing

B. Shop Drawing Submittals:

1. Within sixty (60) calendar days after contract award or to meet schedule, submit five (5) copies of detailed shop drawings to the Architect for approval. All shop drawings shall be marked with the related drawing number when submitted. Do not begin installation or fabrication without the approval of the Architect and Systems Designer.
2. Review of shop drawings shall not constitute final approval of system function. Said review does not in any way relieve the Contractor from the responsibility of furnishing material or performing work as required by the Contract documents.
3. Failure of the Contractor to submit shop drawings in ample time for evaluation shall not entitle the Contractor to an extension of contract time, and no claim for extension by reason of such default will be allowed.
4. Allow time for resubmittals.

5. At minimum, the Shop Drawings shall include neatly bound copies of the following:
 - a. Table of Contents
 - b. Itemized list of all equipment and materials to be used in assembling the system
 - c. Catalog cut sheets or data sheets for each listed item
 - d. One-line signal flow diagrams for all audio/video and auxiliary systems showing point to point wiring interconnection of all equipment with wire run numbers and patch bay designations. Show all transformers, switches, relays, control circuits, and modifications to equipment. Show all equipment items which are required for realization of the functions described herein.
 - e. A complete list of all wire run numbers along with the termination location of each end of each wire run
 - f. Detailed 3-wire schematic diagrams for any custom circuitry
 - g. Detailed 3-wire schematic diagrams for typical connections between audio lines, patch bays, and rack mounted equipment
 - h. Drawings of all items which are to be custom fabricated or modified. Drawings shall be of scale suitable for use in fabrication. They shall show materials, finishes and panel/control markings. Submit samples of lettering/label size and typeface to be employed on custom plates, panels and other equipment.
 - i. Full size drawings illustrating the physical layout and labeling of patch bays
 - j. Mechanical drawings of all assemblies, major sub-assemblies, racks, cabinets and enclosures
 - k. Mechanical drawings showing proposed mounting details of all loudspeakers and associated rigging, and interface with adjacent architecture
6. The above listed drawings shall be produced on AutoCAD or similar computer graphics program. Scans or photocopies of the Systems Designer's specification drawings are not acceptable.
7. The use of electronic files from other sources (e.g., architectural backgrounds, Systems Designer's drawings, vendor-supplied panel drawings) will not absolve the Contractor of responsibility for ensuring that the Shop Drawings represent a completely engineered, coordinated solution. The Contractor has final responsibility for providing systems which conform to all requirements of this specification.

C. Substitutions:

1. Subsequent to Contract award, substitutions may be permitted, but only with the express written permission of the Systems Designer. The proposed substitutes must be equivalent to the specified products in quality, performance, construction, function and conformance to system objectives and warranty provisions.
2. It is the responsibility of the Contractor to prove, to the satisfaction of the Systems Designer, that the proposed substitution is equal to the specified product, as demonstrated by submission of the following:
 - a. List of advantages to the Owner
 - b. Cost savings
 - c. Printed specifications or laboratory test data
 - d. Previous field experience
3. The Contractor shall list the unit price of each item proposed for substitution and indicate which specified items are to be deleted.
4. If the Systems Designer determines that the proposed product is not equal to the specified project, the Contractor shall supply the product specified in the Contract documents.

5. Where substitute materials or methods are approved, the Contractor shall make all adjustments to contingent work necessary to accommodate the substituted equipment, without claim for additional payment.
6. In the event that one or more of the products specified herein is unavailable, the Contractor shall make recommendations to the Systems Designer as to what substitutions are available to meet the intent of the specification.
7. The Systems Designer reserves the right to substitute new products which become available subsequent to the issuance of the Contract Documents, provided that:
 - a. The Contractor has not yet purchased the originally specified equipment.
 - b. The substitute equipment shall not materially increase the Contractor's costs.

D. Samples:

1. Submit samples of substitute equipment to the Systems Designer as required to prove equivalency to items specified.
2. Submit samples of custom work, finishes or other materials as required by the Architect or Systems Designer to verify appearance and quality.
3. Costs for shipping samples shall be the responsibility of the Contractor.

E. Written Guarantee (See Paragraph 1.9)

F. Verification Test Report (See Paragraph 3.13)

G. System Documentation and Operation Manuals (See Paragraph 3.15)

1.7 JOB CONDITIONS

- A. Keep the job adequately staffed at all times. Unless illness, loss of personnel or other circumstances beyond the control of the Contractor intervene, keep the same individual in charge throughout.
- B. Cooperate with all appropriate parties in order to achieve well coordinated progress with the overall construction completion schedule and satisfactory final results.
- C. Watch for conflicts with work of other contractors on the job and execute, without claim for extra payment, moderate moves or changes as are necessary to accommodate other equipment or to preserve acoustic performance, symmetry, and pleasing appearance.
- D. Immediately report to the Architect and Systems Designer, any design or installation irregularities, particularly architectural elements that interfere with the intended coverage angles of loudspeakers, so that appropriate action may be taken.
- E. Do all cutting, patching and painting for proper and finished installation of the system and repair any damage done as a result of such installation. Clean up and dispose of trash from all Systems work areas.
- F. Contractor must: provide their own dumpsters, temporary toilets and daily clean-up; park offsite; agree to USC contract for scaffolds, hoisting and lifts.
- G. Contractor attendance required at project coordination meetings and compliance with BP #3 and other Owner provided installation schedules.

1.8 QUALITY ASSURANCE

- A. Parts listed shall be complete, type numbers accurate and equipment furnished shall conform to manufacturer's specifications.
- B. All materials shall be new and shall conform to applicable provisions of Underwriters Laboratories and the American Standards Association.
- C. Procure and pay for all permits, licenses and inspections and observe any requirements stipulated therein. Conform in all trades with all local regulations and codes.
- D. Comply with federal, state and local labor regulations and applicable union regulations.
- E. Installation shall conform to latest federal, state and local electrical and safety codes or those of other authorities having jurisdiction. Where conflicts exist, most stringent code or regulation shall apply.

1.9 GUARANTEE AND SERVICE

- A. All systems and components shall be guaranteed free of defects in materials and workmanship for a period of one (1) year from the date of acceptance and shall be repaired or replaced within forty-eight (48) hours following report of such defects by the owner.
- B. The Contractor shall be available on call and on eight (8) hour notice during the first month following acceptance of the system, to assist the Owner's representatives in any problems which may arise during the initial period of operation.
- C. If, during the Guarantee period, any component is out of service for more than seven (7) consecutive days due to unavailability of parts or service, Contractor shall supply and install an identical new component. If an identical component is not available, Contractor will substitute equivalent equipment, with the approval of the Owner.
- D. During the course of the Guarantee period, the Contractor shall provide a minimum of three (3) service visits to the site for inspection and adjustment of equipment. Contractor shall submit proposed schedule for these visits and shall notify Owner and Systems Designer in writing at least one month in advance of each visit.

1.10 INSURANCE

- A. All equipment and materials shall be fully insured against loss or damage up until acceptance of the system by the Owner or until Owner relieves the Contractor in writing of this responsibility, whichever is earlier.

1.11 EXISTING CONDITIONS

- A. Visit the site prior to making a bid. No subsequent allowance will be made due to failure to thus observe and verify conditions which may affect the work. Report to the Architect and Systems Designer any discrepancies among this specification and existing conditions and similarly report obvious omissions.

1.12 WORK SCOPE SUMMARY TABLE

ITEMS TO BE PROVIDED AND INSTALLED	BP3 Electrical Contractor		Systems Contractor	
	Provide	Install	Provide	Install
Main Power Service Panel Boards and Circuit Breakers	X	X		
Main Power Service Conduit and Conductors	X	X		
Main Power Service Terminations		X		
Audio & Video Technical Power (AVTP) Transformers	X	X		
Transformer Conduit and Conductors	X	X		
Transformer Terminations		X		
AVTP Isolated Ground Conduit and Conductors	X	X		
Isolated Ground Terminations		X◇		
AVTP Distribution Panelboards and Circuit Breakers	X	X		
Distribution Panelboard Conduit and Conductors	X	X		
Distribution Panelboard Terminations		X		
AVTP Standard Load Centers and Circuit Breakers	X	X		
Standard Load Center Conduit and Conductors	X	X		
Standard Load Center Terminations		X		
AVTP Custom Sequencing Panelboards and Circuit Breakers	X	X		
Custom Sequencing Panelboard Conduit and Conductors	X	X		
Custom Sequencing Panelboard Terminations		X◇		
AVTP Company Switches for Portable Equipment	X	X		
Company Switch Conduit and Conductors	X	X		
Company Switch Terminations		X		
AVTP Outlet Devices for Branch Circuits delivered to Systems Equipment Racks and Devices	X	X		
Equipment Rack Back Boxes and Wall Plates	X	X		
Outlet Device Back Boxes	X	X		
Outlet Device Wall Plates	X	X		
Branch Circuit Conduit and Conductors	X	X		
Branch Circuit Termination		X		

WORK SCOPE SUMMARY TABLE (continued)

ITEMS TO BE PROVIDED AND INSTALLED	Electrical Contractor		Systems Contractor	
	Provide	Install	Provide	Install
Systems Equipment Racks and Devices			X	X
Metallic Conduit between Systems Devices and Systems Equipment Racks	X	X◇		
Conduit Insulation Bushings between Metallic Conduit and Systems Equipment Racks	X	X◇		
Systems Equipment Rack Cabling			X	X
Systems Equipment Rack Terminations				X
Systems Device Back Boxes and Floor Boxes	X	X◇		
Systems Device Metallic Conduit	X	X◇		
Systems Device Cabling			X	X
Systems Device Termination				X
Empty Conduit (for temporary use)	X	X		
Systems Cable Trays	X	X		
Systems Cable Sleeves	X	X		
Systems Pull Boxes	X	X		
Conduit Riser Diagram	X◇			

◇ Installation criteria to be provided by Systems Contractor and coordinated with BP#3 Systems Designer.

- Note that not all items listed above are included in the scope of this project. These items are included in the table for reference only.

PART 2 - EQUIPMENT

2.1 GENERAL EQUIPMENT

- A. Whenever any equipment is specified by manufacturer and model number, it is for purposes of establishing a standard of quality, performance, construction and function.
- B. All materials and equipment shall be new and of the latest design or model offered for sale by the manufacturer.
- C. Equipment models provided shall operate at the required AC line voltage and frequency.
- D. Contractor shall provide quantities as indicated in the equipment list, detail drawings, location drawings, schedule of terminations, and as required for a complete installation.
- E. Audio & Video Wire and Cable
 - 1. All wire numbers listed in the drawings are Belden unless otherwise noted.
 - 2. All THHN conductors shall be stranded.
 - 3. Approved manufacturers: Alpha, Belden, Canare, Crestron, Mogami, West Penn, Whirlwind
- F. Electrical Wire and Cable (including grounding conductors):
 - 1. Where conflict exists with any codes or ordinances, such codes and ordinances shall take precedence.
 - 2. Where conflict exists with electrical specifications, the higher standard or more stringent requirement shall apply.
- G. Wiring Devices
 - 1. Specifications – Duplex Receptacles
 - Grade: Specification, Hubbell IG5362 or equal
 - Type: NEMA 5-20R
 - Color: Orange
 - 2. Approved Manufacturers: Waber, Wiremold, Hubbell, Bryant, GE, Leviton
 - 3. Or Equal
- H. Electrical Plates and Panels:
 - 1. Specifications – Rack Mount Panels
 - Material: 11 gauge steel or 1/8" Aluminum, minimum thickness
 - Finish: Black or to match adjacent equipment
 - Size: 19" wide, standard EIA mounting hole spacing, height as specified
 - 2. Specifications – Back Box Enclosures
 - Material: Code grade steel
 - Finish: Black or galvanized
 - Size: As specified
 - 3. Specifications – Plug Box and Termination Panels
 - Material: 11 gauge steel or 1/8" Aluminum, minimum thickness
 - Finish: Black (unless instructed otherwise by Architect)
 - Size: As specified

- 4. Approved Manufacturers: Hoffman, Whirlwind, Pro Co, Wireworks
- 5. Or Equal

I. Audio Transformers

- 1. All transformers shall be selected for proper interface and loading in the circuits as required by as-built conditions and per manufacturer's recommendations.

