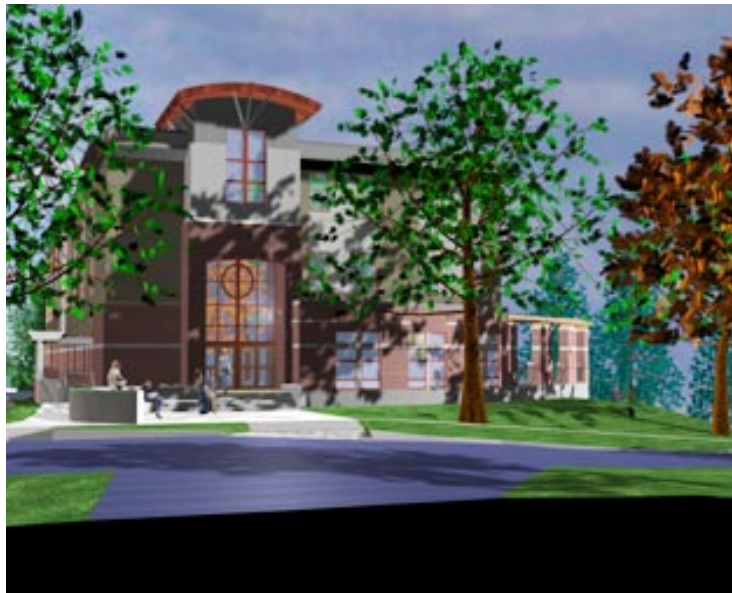


September 28, 2006



**Request for Proposal #09-07
Audiovisual Systems
University of Maine at Farmington
New Education Center
Farmington, ME 04938**

Prepared by:



437 Turnpike Street
Canton, MA, 02021
339-502-6551

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2

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13 **SECTION 1 - GENERAL INFORMATION**

14

15 **Background**

16

The University was founded in 1864 as Maine’s first public institution of higher education. It was founded a “Normal School” — a term used to describe a school dedicated to preparing teachers. Today, UMF continues to be a leader in education.

17

18

19

The College of Education, Health, and Rehabilitation is fully accredited by NCATE, which not only speaks to the outstanding quality of their teacher education programs, but also certifies UMF education graduates to teach in some thirty-three states across the U.S.

20

21

22

The new UMF Education Center will be a gathering place for people who care about education, teaching and learning about teaching. UMF faculty, undergraduates and practicing teachers will find a home here. Planners will create spaces in which ideas can be shared, where people can learn together, and where "best practices" can be modeled. The new space — nearly 43,000 square feet — will create opportunities for teaching and learning that are simply not possible now.

23

24

25

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27

28

29 **Purpose**

30

The University of Maine at Farmington (University) (UMF) is requesting qualified Vendors to submit proposals for audio, video and control systems equipment and installation for the above referenced project.

31

32

33

The intent of these specifications is to provide the University with a complete and operating system. The Offeror shall review the specifications and system configuration and provide or recommend any additional interfacing devices required whether or not specifically enumerated herein. The Offeror shall furnish all other installation materials, and items not furnished by the University, as required to complete the proper installation of the systems, as defined in the contract documents.

34

35

36

37

38

39

The scope of this project is to provide audiovisual systems for the rooms listed below.

40

Note that each room has a system “type” number that relates directly to the drawings and the specifications, as several rooms are identical.

41

42

**University of Maine at Farmington
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1

Room Name (Rm. No.)	Type¹
Snow Sports (001)	1
Art Education (012)	1
Resource Classroom - 1 (114)	1
Resource Classroom - 2 (115)	1
EMS Classroom - 1 (111)	1
Classroom (106)	1
Classroom (107)	1
Literacy Classroom (103)	1
Center for Excellence in Teaching (329)	1
Music Room (006)	2
Lounge / Lobby (117)	3
Distance Learning (112)	4
Dean's Conference Room (238A)	6
Conference Room (319, 322, 240)	7A 7B and 7C
Portable Equipment	8

2 Note that there are two Alternates included in the specifications. Alternate 4A is for the
3 Distance Learning Room. Alternate 6A is for the Dean’s Conference Room.

4

5 **Project Timeline**

6 RFP Release date	September 28, 2006
7 Pre-proposal conference and site walk-through	October 10, 2006
8 Deadline for submittal of questions (5 business days prior to proposal due date)	
9 Proposal due date	October 19, 2006
10 Contract award	October 27, 2006
11 Contract completion	January 2007

12

13

14 **DEFINITIONS**

15

16 **University**

17 The University of Maine at Farmington (University) (UMF).

18

19 **Bidders**

20 The terms “Bidder,” “Offeror,” “Contractor,” “Vendor,” “AV Contractor
21 (Contractor)” and such, shall as the context permits, mean a firm or firms bidding
22 or proposing to bid on this proposal and the firm or firms to which this contract is
23 awarded.
24

¹ System 5, IMAT is not part of this contract.

1 **Shall, must or will**

2 Features and specifications indicated with the words “shall” “must” or “will”
3 constitute a mandatory requirement. The University reserves the right to waive or
4 enforce any mandatory or other requirement in its own best interests.

5
6 **Should**

7 Features and specifications indicated with the word “should,” indicate a desirable
8 feature. Offerors shall indicate in their proposal whether a particular product or
9 service complies with these features.

10
11 **Any**

12 Certain items may be identified as “ANY.” Offeror may use any brand (or one of
13 the specified brands) of product(s) as long as the product meets the technical
14 criteria set by the specification or manufacturers listed.

15
16 **Equivalent bid products/alternate bid items**

17 Proposals are requested on this inquiry in accordance with brands, specifications and/or
18 testing and are understood to include "or equal." Manufacturer Names and Model
19 Numbers, when named, are for establishing the standard of quality, design, and utility of
20 the article desired.

21 If any items bid are other than "As Specified," the Vendor MUST:

- 22 • Provide a Sample of the Alternate Item bid to the University, for pre-approval, at
23 least ten (10) business days prior to the Proposal opening date,
- 24
25 • Include Literature with a picture and Specifications of the Alternate product, in
26 the Bid Packet,
- 27
28 • Shall include non-equivalent pricing on line noted as Non Specified Alternate for
29 easy analysis,
- 30
31 • Specify on the Bid Summary where there is an exception to the specified item.
32 Failure to do any of the above may constitute grounds for a bid to be rejected as a
33 nonconforming.

34 The University shall in its sole discretion determine what product is equal to that named,
35 but the burden of proof and costs of any tests shall be the responsibility of the Vendor.

36
37 **Consultant’s Role**

38 The Consultant will assist the University in providing prompt and accurate answers, in
39 writing, to any questions or comments received.

40 The Consultant’s role during the evaluation of responses to this specification will be to
41 objectively determine compliance with the technical and procedural bidding
42 requirements, confirm the accuracy of responses and to assist the University in evaluating

1 equipment substitutions and/or alternates as appropriate. The Consultant shall, under
2 direction of the University, review responses, and issue a compliance report for each
3 Offeror.

4 **Evaluation Criteria**

- 5 • Proposals will be evaluated on many criteria deemed to be in the University's best
6 interests, including, but not limited to:
- 7 • Base proposal price
- 8 • Quality and reliability
- 9 • Ability to meet specifications
- 10 • Offeror's experience in the products and services specified herein
- 11 • Stability of Offeror
- 12 • Offeror references
- 13 • Product applications and features offered, flexibility and expandability
- 14 • Offeror's capabilities as a comprehensive source for products and services in an
15 ongoing business partnership relationship
- 16 • Offeror's customer service and support services
- 17 • Product design
- 18 • Training program
- 19 • Utilization of industry standards
- 20 • Type and manufacturer of products
- 21 • Warranty and maintenance stipulations
- 22 • Replacement of parts and equipment costs
- 23 • Offeror's ability to interface with existing campus requirements

24
25 **Communication with the University**

26 It is the responsibility of the bidder to inquire about any requirement of this RFP that is
27 not understood. Responses to inquiries, if they change or clarify the RFP in a substantial
28 manner, will be forwarded by addenda to all parties that have received a copy of the RFP.
29 The University will not be bound by oral responses to inquiries or written responses other
30 than addenda.

31
32 Inquiries must be made to: Hal Wells or Kevin Carr
33 Office of Strategic Procurement
34 University of Maine System
35 16 Central Street
36 Bangor, Maine 04401
37 (207) 973-3302 / 3307
38
39

40 **Award of Proposal**

41 Presentations may be requested of two or more Offerors deemed by the University to be
42 the best suited among those submitting proposals on the basis of the selection criteria.
43 After presentations have been conducted, the University may select the Offeror which, in

1 its opinion, has made the proposal that is the most responsive and most responsible and
2 may award the contract to that Offeror. The University reserves the right to waive minor
3 irregularities. Scholarships, donations, or gifts to the University, will not be considered
4 in the evaluation of proposals. The University reserves the right to reject any or all
5 proposals, in whole or in part, and is not necessarily bound to accept the lowest cost
6 proposal if that proposal is contrary to the best interests of the University. Should the
7 University determine in its sole discretion that only one Offeror is fully qualified, or that
8 one Offeror is clearly more qualified than any other under consideration, a contract may
9 be awarded to that Offeror without further action.

10
11 **Award Protest**

12 Offerors may appeal the award decision by submitting a written protest to the University
13 of Maine System's Director of Strategic Procurement within five (5) business days of the
14 award notice, with a copy of the protest to the successful Offeror. The protest must
15 contain a statement of the basis for the challenge.

16
17 **Confidentiality**

18 The information contained in proposals submitted for the University's consideration will
19 be held in confidence until all evaluations are concluded and an award has been made.
20 At that time, the winning proposal will be available for public inspection. Pricing and
21 other information that is an integral part of the offer cannot be considered confidential
22 after an award has been made. The University will honor requests for confidentiality for
23 information of a proprietary nature. Clearly mark any information considered
24 confidential.

25
26 **Proposal Understanding**

27 The Offeror shall clarify all questions and any misunderstandings prior to proposal
28 submission and offer alternates if appropriate. The Offeror shall check in detail each item
29 of equipment specified, each portion of the installation and the complete installation to
30 insure that the intent of this specification is achieved.

31
32 **Proposal Validity**

33 Proposals shall remain open, valid, and subject to acceptance for at least thirty (30) days
34 after opening date.

35
36 **Cost of Proposal Preparation**

37 Offeror assumes all costs of preparation of the proposal and any presentations necessary
38 to the proposal process.

39
40
41 **Proposal Submission**

42 A **signed** original **plus 3 copies** of the proposal along **with an electronic copy in Word,**
43 **Excel or Adobe Acrobat format** must be received at the Office of Strategic
44 Procurement, University of Maine System, 16 Central Street, Bangor, Maine 04401, in a
45 sealed envelope **by close of business, Thursday, October 19, 2006.** Proposals shall

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1 contain the information outlined herein under “Consideration of Proposals” **and the**
2 **envelope shall be clearly marked “RFP #09-07 UMF AV System”**. Offerors are
3 strongly encouraged to submit proposals in advance of the due date to avoid the
4 possibility of missing the deadline due to unforeseen circumstances. Offerors assume the
5 risk of the methods of dispatch chosen. The University assumes no responsibility for
6 delays caused by any package or mail delivery service. A postmark on or before the due
7 date **WILL NOT** substitute for receipt of bid. Proposals must be date stamped by the
8 University on time to be considered. In the event that the University is closed due to
9 inclement weather at the time that a proposal is due, the proposals will be opened on the
10 next day that the University is open. Offerors may wish to call 207-973-3298 if the
11 weather is bad, to learn if the University has closed. Proposals received after the due date
12 will be returned unopened. Additional time will not be granted to any single Offeror,
13 however, additional time may be granted to all Offerors when the University determines
14 that circumstances require it. **FAXED PROPOSALS OR E-MAIL PROPOSALS**
15 **WILL NOT BE ACCEPTED.**

16
17 **Pre-Proposal Conference and Site Walk-through**

18 A pre-proposal conference and site walk-through will be held on **Tuesday, October 10,**
19 **2006 at 1:00 p.m. local time at the New Education Center on the University of Maine**
20 **Farmington campus.** The purpose of the conference is to answer questions and provide
21 further clarification as may be required. Please hold all questions until this meeting.
22 Attendance by all prospective bidders is **MANDATORY.**

23
24 Firms planning to attend this pre-bid conference should contact Erin Tapley at 207-973-
25 3313 no later than 4:00 p.m. local time on Friday, October 6, 2006 with the names and
26 titles of the individuals who will attend.

27
28 **Examination of Drawings, Specifications and Site**

29 The Offeror shall include in their proposal a sum to cover all cost of all items necessary
30 to perform the work as set forth in these documents. No allowance will be made to any
31 Offeror because of lack of such examination or knowledge. The submission of a proposal
32 will be construed as conclusive evidence that the Offeror has made such an examination.
33 Proposals will not be accepted from Offerors who do not attend the pre-bid conference
34 and site walk through.

35
36 **Proposals become the Property of University**

37 Upon submission to the University, all Proposals (including all materials, ideas and
38 formats submitted in response to this RFP) shall become the property of University. The
39 University reserves the right to make use of any information or ideas contained in the
40 Proposal.