2.2 MAJOR EQUIPMENT

- A. Equipment provided shall be that specified herein or equal (see Paragraph 1.6.D).
- B. Detailed performance specifications shall be those published by the manufacturer effective on the date of this document for all equipment listed below.
- C. Equipment List

<u>FUNCTION</u> <u>Item</u>	<u>MFR</u>	<u>Model</u>	<u>Qty</u>
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PERFORMANCE HALL (101)

1. LOUDSPEAKERS

a. Digitally Steerable Speaker Array	RKH	ICL-FR-DUAL	2
b. Subwoofer Loudspeaker	RKH	IC215S-FR	2
c. Front Fill Loudspeaker	RKH	TRX42	5
d. Delay Loudspeaker	FLC	CX1565	3
e. Delay Loudspeaker	FLC	CX1595	4
f. Termination – Main Loudspeaker	CUS	Per Drawing EA	2
g. Termination – Subwoofer	CUS	Per Drawing EE	2
h. Termination – Front Fill	CUS	Per Drawing EB	5
i. Termination- Delay Loudspeaker	CUS	Per Drawing EH	7

2. STAGE INTERFACE

a. Stage Junction Rack	CUS	Per Drawing YB	1
b. Servoreeler Trapeze System	SRV	Custom Quote #101612	1
c. Recording Microphone	DPA	ST4006C	1
d. Custom Instructional Lectern	MRS	Per Drawing AV4003	1

e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
f.	Custom Multi-pin Lectern Cables	WWK	Per Drawing AV0301	1
g.	Document Camera	WLF	VZ-9plus ³	1
h.	Interactive Pen Display	SMA	SP-524-NB	1
i.	USB Switcher	EXT	SW2 USB	1
j.	Rack Mount Lamp	LIT	RL-10-D	2
k.	Patchbay 2x26 Long-Frame	AAI	WEP-EO-C-26-N-2-D	2
l.	Patch Panel	CUS	Per Drawing AV4001	2
m.	Patch Cable – 75-Ohm BNC 2’	AAI	VBNC-24	12
n.	Patch Cable – RJ-45 CAT-6 2’	WWD	JHA-NE8-02F	12
o.	Accessory Receptacle Panel	CUS	Per Drawing AV4001	1
p.	Console Mult-Patch 5’	CUS	By Contractor	
q.	Shotgun Recording Microphone	SHU	VP-89L	1
r.	Termination – Lectern	CUS	Per Drawing AA	3
s.	Termination – Microphone	CUS	Per Drawing AR	1
t.	Termination – Stage Floorbox	CUS	Per Drawing DA	5
u.	Termination – Stage Interface	CUS	Per Drawing DB	2
v.	Termination – House Interface	CUS	Per Drawing DG	2
w.	Termination – House Interface	CUS	Per Drawing DC	8
x.	Termination – Live Room Mic	CUS	Per Drawing DF	1
3.	CONTROL ROOM			
a.	Digital Mixing Console	YAM	LS9/32	1
b.	Quad Channel Wireless Receiver	SHU	ULXD4Q	1
c.	Wireless Handheld Transmitter	SHU	ULXD2/SM58	2
d.	Wireless Bodypack Transmitter	SHU	ULXD1	2
e.	Lavalier Microphone Element	SHU	WL185	2
f.	UHF In-Line Antenna Amplifier	SHU	UA830	2

g.	Rechargeable Battery	SHU	SB900	4
h.	Dual Docking Charging Station	SHU	SBC200	2
i.	Console Mult Format 20'	CUS	By Contractor	1
j.	DSP	SMX	EDGE Frame	3
k.	DSP I/O Cards	SMX	4 Ch. Analog Input Card	6
l.	DSP I/O Cards	SMX	4 Ch. Analog Output Card	5
m.	DSP I/O Cards	SMX	4 Ch. Digital Output Card	1
n.	DSP Control Panel	SMX	Per Drawing AV4001	1
o.	Modular Remote Control	SMX	ARC-SW4e	1
p.	Modular Remote Control	SMX	ARC-K1e	1
q.	Dante Switch (8-Port)	ATS	AT-GS900/8	2
r.	Network Switch (16-Port)	ATS	AT-GS900/16	1
s.	Ceiling Delay Loudspeaker Amplifier	LGP	C 28:4	2
t.	Stage Monitor Assign Panel	CUS	By Contractor	1
u.	Stage Monitor Amplifier	LGP	C 28:4	1
v.	Analog & AES Rack Audio Monitor	FOS	RM-2	1
w.	UPS	MAP	UPS-2200R	3
x.	VEOS Collaboration System	WOW	MiniVEOS	1
y.	Control Booth Rack	CUS	Per Drawing YA	2
z.	Rack Mount Lamp	LIT	RL-10-D	2
aa.	Keyboard / Touchpad / Display	MAP	RK-KB-LCD17	1
bb.	Blu-Ray / CD Player	OPO	BDP-103	1
cc.	Rack Shelf for Blu-Ray Player	CUS	By Contractor	1
dd.	Powered Control Booth Monitors	JBL	LSR 2328P	2
ee.	Control Booth Monitor Mount	CUS	By Contractor	2
ff.	Recording Preamp	ETW	1022	1
gg.	Recorder	MRZ	PMD-580	1

hh.	Patch Panels	CUS	Per Drawing AV4001	3
ii.	Patchbay 2x26 Long-Frame	AAI	WEP-EO-C-26-N-2-D	4
jj.	Patch Cable – 1'	AAI	621B	12
kk.	Patch Cable – 2'	AAI	622A	12
ll.	Patch Cable – 3'	AAI	623D	12
mm.	Patch Cable – 75-Ohm BNC 2'	AAI	VBNC-24	12
nn.	Patch Cable – RJ-45 CAT-6 2'	WWD	JHA-NE8-02F	12
oo.	Patch Cable Holder	AAI	PCH-X	2
pp.	Accessory Receptacle Panel	CUS	Per Drawing AV4001	1
qq.	Termination – Booth Mix Position	CUS	Per Drawing DE	1
rr.	Termination – House Mix Position	CUS	Per Drawing DD	1
ss.	Termination – Booth Monitor	CUS	Per Drawing EF	2
4.	VIDEO PROJECTION AND DISTRIBUTION			
a.	Wall Mounted Video Camera	SNY	BRC-300	1
b.	HD-SDI Camera Output Card	SNY	BRBK-302	1
c.	Camera Wall Bracket	CUS	By Contractor	1
d.	Camera Controller	SNY	RMBR-300	1
e.	Control Booth Video Monitor	CUS	\$600 Allowance	1
f.	Large Venue Projector	PAN	PT-DZ21K	1
g.	Projector Lens (2.4 - 4.7 : 1)	PAN	ET-D75LE30	1
h.	16:10 Motorized Projection Screen	DRA	Paragon/Series E - 307" Diag.	1
i.	Digital Media AV / Control System	CST	Per Custom Quote # 1011191	
j.	46" Lobby Video Display	NEC	V462	2
k.	Flat Panel Display Mount	CHF	PWCU	2
l.	Termination – Camera Interface	CUS	Per Drawing AJ	1
m.	Termination – Projector Interface	CUS	Per Drawing DH	1
n.	Termination – Projection Screen	CUS	Per Drawing AN	1

o.	Termination – Lobby Monitor	CUS	Per Drawing AG	2
5.	ASSISTIVE LISTENING SYSTEM			
a.	IR Transmitter & Supply	LSN	LT-82	1
b.	IR Transmitter Rack Mount	LSN	LA-326	1
c.	IR Radiator & Mounting	LSN	LA-140	4
d.	IR Receiver	LSN	LR-42	20
e.	Receiver Charging Station	LSN	LA-350	3
f.	Termination – IR	CUS	Per Drawing CB	4
6.	INTERCOM AND PROGRAM FEED			
a.	Intercom Base Station	CLC	MS-702	1
b.	Wall Mount Speaker Station	CLC	KB-701	1
c.	Remote Belt Pack	CLC	RS-601	6
d.	Headset – Single Muff	CLC	CC-95	6
e.	Handset	CLC	HS-6	2
f.	Call Signal Flasher	CLC	FL-7	2
g.	Backstage Ceiling Loudspeaker	EVI	EVID C8.2	1
h.	Lobby/Backstage Speaker Amplifier	LGP	C 28:4	1
i.	Lobby Ceiling Loudspeaker	EVI	EVID C8.2	32
j.	Termination – Lobby Speaker	CUS	Per Drawing EC	32
k.	Termination – Backstage Speaker	CUS	Per Drawing ED	1
l.	Termination – Volume Control	CUS	Per Drawing FB	1
m.	Termination – Intercom Wall Box	CUS	Per Drawing FC	6
7.	LECTURE HALL (123)			
a.	Video Projector (7,500 Lm.)	NEC	NP-PX750U	3
b.	Projector Lens	NEC	NP17ZL	3
c.	16:10 Motorized Projection Screen	DRA	Access XL/Series V 180" x 112.5"	3
d.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1

e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
f.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0310	A/R
g.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
h.	USB Switcher	EXT	SW2 USB	1
i.	Document Camera	WLF	VZ-8plus ³	1
j.	Ceiling Loudspeakers	EVI	EVID C8.2HC	8
k.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
l.	Interactive Pen Display	SMA	SP-524-NB	1
m.	AV / Control / Capture Systems	CST	Per Custom Quote # 1011191	
n.	Ceiling Microphone	SHU	MX202W/C	3
o.	Wall Mounted PTZ Video Camera	SNY	BRC-300	1
p.	HD-SDI Camera Output Card	SNY	BRBK-302	1
q.	Camera Wall Bracket	CUS	By Contractor	1
r.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
s.	Wireless Microphone System – HH	SHU	ULXS24/58	1
t.	Assistive Listening System	LSN	LS-82	1
u.	Lanyard IR Receiver	LSN	LR-44	2
v.	Inductive Neckloop	LSN	LA166	2
w.	Stereo Headphones	LSN	LA165	2
x.	Network Switch (16-Port)	ATS	AT-GS900/16	1
y.	UPS	MAP	UPS-2200R	1
z.	Equipment Enclosure	DAL	Per Drawing AV4002	1
aa.	Termination – Lectern	CUS	Per Drawing AA	3
bb.	Termination – Projector	CUS	Per Drawing AF	3
cc.	Termination – Camera	CUS	Per Drawing AJ	1
dd.	Termination – Screen	CUS	Per Drawing AN	3
ee.	Termination – Microphone	CUS	Per Drawing AR	3

ff.	Termination – Ceiling Speaker	CUS	Per Drawing BA	8
gg.	Termination – IR Emitter	CUS	Per Drawing CB	2
8.	CONFERENCE / SEMINAR ROOM (108, 110)			
a.	Video Projector (3,500 Lm.)	NEC	NP-P350W	1
b.	16:10 Motorized Projection Screen	DRA	Access/Series V, 109” Diag.	1
c.	Ceiling Loudspeakers	EVI	EVID C8.2	6
d.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
e.	Digital Media AV / Control System	CST	Per Custom Quote # 1011191	
f.	UPS	MAP	UPS-2200R	1
g.	Control Network Switch	ATS	GS900/8	1
h.	Equipment Rack Credenza	MAP	Per Drawing AV4003	1
i.	Table Boxes (HE) – Coord. w/ Furn.	CUS	\$1,300 Allowance	4
j.	Termination – Projector	CUS	Per Drawing AF	1
k.	Termination – Screen	CUS	Per Drawing AN	1
l.	Termination – Ceiling Speaker	CUS	Per Drawing BA	8
m.	Termination – Control Panel	CUS	Per Drawing CE	1
n.	Termination – Wireless Access Pt.	CUS	Per Drawing CF	1
o.	Termination – Floor Box	CUS	Per Drawing GH	3
9.	SHALLOW “U” CASE ROOM (112, 114, 133, 135, 137)			
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	1
b.	Projector Lens	NEC	NP12ZL	1
c.	16:10 Motorized Projection Screen	DRA	Access/SeriesV 137”	1
d.	Flat Panel Display	NEC	V651	1
e.	Flat Panel Display Mount	CHF	PWCU	1
f.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
g.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
h.	Document Camera	WLF	VZ-8plus ³	1

i.	Ceiling Loudspeakers	EVI	EVID C8.2	8
j.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
k.	USB Switcher	EXT	SW2 USB	1
l.	Interactive Pen Display	SMA	SP-524-NB	1
m.	AV / Control / Capture Systems	CST	Per Custom Quote # 1011191	
n.	Ceiling Microphone	SHU	MX202W/C	2
o.	Wall Mounted Video Camera	VAD	HD-19	1
p.	HD-SDI Output Card	VAD	EZIMHD-SDI	1
q.	Camera Wall Bracket	VAD	535-20000-230	1
r.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
s.	Wireless Microphone System – HH	SHU	ULXS24/58	1
t.	Assistive Listening System	LSN	LS85	1
u.	4 Channel Receiver	LSN	LR44	1
v.	Inductive Neckloop	LSN	LA166	1
w.	Stereo Headphones	LSN	LA165	1
x.	Control Network Switch	ATS	GS900/8	1
y.	UPS	MAP	UPS-2200R	1
z.	Termination – Lectern	CUS	Per Drawing AC	1
aa.	Termination – Projector	CUS	Per Drawing AF	1
bb.	Termination – Flat Panel Display	CUS	Per Drawing AH	1
cc.	Termination – Camera	CUS	Per Drawing AJ	1
dd.	Termination – Screen	CUS	Per Drawing AN	1
ee.	Termination – Ceiling Speaker	CUS	Per Drawing BA	8
ff.	Termination – IR Emitter	CUS	Per Drawing CB	1
10.	DEEP “U” CASE ROOM (111)			
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	3
b.	Projector Lens	NEC	NP13ZL	3

c.	16:10 Motorized Projection Screen	DRA	Access/SeriesV 137"	3
d.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
f.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0302	A/R
g.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
h.	Document Camera	WLF	VZ-8plus ³	1
i.	Ceiling Loudspeakers	EVI	EVID C8.2	12
j.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
k.	USB Switcher	EXT	SW2 USB	1
l.	Interactive Pen Display	SMA	SP-524-NB	1
m.	AV / Control / Capture Systems	CST	Per Custom Quote # 1011191	
n.	Ceiling Microphone	SHU	MX202W/C	2
o.	Wall Mounted Video Camera	VAD	HD-19	1
p.	HD-SDI Output Card	VAD	EZIMHD-SDI	1
q.	Camera Wall Bracket	VAD	535-20000-230	1
r.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
s.	Wireless Microphone System – HH	SHU	ULXS24/58	1
t.	Assistive Listening System	LSN	LS85	1
u.	4 Channel Receiver	LSN	LR44	1
v.	Inductive Neckloop	LSN	LA166	1
w.	Stereo Headphones	LSN	LA165	1
x.	HDMI Distribution Amplifier	EXT	HD-DA2	1
y.	Control Network Switch	ATS	GS900/8	1
z.	UPS	MAP	UPS-2200R	1
aa.	Equipment Enclosure	DAL	Per Drawing AV4002	1
bb.	Termination – Lectern	CUS	Per Drawing AA	2
cc.	Termination – Projector	CUS	Per Drawing AF	3

dd.	Termination – Camera	CUS	Per Drawing AJ	1
ee.	Termination – Screen	CUS	Per Drawing AN	3
ff.	Termination – Microphone	CUS	Per Drawing AR	2
gg.	Termination – Ceiling Speaker	CUS	Per Drawing BA	12
hh.	Termination – IR Emitter	CUS	Per Drawing CB	1
11. SHALLOW “U” CASE ROOM (134)				
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	2
b.	Projector Lens	NEC	NP13ZL	2
c.	16:10 Motorized Projection Screen	DRA	Access/Series V 165”	2
d.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
f.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0302	A/R
g.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
h.	Document Camera	WLF	VZ-8plus ³	1
i.	Ceiling Loudspeakers	EVI	EVID C8.2	12
j.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
k.	USB Switcher	EXT	SW2 USB	1
l.	Interactive Pen Display	SMA	SP-524-NB	1
m.	AV / Control / Capture Systems	CST	Per Custom Quote # 1011191	
n.	Ceiling Microphone	SHU	MX202W/C	2
o.	Wall Mounted Video Camera	VAD	HD-19	1
p.	HD-SDI Output Card	VAD	EZIMHD-SDI	1
q.	Camera Wall Bracket	VAD	535-20000-230	1
r.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
s.	Wireless Microphone System – HH	SHU	ULXS24/58	1
t.	Assistive Listening System	LSN	LS-82	1
u.	Control Network Switch	ATS	GS900/8	1

v.	UPS	MAP	UPS-2200R	1
w.	Equipment Enclosure	DAL	Per Drawing AV4002	1
x.	Termination – Lectern	CUS	Per Drawing AA	2
y.	Termination – Projector	CUS	Per Drawing AF	2
z.	Termination – Camera	CUS	Per Drawing AJ	1
aa.	Termination – Screen	CUS	Per Drawing AN	2
bb.	Termination – Microphone	CUS	Per Drawing AR	3
cc.	Termination – Ceiling Speaker	CUS	Per Drawing BA	12
dd.	Termination – IR Emitter	CUS	Per Drawing CB	2
12. COMBINABLE DISCUSSION / RECITATION ROOMS (127 - 129)				
a.	Video Projector (3,500 Lm.)	NEC	NP-P350W	9
b.	16:10 Motorized Projection Screen	DRA	Access/SeriesV 123”	5
c.	16:10 Motorized Projection Screen	DRA	Access/SeriesV 109”	4
d.	Custom Instructional Lectern	MRS	Per Drawing AV4002	3
e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	3
f.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0304	A/R
g.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
h.	Document Camera	WLF	VZ-8plus ³	3
i.	Ceiling Loudspeakers	EVI	EVID C8.2	12
j.	Ceiling Loudspeaker Amplifier	LGP	E4.2	2
k.	USB Switcher	EXT	SW2 USB	3
l.	Interactive Pen Display	SMA	SP-524-NB	3
m.	VEOS Collaboration System	WOW	MiniVEOS	3
n.	Computer for VEOS System	ASU	EeeBOX EB1501P	9
o.	Software for VEOS System	WOW	TeamVEOS	9
p.	Digital Media AV / Control System	CST	Per Custom Quote # 1011191	
q.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1

r.	Wireless Microphone System – HH	SHU	ULXS24/58	1
s.	Assistive Listening System	LSN	LS85	1
t.	4 Channel Receiver	LSN	LR44	1
u.	Inductive Neckloop	LSN	LA166	1
v.	Stereo Headphones	LSN	LA165	1
w.	Control Network Switch	ATS	GS900/16	1
x.	Audio DSP Frame	SMX	Symnet Edge Frame	2
y.	Audio DSP Input Card	SMX	Edge Analog In	4
z.	Audio DSP Output Card	SMX	Edge Analog Output	4
aa.	UPS	MAP	UPS-2200R	2
bb.	Keyboard / Touchpad / Display	MAP	RK-KB-LCD17	1
cc.	Equipment Rack	MAP	Per Drawing AV4003	2
dd.	Termination – Lectern	CUS	Per Drawing AA	7
ee.	Termination – Projector	CUS	Per Drawing AF	9
ff.	Termination – Screen	CUS	Per Drawing AN	9
gg.	Termination – Partition Sensor	CUS	Per Drawing AZ	2
hh.	Termination – Ceiling Speaker	CUS	Per Drawing BA	12
ii.	Termination – IR Emitter	CUS	Per Drawing CB	3
13.	DISCUSSION / RECITATION ROOM (125, 126)			
a.	Video Projector (3,500 Lm.)	NEC	NP-P350W	3
b.	16:10 Motorized Projection Screen	DRA	Access/SeriesV 123”	3
c.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
d.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
e.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0306	A/R
f.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
g.	Document Camera	WLF	VZ-8plus ³	1
h.	Ceiling Loudspeakers	EVI	EVID C8.2	4

i.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
j.	USB Switcher	EXT	SW2 USB	1
k.	Interactive Pen Display	SMA	SP-524-NB	1
l.	Digital Media AV / Control System	CST	Per Custom Quote # 1011191	
m.	Wall Mounted Video Camera	VAD	HD-19	1
n.	HD-SDI Output Card	VAD	EZIMHD-SDI	1
o.	Camera Wall Bracket	VAD	535-20000-230	1
p.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
q.	Wireless Microphone System – HH	SHU	ULXS24/58	1
r.	Assistive Listening System	LSN	LS85	1
s.	Control Network Switch	ATS	GS900/8	1
t.	UPS	MAP	UPS-2200R	1
u.	Equipment Enclosure	DAL	Per Drawing AV4002	1
v.	Termination – Lectern	CUS	Per Drawing AA	2
w.	Termination – Projector	CUS	Per Drawing AF	3
x.	Termination – Screen	CUS	Per Drawing AN	3
y.	Termination – Ceiling Speaker	CUS	Per Drawing BA	4
z.	Termination – IR Emitter	CUS	Per Drawing CB	1
14.	DISCUSSION / RECITATION ROOM (118, 119, 120, 121, 122)			
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	1
b.	Projector Lens	NEC	NP12ZL	1
c.	16:10 Motorized Projection Screen	DRA	Access/Series V 123"	1
d.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
f.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0306	A/R
g.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
h.	Ceiling Loudspeakers	EVI	EVID C8.2	12

i.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
j.	USB Switcher	EXT	SW2 USB	1
k.	Document Camera	WLF	VZ-8plus ³	1
l.	Interactive Pen Display	SMA	SP-524-NB	1
m.	Digital Media AV / Control System	CST	Per Custom Quote # 1011191	
n.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
o.	Wireless Microphone System – HH	SHU	ULXS24/58	1
p.	Assistive Listening System	LSN	LS85	1
q.	Control Network Switch	ATS	GS900/8	1
r.	UPS	MAP	UPS-2200R	1
s.	Equipment Enclosure	DAL	Per Drawing AV4002	1
t.	Termination – Lectern	CUS	Per Drawing AA	2
u.	Termination – Projector	CUS	Per Drawing AF	1
v.	Termination – Screen	CUS	Per Drawing AN	1
w.	Termination – Ceiling Speaker	CUS	Per Drawing BA	4
x.	Termination – IR Emitter	CUS	Per Drawing CB	1
15.	DISCUSSION / RECITATION ROOM (103, 124, 140, 141, 142)			
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	2
b.	Projector Lens	NEC	NP12ZL	2
c.	16:10 Motorized Projection Screen	DRA	Access/Series V 137"	2
d.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
f.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0307	A/R
g.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
h.	Document Camera	WLF	VZ-8plus ³	1
i.	Ceiling Loudspeakers	EVI	EVID C8.2	6
j.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1

k.	USB Switcher	EXT	SW2 USB	1
l.	Interactive Pen Display	SMA	SP-524-NB	1
m.	Digital Media AV / Control System	CST	Per Custom Quote # 1011191	
n.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
o.	Wireless Microphone System – HH	SHU	ULXS24/58	1
p.	Assistive Listening System	LSN	LS85	1
q.	Control Network Switch	ATS	GS900/8	1
r.	UPS	MAP	UPS-2200R	1
s.	Equipment Enclosure	DAL	Per Drawing AV4002	1
t.	Termination – Lectern	CUS	Per Drawing AA	2
u.	Termination – Projector	CUS	Per Drawing AF	2
v.	Termination – Screen	CUS	Per Drawing AN	2
w.	Termination – Ceiling Speaker	CUS	Per Drawing BA	6
x.	Termination – IR Emitter	CUS	Per Drawing CB	1
16.	COMBINABLE DISCUSSION / RECITATION ROOM (104-105)			
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	4
b.	Projector Lens	NEC	NP12ZL	4
c.	16:10 Motorized Projection Screen	DRA	Access/Series V 137”	4
d.	Custom Instructional Lectern	MRS	Per Drawing AV4002	2
e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	2
f.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0308	A/R
g.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
h.	Document Camera	WLF	VZ-8plus ³	2
i.	Ceiling Loudspeakers	EVI	EVID C8.2	12
j.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
k.	USB Switcher	EXT	SW2 USB	2
l.	Interactive Pen Display	SMA	SP-524-NB	2

m.	Digital Media AV / Control System	CST	Per Custom Quote # 1011191	
n.	DSP	SMX	EDGE Frame	3
o.	DSP I/O Cards	SMX	4 Ch. Analog Input Card	3
p.	DSP I/O Cards	SMX	4 Ch. Analog Output Card	1
q.	Wall Mounted Video Camera	VAD	HD-19	1
r.	HD-SDI Output Card	VAD	EZIMHD-SDI	1
s.	Camera Wall Bracket	VAD	535-20000-230	1
t.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
u.	Wireless Microphone System – HH	SHU	ULXS24/58	1
v.	16-Port Control Network Switch	ATS	GS900/16	1
w.	UPS	MAP	UPS-2200R	1
x.	Equipment Enclosure	DAL	Per Drawing AV4003	1
y.	Termination – Lectern	CUS	Per Drawing AA	4
z.	Termination – Projector	CUS	Per Drawing AF	4
aa.	Termination – Screen	CUS	Per Drawing AN	4
bb.	Termination – Partition Sensor	CUS	Per Drawing AZ	1
cc.	Termination – Ceiling Speaker	CUS	Per Drawing BA	12
dd.	Termination – IR Emitter	CUS	Per Drawing CB	2
17. RECONFIGURABLE CLASSROOM (109, 113)				
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	3
b.	Projector Lens	NEC	NP12ZL	3
c.	16:10 Motorized Projection Screen	DRA	Access/Series V 165"	3
d.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
f.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0307	A/R
g.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
h.	Document Camera	WLF	VZ-8plus ³	1

i.	Ceiling Loudspeakers	EVI	EVID C8.2	12
j.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
k.	USB Switcher	EXT	SW2 USB	1
l.	Interactive Pen Display	SMA	SP-524-NB	1
m.	AV / Control / Capture System	CST	Per Custom Quote # 1011191	
n.	Ceiling Microphone	SHU	MX202W/C	3
o.	Wall Mounted Video Camera	VAD	HD-19	1
p.	HD-SDI Output Card	VAD	EZIMHD-SDI	1
q.	Camera Wall Bracket	VAD	535-20000-230	1
r.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
s.	Wireless Microphone System – HH	SHU	ULXS24/58	1
t.	Assistive Listening System	LSN	LS85	1
u.	4 Channel Receiver	LSN	LR44	1
v.	Inductive Neckloop	LSN	LA166	1
w.	Stereo Headphones	LSN	LA165	1
x.	HDMI Distribution Amplifier	EXT	HD-DA2	1
y.	Control Network Switch	ATS	GS900/8	1
z.	UPS	MAP	UPS-2200R	1
aa.	Equipment Enclosure	DAL	Per Drawing AV4002	1
bb.	Termination – Lectern	CUS	Per Drawing AA	3
cc.	Termination – Projector	CUS	Per Drawing AF	3
dd.	Termination – Screen	CUS	Per Drawing AN	3
ee.	Termination – Camera	CUS	Per Drawing AJ	1
ff.	Termination – Microphone	CUS	Per Drawing AR	3
gg.	Termination – Ceiling Speaker	CUS	Per Drawing BA	12
hh.	Termination – IR Emitter	CUS	Per Drawing CB	1