41
42
43 **SECTION 2 - GENERAL TERMS AND CONDITIONS**
44
45

1 **Contract Documents**

2 If a separate contract is not written, the contract entered into by the parties shall consist of
3 this Request for Proposal, the signed Proposal submitted by the Contractor, the
4 specifications including all modifications thereof, and a purchase order or letter of
5 agreement requiring signatures of the University and the Contractor, all of which shall be
6 referred to collectively as the Contract Documents.
7

8 **Debarment**

9 Submission of a signed proposal in response to this solicitation is certification that your
10 firm (or any subcontractor) is not currently debarred, suspended, proposed for debarment,
11 declared ineligible, or voluntarily excluded from participation in this transaction by any
12 State or Federal department or agency. Submission is also agreement that the University
13 will be notified of any change in this status.
14

15 **Discrepancies**

16 If Offeror discovers any ambiguity, conflict, discrepancy, omission or other error in the
17 RFP or any of its attachments, they shall immediately notify the University of such error,
18 in writing, and request modification or clarification of the document. Modifications shall
19 be made by addenda. Clarification shall be given by written notice to all parties who have
20 been furnished or who have requested an RFP for bidding purposes.
21

22 If Offeror fails to notify the University prior to five (5) business days before bids are due
23 of an error in the RFP known to Offeror, or an error that reasonably should have been
24 known to Offeror, Offeror shall bid at its own risk. If Offeror is awarded the contract, it
25 shall not be entitled to additional compensation or time due to the error or its later
26 correction.
27

28 If, however, Offeror believes that one or more of the RFP requirements impose
29 unnecessary constraints on Offeror in proposing less costly or alternate solutions, they
30 may request a change to the RFP by submitting, in writing, the recommended change(s)
31 and the facts substantiating their belief and reasons for making the recommended change.
32 Such requests must be submitted to the University on or before five (5) business days
33 before proposals are due. Oral statements shall not be binding on the University.
34

35 **Contract Validity**

36 In the event one or more clauses of the contract are declared invalid, void, unenforceable
37 or illegal, that shall not affect the validity of the remaining portions of the contract.
38
39

40 **Cancellation/Termination**

41 The University has the right to terminate this Agreement, in whole or in part, with or
42 without cause, upon thirty (30) days written notice. As of the date specified in the notice,
43 Contractor shall stop all performance under this Agreement, except as otherwise directed

1 by the University, provide the University with a list of all unperformed services, and take
2 such action relative thereto as Contractor may be directed by the University.
3

4 **Clarification of Responsibilities**

5 If the Contractor needs clarification of or deviation from the terms of the contract, it is
6 the Contractor's responsibility to obtain written clarification or approval from Robert
7 Lawrence 778-7009.
8

9 **Litigation**

10 The Contract and the rights and obligations of the parties hereunder shall be governed by
11 and construed in accordance with the laws of the State of Maine without reference to its
12 conflicts of laws provisions. The Contractor agrees that any litigation, action or
13 proceeding arising out of this Contract, shall be instituted in a state court located in the
14 State of Maine.
15

16 **Assignment of Contract**

17 Neither party of the Contract shall assign the Contract without the prior written consent
18 of the other, nor shall the Contractor assign any money due or to become due without the
19 prior written consent of the University.
20

21 **Employment Opportunity**

22 In the execution of the contract, the Contractor and all subcontractors agree, consistent
23 with University of Maine System policy, not to discriminate on the grounds of race,
24 color, religion, sex, sexual orientation, transgender status or gender expression, national
25 origin or citizenship status, age, disability or veteran's status and to provide reasonable
26 accommodations to qualified individuals with disabilities upon request.
27

28 **Independent Contractor**

29 Whether the Contractor is a corporation, partnership, other legal entity, or an individual,
30 the Contractor is an independent contractor. If the Contractor is an individual, the
31 Contractor's duties will be performed with the understanding that the Contractor is a self-
32 employed person, has special expertise as to the services which the Contractor is to
33 perform and is customarily engaged in the independent performance of the same or
34 similar services for others. The manner in which the services are performed shall be
35 controlled by the Contractor; however, the nature of the services and the results to be
36 achieved shall be specified by the University. The Contractor is not to be deemed an
37 employee or agent of the University and has no authority to make any binding
38 commitments or obligations on behalf of the University except as expressly provided
39 herein. The University has prepared specific guidelines to be used for contractual
40 agreements with individuals (not corporations or partnerships) who are not considered
41 employees of the University.
42

43 **Sexual Harassment**

44 The University is committed to providing a positive environment for all students and
45 staff. Sexual harassment, whether intentional or not, undermines the quality of this

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1 educational and working climate. The University thus has a legal and ethical
2 responsibility to ensure that all students and employees can learn and work in an
3 environment free of sexual harassment. Consistent with the state and federal law, this
4 right to freedom from sexual harassment was defined as University policy by the Board
5 of Trustees.

6
7 Failure to comply with this policy could result in termination of this contract without
8 advanced notice. Further information regarding this policy is available available from
9 Affirmative Action/Equal Opportunity Officer, Valerie Huebner, University of Maine at
10 Farmington, 86 Main Street, Farmington, ME 04938, 207-778-7258.

11
12 **Indemnification**

13 The Contractor agrees to be responsible for, and to protect, save harmless, and indemnify
14 the University and its employees from and against all loss, damage, cost and expense
15 (including attorney's fees) suffered or sustained by the University or for which the
16 University may be held or become liable by reason of injury (including death) to persons
17 or property or other causes whatsoever, in connection with the operations of the
18 Contractor or any subcontractor under this agreement.

19
20 **Insurance**

21 During the term of this agreement, the Contractor shall maintain the following insurance:

Insurance Type	Coverage Limit
22 23 24 25 1. Commercial General Liability 26 (Written on an Occurrence-based form)	\$1,000,000 per occurrence or more (Bodily Injury and Property Damage)
27 28 2. Automobile Liability 29 (Including Hired & Non-Owned)	\$1,000,000 per occurrence or more (Bodily Injury and Property Damage)
30 31 3. Workers Compensation	Required for all personnel (In Compliance with Applicable State Law)

32
33 **The University of Maine System shall be named as Additional Insured on the**
34 **Commercial General Liability insurance.**

35
36 Certificates of Insurance for all of the above insurance shall be filed with:

37 Office of Strategic Procurement
38 University of Maine System
39 16 Central Street
40 Bangor, Maine 04401

41
42 Certificates shall be filed prior to the date of performance under this Agreement. Said
43 certificates, in addition to proof of coverage, shall contain the standard Acord statement

1 pertaining to written notification in the event of cancellation, with a thirty (30) day
2 notification period.

3
4 As additional insured and certificate holder, the University should be included as follows:
5 University of Maine System
6 16 Central Street
7 Bangor, Maine 04401

8 The Contractor shall not commence work under this contract until the Contractor has
9 obtained all insurance coverage's and limits required under this section and such
10 insurance has been approved by the University; nor shall the Contractor allow any
11 subcontractor to commence work on a subcontract until all similar insurance required of
12 subcontractor have been so obtained and approved by the Contractor.

13 **Smoking Policy**

14 The University of Maine System must comply with the "Work place Smoking Act of
15 1985" and MRSA title 22, 1541 et seq, "Smoking Prohibited in Public Places." In
16 compliance with this law, the University of Maine System has prohibited smoking in all
17 University System buildings except in designated smoking areas. This rule must also
18 apply to all contractors and workers in existing University System buildings. The
19 Contractor shall be responsible for the implementation and enforcement of this
20 requirement within existing buildings.

21
22 **Taxes**

23 The University is exempt from the payment of Federal Excise Taxes on articles not for
24 resale and for the Federal Transportation Tax on all shipments. The Contractor and
25 subcontractor(s) shall quote and shall be reimbursed less these taxes. Upon application,
26 exemption certificates will be furnished when required.

27
28
29 **SECTION 3 - PERFORMANCE TERMS AND CONDITIONS**

30
31 **Contract Administrator**

32 Robert Lawrence, Director of Facilities Management, or his designated alternate shall be
33 the University's authorized representative in all matters pertaining to the administration of
34 this contract.

35
36
37
38 **Employees**

39 The Contractor shall employ only competent and satisfactory personnel and shall provide
40 a sufficient number of employees to perform the required services efficiently and in a
41 manner satisfactory to the University. If the Contract Administrator or designee, notifies
42 the Contractor in writing that any person employed on this contract is incompetent,

1 disorderly, or otherwise unsatisfactory, such person shall not again be employed in the
2 execution of this contract without the written consent of the Contract Administrator,
3

4 **Optional Equipment**

5 For equipment identified as optional, the University reserves the right to purchase the
6 items indicated, in the quantity indicated, or other quantities as may be determined by the
7 University in its' own best interests. Optional items shall only be a part of this contract if
8 specifically enumerated by University's purchasing documentation, e.g. purchase order,
9 contract, letter of agreement or other mutually acceptable document.

10
11 **Notices**

- 12
13 • The Contractor shall obtain University approval of all panel layout and finishes;
14 furniture finishes and rack color or finishes prior to procurement or fabrication.
15 For purposes of costing plates and panels, assume that all visible wall plates will
16 be laser engraved and painted a custom color.
17
- 18 • The Contractor shall insure that all cabling installed within this building meets all
19 requirements of the Office of the Fire Marshall for the State of Maine. Particularly
20 note that cable bundles shall not exceed twelve (12) cables. When multiple cable
21 bundles are run in parallel there shall be at least three inches between the cable
22 bundles. The Contractor is responsible for providing all additional ceiling hooks
23 and other supports required to comply with this requirement. This requirement
24 does not apply to bundles within metallic enclosures such as equipment racks or
25 conduit.
26
- 27 • All cables not fully enclosed in conduit shall be rated for use in a return air
28 plenum.
29
- 30 • Prior to submitting a proposal, the Offeror shall carefully review all existing site
31 conditions. The Offeror will be solely responsible for field verifying all
32 dimensions, existing conditions, pathways, etc. The Offeror will be solely
33 responsible for insuring that all furniture, racks and other devices can be moved
34 into the building. The Offeror shall field verify all conduits, device boxes, power
35 requirements, etc. The Offeror shall field verify all obstructed conditions that may
36 effect mounting or installation of equipment. The Offeror will be responsible for
37 insuring that all lenses provided for all projectors are suitable to display the image
38 size (usually the screen size) required. By submitting a proposal, the Offeror
39 affirms positively that they have reviewed all site conditions and that no further
40 costs will be incurred by the University with relation to site conditions.
41
- 42 • It is a requirement that all Offerors have active e-mail accounts available to aid in
43 project administration. The Offeror shall provide a list of email addresses for all
44 project personnel. Notices and other information sent to Offeror by email shall be

1 considered the same as notices and information delivered in writing. Email
2 accounts shall be capable of accepting file attachments of up to ten megabytes.
3

- 4 • In order to adequately administer this project, Offerors shall have the following
5 software (or approved equal):
6

7 Microsoft Office
8 AutoCAD
9 Email
10 Adobe Acrobat
11

12 **Completion Time and Liquidated Damages**

13 This project shall be substantially completed on or before the date specified in the Project
14 Timeline. If the Contractor finds it impossible to complete the work on or before the said
15 date of completion, the Contractor may make a written request to the Contract
16 Administrator for an extension of time setting forth therein the reasons for the request. If
17 the University finds that the work was delayed because of conditions beyond the control
18 and without the fault of the Contractor the University may extend the date of completion
19 in such amount as, in the University's judgment, the conditions warrant. The new date of
20 completion shall then be in full force and affect the same as though it were the original
21 date of completion.
22

23 Time is an essential element of the contract and it is important that the work be pressed
24 vigorously to completion. The cost to the University of administration of the contract,
25 inspection and supervision will be increased as the time occupied in the work is
26 lengthened. Therefore, for each calendar day that any work shall remain uncompleted
27 after the substantial completion date, \$500.00 per day shall be deducted from any money
28 due the Contractor, not as a penalty but as liquidated damages, provided, however, that
29 due account shall be taken of any adjustment of the date of completion granted under the
30 provisions of this section.
31

32 **Equipment Availability / Price Increases**

33 The Offeror shall verify manufacturers' availability and cost of all equipment proposed,
34 including equipment specified herein. Cost increases shall not be allowed due to
35 manufacturers' cost increases, shipping cost increases, etc., or for substitutions required
36 because of unavailability of proposed equipment.

37 If during the time frame of the contract and prior to Contractor's procurement of a
38 particular piece of equipment, there is a price reduction, the price reduction will be
39 proportionately passed through to the University.
40

41 **Freight**

42 Drop shipment of equipment to the University's site directly from the manufacturer, or
43 other supplier will not be allowed.
44

1 **Training**

2 Training shall be included as part of the proposal at no additional cost. The University
3 reserves the right at its sole discretion to purchase additional training, purchase less
4 training or delete training entirely based on its own best interests.

5
6 **Documentation**

7 The Offeror shall provide an itemization of all costs associated with providing complete
8 “as built” documentation for all systems and equipment specified herein, and in the
9 format as specified herein. Included in this package shall be all system flows, rack
10 elevations, block diagrams, detail drawings, shop drawings and wire run lists. Drawing
11 documentation shall be provided in AutoCAD Release 14 or higher.

12 Contractor shall provide two (2) electronic copies of all software including control
13 systems, audio processors and other programmable devices. Two (2) copies shall be
14 provided on CD-ROM. Printed copies shall be provided on Mylar, along with two blue
15 line or black line copies. All manuals shall be provided using Microsoft Word 98/2000 or
16 Excel 98/2000 as appropriate. The Contractor shall provide copies of manuals as noted
17 below.