18. TIERED LECTURE HALL (136)

a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	3
b.	Projector Lens	NEC	NP13ZL	3
c.	16:10 Motorized Projection Screen	DRA	Access/Series V 165"	3
d.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
e.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
f.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0309	A/R
g.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
h.	Document Camera	WLF	VZ-8plus ³	1
i.	Ceiling Loudspeakers	EVI	EVID C8.2	15
j.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
k.	USB Switcher	EXT	SW2 USB	1
l.	Interactive Pen Display	SMA	SP-524-NB	1
m.	AV / Control / Capture Systems	CST	Per Custom Quote # 1011191	
n.	Ceiling Microphone	SHU	MX202W/C	3
o.	Wall Mounted Video Camera	VAD	HD-19	1
p.	HD-SDI Output Card	VAD	EZIMHD-SDI	1
q.	Camera Wall Bracket	VAD	535-20000-230	1
r.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
s.	Wireless Microphone System – HH	SHU	ULXS24/58	1
t.	Assistive Listening System	LSN	LS85	1
u.	4 Channel Receiver	LSN	LR44	1
v.	Inductive Neckloop	LSN	LA166	1
w.	Stereo Headphones	LSN	LA165	1
x.	HDMI Distribution Amplifier	EXT	HD-DA2	1
y.	Control Network Switch	ATS	GS900/8	1
z.	UPS	MAP	UPS-2200R	1
aa.	Equipment Enclosure	DAL	Per Drawing AV4002	1

bb.	Termination – Lectern	CUS	Per Drawing AA	2
cc.	Termination – Projector	CUS	Per Drawing AF	3
dd.	Termination – Screen	CUS	Per Drawing AN	3
ee.	Termination – Camera	CUS	Per Drawing AJ	1
ff.	Termination – Microphone	CUS	Per Drawing AR	3
gg.	Termination – Ceiling Speaker	CUS	Per Drawing BA	15
hh.	Termination – IR Emitter	CUS	Per Drawing CB	2

19. CORRIDORS / ATRIUM

a.	46" Flat Panel LCD	NEC	V462	8
b.	Tilting Wall Mount for LCD	CHF	PWCU	8
c.	Network Video Receiver	CIS	DMP4400G	8
d.	Room ID / Scheduling Panel	CST	Per Custom Quote # 1011191	
e.	Room Scheduler Patch Cable	CUS	By Contractor	A/R
f.	Interactive Information Kiosk	PKS	Eagle Shift ADA Kiosk	1

LEVEL 2

20. PAVILION (246)

a.	Video Projector (11,000 Lm.)	NEC	NP-PH1000U	2
b.	Projector Lens	NEC	NP27ZL	2
c.	Projector Lift	DRA	SLX 28	2
d.	Projector Lift Closure Panel	DRA	Model U	2
e.	RS-232 Translator	DRA	R2D7	2
f.	16:10 Motorized Projection Screen	DRA	Access XL/Series V 185.5"x116"	2
g.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
h.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
i.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0312	A/R
j.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
k.	Flush Mounted Ceiling Speaker	EVI	EVID C8.2HC	6

l.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
m.	USB Switcher	EXT	SW2 USB	1
n.	Interactive Pen Display	SMA	SP-524-NB	1
o.	Digital Media AV / Control System	CRS	Per Custom Quote # 1011191	
p.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
q.	Wireless Microphone System – HH	SHU	ULXS24/58	1
r.	Assistive Listening System	LSN	LS-82	1
s.	Control Network Switch	ATS	GS900/8	1
t.	UPS	MAP	UPS-2200R	1
u.	Equipment Enclosure	DAL	Per Drawing AV4003	1
v.	Termination – Lectern	CUS	Per Drawing AA	3
w.	Termination – Screen	CUS	Per Drawing AN	2
x.	Termination – Projector Lift	CUS	Per Drawing AW	2
y.	Termination – Ceiling Speaker	CUS	Per Drawing BA	6
z.	Termination – IR Emitter	CUS	Per Drawing CB	2
21.	BOOKABLE ROOM (209, 210, 211, 212, 213)			
a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1
c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Video Conferencing System	LGS	RVF1000	1
e.	Table Box	CUS	\$1400 Allowance	1
f.	Control System	CST	Per Custom Quote # 1011191	
g.	Termination – Table Box	CUS	Per Drawing HC	1
h.	Termination – Floor Box	CUS	Per Drawing GE	1
i.	Termination – Flat Panel Display	CUS	Per Drawing GW	1
j.	Termination – VTC Codec	CUS	Per Drawing AS	1
k.	Termination – Control Touch Panel	CUS	Per Drawing CD	1

22. GROUP STUDY ROOM (226, 231)

a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1
c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Table Box	CUS	\$1400 Allowance	1
e.	Termination – Table Box	CUS	Per Drawing HA	1
f.	Termination – Floor Box	CUS	Per Drawing GB	1
g.	Termination – Flat Panel Display	CUS	Per Drawing GY	1

23. GROUP STUDY ROOM (223, 224, 225, 232, 233, 234)

a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1
c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Table Box	CUS	\$1400 Allowance	2
e.	Flat Panel Display	NEC	V651	1
f.	Flat Panel Display Mount	CHF	PWCU	1
g.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
h.	Table Box	CUS	\$1400 Allowance	1
i.	Termination – Table Box	CUS	Per Drawing HA	2
j.	Termination – Floor Box	CUS	Per Drawing GC	1
k.	Termination – Flat Panel Display	CUS	Per Drawing GZ	1

24. TRADING ROOM (229)

a.	Flat Panel LCD	NEC	V651	4
b.	Flat Panel Ceiling Mount	CHF	PCSU	4
c.	Ceiling Plate	CHF	CMA330	4
d.	Mounting Pipe	CHF	CMS	4
e.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
f.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1

g.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0312	A/R
h.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
i.	Ceiling Loudspeakers	EVI	EVID C8.2	6
j.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
k.	Digital Media AV / Control System	CRS	Per Custom Quote # 1011191	
l.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
m.	Wireless Microphone System – HH	SHU	ULXS24/58	1
n.	Assistive Listening System	LSN	LS85	1
o.	Control Network Switch	ATS	GS900/8	1
p.	UPS	MAP	UPS-2200R	1
q.	Equipment Enclosure	MAP	Per Drawing AV4002	1
r.	Termination – Lectern	CUS	Per Drawing AA	2
s.	Termination – Flat Panel Display	CUS	Per Drawing AH	4
t.	Termination – Ceiling Speaker	CUS	Per Drawing BA	6
u.	Termination – IR Emitter	CUS	Per Drawing CB	1
25.	OPEN MEETING ROOM (235B)			
a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1
c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Table Box	CUS	\$1400 Allowance	1
e.	Interactive Whiteboard	SMA	885ix	1
f.	USB to CAT Extender	SMA	CAT5-XT	1
g.	Control System	CST	Per Custom Quote # 1011191	
h.	Control Network Switch	ATS	AT-GS900/5E	1
i.	Flat Panel Display	NEC	V651	1
j.	Flat Panel Display Mount	CHF	PWCU	1
k.	Loudspeakers for Flat Panel	NEC	SP-RM1	1

l.	Table Box	CUS	\$1400 Allowance	1
m.	Termination – Table Box	CUS	Per Drawing HH	1
n.	Termination – Floor Box	CUS	Per Drawing GA	1
o.	Termination – Flat Panel Display	CUS	Per Drawing GY	1
p.	Termination – Interactive Whitebrd	CUS	Per Drawing AK	1
q.	Termination – Control Touch Panel	CUS	Per Drawing CD	1
26. CAFÉ (241, 241B)				
a.	Flat Panel LCD	NEC	V651	2
b.	Flat Panel Display Mount	CHF	PWCU	2
c.	Network Video Receiver	CIS	DMP4400G	2
d.	Termination – Flat Panel Display	CUS	Per Drawing AH	2
27. PALMETTO COURT PAVILLION (200)				
a.	Portable Powered Loudspeakers	JBL	EON 515XT	2
b.	Mixing Console	YAM	MG124CX	1
c.	Speaker Stand	OSS	SS7730B	2
d.	Speaker Stand Bag	JBL	JBL Stand Bag	1
e.	Portable AV Cart	CUS	Per Drawing AV4003	1
f.	CD Player with iPod Dock	TAS	CD-200i	1
g.	Microphone	SHU	SM-58	4
h.	Microphone	SHU	SM-57	4
i.	DI Box	WWD	DIRECTOR	4
j.	Microphone Stand	OSS	MS7701B	6
k.	Microphone Cable	WWD	JHA-LCR-10F-50	1
l.	Speaker Cable	WWD	JHA-EP4-50F	2
28. VISITOR CENTER (201)				
a.	Thin Bezel Display Video Wall	SAL	Quote # JFHS121126PL	1
b.	Interactive Touch Bezel	RPV	Quote # Jaf-130405-A	1

c.	USB Extender Transmitter	EXT	USB Extender Tx	1
d.	USB Extender receiver	EXT	USB Extender Rx	1
e.	Computer w/ HD Output	CUS	\$800 Allowance	1
f.	Table Box	CUS	\$1400 Allowance	1
g.	Ceiling Loudspeakers	EVI	EVID C8.2	7
h.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
i.	Digital Media AV / Control System	CRS	Per Custom Quote # 1011191	
j.	Wireless Microphone System	SHU	ULXS14/93	1
k.	Control Network Switch	ATS	GS900/8	1
l.	UPS	MAP	UPS-2200R	1
m.	Equipment Rack	MAP	Per Drawing AV4002	1
n.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
o.	Wireless Microphone System – HH	SHU	ULXS24/58	1
p.	Termination – Table Box	CUS	Per Drawing HJ	1
q.	Termination – Flat Panel Display	CUS	Per Drawing AT	1
29. CORRIDORS				
a.	65" Flat Panel LCD	NEC	V651	3
b.	46" Flat Panel LCD	NEC	V462	3
c.	Tilting Wall Mount for LCD	CHF	PWCU	6
d.	Network Video Receiver	CIS	DMP4400G	6
e.	Room ID / Scheduling Panel	CST	Per Custom Quote # 1011191	
f.	Room Scheduler Patch Cable	CUS	By Contractor	A/R
g.	Interactive Information Kiosk	PKS	Eagle Shift ADA Kiosk	1
<u>LEVEL 3</u>				
30. SMALL VIDEO CONFERENCE ROOM (363, 365) AND TEAM MEETING / CONSULTATION ROOM (359)				
a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1

c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Video Conferencing System	LGS	RVF1000	1
e.	Table Box	CUS	\$1400 Allowance	1
f.	Control System	CST	Per Custom Quote # 1011191	
g.	Termination – Table Box	CUS	Per Drawing HC	1
h.	Termination – Floor Box	CUS	Per Drawing GE	1
i.	Termination – Flat Panel Display	CUS	Per Drawing GW	1
j.	Termination – VTC Codec	CUS	Per Drawing AS	1
k.	Termination – Control Touch Panel	CUS	Per Drawing CD	1
31. MEDIUM VIDEO CONFERENCE ROOM (361, 362, 366, 367, 368)				
a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1
c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Video Conferencing System	LGS	RVF1000	1
e.	Table Box	CUS	\$1400 Allowance	2
f.	Control System	CST	Per Custom Quote # 1011191	
g.	Termination – Table Box	CUS	Per Drawing HA	1
h.	Termination – Table Box	CUS	Per Drawing HC	1
i.	Termination – Floor Box	CUS	Per Drawing GG	1
j.	Termination – Flat Panel Display	CUS	Per Drawing GV	1
k.	Termination – VTC Codec	CUS	Per Drawing AS	1
l.	Termination – Control Touch Panel	CUS	Per Drawing CD	1
32. LARGE VIDEO CONFERENCE ROOM (364)				
a.	Video Projector (3,500 Lm.)	NEC	NP-P350W	2
b.	16:10 Motorized Projection Screen	DRA	Access/Series V 137”	1
c.	16:10 Motorized Projection Screen	DRA	Access/Series V 109”	1
d.	Ceiling Loudspeakers	EVI	EVID C8.2	6