18 The University reserves the right at its sole discretion to purchase additional
19 documentation, purchase less documentation or delete documentation entirely based on
20 its own best interests.

21
22 **STANDARDS AND CODES**

23
24 **OSHA, State, and Local Regulations**

25 The Offeror shall verify that the items proposed meet and/or exceed all Federal
26 Regulations, Maine Codes and University specifications and standards as of the date of
27 their proposal.

28
29 The Contractor shall adhere to the Occupational Safety and Health Administration's
30 (OSHA's) most recently published Safety and Health Regulations for Construction (29
31 CFR 1926) and general Occupational Safety and Health Standards (29 CFR 1910) for the
32 duration of this Contract. If the contractor will be using electrical circuits that are not
33 part of a building or structure and not equipped with ground fault interrupt systems, two
34 copies of the Contractor's written Assured Equipment Grounding Conductor Program
35 shall also be submitted to the University before the first application for payment.

36 Prior to the commencement of any phase of work under this Contract, the Contractor will
37 submit the name(s) of the person(s) who is(are) designated as being responsible for job
38 site safety under this contract and is(are) familiar with the above referenced OSHA
39 regulations.

40 Contractor shall insure that all equipment, including but not limited to, tools, scaffolding,
41 ladders, and rigging are in proper working condition and comply with applicable law.

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1 If the University, in its sole judgment, determines that any additional protection is
2 necessary, Contractor shall provide the same at no additional charge. Contractor shall be
3 considered to have materially breached this Agreement if any safety and health standards
4 or regulations have been breached by Contractor.

5 All Contractors and Subcontractors shall conform to the labor laws of the State of Maine,
6 and all other laws, ordinances, and legal requirements affecting the work in Maine. A
7 wage scale prepared by the State of Maine Department of Labor, Bureau of Labor
8 Standards is included in the Contract Documents. This wage scale represents the
9 minimum wages that must be paid to each category of laborers, workers and mechanics
10 used in the performance of this contract. In the employment of Laborers, preference shall
11 first be given to residents of the State who are qualified to perform the work to which the
12 employment relates, and if they cannot be obtained in sufficient numbers, then to citizens
13 of the United States.

14
15 **Lockout/Tag Out**

16 In accordance with the Occupational Safety and Health Administration's ("OSHA's")
17 Lockout/Tag out Standard (29 CFR 1910.147), Contractor(s) involved in operations
18 related to equipment or machinery lockout that affect the University's employees or other
19 contractors at the work site shall submit their Energy Control Procedures to the
20 University and train affected employees of the University prior to the time Contractor
21 begins work pursuant to this Agreement. If Contractor does not have a Lockout/Tag out
22 program, which meets the OSHA standard, Contractor shall develop a program that meets
23 OSHA standards prior to commencing work on this project. The cost of training will be
24 the responsibility of Contractor.

25
26 **Hazardous Materials Precautions**

27 Where any of the Contractor's operations occur in, on, or within 50 feet of any door,
28 window, air intake in a building occupied by University employees or students, the
29 Contractor shall, not less than 14 days prior to the start of any operation, provide directly
30 to the University (with copies to the Architect) Material Safety Data Sheets on
31 all materials to be used in the operation that may be classified as hazardous under
32 OSHA's Hazard Communication Standard (29 CFR 1200)

33 The disposal of hazardous or contaminated waste as defined by US EPA and Maine DEP,
34 including but not limited to solvents, degreasers, contaminated solids, batteries,
35 capacitors, Freon, filters, asbestos, fuels, PCB's, pesticides, acids, caustics, sealant,
36 adhesives, paints, strippers, and petroleum based liquids, used in the process of
37 performing the work shall be the responsibility of Contractor as the generator in
38 accordance with any federal, state, or local law governing hazardous or contaminated
39 waste. No such waste shall be disposed of in the disposal containers or disposal system of
40 the University.

41 If any hazardous materials, as defined by federal, state or local law, are discharged by
42 Contractor on University or non-University premises, Contractor shall notify the
43 University immediately and shall take full responsibility for all necessary remedial action
44 at its sole expense in compliance with the requirements of all applicable federal, state

1 and/or local laws, regulations, rules and ordinances and in accordance with University
2 policies and procedures. Without limitation of the foregoing, Contractor shall keep
3 University fully informed of any discharge and the remedial action being taken, and shall
4 provide the University with such assurances as it may require concerning public safety
5 and the environment. The University also reserves to itself the right to clean up at the
6 expense of Contractor. This right includes, without limitation, approving cleanup
7 contractors and procedures, and monitoring the work.
8

9 **University Policies and Procedures**

10 In performing the work, Contractor shall comply with University safety policies and
11 procedures, including without limitation those concerning general fire and life safety,
12 security and maintenance of the physical plant. Contractor shall routinely survey the
13 work area and adjacent space to identify and correct potentially hazardous situations.
14

15 If the University permits the Contractor to use any of the University's equipment, tools,
16 or facilities, such use will be gratuitous, and the Contractor shall release the University
17 from any responsibility arising from claims for personal injuries, including death, arising
18 out of the use of such equipment, tools, or facilities, irrespective of the condition thereof
19 or any negligence on the part of the University in permitting their use.
20

21 **Utilities**

22 In performing the work, Contractor shall not interfere with any utility service (electricity,
23 water, gas, steam, etc.), or interfere with any fire protection system, without the prior
24 consent of the University. Contractor shall not cause or produce any unusual, noxious or
25 objectionable smokes, gasses, vapors or odors; overload any floor, ceiling, wall or
26 fixture; remove, replace or install any locks; perform any act which might invalidate any
27 insurance policies carried by either the University or Contractor; commit any nuisance or
28 trespass; interfere with the effectiveness or accessibility of any building, mechanical, or
29 electrical systems other than as necessary to perform the work; or mar, deface or damage
30 any University property.
31

32 **Flammability**

33 Whenever required, all materials used in the fabrication or installation of the goods
34 quoted shall have been tested and meet Maine State Fire Marshal's Office. Such materials
35 must meet the standards set forth in the most recent edition of NFPA's standards.
36

37 **Codes**

38 The Contractor shall give all notices required by, and comply with, all applicable laws,
39 ordinances, codes, rules and regulations and shall obtain and pay for all required permits
40 before commencing work.
41

42 The Contractor shall, at his own expense, pay for the services of any inspector which the
43 Contractor, under any applicable law, ordinance, rule, regulation or code, may be
44 required to employ or order, the Contractor may be obliged to furnish as a condition to
45 obtaining any such license or permit. It shall be the obligation of the Contractor to make

1 all necessary applications and to take all steps for the securing of permits of licenses, at
2 his own expense, and to receive all necessary permits of licenses before commencing the
3 applicable work.

4
5 The Contractor shall comply with applicable laws and ordinances governing the disposal
6 of materials, debris, rubbish and trash, on or off the job site, and shall commit no trespass
7 on any public or private property in any operations due to, or connected with this
8 Contract.

9
10 Wherein this specification and codes conflict, the more stringent shall take precedence
11 whether or not specifically enumerated herein.

12
13 **Standards**

14 All systems proposed herein shall meet the best commercial practices of the applicable
15 industries, except where alternatives are noted.

16
17 **Publications of issues of the following standards form a part of this specification**

- 18
19 • American Institute of Architects (AIA)
20 • Americans with Disabilities Act (ADA)
21 • American National Standards Institute (ANSI)
22 • Audio Engineering Society (AES)
23 • Building Industries Consulting Services International (BICSI)
24 • Computer Security Institute (CSI)
25 • Electronic Industries Association (EIA)
26 • Federal Communications Commission (FCC)
27 • Institute of Cable Engineers (ICEA)
28 • Institute of Electrical and Electronic Engineers (IEEE)
29 • International Standards Organization (ISO)
30 • International Telecommunications Union (ITU)
31 • National Association of Broadcasters (NAB)
32 • National Electric Code (NEC)
33 • National Electrical Manufacturers Association (NEMA)
34 • National Fire Protection Association (NFPA)
35 • National Institute for Certification in Engineering Technology (NICET)
36 • Occupational Safety and Health Administration (OSHA)
37 • Society of Motion Picture and Television Engineers (SMPTE)
38 • Telecommunications Industry Association (TIA)
39 • Underwriters Laboratories (UL)
40 • Nationally recognized standards of the various construction trades, as may be
41 applicable.

42 References shall mean to the latest edition of that standard.

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Subcontractors

The Contractor agrees that the Contractor is as fully responsible to the University for the acts and omissions of persons directly employed by the Contractor. The Contractor agrees to pay the Subcontractor or Material Supplier all monies requisitioned from the University as a result of invoices or billings from the Subcontractor or Material Supplier within seven (7) days of receipt of payment from the University.

Patents, Copyrights, Trademarks and Trade Secrets

Contractor warrants that the sale, use of, or incorporation into manufactured products of all goods furnished hereunder which are not of the University's design, composition or manufacture shall be free and clear of infringement of any valid patent, copyright, trademark, trade secret or other proprietary right. Contractor shall indemnify and hold the University harmless from any and all liability and/or loss of any kind (and the cost and expenses, including without limitation attorney's fees) arising out of any claim, suit or action alleging or arising out of any such infringement, which claim, suit or action Contractor agrees to compromise or defend at the University's request.

By submitting a proposal you hereby affirm and agree to the following:

- a) The term software shall consist of all commercially and non-commercially available and customized products, codes, user interfaces whether graphical or otherwise, macros, scripts and other components of assembly, machine, logic compilers debuggers, loaders, linkers utilities or compiled software languages meant to run on any type of processor whether enumerated herein or not, or any device whether hard or soft normally considered any part of the Open System Interconnection model with the sole exception of embedded processor code.
- b) Contractor may incorporate into its work product under this Agreement certain software, programming, documents and other technology that has either previously been authored or created by Contractor or is pre-existing and owned by third parties. Such intellectual property shall be deemed "Contractor Intellectual Property," and shall not be owned by the University. Contractor hereby grants to the University a perpetual, royalty-free, non-exclusive license to make, use, and copy any Contractor Intellectual Property, including programming, source code, object code, documentation, upgrades, revisions, modifications, and any related materials. The University does not retain the right to sell or provide copies of "Contractor Intellectual property" to a non-University entity. Contractor agrees that the University shall have the right to modify Contractor Intellectual Property and to use and combine such modifications with the System or other University work product. Contractor is not liable for the effects of modifications of Contractor Intellectual Property by the University.
- c) The University may supply to the Contractor or allow the Contractor to use certain proprietary information, including service marks, logos, graphics, software, documents and business information and plans that have previously

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1 been authored or created by University or are pre-existing and owned by the
2 University. Such intellectual property shall be deemed "University Intellectual
3 Property," shall be owned by the University and shall not used by Contractor for
4 any purposes other than University purposes in keeping with Contractor's
5 obligations under this Agreement.

6 d) The University may make unlimited copies of the software for archive and back
7 up purposes.

8 e) The University may make changes or modifications of the software as it deems
9 fit. It is understood that any changes made to the software by the University voids
10 all warranties in relation to the software and relieves the Contractor of any
11 responsibility with regards to the software.

12 f) The Contractor hereby relinquishes any further rights to the software except as
13 covered and conveyed under warranty or applicable state or federal law.

14 g) The University will not reimburse the Contractor for software development costs
15 outside of this contract nor will the University be liable for any damages incurred
16 by the Contractor due to the University's use of the software.

17 All software as defined herein shall be turned over to the University on removable media
18 for archiving.

19
20 **Contract Security**

21 Contractor may be required, at the option of the University, to furnish any or all of the
22 following bonds: (i) a performance bond in an amount not less than one hundred percent
23 (100%) of the contract price as security for the faithful performance of the contract; (ii) a
24 payment bond in an amount not less than one hundred percent (100%) of the contract
25 price as security for the payment of all persons furnishing materials and equipment in
26 connection with the contract; (iii) a lien bond in an amount not less than one hundred
27 percent (100%) of the contract price, in the form provided in M.G.L. ch. 254, sec. 12,
28 protecting the University against the consequences of any liens filed in connection with
29 this project. **THE OFFEROR SHALL SEGREGATE AND STATE THE COST OF THE**
30 **ABOVE BONDS IN THE PROPOSAL.**

31
32 **Release of Liens**

33 Lien release(s) must be provided to the University prior to final payment. Neither the
34 final payment nor any part of the retained percentage shall become due until the
35 Contractor shall deliver to the University a complete release of all liens arising out of this
36 contract, or receipts in full in lieu thereof, and, in either case, an affidavit that so far as
37 the Contractor has knowledge or information the releases and receipts include all the
38 labor and material for which a lien could be filed. Contractor may, if any subcontractor
39 refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner, to
40 indemnify the Owner against any lien. If any lien remains unsatisfied after all payments
41 are made, the Contractor shall refund to the Owner all moneys that the latter may be

1 compelled to pay in discharging such a lien, including all costs and a reasonable
2 attorney's fee.

3
4 **Changes in the work**

5 The University may make changes in the scope of the work required to be performed by
6 the Contractor by making additions thereto, or by omitting work, without invalidating the
7 contract and without relieving or releasing the Contractor from any of its obligations
8 under the Contract, or any guarantee given by Contractor pursuant to the Contract
9 provisions.