e.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
f.	Video Conferencing System	PLY	HDX8000	1
g.	Intelligent Dual Camera	PLY	EagleEye Director	1
h.	Digital Media AV / Control System	CRS	Per Custom Quote # 1011191	
i.	Table Box	CUS	\$1400 Allowance	4
j.	UPS	MAP	UPS-2200R	1
k.	Control Network Switch	ATS	GS900/8	1
l.	Equipment Rack Credenza	MAP	Per Drawing AV4003	1
m.	Termination – Projector	CUS	Per Drawing AF	2
n.	Termination – Screen	CUS	Per Drawing AN	2
o.	Termination – Ceiling Speaker	CUS	Per Drawing BA	6
p.	Termination – Control Panel	CUS	Per Drawing CE	1
q.	Termination – Wireless Access Pt.	CUS	Per Drawing CF	1
r.	Termination – Table Box	CUS	Per Drawing HE	4
s.	Termination – Camera	CUS	Per Drawing HF	1
t.	Termination – Floor Box	CUS	Per Drawing GH	4
33. POLYCOM / CISCO CONFERENCE ROOM (318, 320)				
a.	System to be designed, provided and installed by owner.			
34. BOOKABLE PROJECT SPACE (307, 309)				
a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1
c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Table Box	CUS	\$1400 Allowance	1
e.	Control System	CST	Per Custom Quote # 1011191	
f.	Termination – Table Box	CUS	Per Drawing HA	1
g.	Termination – Floor Box	CUS	Per Drawing GB	1
h.	Termination – Flat Panel Display	CUS	Per Drawing GY	1

i.	Termination – Control Touch Panel	CUS	Per Drawing CD	1
35.	TEAM COLLABORATION ROOM (325, 326, 327, 328, 333)			
a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1
c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Interactive Whiteboard	SMA	885ix	1
e.	USB to CAT Extender	SMA	CAT5-XT	1
f.	Table Box	CUS	\$1400 Allowance	2
g.	Control System	CST	Per Custom Quote # 1011191	
h.	Control Network Switch	ATS	AT-GS900/5E	1
i.	Termination – Table Box	CUS	Per Drawing HA	1
j.	Termination – Table Box	CUS	Per Drawing HB	1
k.	Termination – Floor Box	CUS	Per Drawing GA	1
l.	Termination – Flat Panel Display	CUS	Per Drawing GY	1
m.	Termination – Interactive Whitebrd	CUS	Per Drawing AK	1
n.	Termination – Control Touch Panel	CUS	Per Drawing CD	1
36.	SHALLOW “U” CASE ROOM (324, 334)			
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	1
b.	Projector Lens	NEC	NP13ZL	1
c.	16:10 Motorized Projection Screen	DRA	Access/Series V 137”	1
d.	Owner Provided Flat Panel Display		BY OWNER	2
e.	Owner Provided Video Conferencing System		BY OWNER	1
f.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
g.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
h.	Ceiling Document Camera	WLF	EYE-12	1
i.	Ceiling Mount Kit	WLF	EYEKIT / TILEBRIDGE	1

j.	Ceiling Loudspeakers	EVI	EVID C8.2	9
k.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
l.	USB Switcher	EXT	SW2 USB	1
m.	Interactive Pen Display	SMA	SP-524-NB	1
n.	Digital Media AV / Control System	CRS	Per Custom Quote # 1011191	
o.	Ceiling Microphone	SHU	MX202W/C	2
p.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
q.	Wireless Microphone System – HH	SHU	ULXS24/58	1
r.	Assistive Listening System	LSN	LS-82	1
s.	Lanyard IR Receiver	LSN	LR-44	2
t.	Inductive Neckloop	LSN	LA166	2
u.	Stereo Headphones	LSN	LA165	2
v.	Control Network Switch	ATS	GS900/8	1
w.	UPS	MAP	UPS-2200R	1
x.	Termination – Lectern	CUS	Per Drawing AC	1
y.	Termination – Projector	CUS	Per Drawing AF	1
z.	Termination – Screen	CUS	Per Drawing AN	1
aa.	Termination – Flat Panel Display	CUS	Per Drawing AH	1
bb.	Termination – Ceiling Microphone	CUS	Per Drawing AR	2
cc.	Termination – Ceiling Doc Camera	CUS	Per Drawing AY	1
dd.	Termination – Ceiling Speaker	CUS	Per Drawing BA	9
ee.	Termination – Camera	CUS	Per Drawing HF	1
37.	RECONFIGURABLE CLASSROOM (329)			
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	2
b.	Projector Lens	NEC	NP13ZL	2
c.	16:10 Motorized Projection Screen	DRA	Access/Series V 165”	2
d.	Owner Provided Video Conferencing System		BY OWNER (includes display)	1

e.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
f.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
g.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0311	A/R
h.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
i.	Document Camera	WLF	VZ-8plus ³	1
j.	Ceiling Loudspeakers	EVI	EVID C8.2	15
k.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
l.	USB Switcher	EXT	SW2 USB	1
m.	Interactive Pen Display	SMA	SP-524-NB	1
n.	Digital Media AV / Control System	CRS	Per Custom Quote # 1011191	
o.	Ceiling Microphone	SHU	MX202W/C	3
p.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
q.	Wireless Microphone System – HH	SHU	ULXS24/58	1
r.	Assistive Listening System	LSN	LS-82	1
s.	Lanyard IR Receiver	LSN	LR-44	2
t.	Inductive Neckloop	LSN	LA166	2
u.	Stereo Headphones	LSN	LA165	2
v.	Control Network Switch	ATS	GS900/8	1
w.	UPS	MAP	UPS-2200R	1
x.	Equipment Enclosure	MAP	Per Drawing AV4002	1
y.	Termination – Lectern	CUS	Per Drawing AA	3
z.	Termination – Projector	CUS	Per Drawing AF	2
aa.	Termination – Flat Panel Display	CUS	Per Drawing AH	1
bb.	Termination – Screen	CUS	Per Drawing AN	2
cc.	Termination – Ceiling Microphone	CUS	Per Drawing AR	3
dd.	Termination – Ceiling Speaker	CUS	Per Drawing BA	15
ee.	Termination – IR Emitter	CUS	Per Drawing CB	1

ff.	Termination – Camera	CUS	Per Drawing HF	1
38.	RECONFIGURABLE CLASSROOM (330)			
a.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	2
b.	Projector Lens	NEC	NP13ZL	2
c.	Video Projector (5,000 Lm.)	NEC	NP-PA500U	1
d.	Projector Lens	NEC	NP12ZL	1
e.	16:10 Motorized Projection Screen	DRA	Access/Series V 165”	2
f.	16:10 Motorized Projection Screen	DRA	Access/Series V 137”	1
g.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
h.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
i.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0311	A/R
j.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
k.	Document Camera	WLF	VZ-8plus ³	1
l.	Ceiling Loudspeakers	EVI	EVID C8.2	15
m.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
n.	USB Switcher	EXT	SW2 USB	1
o.	Interactive Pen Display	SMA	SP-524-NB	1
p.	Digital Media AV / Control System	CRS	Per Custom Quote # 1011191	
q.	Ceiling Microphone	SHU	MX202W/C	3
r.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
s.	Wireless Microphone System – HH	SHU	ULXS24/58	1
t.	Assistive Listening System	LSN	LS-82	1
u.	Lanyard IR Receiver	LSN	LR-44	2
v.	Inductive Neckloop	LSN	LA166	2
w.	Stereo Headphones	LSN	LA165	2
x.	Control Network Switch	ATS	GS900/8	1
y.	UPS	MAP	UPS-2200R	1

z.	Equipment Enclosure	MAP	Per Drawing AV4003	1
aa.	Termination – Lectern	CUS	Per Drawing AA	3
bb.	Termination – Projector	CUS	Per Drawing AF	3
cc.	Termination – Screen	CUS	Per Drawing AN	3
dd.	Termination – Ceiling Microphone	CUS	Per Drawing AR	3
ee.	Termination – Ceiling Speaker	CUS	Per Drawing BA	15
ff.	Termination – IR Emitter	CUS	Per Drawing CB	1
gg.	Termination – Camera	CUS	Per Drawing HF	1
39. STUDENT ORIENTATION (308)				
a.	Video Projector (3,500 Lm.)	NEC	NP-P350W	1
b.	16:10 Motorized Projection Screen	DRA	Access/Series V 123"	1
c.	Custom Instructional Lectern	MRS	Per Drawing AV4002	1
d.	Lectern Connection Panel – Coord.	CUS	\$900 Allowance	1
e.	Custom Multi-pin Mass Connectors	WWK	Per Drawing AV0306	A/R
f.	Lectern Patch Panel	CUS	Per Drawing AV4003	A/R
g.	Document Camera	WLF	VZ-8plus ³	1
h.	Ceiling Loudspeakers	EVI	EVID C8.2	6
i.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
j.	Digital Media AV / Control System	CRS	Per Custom Quote # 1011191	
k.	Assistive Listening System	LSN	LS-85	1
l.	Interactive Pen Display	SMA	SP-524-NB	1
m.	Wireless Microphone System	SHU	ULXS14/93	2
n.	Control Network Switch	ATS	GS900/8	1
o.	UPS	MAP	UPS-2200R	1
p.	Equipment Enclosure	MAP	Per Drawing AV4002	1
q.	Termination – Lectern	CUS	Per Drawing AA	2
r.	Termination – Projector	CUS	Per Drawing AF	1

s.	Termination – Screen	CUS	Per Drawing AN	1
t.	Termination – Ceiling Speaker	CUS	Per Drawing BA	6
u.	Termination – IR Emitter	CUS	Per Drawing CB	1

40. CORRIDORS

a.	46" Flat Panel LCD	NEC	V462	5
b.	Tilting Wall Mount for LCD	CHF	PWCU	5
c.	Network Video Receiver	CIS	DMP4400G	5
d.	Room ID / Scheduling Panel	CST	Per Custom Quote # 1011191	
e.	Room Scheduler Patch Cable	CUS	By Contractor	A/R
f.	Interactive Information Kiosk	PKS	Eagle Shift ADA Kiosk	1

LEVEL 4

41. SMALL MEETING ROOM (401O, 493)

a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1
c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Tilting Wall Mount for LCD	CHF	PWCU	1
e.	Video Conferencing System	LGS	RVF1000	1
f.	Table Box	CUS	\$1400 Allowance	1
g.	Control System	CST	Per Custom Quote # 1011191	
h.	Termination – Table Box	CUS	Per Drawing HC	1
i.	Termination – Floor Box	CUS	Per Drawing GE	1
j.	Termination – Flat Panel Display	CUS	Per Drawing GW	1
k.	Termination – VTC Codec	CUS	Per Drawing AS	1
l.	Termination – Control Touch Panel	CUS	Per Drawing CD	1

42. SMALL MEETING ROOM (410F, 452H)

a.	Flat Panel Display	NEC	V651	1
b.	Flat Panel Display Mount	CHF	PWCU	1

c.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
d.	Flat Panel Ceiling Mount	CHF	PCSU	1
e.	Ceiling Plate	CHF	CMA330	1
f.	Mounting Pipe	CHF	CMS	1
g.	Video Conferencing System	LGS	RVF1000	1
h.	Table Box	CUS	\$1400 Allowance	2
i.	Control System	CST	Per Custom Quote # 1011191	
j.	Termination – Table Box	CUS	Per Drawing HA	1
k.	Termination – Table Box	CUS	Per Drawing HC	1
l.	Termination – Floor Box	CUS	Per Drawing GG	1
m.	Termination – Flat Panel Display	CUS	Per Drawing GV	1
n.	Termination – VTC Codec	CUS	Per Drawing AS	1
o.	Termination – Control Touch Panel	CUS	Per Drawing CD	1
43. SMALL MEETING ROOM (451)				
a.	Flat Panel Display	NEC	V651	1
b.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
c.	Tilting Wall Mount for LCD	CHF	PWCU	1
d.	Video Conferencing System	LGS	RVF1000	1
e.	Table Box	CUS	\$1400 Allowance	2
f.	Control System	CST	Per Custom Quote # 1011191	
g.	Termination – Table Box	CUS	Per Drawing HA	1
h.	Termination – Table Box	CUS	Per Drawing HC	1
i.	Termination – Floor Box	CUS	Per Drawing GG	1
j.	Termination – Flat Panel Display	CUS	Per Drawing GV	1
k.	Termination – VTC Codec	CUS	Per Drawing AS	1
l.	Termination – Control Touch Panel	CUS	Per Drawing CD	1

44. PROJECT ROOM (401I)

a.	Flat Panel Display	NEC	V651	1
b.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
c.	Flat Panel Ceiling Mount	CHF	PCSU	1
d.	Ceiling Plate	CHF	CMA330	1
e.	Mounting Pipe	CHF	CMS	1
f.	Video Conferencing System	LGS	RVF1000	1
g.	Interactive Whiteboard	SMA	885ix	1
h.	USB to CAT Extender	SMA	CAT5-XT	1
i.	Table Box	CUS	\$1400 Allowance	2
j.	Control System	CST	Per Custom Quote # 1011191	
k.	Control Network Switch	ATS	AT-GS900/5E	1
l.	Termination – Table Box	CUS	Per Drawing HC	1
m.	Termination – Table Box	CUS	Per Drawing HD	1
n.	Termination – Floor Box	CUS	Per Drawing GD	1
o.	Termination – Flat Panel Display	CUS	Per Drawing GZ	1
p.	Termination – Interactive Whitebrd	CUS	Per Drawing AK	1
q.	Termination – VTC Codec	CUS	Per Drawing AS	1
r.	Termination – Control Touch Panel	CUS	Per Drawing CD	1
45.	PROJECT ROOM (461F)			
a.	Flat Panel Display	NEC	V651	1
b.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
c.	Flat Panel Ceiling Mount	CHF	PCSU	1
d.	Ceiling Plate	CHF	CMA330	1
e.	Mounting Pipe	CHF	CMS	1
f.	Owner Provided Video Conferencing System		BY OWNER	1
g.	Interactive Whiteboard	SMA	885ix	1
h.	USB to CAT Extender	SMA	CAT5-XT	1

i.	Table Box	CUS	\$1400 Allowance	2
j.	Control System	CST	Per Custom Quote # 1011191	
k.	Control Network Switch	ATS	AT-GS900/5E	1
l.	Termination – Table Box	CUS	Per Drawing HB	1
m.	Termination – Table Box	CUS	Per Drawing HI	1
n.	Termination – Floor Box	CUS	Per Drawing GI	1
o.	Termination – Flat Panel Display	CUS	Per Drawing GX	1
p.	Termination – Interactive Whitebrd	CUS	Per Drawing AK	1
q.	Termination – VTC Codec	CUS	Per Drawing AS	1
r.	Termination – Control Touch Panel	CUS	Per Drawing CD	1
46. CONFERENCE / SEMINAR ROOM (487)				
a.	Video Projector (3,500 Lm.)	NEC	NP-P350W	1
b.	16:10 Motorized Projection Screen	DRA	Access/Series V 109”	1
c.	Flat Panel Display	NEC	V651	1
d.	Tilting Wall Mount for LCD	CHF	LTMU	1
e.	Ceiling Document Camera	WLF	EYE-12	1
f.	Ceiling Mount Kit	WLF	EYEKIT / TILEBRIDGE	1
g.	Ceiling Loudspeakers	EVI	EVID C8.2	8
h.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
i.	Owner Provided Video Conferencing System		BY OWNER	1
j.	Intelligent Dual Camera	PLY	EagleEye Director	1
k.	Digital Media AV / Control System	CRS	Per Custom Quote # 1011191	
l.	HDMI Transmitter / Reciever Pair	EXT	HDMI 201 Tx/Rx	1
m.	Table Box	CUS	\$1400 Allowance	4
n.	UPS	MAP	UPS-2200R	1
o.	Equipment Rack Credenza	MAP	Per Drawing AV4003	1
p.	Termination – Projector	CUS	Per Drawing AF	1

q.	Termination – Screen	CUS	Per Drawing AN	1
r.	Termination – Flat Panel Display	CUS	Per Drawing AH	1
s.	Termination – Ceiling Doc Camera	CUS	Per Drawing AY	1
t.	Termination – Ceiling Speaker	CUS	Per Drawing BA	8
u.	Termination – Control Panel	CUS	Per Drawing CE	1
v.	Termination – Wireless Access Pt.	CUS	Per Drawing CF	1
w.	Termination – Table Box	CUS	Per Drawing HE	4
x.	Termination – Camera	CUS	Per Drawing HF	1
y.	Termination – Floor Box	CUS	Per Drawing GH	4
47. MEDIUM MEETING ROOM (427)				
a.	Flat Panel Display	NEC	V651	1
b.	Loudspeakers for Flat Panel	NEC	SP-RM1	1
c.	Flat Panel Ceiling Mount	CHF	PCSU	1
d.	Ceiling Plate	CHF	CMA330	1
e.	Mounting Pipe	CHF	CMS	1
f.	Video Conferencing System	LGS	RVF1000	1
g.	Table Box	CUS	\$1400 Allowance	2
h.	Control System	CST	Per Custom Quote # 1011191	
i.	Termination – Table Box	CUS	Per Drawing HA	1
j.	Termination – Table Box	CUS	Per Drawing HC	1
k.	Termination – Floor Box	CUS	Per Drawing GG	1
l.	Termination – Flat Panel Display	CUS	Per Drawing GV	1
m.	Termination – VTC Codec	CUS	Per Drawing AS	1
n.	Termination – Control Touch Panel	CUS	Per Drawing CD	1
48. STUDENT PROJECT ROOM (445)				
a.	NO AV EQUIPMENT TO BE INSTALLED AT THIS TIME.			
49. CORRIDORS				

a.	46" Flat Panel LCD	NEC	V462	4
b.	Tilting Wall Mount for LCD	CHF	PWCU	4
c.	Network Video Receiver	CIS	DMP4400G	4
d.	Room ID / Scheduling Panel	CST	Per Custom Quote # 1011191	
e.	Interactive Information Kiosk	PKS	Eagle Shift ADA Kiosk	1

LEVEL 5

50. DISTRIBUTED INFORMAL LEARNING / STUDY (505, 511)

a.	Ceiling Loudspeakers	EVI	EVID C8.2	12
b.	Ceiling Loudspeaker Amplifier	LGP	E4.2	1
c.	Control System	CRS	Per Custom Quote # 1011191	
d.	Wireless Microphone System – Lav.	SHU	ULXS14/93	1
e.	Wireless Microphone System – HH	SHU	ULXS24/58	1
f.	CD Player with iPod Dock	TAS	CD-200i	1
g.	Auxiliary Input Panel	CUS	Per Drawing AV3006	1
h.	DSP	SMX	Jupiter 12	1
i.	Network Switch (8-Port)	ATS	AT-GS900/8	1
j.	UPS	MAP	UPS-2200R	1
k.	Equipment Rack	MAP	Per Drawing AV4003	1
l.	Termination – Wireless Mic Antenna	CUS	Per Drawing AX	2
m.	Termination – Ceiling Loudspeaker	CUS	Per Drawing BA	12
n.	Termination – Audio Input Panel	CUS	Per Drawing HG	1

D. Equipment Manufacturers

	<u>MFR</u>	<u>Company</u>	<u>Web Site</u>
1.	AAI	Audio Accessories	www.patchbays.com
2.	ACE	Ace Backstage Company	www.acebackstage.com
3.	AKG	AKG Acoustics	www.akgusa.com
4.	ALC	Alcoswitch	www.tycoelectronics.com
5.	ALN	Allen Products Company Inc.	www.allenproducts.com
6.	ANC	Anchor Audio	www.anchoraudio.com
7.	APB	APB-Dynasonics	www.apb-dynasonics.com

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8.	APX	Aphex Systems	www.aphex.com
9.	ASH	Ashly Audio	www.ashly.com
10.	ATL	Atlas Sound	www.atlassound.com
11.	ATS	Allied Telesis	www.alliedtelesis.com
12.	ASU	ASUS	usa.asus.com
13.	ATM	ATM Fly-Ware	www.atmflyware.com
14.	ATN	Audio-Technica	www.audiotechnica.com
15.	BAG	Bag End Loudspeakers	www.bagend.com
16.	BEL	Belden Wire and Cable	www.belden.com
17.	BEY	Beyerdynamic	www.beyerdynamic.com
18.	BMK	Benchmark Media Systems	www.benchmarkmedia.com
19.	BSS	BSS Audio USA	www.bss.co.uk
20.	CAG	CAIG Laboratories	www.caig.com
21.	CAN	ITT/Cannon Components Division	www.ittcannon.com
22.	CDU	C-Ducer	www.c-ducer.com
23.	CLC	Clear-Com	www.clearcom.com
24.	CNR	Canare Cable	www.canare.com
25.	CRL	Carol Wire and Cable	www.biccgeneral.com
26.	CRN	Crown International	www.crownaudio.com
27.	CRS	Crest Audio	www.crestaudio.com
28.	CST	Crestron Electronics	www.crestron.com
29.	CUS	Custom Built by Audio Contractor	
30.	DAL	Da-Lite	www.da-lite.com
31.	DBX	dbx Professional Products	www.dbxpro.com
32.	DEL	Dell Computer	www.dell.com
33.	DEN	Denon Corporation	www.usa.d-mpro.com
34.	DNB	d&b Audiotechnik Corp.	www.dbaudio.com
35.	DPA	DPA Microphones	www.dpamicrophones.com
36.	DPI	Digital Projection Inc.	www.digitalprojection.com
37.	DRP	Draper, Inc.	www.draperinc.com
38.	DSL	Danley Sound Labs	www.danleysoundlabs.com
39.	DUG	Dan Dugan Sound Design	www.dandugan.com
40.	EAC	EAW Commercial	www.eawcommercial.com
41.	EAW	Eastern Acoustic Works	www.eaw.com
42.	EVI	Electro-Voice	www.electrovoice.com
43.	ETW	Earthworks	www.earthworksaudio.com
44.	EVN	Eventide	www.eventide.com
45.	FLC	Fulcrum Acoustic	www.fulcrum-acoustic.com
46.	FLK	John Fluke Manufacturing Company	www.fluke.com
47.	FRZ	Frazier Loudspeakers	www.frazierspeakers.com
48.	FSR	FSR	www.fsrinc.com
49.	HHB	HHB Communications	www.hhbusa.com
50.	HOF	Hoffman Engineering Company	www.hoffmanonline.com
51.	HUB	Hubbell	www.hubbell.com
52.	IVE	Ivie Technologies	www.ivie.com
53.	JBL	JBL Professional Products	www.jblpro.com

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54.	JEN	Jensen Tools	www.jensentools.com
55.	JTF	Jensen Transformers	www.jensen-transformers.com
56.	KTK	Klark Teknik	www.klarkteknik.com
57.	LCS	Level Control Systems	www.lcsaudio.com
58.	LEX	Lexicon	www.lexicon.com
59.	LGP	Lab Gruppen	www.labgruppen.se
60.	LGS	LG Business Solutions	www.lgsolutions.com
61.	LIT	Littlite/CAE	www.littlite.com
62.	LPC	Lex Products Corporation	www.lexproducts.com
63.	LSN	Listen Technologies Corporation	www.listentech.com
64.	LYN	LynTec	www.lyntec.com
65.	MAP	Middle Atlantic Products	www.middleatlantic.com
66.	MCK	Mackie Designs	www.mackie.com
67.	MDS	Midas	www.midasconsoles.com
68.	MEY	Meyer Sound Laboratories	www.meyersound.com
69.	MRS	Marshall Furniture	www.marshallfurniture.com
70.	MRZ	Marantz Professional	www.marantzpro.com
71.	MYS	Mystery Electronics	www.mysteryelectronics.com
72.	NEC	NEC Display Solutions	www.necdisplay.com
73.	NEU	Neumann USA	www.neumann.com
74.	NTK	Neutrik USA	www.neutrik.com
75.	NUM	Numark	www.numark.com
76.	OMN	Omnimount Systems	www.omnimount.com
77.	OSS	On Stage Stands	www.onstagestands.com
78.	OXM	Oxmoor Corporation	www.oxmoor.com
79.	PAD	Panduit	www.panduit.com
80.	PAN	Panasonic USA	www.panasonic.com
81.	PFS	Polar Focus	www.polarfocus.com
82.	PLY	Polycom	www.polycom.com
83.	POM	Pomona Electronics	www.pomonaelectronics.com
84.	PKS	Practical Kiosk Solutions	www.practicalkiosk.com
85.	PRS	PreSonus Audio Electronics	www.presonus.com
86.	PRT	ProTech Audio Corporation	www.protechaudio.com
87.	QLK	Quik Lok	www.quiklok.com
88.	QSC	QSC Audio Products	www.qscaudio.com
89.	RAN	Rane Corporation	www.rane.com
90.	RDE	Radial Engineering	www.radialeng.com
91.	RDS	Rosendahl Studiotechnik	www.rosendahl-studiotechnik.de
92.	RKH	Renkus-Heinz	www.renkus-heinz.com
93.	SAL	Salitek / Orion	www.salitek.net
94.	SCH	Schoeps	www.reddingaudio.com
95.	SCR	Soundcraft USA	www.soundcraft.com
96.	SEN	Sennheiser Electronic Corporation	www.sennheiserusa.com
97.	SHU	Shure Brothers	www.shure.com
98.	SIA	SIA Software Company	www.siasoft.com
99.	SKB	SKB Corporation	www.skbcases.com

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100.	SMA	Smart Technologies	www.smarttech.com
101.	SMX	Symetrix	www.symetrixaudio.com
102.	SNL	Stop and Listen	www.stopandlisten.com
103.	SNY	Sony Electronics	www.sonyproaudio.com
104.	SQD	Square D Company	www.squared.com
105.	SRV	Servoreeler Systems	www.servoreelers.com
106.	SSC	Superscope Technologies	www.superscopetechnologies.com
107.	SWC	Switchcraft	www.switchcraft.com
108.	TAN	Tannoy North America	www.tannoy.com
109.	TAP	Tapco	www.tapcogear.com
110.	TAS	Tascam	www.tascam.com
111.	TCE	TC Electronic of Denmark	www.tcelectronic.com
112.	TCM	3Com	www.3com.com
113.	TEA	Teac America	www.teac.com
114.	TEC	Technics Audio Products	www.panasonic.com
115.	TLX	Telex Communications	www.telex.com
116.	TMB	TMB	www.tmb.com
117.	TOA	TOA Electronics	www.toaelectronics.com
118.	TPL	Tripp Lite	www.tripplite.com
119.	UNC	Union Connector Company	www.unionconnector.com
120.	USS	Ultimate Support Systems	www.ultimatesupport.com
121.	UST	Unistrut Diversified Products	www.unistrut.com
122.	VEG	Vega	www.vegawireless.com
123.	VST	Vista Systems, Corp.	www.vistasystems.net
124.	WDM	Weidmuller	www.weidmuller.com
125.	WLF	Wolfvision	www.wolfvision.com
126.	WLM	Williams Sound	www.williamssound.com
127.	WLR	Wohler Technologies	www.wohler.com
128.	WOW	WOW-Vision	www.wow-vision.com
129.	WPW	West Penn Wire/CDT	www.westpenn-cdt.com
130.	WRM	Wiremold Company	www.wiremold.com
131.	WWD	Whirlwind Interface International	www.whirlwindusa.com
132.	WWK	Wireworks Corporation	www.wireworks.com
133.	XED	Xedit	www.servoreelers.com
134.	XTA	XTA Electronics	www.xta.co.uk
135.	YAM	Yamaha Corporation of America	www.yamaha.com

2.3 DETAIL DRAWINGS

- A. The drawings herein detail custom built equipment and system details.
- B. Furnish all materials and labor to provide complete and finished work even though not specifically shown on the drawings.
- C. Detail drawings are located in large format drawings AV0001 through AV4003.