10 Except for the purpose of affording protection against any emergency endangering life or
11 property, the Contractor shall make no change in the work, provide any extra or
12 additional work, or supply additional labor, services, or materials beyond that actually
13 required for the execution of the Contract, unless in pursuance of a written order from the
14 University authorizing the change.

15
16 **Payment to Contractor**

17 For purposes of payment **substantial completion** (which is not project completion) shall
18 be defined as:

- 19
- 20 • All equipment installed and operational and integrated into the system, no
21 equipment missing from the site. Control system program installed and operating
22 the equipment,
23
 - 24 • All systems tested by both the Contractor and University or its Consultant and
25 punch list is generated,
26
 - 27 • Draft as-built documentation available for examination with one copy left on site,
28
 - 29 • University makes beneficial use of the equipment,
30
 - 31 • Site is clean of all installation materials.
32

33 **Final completion** is defined as the above plus:

- 34
- 35 • All punch list items complete and signed off by the University.
36 .
 - 37 • Acceptance Testing as defined herein
38
 - 39 • Delivery and acceptance of all manuals, as-built documentation, inventory and
40 other documents as defined in the specifications,
41
 - 42 • University has received training.

1 **Acceptance Testing**

2 The acceptance tests required to demonstrate that performance specifications can
3 be met must be carried out in exacting accordance with the capabilities as
4 described in the user and technical documentation/operation manuals(s) delivered
5 with the audiovisual systems or submitted with the proposal response. Failure to
6 satisfy this acceptance test may result in rejection of the audiovisual system with
7 no financial obligation incurred by the University.
8

9 **Payment terms**

- 10
- 11 • Payment schedule can be AIA billing based on progress and equipment received
12 with a 10% hold out for final completion. Or:
 - 13
 - 14 • 33% upon award
 - 15
 - 16 • 33% upon equipment delivery to University (with all equipment received and
17 assembled at shop in a working system)
 - 18
 - 19 • 24% upon substantial completion or the beginning of beneficial use (whichever
20 comes first) by the University
 - 21
 - 22 • 10% upon completion of all punch list items and delivering all documentation to
23 the University with a copy to the Consultant.

24

25 **Warranty**

26 Warranty begins upon acceptance of final completion, not substantial completion.
27

28

29 **SECTION 4 – GENERAL SPECIFICATIONS**

30

31 Except as specifically noted otherwise, Work under this contract includes:

32 Provision of specified labor, materials and equipment,

- 33 1. Provision of necessary labor, tools and supplies to complete the installation of
34 all systems enumerated herein. Include labor necessary to assemble University
35 furnished equipment components as normally received from the manufacturer,
36 into a correctly assembled and functioning equipment item,
- 37 2. Provision of necessary project management and supervisory personnel to
38 coordinate, manage and oversee all activities,
- 39 3. Provision of technical and clerical personnel to handle equipment
40 procurement, inventory and tracking,

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- 1 4. Provision of design and drafting personnel to maintain complete systems
2 documentation, and to provide as-built drawings,
- 3 5. Provision of technical personnel to test and align all equipment and systems,
4 and to support the University through final testing and acceptance,
- 5 6. Provision of manufacturer support personnel, as not covered by other
6 contracts, as required,
- 7 7. Provision of tools, construction equipment and machinery,
- 8 8. Provision of other facilities and services necessary for proper execution and
9 completion of the work,
- 10 9. Paying all required sales or use taxes. The University is tax exempt,
- 11 10. Securing and pay for all permits, government fees and licenses, as required for
12 proper execution of the Contract.
- 13 11. Giving any required notices,
- 14 12. Complying with all codes, ordinances, rules, regulations, orders and other
15 legal requirements of public authorities which relate to the Contract,
- 16 13. Within forty-eight (48) hours submitting written notice to University of
17 observed variances of Contract documents from legal requirements,
- 18 14. The Contractor shall appoint a single person to act as Project Manager. This
19 person will be responsible for all communication between the Contractor,
20 University and Consultant. This person will be responsible for insuring that
21 the schedule will be met. The project manager will be responsible for insuring
22 the quality of the work performed and implementation of the terms of the
23 contract documents.

24 **Site Condition**

25 It is expected that work performed under this Contract will be performed at a time when
26 construction of the building is complete. Contractors performing work under this
27 Contract are advised that they are liable for any damage caused to the building due to
28 accident, neglect or abuse. The Contractor will be responsible for repairing or replacing
29 building structure, materials, equipment and furnishings, and restoring these items to the
30 condition they were in prior to the damage.

31 The Contractor under this specification is responsible for replacing all ceiling tiles
32 removed, as well as all fire stops encountered while running cables. The Contractor is
33 responsible for cleaning debris generated during installation, and restoring the rooms to
34 the condition in which they were found.

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1 Therefore, prior to start of installation in any room, Contractor shall document the
2 condition of the room. Use form PR-2 to document the condition of the room. Attach
3 color photographs showing existing conditions and have University's contract
4 administrator witness the report. Two copies of the report shall be made, one copy filed
5 with the University's contract administrator, the other kept on file at the project site.
6 When work is completed in a room, have the University certify that no damage has
7 occurred, or all damage has been repaired. The University reserves the right to withhold
8 proportional payment as compensation until all damages have been repaired. Payment
9 withheld will be determined by the University based on the value of repairing the
10 damage.

11 **Use of Site**

12 All work shall be performed without unnecessary interference to the University's use of
13 the site or premises. Contractor shall confine operations at the site areas permitted by law,
14 ordinances, permit and this Agreement, and shall not unreasonably encumber the site
15 with any materials or equipment.

16 **Access to Premises**

17 The University will provide Contractor reasonable access to the premises. To the extent
18 that the premises in which services will be performed under this Agreement consists of
19 student classrooms, offices, halls, and/or common areas, access may be limited to times
20 agreed upon by the University in advance. The University must have access to the site at
21 all times to inspect and approve of the work conducted on the premises.

22 The Contractor shall assume full responsibility for the protection and safekeeping of
23 products under this Contract, stored on and off the site.

24 **Execution of work**

25 The Contractor recognizes that the building may be occupied during the Contractor's
26 performance of the work, and/or that other contractors may be working at the building
27 site concurrently with the Contractor. The Contractor agrees to coordinate the scheduling
28 of its work with the requirements of the University for the use of the building and of such
29 other contractors. The Contractor agrees that the University shall have no liability to
30 Contractor for delay damages arising out of or in connection with delays in the
31 Contractor's work due to such coordination or lack thereof, or scheduling changes to the
32 work of other contractors.

33 Access to the project site will generally be available from Monday through Friday, 7:00
34 AM to 5:00 PM, local time. The Contractor shall coordinate site access with the
35 University. The Contractor shall request coordination of any unusual access times or
36 other requirements with the University as stated above as far in advance as possible.

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1 The Contractor shall obtain passes, as required, by the University for each designated
2 employee or sub-contractor who may require job site access. The Contractor shall be
3 permitted access to the site through University designated security checkpoints. Keys or
4 card access will not be provided to the Contractor for access to the work area.

5 Lavatory facilities will be made available to the Contractor by the University.

6 The University shall provide fire suppression equipment during the construction phase as
7 required.

8 Subject to the Contractor's coordination obligation, the Contractor may use available
9 space, for office, storage and workshop space. Alternatively, the Contractor, at its own
10 expense may obtain other space as required off the project site.

11 The University will store all University Furnished Equipment (UFE) items until they are
12 needed and requested by the Contractor. Equipment and materials that are not UFE shall
13 be stored by the Contractor.

14 The Contractor shall review the drawings, and any as-built conditions regarding room
15 location, access, hallways and loading docks. It is understood that certain large
16 equipment items such as racks, consoles, furniture and such will require suitable
17 pathways in order to enter the building and to be moved to their final location. The
18 Contractor shall be responsible for coordinating access through these passages with the
19 University. It is the Contractor's responsibility to move all equipment from its load-in or
20 other origin to its final location within the building.

21 The Contractor shall construct work in stages as required to accommodate the
22 University's use of the premises during the construction period; coordinate the
23 construction schedule and operations with the University.

24 The Contractor shall construct the work in a manner to provide for convenience of other
25 Contractors and, as applicable, the public. The Contractor shall not close off such access
26 to or use of facilities until Contractor's completion of one stage of construction provides
27 alternative access or usage.

28 The Contractor shall afford other trades reasonable opportunity for the installation of
29 work, and storage of materials.

30 The Contractor shall abide by the decision of the University in case of conflict or
31 interference by other trades.

32 The Contractor shall staff the job to keep pace with other trades and with work schedule.
33 Otherwise, at the University's discretion an increase in force or overtime work may be
34 required without additional expense to the University.

35 The Contractor shall not build system racks on the job site without the direct consent of
36 the University. The Contractor shall wire all equipment racks and fabricate all equipment

1 subassemblies at off-site facilities. The Contractor shall fully test all equipment
2 subassemblies before delivery to the job site. The Contractor shall limit work at the job
3 site to mounting, interconnecting and system-level testing of equipment. The Contractor
4 shall certify to the University the satisfactory performance of completed equipment
5 assemblies before their shipment to the installation site. The Contractor shall permit the
6 University to witness the off-site testing of such equipment assemblies.

7 The wiring shall be installed at a time when construction is substantially complete so that
8 the wiring shall not be exposed to any potential damage.

9 Any construction that deviates from the drawings and impedes the progress of the
10 installation shall immediately be brought to the attention of the University.

11 **Identification of Employees**

12 Each employee of the Contractor is to carry appropriate identification as prepared by
13 Contractor. Identification information will include the employee's full name, photograph,
14 company name, address, telephone number and the name of the employee's immediate
15 supervisor.

16 **University Furnished Equipment (UFE)**

17 Certain products may be furnished and paid for by the University as described in the
18 Specifications and/or the Drawings.

19 Equipment provided by the University will be in working condition. The Contractor shall
20 exercise due care in handling the University Furnished Equipment (UFE) and shall be
21 held responsible for repair or replacement of any item damaged as a result of negligence.
22 If equipment operational defects arise through no negligence of the Contractor, the
23 Contractor shall not be responsible for correction of such defects. The University will
24 provide a remedy. The Contractor shall integrate University furnished products into the
25 system as required in the contract documents. The Contractor shall advise University if
26 product(s) furnished are not suitable for the application intended.

27 The University reserves the right to procure under separate contract and to require the
28 Contractor to install, or install equipment into (as outlined on the documents) the
29 following equipment:

- 30 1. Computers
- 31 2. Projection screens
- 32 3. Electrical Services
- 33 4. Data Services
- 34 5. Lecterns and podiums
- 35 6. Various pieces of furniture as shown on the contract documents

1 Warranty and Guarantee

2 The Contractor warrants to the University that all material and equipment furnished under
3 this contract will be new unless otherwise specified in the Contract documents and that
4 all work will be free of defects and in conformance with the contract documents. The
5 Contractor shall guarantee the Work for a period of one (1) year from the date of the
6 acceptance of final completion, and upon written notice shall remedy all the defects and
7 pay all expenses for any damage to their work resulting there from. Neither the final
8 payment nor any provisions in the Contract shall operate to void the guarantee obligation.
9 This guarantee is in addition to, not in limitation of, University's remedies at Law or in
10 Equity.

11 All equipment shall be governed by the terms of the manufacturer's original warranty. If
12 a manufacturer's warranty exceeds any of the above, its effect shall not be diminished by
13 any of the above.

14 Electronic devices whose performance deteriorates due to drift during the warranty
15 period shall be considered defective, requiring alignment or other repair or replacement at
16 no charge to the University. If any device fails, due to no fault of the University, more
17 than three times during the warranty period, it shall be considered a "lemon" and be
18 replaced, or credited to the University against replacement or similar equipment.

19 With this warranty, and at no additional charge, the Contractor shall provide preventive
20 maintenance service for a period of one year from final acceptance of the system. During
21 this one-year period, the Contractor shall provide quarterly visits to the site for preventive
22 maintenance and general system review. Contractor shall notify the University in writing
23 of all service and corrective measures taken during the site visits.

24 The Contractor shall provide on-site warranty service as specified above at the
25 University's location regardless of the terms of any manufacturer's warranty.

26 If an equipment item cannot be readily repaired within forty-eight (48) hours, upon
27 request, the Contractor shall provide a suitable replacement unit at no charge. The
28 Contractor shall install this replacement in a timely fashion so that system operation is
29 restored within a 48-hour period from the initial failure. The Contractor shall permit such
30 replacement to remain available to the University until the original unit is repaired and
31 reinstalled.

32 Proposals shall include the cost of second year extended warranty as a separate
33 alternative. Provide a list of any items not covered under second year warranty.

34 Project Meetings and Reports

35 All work must be installed by the appropriate skilled personnel.

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1 The Contractor will attend job site meetings on a regular basis with building trades, other
2 technology contractors or the University, upon request, regardless of their home office
3 location. Project meetings may be weekly on request of the University.

4 A report shall be required indicating job progress, and identification of significant issues.
5 The report shall be submitted to the University and its Consultant. The Contractor shall
6 submit form PR-1A (see Appendix 1) every week by Monday 3 PM starting three weeks
7 after contract award until acceptance of final completion. Contractors shall file special
8 reports when significant project issues arise.

9 If a report is due on a University holiday, the Contractor will have until the next business
10 day immediately after the holiday to file the report.