PART 3 - EXECUTION

3.1 AUDIO SYSTEM REQUIREMENTS

- A. Requirements herein refer to materials and work which are related to or part of the Systems. Where conflict exists with other specifications concerning such work or materials, this specification takes precedence unless otherwise approved in writing by the Owner

3.2 INSTALLATION OF SYSTEMS

- A. Locate all apparatus requiring adjustments, cleaning or similar attention so that it will be accessible for such attention. Equipment racks shall be positioned to permit full access for operation and service.
- B. Furnish and install brackets, braces and supports. Minimum fastening or support safety factor shall be at least three (3). Design shall be to the approval of the Architect.
- C. All supporting structures and enclosures supplied by the Contractor not having a standard factory paint finish shall be painted. Paint specifications will be supplied by the Architect or indicated herein.
- D. Provide custom color or finish for any equipment or materials supplied which are exposed to public view. Color and finish of all such equipment or materials shall be approved in writing by the Architect. This does not exclude equipment or materials where standard colors and finishes may be specified herein.
- E. Finish of blank panels and custom assembly panels shall match adjacent equipment panels.
- F. Switches, connectors, jacks, receptacles, outlets, cables and cable terminations shall be logically and permanently marked. Custom panel nomenclature shall be engraved, etched or screened. Markings for these items are detailed in the drawings to ensure consistency and clarity. Verify any changes in working type size and/or placement with the Systems Designer prior to marking.
- G. The equipment specified herein is designed to operate in environments of normal humidity, dust and temperature. Protect equipment and related wiring where extreme environmental conditions can occur.
- H. The standard reference for the layout and construction of the system shall be:

Giddings, Philip. *Audio Systems Design and Installation*. Boston: Focal Press, 1990.

3.3 CONDUIT

- A. Review and coordinate Systems conduit installation with the electrical contractor to ensure proper operation of the Systems.
- B. All wiring shall be in conduit unless authorized by the Architect, approved by the Systems Designer, and permitted by code. Exceptions are short runs at equipment terminations where

there is no means of connecting conduit to the equipment.

- C. Where installed exposed, conduits shall be parallel with or at right angles to walls or ceilings and shall be supported from walls or ceilings by means of approved galvanized iron clamps or hangers. Conduit connections to equipment racks shall be insulated.
- D. Minimum size conduit shall be 3/4 inch. All conduit shall be sized for maximum 40% fill or less if required by code.

3.4 CONDUIT SEPARATION

- A. Systems wiring is divided into wiring groups according to their nominal voltage levels (refer to Schedule of Terminations):

	Wiring Type
Group A	Microphones and other sensitive wiring (0 mV to 100 mV)
Group B	Line level wiring (100 mV to 10 V)
Group C	Loudspeaker and control wiring (10 V to 70 V)
Group D	Telephone, video, control and digital circuits
Group E	Fiber optic cable

Note: These wiring groups must never be intermixed within a given conduit run!

- B. Minimum conduit separation between conduits carrying wiring of different groups is as follows:

	Group A	Group B	Group C	Group D	Group E
Group A	adjacent	6"	12"	12"	adjacent
Group B	-	adjacent	12"	6"	adjacent
Group C	-	-	adjacent	6"	adjacent
Group D	-	-	-	adjacent	adjacent
Group E	-	-	-	-	adjacent

Note: Ninety degree crossings in close proximity are acceptable.

- C. Minimum conduit separation between conduits carrying Systems wiring and other electrical service conduit is as follows:

	Group A	Group B	Group C	Group D	Group E
Dimmer controlled lighting	24"	12"	6"	12"	adjacent
SCR controlled services	24"	12"	6"	12"	adjacent

220/440V circuits	6"	6"	adjacent	adjacent	adjacent
All other services	6"	6"	adjacent	adjacent	adjacent

Note: Heavy current demands in or long parallel runs with the above services may dictate greater separations to avoid interference in the Systems.

- D. Contractor shall promptly inform the Systems Designer in writing of conduit installation which does not conform to these requirements.

3.5 ELECTRICAL POWER

- A. Review and coordinate electrical power system installation including grounding with the electrical contractor to ensure proper operation of the Systems.
- B. Verify that all AC power circuits designated for Systems equipment are wired with correct polarity and isolated ground. Report in writing any discrepancies found to the Architect for corrective action.
- C. Provide distribution of electrical power within the equipment racks with a minimum of one spare AC receptacle for each four in use per branch circuit.

3.6 STEEL SUPPORTS

- A. Fabricate and install any supports so that the installation does not weaken or overload the building structure. Do not impose the weight of equipment or fixtures on supports provided for other trades or systems. No drilling or cutting of concrete beams, joists, or structural steel, nor welding to structural steel, will be permitted except as authorized, in writing, by the Architect.

3.7 BOXES

- A. With the exception of portable equipment, all boxes, conduits, cabinets, equipment and related wiring shall be held in place and the mounting shall be plumb and square.
- B. All boxes shall be securely mounted to building structure. All boxes shall be installed so that wiring contained in them is accessible. Install blanking devices or threaded plugs in all unused holes.
- C. Wiring groups and circuits shall be isolated as indicated herein. Common pull or junction boxes are not permitted except as authorized, in writing, by the Systems Designer.
- D. Clean all box interiors before installing plates, panels or covers.

3.8 WIRING METHODS AND PRACTICES

- A. Provide installation of all Systems wire and cable, ensuring proper:

1. Pulling Tensions
 2. Quantities
 3. Types
 4. Lengths
 5. Routing
 6. Wire Group Separation
 7. Identification
- B. The interconnection of all equipment requiring shielded cable shall be by Belden type 9451, or equivalent, unless otherwise specified.
- C. Spare wire runs of each group and type shall be pulled to each termination location. The number of spares shall be ten percent of those in actual use or one, whichever is greater.
- D. Splicing of cables is not permitted between terminations of specified equipment.
- E. Do not pull wire or cable through any box fitting or enclosure where change of raceway alignment or direction occurs; do not bend conductors to less than recommended radius. Employ temporary guides, sheaves, and rollers to protect cables from excess tension, abrasion or damaging bending during installation.
- F. Provide wire pulling lubricants and pulling tensions in accordance with the wire and cable manufacturer's recommendations.
- G. All wires shall be permanently identified at each wire end by marking with adhesive or crimp-on markers and a chart kept of each wire's function. This applies to wire within a rack assembly as well as wire running in conduit.
- H. Wire ends should be wrapped with heat shrink tubing. Each shield or drain wire should be covered with heat shrink to avoid unintentional connections.
- I. Use ring or tongue lugs on all barrier strip terminals. Do not exceed two lugs per terminal. Use crimping tools which are designed for the application or solder. Do not cut strands from conductors to fit lugs or terminals. Spare terminal blocks, equivalent to 10% of those in actual use, shall be provided.
- J. Form, in an orderly manner, all conductors in enclosures and boxes, wire ways and wiring troughs, providing circuit and conductor identification. Tie using tie wraps of appropriate size and type. Limit spacing between ties to six (6) inches and provide circuit and conductor identification at least once in each enclosure.
- K. Provide ample service loops at each termination so that plates, panels, patch bays, and equipment can be dismantled for service and inspection.

3.9 GROUNDING

- A. Audio system wiring shall conform to the following procedures:
1. Audio equipment AC ground pins shall connect to AC isolated ground.
 2. Audio equipment chassis shall connect to AC isolated ground or rack frames.
 3. Audio rack frames shall connect to AC isolated ground bus in panelboard by means of #2 gauge (minimum) conductor.

4. Audio shields between AC powered pieces of equipment shall be connected to ground at one end only. Capacitively terminate as required.
 5. Audio signal paths between AC powered pieces of equipment shall be connected using balanced lines and/or transformer isolation as required. No unbalanced signal paths may be connected to the patch bay.
 6. Isolate all Systems wiring from racks, back boxes and conduit.
 7. Isolate all Systems racks from conduit and other conductive surfaces. Use insulated bushings for conduit connections and a dielectric plinth between racks and conductive flooring materials.
 8. AC isolated ground system shall be isolated from all other facility grounds.
- B. All metallic conduit, boxes and enclosures shall be grounded in accordance with the current National Electrical Code.
- C. Metallic enclosures containing active equipment shall be grounded with due regard for the minimization of electrical noise. This may include the provision of grounding conductors separate from the AC ground.

3.10 EQUIPMENT RACKS

- A. The equipment racks shall be considered as custom assemblies and shall be assembled, wired and tested in the Contractor's shop. Assembly of racks on-site will not be permitted (except for shielded microphone and line wiring which must connect directly to the patch bays).
- B. Placement of equipment in equipment racks, as shown in the drawings, is for maximum operator convenience. Verify any changes in placement of the equipment with the Systems Designer before assembly.
- C. Racks shall be installed plumb and square without twists in the frames or variations in level between adjacent racks.
- D. All wire, cable, terminal blocks, rack mounted equipment, and active slots of card frame systems shall be clearly and logically labeled as to their function, circuit, or system. Labeling on manufactured equipment shall be by engraved plastic laminate or by thermal printer on adhesive tape, with white lettering on black background or dark background that is similar to panel finish.
- E. Provide stiffeners to custom panels to prevent panel deformation during normal plugging or switching operations.
- F. All wires and cables used in assembling custom panels and equipment racks shall be formed into harnesses which are tied and supported in accordance with accepted engineering practice.
- G. Harnessed cables shall be combed straight, tie-wrapped every six (6) to ten (10) inches, and attached to the structure as necessary. Each cable that breaks out from a harness for termination shall be provided with an ample service loop to permit equipment removal from the racks without disconnecting.
- H. Harnessed cables shall be formed in either a vertical or a horizontal relationship to equipment, controls, components or terminations.
- I. Cable shields shall be connected to the isolated ground system with due regard for ground loops. (See Giddings reference book, Chapter 10)

- J. All system components and related wiring shall be located with due regard for the minimization of induced electro-magnetic and electrostatic noise, for the minimization of wiring length, for proper ventilation, and to provide reasonable safety and convenience for the operator.
- K. All rack mounted equipment, with front panel controls, shall be provided with security covers to avoid tampering with preset levels. If specific security covers are not included in the equipment list, the Contractor will provide the manufacturer's security cover for each specified device or a suitable alternate.
- L. Every device shall be installed with regard for proper polarity. Absolute polarity shall be maintained through the entire Systems chain.
- M. Any electronic device which is connected to the patch bay must be balanced.

3.11 INITIAL ADJUSTMENT

- A. Verify all circuits and extensions for correct connection, continuity and polarity. Absolute polarity shall be maintained between all points in the system.
- B. Connector polarity shall be maintained except for terminations at equipment manufactured to other standards. In the event that manufactured equipment can be ordered with, or internally set to, various standards, the equipment shall be configured as follows:
 - 1. Polarity for XLR style connector shall be: pin 2-high, pin 3-low, and pin 1-shield.
 - 2. Polarity for TRS style connector shall be: tip-high, ring-low, and sleeve-shield.
- C. Make all adjustments and modifications so that the system is operational.
- D. Make all adjustments and modifications for system gain structure per recommendations of major component manufacturers.