11 Address and location for submittal of reports will be provided upon contract award.
12 **Failure to submit reports more than two times when due, will result in a \$50.00**
13 **penalty (deduct from contract price) for each week that the Contractor is in arrears.**

14 The Contractor shall maintain a complete set of system drawings, reports and
15 specifications at the job site at all times

16 **Submittals required during Contract Performance**

17 The following documentation shall be submitted as required throughout the performance
18 of this contract, or as otherwise designated by the University:

19 All drawings contained in these contract documents will be provided to the Contractor in
20 AutoCad or DXF format. (IBM compatible or Macintosh.)

21 *Subsequent issues of the drawings must incorporate the current title block, along with the*
22 *copyright notices shown on the attached print sets. The University's name, address and*
23 *logo must appear on all documentation relating to this project.*

24 The Contractor shall provide any additional details required providing sufficient
25 information for construction and servicing of the systems. Additional detail may include
26 wire numbers and/or pin-outs of multi-pin connectors. The Contractor shall provide other
27 items required giving installation and service personnel sufficient information to install
28 the systems in an efficient and cost-effective manner.

29 The following documentation is required for Architect, Consultant and University
30 approval prior to fabrication and installation. For each submittal, the Contractor shall
31 provide two copies and one electronic copy.

- 32 1. Detailed flows and wire diagrams including wire numbers and pin-outs of
33 multi-pin connectors. In addition to the flows included with the contract
34 documents, provide complete control, data or other flows required fully
35 documenting all wiring and equipment placement in the system.

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1 The Contractor shall provide draft copies of all documentation for inspection **at least five**
2 **business days before** demonstration and acceptance testing of the system. The
3 Contractor shall provide finished copies, in the required quantities, **within 30 days**
4 **thereafter.**

5 The final documentation package shall include at minimum, and as applicable, all
6 drawings issued as part of the contract documents and all shop drawings produced by the
7 Contractor. For each series of drawings listed below, the Contractor shall provide:

- 8 Loudspeaker mounting and aiming details,
- 9 Projector(s) and monitor(s) mounting detail(s),
- 10 Control panel(s) and touch screen layout and finishes,
- 11 Switch panel(s) layout and finishes,
- 12 Connector panel(s) layout and finishes,
- 13 Rack layouts and finishes,
- 14 Cabling colors and lengths for patch cords,
- 15 Custom software.

16 The Contractor shall provide the following drawings at minimum, and as applicable:

- 17 A. Series 100 Drawings: Provide receptacle location plan, keyed to the architectural
18 floor plans. Indicate the location and designation of all receptacles, equipment
19 racks and other equipment as required.
- 20 B. Series 200 Drawings: Provide as built wire and cable riser diagrams.
- 21 C. Series 300 Drawings: Provide rack elevations keyed to the block diagrams
22 showing the location of all equipment installed.
- 23 D. Series 400 Drawings: These are conceptual drawings, included for information
24 only. They should be included in the final print set.
- 25 E. Series 500 Drawings: Provide complete as-built audio systems.
- 26 F. Series 600 Drawings: Provide complete as-built control systems.
- 27 G. Series 800 Drawings: Provide complete as-built communications.
- 28 H. Series 1000 Drawings: Provide complete as-built GPI and tally systems.
- 29 I. Series 1100 Drawings: Provide complete as-built video systems.
- 30 J. Series 1200 Drawings: Provide complete as-built synchronization systems.
- 31 K. Series 1300 Drawings: Provide complete as-built data network system.

- 1 L. Series 1500, 1600 and 1700 Drawings: Provide layout of all patch panels and
2 fiber interconnect panels. Indicate the exact nomenclature to be used on the patch
3 panel labels. Obtain University's approval prior to printing and installing patch
4 panel labels.
- 5 M. Series 1800 Drawing: Show any special chassis or other mechanical fabrication
6 required.
- 7 N. Series 1900 Drawings: Provide schematic-wiring diagrams of all custom circuits,
8 including a part list of all components used in the custom circuits.
- 9 O. Series 2000 drawings: Provide structural and mounting details of all projectors,
10 loudspeakers and racks and any other items as appropriate.
- 11 P. Series 2300 Drawings: Provide complete as-built RF systems, including details of
12 any custom circuitry. Provide detailed block diagrams showing the
13 interconnection of all equipment components and functional relationships.

14 ***Technical Manuals***

15 The Contractor shall provide three copies of detailed technical manuals, tab indexed,
16 containing the information necessary for the performance of routine maintenance by the
17 University's staff, as well as corrective maintenance and upgrading by the Contractor's
18 (or other qualified) technicians. To this end, include the following information:

- 19 1. Table of contents;
- 20 2. General system description(s) and block diagram(s);
- 21 3. Detailed system descriptions;
- 22 4. Detailed as-built system wiring diagram and cable schedule. Include a set of
23 simplified line diagrams showing the essential parts of the completed
24 installation, by room, and their functional relationship;
- 25 5. A list of settings and adjustments for semi-fixed controls;
- 26 6. A list of equipment incorporated, including manufacturer, model number, and
27 serial number where applicable;
- 28 7. A printed listing of all graphic user interfaces. Provide two copies on diskette
29 of all control software and control panel configurations;
- 30 8. A list of any special tools or test equipment necessary for system
31 maintenance;

- 1 9. A list of consumables and spare parts (fuses, lamps, etc). Show recommended
2 stock levels for each item;
- 3 10. A list of manufacturers with addresses and telephone numbers;
- 4 11. Manufacturer's specifications, operating instructions and service information
5 sheets, arranged alphabetically. Bind these documents separately from the
6 other sections of the manuals described above;
- 7 12. Two sets of service manuals for each type of tape or disk transport, projector,
8 monitor, switcher, router, audio mixer/console, distribution equipment,
9 graphics equipment, printer and scanner if available from the manufacturer
10 without charge.
- 11 13. Completed warranty cards from all equipment furnished.

12 ***Operating Manuals***

13 The Contractor shall provide three copies of complete instructions for operating all
14 systems in all modes of operation and as necessary to fulfill all functional requirements.
15 Include one un-bound original.

16 Operating manuals shall include:

- 17 1. System operation in all modes including step-by-step instructions,
- 18 2. System troubleshooting including systematic instructions on how to solve
19 common problems.

20 ***Line Diagrams***

21 The Contractor shall mount one copy of simplified line diagrams behind clear plastic.
22 The Contractor shall mount the diagrams on the wall near the equipment racks, or inside
23 the console or lectern. The line diagram will include all wire numbers.

24 ***Equipment Inventory***

25 The Contractor shall provide a complete inventory of all equipment provided and
26 installed on this project including University Furnished Equipment. As part of the
27 equipment installation, the Contractor shall affix University provided inventory tags to all
28 the equipment. The Contractor shall track all equipment inventories with an Excel
29 spreadsheet. The spreadsheet shall contain the following fields (columns)

- 30 1. Building
- 31 2. Room Number
- 32 3. Manufacturer
- 33 4. Model Number

- 1 5. Serial Number
- 2 6. Inventory Tag number

3 The Contractor shall confirm format of spreadsheet with University prior to entering data.

4 **Training**

5 Training shall be included as part of the overall proposal cost. Specific details regarding
6 the training program that the Offeror will provide shall be included as part of the proposal
7 response.

8 Training is not required for each individual room. Training is required for each type of
9 system installed, as defined in the RFP.

10 At minimum, training shall include the set-up and operation of all the systems. In
11 addition, the training shall include routine maintenance and operational adjustments. The
12 thoroughness of the training program shall be a factor in consideration of proposals from
13 Offerors.

14 Final “as built” documentation must be available at the job site for all training sessions.

15 The Contractor shall provide training materials free from any copyright restrictions, and
16 upon request from the University, furnish a reproducible set of these materials.

17 Six months after completion of the installation, the Contractor shall conduct a follow-up
18 training program, consisting of one four-hour session. The Contractor shall conduct this
19 training program at the project location, and schedule at the mutual convenience of the
20 University and Contractor.

21 Six months after completion of the installation, the Contractor shall provide a control
22 system review making any minor changes to the control system as the University may
23 request based on the configuration at final completion acceptance.

24 Instruction and training for the operation and routine maintenance of the system shall be
25 provided at site, within twenty-five business days of final completion acceptance of the
26 system, at a time mutually satisfactory to the Contractor and University.

27 The training shall include system(s) and circuit functional description and the proper
28 adjustment procedure for every adjustment in the system(s).

29 The equipment will be made available by University, after delivery and acceptance, for
30 use in the instruction and training program. University will provide space for the
31 instruction and training. The Contractor shall provide the instructor(s) and all training
32 materials.

1 The instruction and training shall be scheduled not to exceed 7.5 hours each working day.
2 Instructor(s) compensation, travel, living and all other expenses incurred as the result of
3 fulfilling these requirements shall be the responsibility of the Contractor.

4 **Shop and Factory Testing**

5 The Contractor shall perform preliminary tests at their shop or factory before the system
6 is shipped to the University's site. The University may be present for these tests. These
7 tests shall include Contractor provided equipment and any University provided
8 equipment (equipment that the University shipped to the assembly site).

9 **Electronic Test Equipment**

10 The Contractor shall provide and be proficient in the usage of the following test
11 equipment for use during initial tests and adjustments and during acceptance testing and
12 final adjustment of the systems. The Contractor shall provide other test equipment as may
13 be required in other Sections of this RFP.

14 Furnish within the proposal a list identifying manufacturer, model number, serial number,
15 date of most recent calibration, and name of organization performing calibration, for each
16 piece of test equipment. Equipment without evidence of calibration within the past 12
17 months shall be considered unacceptable, unless the manufacturer indicates that a longer
18 calibration cycle applies. The unit shall have been calibrated within the manufacturer-
19 specified period. Calibration shall not be required for video monitors.

20 Continuously Variable Sine Wave Generator: Capable of 20 Hz to 20,000 Hz range
21 within ± 1 dB with less than 0.5 percent THD at 1-volt output into 600 ohms.

22 AC Voltmeter: Provide an AC Voltmeter with frequency response within ± 1 dB from 20
23 to 20,000 Hz, 0.0001 volts to 100 volts, minimum input impedance 0.1 megohm.

24 Multimeter (VOM): Provide as a separate item or include with AC voltmeter.

25 Oscilloscope: Provide an oscilloscope with at least 100 MHz bandwidth and external
26 horizontal input. Vertical sensitivity shall be 10 mV/division or less.

27 Impedance Measuring Device: This device shall be capable of measuring at 1,000 Hz and
28 within each loudspeaker's passband (at center of passband or at least one octave removed
29 from crossover frequency), minimum range 0 to 1,000 Hz

30 Light Meter: The meter shall be capable of measuring illuminance (foot-candles) and
31 luminance (footlamberts).

32 NTSC Color Video Test Signal Generator: The test signal generator shall be capable of
33 generating SMPTE color bars, multiburst, modulated ramp or stair step, and window
34 signals.

1 Video Sweep Generator: The generator shall be capable of producing sine wave
2 frequency sweep from 30 Hz to 100 MHz, locked to horizontal sync.

3 Wideband Video Distribution Amplifier: Provide a one input three output (minimum)
4 distribution amplifier with frequency response at least -3dB at 100 MHz.

5 RGB Test Signal Generator: The generator shall be capable of generating the SMPTE
6 RP-133 test pattern and window pattern on black background over entire range of
7 horizontal and vertical scan frequencies of the video projector(s) specified.

8 Waveform Monitor and Vectorscope: The monitor(s) shall provide facilities for complete
9 line select and simultaneous channel A and B display. The unit shall be able to make
10 differential phase and gain measurements. Inputs shall be able to be displayed in one or
11 two line sweeps. The vectorscope shall be able to measure SC/H phasing and color
12 framing.

13 Real Time Audio Analyzer: Shall provide a pink noise generator, a calibrated
14 microphone and graphic representation of the audio spectrum in 1/3-octave increments.

15 Connectors, Adapters, Cables, etc: Provide various adapters and cables to permit flexible
16 interconnection of test equipment and convenient, reliable connection to receptacles,
17 patch panels and amplifier terminal strips.

18 **Testing Requirements**

19 1. The Contractor shall perform proof-of-performance (POP) tests when each system
20 is substantially complete at the University's facility. The Contractor shall align
21 and test each piece of equipment, regardless of who supplied the equipment. After
22 each operational area or sub-system is tested, Contractor shall conduct technical
23 demonstrations where the University's personnel will observe, examine and
24 accept the work. The systems and sub-systems will be accepted on a progressive
25 basis. A system or sub-system may be conditionally accepted, if there is an
26 agreement with the University regarding a defined punch-list of items requiring
27 correction. In all instances, correction of technical or cosmetic deficiencies shall
28 be performed at no additional cost to the University.

29 2. The Contractor shall follow manufacturer's set-up and alignment procedures for
30 each piece of equipment furnished by the University or the Contractor.

31 3. System tests shall be performed in the presence of the University. If wiring errors
32 are discovered, they shall be corrected immediately, or documented on the punch-
33 list for later remedy.

34 4. The procedures and methods shall be documented and submitted in the system
35 proof of performance. System testing and alignment shall consist of all procedures

1 necessary to insure proper installation and operational compliance with all
2 standards and documentation. Test procedures shall include, but not be limited to:

- 3 A. Gain Adjustment for audio and video equipment,
- 4 B. Adjustment of equalization, timing and SC/H phase etc., as required,
- 5 C. Gain stage and equalize all rooms,
- 6 D. Adjustment of all switches, and configuration of all software to make the
7 equipment functional,
- 8 E. Measurements of system distortion, crosstalk, hum and noise,
- 9 F. Confirmation of all wiring,
- 10 G. Confirmation of the operation of all controls.

11 5. The equipment tests shall be performed with signal processing devices in the
12 measured signal path switched to by-pass or defeat. The equipment shall
13 otherwise be left in the circuit. Special measurements shall also be made in all
14 processing modes to demonstrate the proper operation of the processing circuits.

15 6. As part of on-site equipment testing, the Contractor shall verify correct operation
16 of all equipment functions and signal systems, for each item regardless of its
17 source. Test results shall be recorded on a checklist in a pass-fail format. Any
18 item that fails shall be corrected by either the University or Contractor (depending
19 on who supplied the equipment).

20 7. Contractor shall maintain all work areas in a clean and safe fashion at all times. At
21 the conclusion of all work, Contractor must complete to the University's
22 satisfaction, any repairs to the physical plant that may have occurred due to
23 negligence, accident or abuse. Any damage to existing surfaces such as scratches
24 to paint, stains and burns, which result from the activities of the Contractor, shall
25 be corrected to the University's satisfaction.

26 **Initial Post-Completion Tests**

27 The Contractor shall perform the following tests, as applicable for each system
28 incorporated herein.

29 **Video System**

30 *Test of Signal Routing*

31 Verify that signal flow is as intended. Verify that no cross-connection exists
32 of video, red, green, blue, and sync lines.

1 ***Test of Transmission Line Quality***

- 2 1. Employ a video sweep generator to produce a test pattern with a swept
3 frequency response from 30 Hz to 100 MHz. Test the cable run from each
4 input in the manner described below.
- 5 2. Report the calculated and measured values of gain at low frequency and
6 attenuation at 100 MHz in the report of post-completion tests.

7 ***Timing for RGBS signals***

- 8 1. Employ an RGBS test generator to produce a window test pattern with the
9 window rise time as fast as the generator will permit. Connect the green
10 channel output to the distribution amplifier, and use the amplifier outputs to
11 test the red, green and blue channels. Test the input path cable run from each
12 source in the manner described below.
- 13 2. With the oscilloscope triggering on the green channel, measure the delay
14 between the green and red channels. Verify that this delay does not exceed
15 0.75 nanoseconds. Similarly, test the green and blue channels.
- 16 3. Perform similar adjustments upon the output path cabling.
- 17 4. Report the measured values of green to red and green to blue delay in the
18 report of post-completion tests

19 ***Timing of Composite video signals***

20 Use a waveform monitor and vector scope to time all signals to the router and
21 to the switcher and other destinations requiring timed signals. Timing
22 parameters have been set forth above.

23 ***Subjective Image Quality***

24 Observe the image quality on displays throughout the system, employing
25 sources such as computers and videotape. Check for errors of linearity,
26 chroma luminance delay, signal to noise performance, blanking and gain
27 shifts. Check for RF interference, crosstalk and other imperfections. Test for
28 these errors under various operating conditions.

29 **Test of Portable Equipment:**

30 Verify the proper operation of any items of portable equipment.

1 **Audio System**

2 ***Loudspeaker Line Impedance***

3 Measure the resistance and impedance of each loudspeaker line leaving
4 the system equipment rack, with the line disconnected from its normal
5 driving source. Measure impedance within each loudspeaker's pass band
6 (at center of pass band or at least one octave removed from crossover
7 frequency). Verify that values are within ± 10 percent of the value
8 calculated for that circuit based upon the parallel impedance's/resistance's
9 of the loudspeakers connected plus the resistance of the loudspeaker line.
10 Correct any discrepancies.

11 ***Loudspeaker Phasing***

12 Perform phasing checks of loudspeaker lines by means of a DC source at
13 one end of each line and a voltmeter at the other end. Phase all
14 loudspeaker lines identically with respect to color-coding

15 ***Hum and Noise Level***

16 Measure the hum and noise levels of the overall system. Adjust gain
17 controls for optimum signal-to-noise ratio.

18 ***Electrical Distortion***

19 Load power amplifiers with resistors matching normal impedance of
20 output terminals used in system in place of actual loudspeaker loads.
21 Adjust gain controls as for hum and noise level tests. Apply 1,000 Hz
22 sine-wave signal from an oscillator having less than 0.1 percent total
23 harmonic distortion to each microphone and line level input at level
24 required producing full amplifier output. Distortion shall measure less than
25 1 percent.

26 ***Power Output and Signal Level Adjustments***

27 Measure the electrical distortion of the overall system. Adjust gain
28 controls as for the tests specified in the preceding paragraph. Apply a
29 1,000 Hz sine wave signal to the input tested, at a level required to
30 produce full amplifier output. Use a distortion analyzer to measure the
31 output level and total harmonic distortion of the amplification equipment.
32 In the absence of a distortion analyzer, a VTVM or transistor voltmeter
33 may be used to measure the output level. Lack of clipping or apparent
34 deformation of a sine-wave input signal at the power amplifier output, as
35 seen on an oscilloscope, may serve as evidence that distortion of
36 amplification and control equipment is within acceptable limits. Make all

1 measurements with loads incurred in system operation. (Power amplifier
2 loads shall use resistors equal to the nominal impedance of the output
3 terminals used in the systems.)

4 The Contractor shall also be responsible for insuring that the line and
5 microphone outputs at the wall plate will be suitable for recording with the
6 University furnished camcorders. The Contractor will be responsible for
7 providing pads and other devices to insure compatibility.

8 ***Freedom from Parasitic Oscillation and Radio-Frequency Pick-up***

9 Check to insure that the system is free from spurious oscillation and radio
10 frequency pick-up, both in the absence of any audio input signal and when
11 the system is driven to full output at 160 Hz. Employ an oscilloscope as
12 specified.

13 ***Freedom from Buzzes, Rattles, and Objectionable Distortion***

14 Apply a high quality music signal to the system. Adjust the system for
15 frequent peaks at its specified maximum sound pressure level. Apply a
16 slow sine-wave sweep from 50 to 5,000 Hz at a level of 6 dB below rated
17 power amplifier output voltage. Listen carefully for buzzes, rattles and
18 objectionable distortion. Correct any causes of these defects, unless the
19 cause is clearly outside the sound amplification system equipment and
20 installation. Under these circumstances, notify the University.

21 ***Gain Control Settings***

22 Establish tentative normal settings for all gain controls. Adjust all gain
23 controls for optimum signal to noise ratio and signal balance.

24 ***Freedom from Switching Transient Noise***

25 Eliminate audible clicks or pops produced by the operation of any
26 controls.

27 ***Equalization***

28 Measure system acoustical performance using a calibrated ANSI standard
29 type 1 or IEC precision sound level meter set for "slow" meter damping
30 except as otherwise noted, and flat response with random incidence at a
31 height of four to five feet. All interior finishes and furnishings shall be in
32 place. System gain shall be adjusted to provide levels of 70 to 80 dB and
33 at least 10 dB above background noise at the measuring locations for these
34 tests, except as otherwise noted. Include the following tests and
35 adjustments:

1 ***Frequency Response***

- 2 1. Loudspeaker frequency response shall be measured with all control
3 equalization set for flat response using 1/3 octave bands of filtered pink
4 noise centered on ANSI preferred frequencies or broadband calibrated
5 pink noise measured in 1/3 octave bands using a calibrated real time
6 analyzer.
- 7 2. Adjust equalization to provide average system response within +/-3dB of a
8 response (0 dB) which is flat from 63 to 2500 Hz and sloped uniformly
9 from 0 dB at 2500 Hz to -5 dB at 10,000 Hz.

10 ***Uniformity of Coverage***

- 11 1. Use an octave band of random noise centered at 4000 Hz as test signal
12 output to the loudspeakers.
- 13 2. Lateral uniformity shall be +/- 2 dB at all positions equidistant from the
14 front of the room.
- 15 3. Front to back uniformity shall decrease linearly within +/- 2 dB from 0 dB
16 at the front of the room to -6 dB at the rear as measured on the room's
17 centerline.

18 ***Maximum output level***

19 Take this measurement with standard "fast" meter damping. The
20 loudspeakers shall be capable of providing 100 dB SPL in the audience
21 area on axis of any high frequency horn and employing wide band
22 recorded music as a test signal.

23 ***Listening Test***

24 Listen to normal program material to be sure that there are no remaining
25 defects.

26 **Remote Controls**

27 Verify proper operation of all remote controls from all locations. Test to insure
28 that all interactions between control point's function as intended. Verify that
29 improper use of controls does not result in the control system locking-up, and that
30 damage to the control system and to the controlled equipment is prevented under
31 all conditions.

1 **Report**

2 Upon completion of the above tests and adjustments, submit two copies of a
3 written report presenting test results, including numerical values where
4 appropriate, for review by the University prior to demonstration and acceptance
5 testing. With this report, submit written certification that the installation
6 conforms to the requirements stated herein, is complete in all respects, and is
7 ready for inspection and testing by the University.

8 **Demonstration and Acceptance Testing**

- 9 1. Upon approval of the above test report by the University and at a mutually
10 acceptable time, demonstrate operation of each major component and of the
11 complete installation. After demonstration, Contract shall assist, as required, in
12 acceptance testing performed by the University.
- 13 2. If the need for adjustment or modification becomes evident during testing, either
14 continue testing, or interrupt testing to permit corrective action, as directed by the
15 University. Perform re-testing following any corrective action to the extent
16 directed by the University.

17 **Operating Tests**

18 Tests shall be included to verify that the system functions as required, and that operating
19 controls work properly.

20 **Listening and Viewing Tests**

21 Testing shall include subjective evaluations by persons listening and viewing from
22 various positions under various operating conditions. The objective of these tests will be
23 to verify system functioning under conditions of normal operation.

24 **Equipment Tests**

25 Testing of the proper functioning of equipment items shall be performed for major
26 equipment pieces.

27 **Final Adjustments**

28 Make control adjustments as directed by the University. Provide covers, caps or shaft-
29 locks for controls not used in system operations. Make a record of these control settings
30 for inclusion with the final documentation.

31 **Cleaning up**

32 Contractor at all times shall keep the premises free from accumulation of waste materials
33 or rubbish caused by operations and from leaks and spillage from equipment. Upon

1 completion of the work, and on a daily basis as required, the Contractor shall remove all
2 waste materials from and about the area of operation. This shall include all tools,
3 equipment, machinery and surplus materials. The Contractor shall clean all building
4 surfaces and leave the work area clean. The contractor shall make good all materials and
5 finishes cut into or damaged during installation.

6 Provisions regarding the disposal or other treatment of hazardous or contaminated waste
7 appear in other sections of this document.

8 **Installation Specifications**

9 **Conduits**

10 Use separate steel conduits for microphone-level circuits (below -20 dBm), video and
11 line-level audio circuits (up to +30 dBm), loudspeaker circuits (above +30 dBm), control
12 circuits and power circuits. Space all low-voltage conduit far from power circuits.
13 Insulate all conduits from the equipment rack(s); connect conduits mechanically and
14 electrically to the system ground point.

15 Do not splice lines in conduit. Use only cables that are insulated from the conduit and
16 from each other for the entire conduit length. Connect each input receptacle by an
17 individual, insulated line to the system equipment rack.

18 **Mechanical Requirements**

19 Secure equipment firmly in place, including control panels, loudspeakers, conduit,
20 amplifiers, racks, cables, etc. Make fastenings and supports suitable for supporting
21 required loads with a safety factor of three.

22 Install work neatly, with boxes or equipment plumb and square. Install the system in
23 cooperation with other trades in order to achieve coordinated progress and satisfactory
24 result. Watch for conflicts with work of other trades on the job. Execute, without claim
25 for extra payment, moderate moves or changes as are necessary to accommodate other
26 equipment or preserve symmetry and pleasing appearance.

27 Clearly, consistently, logically and permanently mark switches, connectors, jacks, relays,
28 receptacles, electronic and other equipment. Where feasible, engrave directly upon plates
29 and panels on which controls or receptacles are mounted. Use adhesive or screw-attached
30 engraved labels on manufactured assemblies that would otherwise require disassembly
31 for direct engraving. Fill engraving with black or white paint, whichever contrasts best
32 with panel finish, or as directed by the University. Do not use hand lettering for any
33 labels visible to operators or public during normal system operation. Do not use
34 embossed tape (e.g., Dymo) labels.

35 Provide printed patch panel labels for each panel specified herein. *Labels shall be*
36 *supplied by Patch Bay Designation Company, PO Box 6278, 4742 San Fernando Road,*
37 *Glendale, CA 91204, 818-241-5585, fax: 818-507-5050 or approved equal.*

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1 Install all switching devices and connectors for circuits where hazardous voltages are
2 present in metal enclosures. Provide positive electrical ground for all such enclosures.
3 Provide protective covers, clearly marked to indicate nominal voltage levels, on all
4 terminal strips where such voltages are present.

5 Fabricate resistive networks and other Contractor fabricated assemblies on terminal
6 blocks. Securely support all connections between individual components; do not rely on
7 mechanical strength of components to support other components.

8 Take precautions to prevent electromagnetic and electrostatic interference. Install the
9 equipment to provide safe operation.