3.12 VERIFICATION TESTS

- A. Confirm that each individual wire and cable run (whether in a rack or in conduit) is identified with a unique number. These numbers are affixed to both ends of each cable and are clearly visible. Provide a complete list of these numbers along with the termination location of each end of the wire run.
- B. Confirm that all system outputs are free of spurious signals including oscillations and radio frequency signals. A wide band oscilloscope shall be used to verify this condition.
- C. Confirm that the system is free of audible clicks, pops, and other noises when any operating control is activated, with or without input signal.
- D. For all microphone lines, tie lines, return lines and effect loudspeaker lines, confirm:
 - 1. Proper circuits appearing at each termination location
 - 2. Proper circuits appearing at each jack bay position

3. Continuity of all conductors
 4. Proper polarity is maintained
 5. Absence of shorts between conductors within each circuit
 6. Absence of shorts between circuit conductors and conduit
- E. Confirm that loudspeakers and mountings are free of buzzes and rattles when the loudspeaker is swept with sine wave tones over its rated bandwidth at one-half (1/2) its maximum rated power.
- F. For all permanently mounted loudspeaker terminations, provide impedance measurement of each pair of loudspeaker lines with all loudspeakers connected and all amplifiers disconnected. These measurements shall be documented as editable tabular data listing impedance for each 1/3 octave band from 20 Hz to 20 kHz and shall be accurate to the nearest tenth of an Ohm.
- G. For all intercom terminations, confirm proper operation by initiating and receiving audio communication and call light.
- H. For each installed data network cable or fiber optic cable confirm conformance to the specified TIA/EIA performance standards.
- I. For all electronic devices mounted in racks and connected to patch bays, confirm:
1. Every input and output is balanced.
 2. Proper polarity is maintained throughout the entire audio path.
 3. Tip connection of each TRS jack is connected to the positive terminal of each corresponding input or output.
- J. Confirm that there are no shorts between the Neutral and Isolated Ground conductors for each clean power circuit.

3.13 VERIFICATION TEST REPORT

- A. Submit written report detailing the results of Initial Adjustments and Verification Tests. Report to include, at minimum, the following:
1. Copies of all relevant drawings, charts, test instrument data, and photographs.
 2. PDF copies of all available manufacturers' operation and service literature for each major system component.
 3. Written certification that the installation conforms to the requirements stated herein, is complete in all respects, and is ready for inspection, testing, and tuning.
- B. This report shall be completed and submitted to the Systems Designer for review a minimum of five (5) days prior to Acceptance Testing and final tuning.

3.14 ACCEPTANCE TESTING

- A. Acceptance Testing shall be performed by the Systems Designer during a period designated by the Architect. Contractor shall furnish a minimum of two (2) technicians for the acceptance testing period.
- B. The minimum time required for Acceptance Testing is two (2) working days of dedicated quiet. Coordinate this time period so that free access, work lighting, and electrical power are available

on the site.

- C. Ensure that Systems areas are in a clean and orderly condition ready for acceptance testing.
- D. Provide test equipment (meeting the following minimum specifications) on site, at all times during Acceptance Testing. Prior to Acceptance Testing, provide the Systems Designer with a listing of the specific equipment to be made available.
 - 1. Oscilloscope: 10MHz Bandwidth, Sensitivity – 1mV/cm
 - 2. Digital Multi-meter: 1% Accuracy
 - 3. Function Generator: 1MHz Bandwidth, Distortion < 1%
 - 4. Real Time Analyzer: 1/3 Octave with microphone
 - 5. Pink Noise Source: 20 Hz – 20 kHz Bandwidth
 - 6. Impedance Sweep Meter: 20 Hz – 20 kHz Range, 1 Ohm – 50 kOhm
 - 7. Polarity Checker: Mic, line, or loudspeaker level

Note: Systems Designers may choose to supply their own test equipment.

- E. Be prepared to verify the performance of any portion of the system by demonstration, listening tests and instrumented measurements.
- F. Make additional mechanical and electrical adjustments within the scope of the work and which are deemed necessary by the Systems Designer as a result of the Acceptance Tests. This may include realigning of loudspeaker systems, changes in system gain structures, grounding, filtering or interfaces.
- G. Final acceptance will be contingent upon issuance by the Systems Designer of a letter of acceptance stating that the work has been completed and is in accordance with the contract documents.
- H. Contractor will bear any costs incurred for additional Systems Designer's time and expenses due to failure to have the system functioning in accordance with specification requirements at the times scheduled for Systems Designer's Acceptance Testing and tuning.

3.15 SYSTEM DOCUMENTATION

- A. Within thirty (30) days of the Acceptance Testing, prepare and submit a CD-ROM of the preliminary Operation and Maintenance manual for approval by the Systems Designer. Manual to include, at minimum, the following documents in PDF format:
 - 1. Table of contents
 - 2. Written Guarantee and service policy
 - 3. Basic power on/off and operational procedure
 - 4. Copies of all shop drawings which have been updated to include any changes made during the installation process
 - 5. All available manufacturers' operation and service literature for each major system component
 - 6. One line signal flow diagram with all cable runs and patch points identified by alpha-numeric character

7. Copy of the Verification Test report
 8. Copy of conduit riser diagram
 9. Copy of the final tuning settings as provided by the Systems Designer
- B. Systems Designer will review the above system documentation. Upon approval, Contractor shall prepare and submit to the Owner:
1. Five (5) copies of the final Operation and Maintenance manual on CD-ROM
 2. Two (2) hard copies of the final Operation and Maintenance manual printed and neatly bound
- C. Provide framed copy of the as-built signal flow diagram to be mounted in the control room. This diagram shall have all cable runs and patch points identified by alpha-numeric character.

3.16 OWNER TRAINING

- I. Provide training in the operation and maintenance of the system for personnel designated by the owner. Record owner training sessions on DVD or other agreed upon media, and make training videos available to the owner at no charge. The training shall be organized as follows:

A. PERFORMANCE HALL (101)

1. Two (2) four-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems, (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.
3. Two (2) two-hour training classes for system technical operation and maintenance in the music performance configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review of manufacturers' recommended routine maintenance procedures.

- f. Review & demonstration of control system software replacement/upgrade procedures.
- g. How to reconfigure and move audio console and portable equipment.

B. LECTURE HALL (123)

1. Two (2) four-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

C. CONFERENCE / SEMINAR ROOM (108, 110)

1. Two (2) two-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

D. SHALLOW/DEEP "U" CASE ROOM (111, 112, 114, 133, 134, 135, 136, 137, 324, 334)

1. Two (2) two-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

E. COMBINABLE DISCUSSION / RECITATION ROOMS (104, 105, 109, 113, 127, 128, 129)

1. Two (4) four-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

F. DISCUSSION / RECITATION ROOM (103, 118, 119, 120, 121, 122, 124, 125, 126, 140, 141, 142, 308, 487)

1. Two (2) two-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.

- c. How to attach microphones, record AV signals, and control the sound system.
- d. Videoconferencing operation & capabilities (if applicable).
- e. Audio monitoring and ADA system operations.
- f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
- g. How to reconfigure lectern locations.

2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:

- a. Review of signal flow diagrams.
- b. Review of all equipment functions, relevant to the function in this system.
- c. Review of initial equipment settings.
- d. Demonstration of all functional connections from a user perspective.
- e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
- f. Review of manufacturers' recommended routine maintenance procedures.
- g. Review & demonstration of control system software replacement/upgrade procedures.

G. BOOKABLE ROOM / GROUP STUDY ROOM (209, 210, 211, 212, 213, 223, 224, 225, 226, 231, 232, 233, 234, 235B, 307, 309, 325, 326, 327, 328, 333, 401O, 410F, 401I, 427, 451, 452H, 461F, 493)

1. Two (2) one-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:

- a. System set-up and operations.
- b. Control system operation.
- c. How to attach microphones, record AV signals, and control the sound system.
- d. Videoconferencing operation & capabilities (if applicable).
- e. Audio monitoring and ADA system operations.
- f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
- g. How to reconfigure lectern locations.

2. Two (2) one-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:

- a. Review of signal flow diagrams.
- b. Review of all equipment functions, relevant to the function in this system.
- c. Review of initial equipment settings.
- d. Demonstration of all functional connections from a user perspective.
- e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
- f. Review of manufacturers' recommended routine maintenance procedures.
- g. Review & demonstration of control system software replacement/upgrade procedures.

H. PALMETTO COURT PAVILLION (200)

1. Two (2) one-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:

- a. Review of signal flow diagrams.
- b. Review of all equipment functions, relevant to the function in this system.
- c. Review of initial equipment settings.
- d. Demonstration of all functional connections from a user perspective.
- e. Review & demonstration of replacement procedures for consumables (e.g., lamps).

- f. Review of manufacturers' recommended routine maintenance procedures.
- g. Review & demonstration of control system software replacement/upgrade procedures.

I. VISITOR CENTER (201)

1. Two (2) one-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

J. VIDEO CONFERENCE ROOM (318, 320, 359, 361, 362, 363, 364, 365, 366, 367, 368)

1. Two (2) four-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.
2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

K. RECONFIGURABLE CLASSROOM (229, 246, 329, 330)

1. Two (2) two-hour training classes addressing the AV systems operations in the lecture/classroom configuration. The classes will demonstrate and describe the following:
 - a. System set-up and operations.
 - b. Control system operation.
 - c. How to attach microphones, record AV signals, and control the sound system.
 - d. Videoconferencing operation & capabilities (if applicable).
 - e. Audio monitoring and ADA system operations.
 - f. Use of Collaborative Presentation and Lecture Capture Systems (if applicable).
 - g. How to reconfigure lectern locations.

2. Two (2) two-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

L. DISTRIBUTED INFORMAL LEARNING / STUDY (505, 511)

1. Two (2) one-hour training classes for system technical operation and maintenance in the classroom/lecture configuration. This class shall cover the following topics:
 - a. Review of signal flow diagrams.
 - b. Review of all equipment functions, relevant to the function in this system.
 - c. Review of initial equipment settings.
 - d. Demonstration of all functional connections from a user perspective.
 - e. Review & demonstration of replacement procedures for consumables (e.g., lamps).
 - f. Review of manufacturers' recommended routine maintenance procedures.
 - g. Review & demonstration of control system software replacement/upgrade procedures.

END OF SECTION 27 41 00

Tracking Designation by RVA

VIII. BIDDING SCHEDULE / PRICE-BUSINESS PROPOSAL

AWARD WILL BE FOR PACKAGE A OR PACKAGE B AS DETERMINED TO BE IN THE BEST INTEREST OF THE UNIVERSITY OF SOUTH CAROLINA

PACKAGE A

Item	Qty	Unit of Measure	Description	Unit Price	Extended Price
1	1	JOB 1	LOT 1 Complete. Furnish/Install audio Visual System as specified . Supplies, Equipment and hard parts	\$	\$

Resident Vendor Preference _____
 SC End Product Preference _____
 US End Product Preference _____

Item	Qty	Unit of Measure	Description	Unit Price	Extended Price
2	1	JOB 1	LOT 2 Complete. Furnish/Install audio Visual System as specified . Installation	\$	\$

Resident Contractor Preference _____
 Resident Sub-Contractor Preference (2%) _____ Number of Sub-Contractors _____
 Resident Sub-Contractor Preference (4%) _____ Number of Sub-Contractors _____

Total for items 1&2 \$ _____

Note: The commodity preferences do not apply to a bid for an item of work by the bidder if the annual price of the bidder's work exceeds \$50,000 or the total potential price of the bidder's work exceeds \$500,000. [11-35-1524(E) (3)]

Note: The service preferences do not apply to a bid for an item of work by the bidder if the annual price of the bidder's work exceeds \$50,000 or the total potential price of the bidder's work exceeds \$500,000. [11-35-1524(E)(3)]

Please refer to the preference clauses listed in the additional conditions of this solicitation to ensure that you qualify to select the above preferences.

Bidder is to submit the following for preferences requested above:

- 1) Identify the subcontractor to perform the work:
- 2) Identify the work the subcontractor is to perform:
- 3) Bidder's factual basis for concluding that the subcontractor's work constitutes the required percentage of the work to be performed in the procurement.

Package B

Item	Qty	Unit of Measure	Description	Unit Price	Extended Price
3	1	JOB 2	LOT 1 Complete. Furnish/Install audio Visual System as specified . Supplies, Equipment and hard parts	\$	\$

Resident Vendor Preference _____
 SC End Product Preference _____
 US End Product Preference _____

Item	Qty	Unit of Measure	Description	Unit Price	Extended Price
4	1	JOB 2	LOT 2 Complete. Furnish/Install audio Visual System as specified . Installation	\$	\$

Resident Contractor Preference _____
 Resident Sub-Contractor Preference (2%) _____ Number of Sub-Contractors _____
 Resident Sub-Contractor Preference (4%) _____ Number of Sub-Contractors _____

Total for items 3&4 \$ _____

Note: The commodity preferences do not apply to a bid for an item of work by the bidder if the annual price of the bidder’s work exceeds \$50,000 or the total potential price of the bidder’s work exceeds \$500,000. [11-35-1524(E) (3)]

Note: The service preferences do not apply to a bid for an item of work by the bidder if the annual price of the bidder’s work exceeds \$50,000 or the total potential price of the bidder’s work exceeds \$500,000. [11-35-1524(E)(3)]

Please refer to the preference clauses listed in the additional conditions of this solicitation to ensure that you qualify to select the above preferences.

Bidder is to submit the following for preferences requested above:

- 4) Identify the subcontractor to perform the work:
- 5) Identify the work the subcontractor is to perform:
- 6) Bidder’s factual basis for concluding that the subcontractor’s work constitutes the required percentage of the work to be performed in the procurement.