10 Provide ventilation as required to maintain equipment within the manufacturers specified
11 temperature limits.

12 Install all relays in sockets or in an otherwise removable manner. Do not solder directly
13 to relay terminals.

14 Locate audio, video, data, control and other receptacles as directed by the University.
15 Except for receptacles mounted in equipment cabinets or in floor boxes or designated as
16 surface-mounted, flush mount other receptacles on cover plates in gang boxes recessed in
17 vertical surfaces. Provide finishes as approved by the University. Submit samples for
18 approval by the University.

19 Where cover plates are not fitted with connectors, provide bushed hole(s) through cover
20 plate in sizes and quantities required. Do not allow cables to enter or exit boxes without
21 cover plates installed.

22 Provide paint, or approved factory finishes, for all system components exposed to public
23 view.

24 **Cabling**

25 Use cable products as listed herein or approved equals. Do not change cable types
26 without the direct approval of the University. Note that the cables listed are not suitable
27 for use in an open return air ceiling plenum. Where conduit is not to be provided, and
28 upon direction by the University, provide plenum rated cable equivalent in electrical
29 characteristics to the cable specified.

30 **General Installation Procedures**

31 It shall be the Contractor's responsibility, in conjunction with the University, to insure
32 that all conduits, raceways and ladders are installed correctly and to the specifications.
33 The Contractor shall inform the University of any discrepancies. Should the Contractor
34 wish to alter or replace existing construction, the Contractor shall obtain written approval
35 from the University.

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1 Cables running through wall, ceilings or floor plenums or any other interstitial space
2 inclusive shall be bundled in such a way, as the bundle does not contain more than 12
3 cables. Maintain at least three inches between cable bundles. Where bundles must
4 penetrate walls through fire stops, individual cable bundles may be brought together
5 within a short distance of the fire stop. Then the cable bundles must immediately fan out
6 to provide appropriate separation

7 Notwithstanding the above, all contractors must conform to ANSI/NFPA 70, National
8 Electric Code.

9 The Contractor shall be responsible for determining the proper length of all cables
10 whether manufactured on or off the job site.

11 Wire and cables shall be installed in a neat and orderly fashion, with like cable types
12 following similar paths.

13 Groups of cables shall be neatly combed or harnessed.

14 Harnessed groups of cables shall be anchored at suitable intervals to reduce and relieve
15 wire strain, especially strain on connections.

16 *Lead dress shall be considered from a maintenance standpoint. Suitable service loops*
17 *shall be provided to remove equipment. When rear access to rack mounted equipment is*
18 *unavailable, the cabling shall be of sufficient length to enable the removal and*
19 *replacement of any individual piece of equipment with all others in place.*

20 Install cable wrapping on all cable runs of two or more cables that are not in conduit.
21 Place cable wrapping approximately six inches apart inside racks and enclosures. When
22 in cable trays, or free run in ceiling plenum, place cable wrapping approximately twelve
23 inches apart on similar cable groupings. All service/installation loops shall be secured
24 with two cable wraps where they exit from the frame to insure that the service loop of
25 cable shall not be shortened after the device is installed.

26 For all schemes of cable routing, no point in the path shall be subjected to a bend radius
27 of less than eight (8) times the cable diameter.

28 All cables shall be grouped by signal level, and separation shall be maintained between
29 signal levels consistent with established industry practices.

30 Where circuits of different types must cross, they shall do so at right angles and then
31 return to the above-required separations as soon as possible.

32 All video, data and audio line level circuits shall be kept at least three inches away from
33 any parallel AC circuits.

34 All cables without exception shall carry a permanent mechanically printed cable label at
35 each end. Employ a consistent cable-labeling scheme. The labels shall contain the wire

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1 number. There shall not be any unmarked cables within the system. Cable labels shall not
2 be made by hand. All cable labels either be self-laminating, or be laminated with clear
3 heat shrink tubing.

4 Label all power cables as to equipment powered.

5 The Contractor shall exercise great care to assure that regardless of cable color-coding,
6 the signal path polarity remains intact. This applies to full signal paths, and all interim
7 connection points. Polarity reversals are not allowed to correct for previous errors.

8 Where jumpers are indicated between pins of the same connector, they shall be installed
9 internal to the connector shell, and shall not have any cable number designations applied.

10 Where there are unused conductors or pairs in a cable assembly, they shall be insulated as
11 a group, left long enough for future termination, and folded into the connector hood.
12 Where this is impractical, they shall be cut off flush with the outer jacket prior to sleeving
13 outer jacket/conductor interface (if required).

14 All cables shall be prepared in such a way that the individual conductors or shields or
15 their insulation is not nicked or cut in any way.

16 The cable outer jacket shall be cut square.

17 The cable outer jacket shall be cut back only as far as necessary for termination of the
18 internal wires. Sufficient jacket length shall be retained to allow proper interface to the
19 connector housing or other strain relief device.

20 Insulation shall be removed from conductors in such a manner that:

21 A. Conductor strands shall not be nicked to the extent that base metal shows through
22 the plating.

23 B. Wire strands remain in their original lay, and are not combed out.

24 C. The conductor's insulation shall be cut square within 1/4 of the outer diameter of
25 the insulated conductor.

26 D. There shall not be burning or charring the conductor's insulation.

27 If required, the conductor shall be tinned with a minimum amount of 60-40 or 63-37
28 solder (tin/lead) with resin flux. The solder shall be as manufactured by Kester or Ersin
29 and shall be designed for electronic use.

30 Mechanical connections made to terminals prior to soldering shall be the minimum
31 required to reliably retain the wire. Avoid the practice of multiple wraps on solder
32 terminals, as that practice makes conductor removal very difficult after soldering.

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1 Crimping of terminals to conductors shall be performed only by experienced personnel.
2 Only tooling recommended by the manufacturer shall be used. Only pins and connectors
3 of the proper size and design for the cable to which they are to be applied shall be used.
4 There shall be no abnormal deformation of the contact during the crimping operation.

5 There shall be no damage done to the conductor that either severs strands or exposes the
6 base metal of the individual strand by the crimping operation.

7 **Audio Cables and Connections**

8 Audio cables shall be subdivided into three classes: Microphone level circuits, Line level
9 circuits Speaker level circuits

10 Microphone level circuits shall be kept at least three inches from any other parallel signal
11 circuits and at least six inches from any parallel AC power circuits.

12 All audio connectors must conform to IEC standards; the convention is pin 1 shield, pin 2
13 HOT and pin 3 low. If any equipment is supplied wired as pin three hot, it should be
14 changed or adapted to conform to the IEC standard.

15 Ground each audio cable shield at one point and one point only. Terminate shields at the
16 "floating" end with insulating collars or heat shrink. Bare shields or wires in the system
17 will not be acceptable. Connect all electronics grounds to a common point on the
18 equipment rack(s). Ground this point and the rack(s) to the building main service ground
19 point using a ground cable sized for a DC resistance of less than 0.1 ohm.

20 Audio cable from the following manufacturers shall be considered acceptable:

- 21 1. Belden
- 22 2. Canare
- 23 3. Clark
- 24 4. Gepco
- 25 5. Or approved equal

26 Line level and microphone audio cable shall be 100 percent shielded, 22 gauge twisted
27 pair, Belden 9451 or Clark 61801EZ or equal.

28 Speaker level cable shall be unshielded twisted pair, 12 AWG, Belden 8477 or Clark
29 SPSW12G.

30 Constant current (70.7 Volt) speaker cable shall be unshielded twisted pair, 18 AWG,
31 Clark SPSW18G or equal.

32 Employ multi-conductor cables appropriate to the system and/or equipment to be
33 interfaced.

1 Connectors from the following manufacturers shall be considered acceptable. Install
2 connectors appropriate for the equipment interface:

- 3 1. ADC
- 4 2. Amp
- 5 3. Amphenol
- 6 4. Canare
- 7 5. H.H. Smith
- 8 6. Neutrik
- 9 7. Ponom
- 10 8. Switchcraft
- 11 9. Trompeter
- 12 10. Or approved equal

13 **Video Cables and Connections**

14 All video wiring shall use BNC connectors suitable for the cable specified, unless
15 specifically otherwise noted. Crimp connectors shall be installed using manufacturer's
16 approved tooling and procedure.

17 Where the design requires that a group of cables be specified as equal length, but no
18 length is specified, the Contractor shall determine the longest length required in the
19 group, and match all cables in the group to this length. All RGB cable sets shall have
20 each cable cut to identical lengths within the cable set.

21 All video cable and connectors employed on this project shall be digital capable. All
22 connectors must have true 75-ohm impedance. Any 50-ohm connectors used, except on
23 manufactured equipment shall be changed to 75 ohm as appropriate for the equipment
24 and signal to be passed.

25 Video cable shall exhibit the characteristics of Belden 1505A or Belden 8281. Triax cable
26 shall be Belden 9267.

27 Video cable from the following manufacturers shall be considered acceptable:

- 28 1. Belden
- 29 2. Canare
- 30 3. Extron
- 31 4. Or approved equal

32 Connectors from the following manufacturers shall be considered acceptable. Install
33 connectors appropriate for the equipment interface:

- 34 1. ADC
- 35 2. Amp
- 36 3. Amphenol

- 1 4. Canare
- 2 5. H.H. Smith
- 3 6. Kings
- 4 7. Ponom
- 5 8. Switchcraft
- 6 9. Trompeter
- 7 10. Extron
- 8 11. Or approved equal

9 **RF Performance Requirements**

10 The RF distribution and cabling system shall meet or exceed the following electrical
11 specifications, measured at any point in the system. Compliance with these specifications
12 shall be determined by introducing a standard video reference signal at points normally
13 used for origination (e.g., camera, video tape player, computer) and measuring the signal
14 characteristics at points normally serving as destinations (e.g., monitor, projector,
15 videotape recorder). Note that these are end-to-end performance requirements to be met
16 under all system configurations.

17 The RF system shall meet or exceed Federal Communications Commission (FCC) rules
18 pertaining to cable television systems. Specifically FCC Rules 47 USC Part 76.

19 Channel allocations shall be coordinated with the University and Cable Company.

20 For purposes of this paragraph, the distribution and cabling system shall include all
21 equipment and cabling normally within the signal path.

- 22 1. Carrier to noise ratio shall be greater than or equal to 45dB.
- 23 2. Coherent disturbances shall not be less than 55 dB.
- 24 3. Hum and LF (Low Frequency) disturbances shall be less than or equal to 0.5
25 percent peak to peak, but no worse than 1 percent peak to peak anywhere in the
26 system
- 27 4. Adjust all equipment upon installation to provide an output level at each final tap
28 from +5dBmv to +10dBmv.

29 **Video System Performance Requirements**

- 30 1. The system shall meet all applicable standards and recommended practices in
31 effect at the time of installation by applicable standards organizations, including
32 but not limited to:
 - 33 A. American National Standards Institute (ANSI)
 - 34 B. Audio Engineering Society (AES)

- 1 C. Federal Communications Commission (FCC)
- 2 D. International Standards Organization (ISO)
- 3 E. National Association of Broadcasters (NAB)
- 4 F. Society of Motion Picture and Television Engineers (SMPTE)
- 5 2. The following specific standards shall be adhered to:
 - 6 A. American National Standards Institute (ANSI) Standard EIA/TIA RS-250C,
7 Electrical Performance for Television Transmission Systems specified for
8 end-to-end systems.
 - 9 B. ANSI Standard RS-170 for television signals
 - 10 C. Federal Communications Commission (FCC) Rules for Cable Television
11 Systems; Part 76 of the Telecommunications Regulations, 47CFR76
 - 12 D. National Cable Television Association (NCTA): Recommended CATV
13 Measurements and Practices.
- 14 3. The start of color fields one and three shall be defined by a whole line between
15 the first equalizing pulse and the preceding horizontal (H) sync pulse. Start of
16 color field two and four shall be defined by a half line between the first equalizing
17 pulse and the preceding H pulse. Color field one is that field with a positive going
18 zero crossing of reference sub-carrier nominally coincident with the 50 percent
19 amplitude point of the leading edges of even numbered horizontal sync pulses.
- 20 4. The zero crossing of reference subcarrier shall be nominally coincident with the
21 50 percent point of the leading edges of all horizontal sync pulses. For those cases
22 where the relationship between sync and sub-carrier is critical for program
23 integration, the tolerance on this coincidence is ± 45 degrees of the reference sub-
24 carrier.
- 25 5. All rise and fall times are to be 0.140 seconds ± 0.02 seconds measured from ten
26 to ninety percent amplitude. All pulse widths except blanking are measured at the
27 50 percent amplitude point.
- 28 6. Overshoot on all pulses during sync and blanking (vertical and horizontal) shall
29 not exceed two IRE units. Any other extraneous signals during blanking intervals
30 shall not exceed two IRE units measured over a bandwidth of 6 MHz.
- 31 7. Burst envelope rise time shall be 0.30 uSec measured between the ten and ninety
32 percent amplitude points.

- 1 8. Start of burst shall be defined as the zero crossing, either positive or negative
2 sloped, that precedes the first half cycle sub-carrier that is fifty percent greater of
3 the burst amplitude.
- 4 9. The end of burst shall be defined by the zero crossing, either positive or negative
5 sloped, that follows the last half cycle of sub-carrier that is fifty percent or greater
6 of the burst amplitude.
- 7 10. Reference sub-carrier shall be a contiguous signal that has the same instantaneous
8 phase as burst.
- 9 11. The following video levels shall be maintained:
 - 10 A. Program operating level at full white shall be set to 100 IRE, (+0 -2 IRE).
 - 11 B. Program operating level for black shall be set to 7.5 IRE (± 2.5 IRE).
 - 12 C. Program operating level for sync shall be set to 40 IRE (± 2 IRE).
 - 13 D. Program operating level for burst shall be set to 40 IRE (± 2 IRE).
 - 14 E. Burst pedestal shall be set as not to exceed ± 2 IRE.
- 15 12. The ratio of area to vertical equalizing pulse to sync pulse shall be within 45 to 50
16 percent.
- 17 13. There shall be a 180 degree reversal of phase when even lines on a display device
18 that is triggered by four field, 15.75 KHz information.

19 **Distribution and Cabling**

- 20 1. The video distribution and cabling system shall meet or exceed the following
21 electrical specifications, measured at any point in the system. Compliance with
22 these specifications shall be determined by introducing a standard video reference
23 signal at points normally used for origination (e.g., camera, video tape player,
24 computer) and measuring the signal characteristics at points normally serving as
25 destinations (e.g., monitor, projector, videotape recorder). Note that these are end-
26 to-end performance requirements to be met under all system configurations.
- 27 2. For purposes of this paragraph, the distribution and cabling system shall include
28 all equipment and cabling normally within the signal path.
- 29 3. Frequency Response shall be ± 1.5 dB, DC to 100 MHz for component video
30 signals and ± 0.5 dB; DC to 5.0 MHz for NTSC encoded composite video signals.
- 31 4. Rise time shall be 250 V/microseconds minimum.

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- 1 5. Crosstalk shall be 45-dB minimum below nominal signal level, unweighted DC to
2 70 MHz.
- 3 6. Signal to Noise Ratio shall be 45-dB minimum, peak noise to RMS signal,
4 unweighted DC to 70 MHz.
- 5 7. Signal Gain shall be unity (1.00) terminated into 75 ohms.
- 6 8. Line and Field Tilt shall be less than 2 percent.
- 7 9. Differential Gain shall be less than 3 percent.
- 8 10. Differential Phase shall be less than 3 degrees.
- 9 11. Color Timing (where applicable) shall be within 2 degrees at 3.58 MHz.
- 10 12. Input Return Loss shall be 40-dB minimum, DC to 70 MHz.
- 11 13. Path Length Inequality for Y/C and RGBS cable sets where the signals are not
12 subject to subsequent matrixing or encoding shall be within 12 inches of cable
13 length, or 1.6 nsec.
- 14 14. If cable length results in the deterioration of gain and frequency response
15 characteristics and cable compensation equipment are not specified, the system
16 shall be adjusted for best performance. The Contractor shall be able to
17 demonstrate that any inability to meet gain and frequency response specification
18 is due solely to length of cable.

19 **Displays**

- 20 1. All displays shall meet manufacturers' published specifications for brightness,
21 contrast, focus, convergence, linearity, distortion and purity, across the entire
22 range of horizontal and vertical scan frequencies for which the display is capable.
23 In the absence of manufacturers' specifications, convergence, linearity, distortion,
24 or purity errors shall be not be visible from a viewing distance equal to the image
25 width. Brightness, contrast and focus shall meet standard performance guidelines.
- 26 2. Projectors shall be installed and adjusted so that the resultant images are free from
27 all keystone and barrel distortion and vignette.
- 28 3. Projectors shall exhibit correct color balance, both at black and at peak white, and
29 proper gray scale tracking.
- 30 4. All displays shall meet manufacturers' published specifications for horizontal and
31 vertical scan frequency ranges. Where appropriate, adjustments shall be made to
32 allow for automatic scan locking across specified ranges. Image quality

1 specifications shall be met throughout the horizontal and vertical scan frequency
2 ranges.

3 **Audio Systems**

4 1. To meet the acoustical performance criteria, the Contractor shall be responsible
5 for setting the adjustments of loudspeakers, equalizers and other signal-processing
6 equipment, pads, and gain controls. During demonstration and acceptance testing,
7 under the direction of the University, make any final adjustment of these items as
8 required. If so directed, provide additional field assembled resistive pads and/or
9 resistor-capacitor equalizers.

10 2. All ceiling loudspeaker systems shall provide even distribution of the sound
11 throughout the seating area, typically ± 3 dB front to back or side to side for the
12 one octave band centered at 4000 Hz. Total variation from the worst to the best
13 seats shall not exceed ± 4 dB.

14 3. Provide uniform frequency response for voice and program systems throughout
15 the audience area. Typically, ± 3 dB as measured with 1/3-octave bands of pink
16 noise at positions across the main seating area as selected by the University.

17 4. Provide adequate dynamic range at an acoustic distortion level sufficiently low to
18 ensure minimum listening fatigue. The system should be capable of delivering 75
19 dB average program level with an additional 10 dB SPL peaking margin to any
20 seat in the audience area at an acoustic distortion level below 5 percent THD. The
21 articulation loss of consonants shall not exceed 15 percent within the seating area.

22 5. Adjust all equalizers to realize maximum gain and optimal tonal balance from the
23 sound system throughout the audience area.

24 6. Output level of all program sources arriving at switching or routing equipment
25 shall be within ± 0.25 dB of each other as measured at the input to the switcher or
26 router. Provide pads, line amplifiers or other gain control devices as required to
27 achieve this specification.

28 7. System frequency response shall be 20 - 20 KHz ± 3 dB, unless the known,
29 published specifications of a particular piece of mixing, processing, amplification
30 or transducing equipment limit this specification.

31 8. System signal to noise ratio shall be 60 dB or greater, unless the known, published
32 specifications of a particular piece of mixing, processing, amplification or
33 transducing equipment limit this specification.

34 **Equipment Racks and Furniture**

35 Racks shall be provided for mounting equipment. Racks used shall present a neat unified
36 appearance.

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1 Racks shall conform to mounting dimensions for 19-inch racks under EIA standard RS-
2 310 C.

3 Provide at least one vertical power distribution strip in each rack and console. Strips shall
4 be provided with sufficient receptacles for the designed load. All racks and consoles shall
5 have at least two spare outlets. All racks sixty-two inches and taller shall have a work
6 light.

7 Provide side covers or doors on all exposed rack sides. Provide top covers on all racks.
8 Coordinate HVAC requirements with these covers.

9 If any item of equipment includes exposed controls that are not used in system operation,
10 and if those controls cannot be locked, capped or concealed behind a security cover,
11 mount said item of equipment recessed behind a blank rack panel.

12 Provide steel blank and vent panels on all equipment racks to fill any unused rack spaces.
13 Use panels with factory-applied finishes to match the color of the rack itself unless
14 otherwise directed by the University.

15 **Identification Panel**

16 Install an identification panel with ¼” high engraved characters on the front or side (if
17 visible) of the equipment racks. Rack panels shall not be more than one rack unit high or
18 the equivalent. Identify the Project, System Installation Contractor, and System Designer
19 and date of final installation (month and year only) in the following format:

PROJECT: University of Maine at Farmington
College of Education, Health and Rehabilitation
(Room Name)

ARCHITECT PDT Architects
49 Dartmouth Street
Portland, ME 04101

SYSTEM DESIGNER: Communications Design Associates, Inc.
437 Turnpike Street
Canton, MA 02021
339-502-6551

INSTALLATION CONTRACTOR Company name
Address
Telephone

INSTALLED: Insert date of installation (Month and Year only)

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SECTION 5 – EQUIPMENT SPECIFICATIONS

Introduction

This section of the RFP provides equipment specifications and general installation requirements.

Work included

- Provide and install equipment as specified.
- Coordinate with other contractors as necessary to provide a complete and operational system.
- Provide University with hands on training with regards to equipment set-up, operation and adjustment.
- Provide system proof of performance tests as outlined.
- Set-up and adjust all equipment.
- Provide system documentation as outlined herein. The strongly suggested technical writer for system documentation is:

Mr. William R. Lewis
31 Nikisch Avenue
Boston, MA 02131
Telephone: 617-469-3265
Email: billlewis4av@verizon.net
- Coordinate furnishings and rack enclosures as required. All visible items shall be approved by the University prior to installation. Custom racks shall be provided by:

Michael Hoffmeier, General Manager
Robert Treat Hogg Cabinetmaker Shop
5650 Homeville Road
Oxford, PA 19363
Telephone: 717-529-2522 ext. 3
Fax: 717-529-1909
Email: MHoffmeier@rthogg.com
- Provide and install loudspeakers as specified.
- Provide and install blocking for all loudspeakers as required.

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- 1 • Provide and install all projector mounting hardware.
- 2 • Provide and install computer security cables.
- 3 • Provide and install all video projectors as required.
- 4 • Obtain IP address and other configuration information from University for all
5 applicable equipment. Provide and install management software in UFE computer
6 as directed.
- 7 • Coordinate all AV provided data connections with University's IT department.
8 Provide patch cords as not provided by others
- 9 • Coordinate with University to provide on-site supervision of electrical contractor
10 installation.
- 11 • All devices that are mounted on shelves inside an equipment rack, with or without
12 a faceplate, shall be secured to the shelf by screws. Specifically all devices
13 mounted on a Mid-Atlantic RSH series mounts such as VCR's and DVD players,
14 as well as any other shelf-mounted device shall be secured. All devices shall be
15 furnished with faceplates and complete trim kits.
- 16 • Assemble all loose equipment as required to form a functional unit.
- 17 • Align all projection systems and demonstrate setup and alignment to the
18 University.
- 19 • All projectors shall be setup with the following options: The projector shall be
20 setup so that the color mode is set to "Dynamic." Setup the projector so that it
21 shuts down if no signal is received within thirty minutes. The Contractor shall
22 coordinate with the University to provide a custom user logo that will be
23 displayed on startup (this also reduces the chances of theft). The projector shall be
24 setup for SNMP management. The projector shall be setup with EMP
25 management as per manufacturer specifications including email notification.
26 Enable projector advanced functions including: projector lamp hour monitoring,
27 quick setup, Easy MP mode (wireless presentation, Contractor shall setup
28 projector for wireless and network presentations, coordinate IP addresses and
29 other information with University.). Enable projector image mute, picture preview
30 (allows preview of other inputs through the projector), image freeze, image zoom,
31 menu functions including cursor controls.
- 32 • Provide the following services relative to the control system
 - 33 a) Provide the services of a certified Crestron Programmer. The suggested
34 programmer is:

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1 Mr. David S. Goldberg
2 JN Technology Solutions
3 65 Crescent Road
4 Needham, MA 02494
5 Telephone: 781-449-9777
6 Email: david@jntechsolutions.com

- 7 b) Meet with University and/or its Consultant to review all control functions
8 and layout of all control panels.
- 9 c) Provide layout of all touch screens for University and its Consultant
10 approval
- 11 d) Provide layout of all push-button panels for University and its Consultant
12 approval.
- 13 e) Provide layout of all web pages for University and its Consultant approval.
- 14 f) Provide control system programming.
- 15 g) Provide all necessary software for the control system operation. Provide
16 printouts or electronic files for approval. Include with final as-built
17 submittals.
- 18 h) Upon completion of system, provide print out of all touch panel pages.
19 Provide electronic copies of all software programs to the University and
20 its Consultant on CD-ROM.
- 21 i) Provide the operating software from which the control system program has
22 been created.
- 23 j) Setup and integrate Room View monitoring on University's network.
24 Provide Room View 7.0 or newer.
- 25 k) Services shall include all control system programming, initial client
26 consultation meeting, touch panel design, e-control design, Room View
27 integration and at least three days on-site for system programming and
28 debugging.

- 29 • Provide other work as outlined in the system descriptions and as shown on the
30 drawings.

31
32 **Work not included**

- 33
34 • Power, except for the provision of power strips as noted.
35 • Data cabling except equipment patch cords as noted.

- 1 • Telephone cabling.

2

3 **Related work specified elsewhere**

4

- 5 • Data systems
6 • Power Systems

7

8

9 **SYSTEM DESCRIPTIONS**

10

11 **System Type 1: Classrooms**

12 This section of the specifications applies to the following rooms:

<u>Room Name</u>	<u>Room Number</u>
Snow Sports	001
Art Education	012
Resource Classroom 1	114
Resource Classroom2	115
EMS Classroom	111
Classroom	107
Classroom	106
Literacy Classroom	103
Center for Excellence in Teaching	329

13 This specification applies to a typical classroom. Other systems are based on the same
14 design with modifications as described below under their respective sections.

15 Each classroom has a projection screen provided by the University. Some of the screens
16 are installed in a corner of the classroom in order to maximize white/chalkboard space.
17 See architectural plans for screen placement. In all instances the Contractor shall be
18 responsible for installing the projector mount so that the image fills the screen.

19 Each classroom will have an equipment rack provided by the Contractor. Placement is
20 shown on the drawings. The rack will contain all the AV equipment. The rack will have a
21 connection for a laptop as discussed below. It will be on casters. The racks shall be
22 custom made per specifications in Appendix 2.

23 The rack will have a remote controlled surge protector that will be used to power all the
24 equipment. The surge protector will be controlled by the control system relays to turn the
25 equipment on and off.

26 The Contractor shall provide security covers mounted in front of the audio amplifier and
27 the surge protector. This will prevent the rack master power from being shut down. The

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- 1 rack should only be shut down through the control system. The cover over the amplifier
2 will prevent unauthorized adjustments to the audio system.
- 3 The Contractor shall supply a drawer with lock for cable and remote control storage.
- 4 The Contractor shall install a grommet on the side panel towards the bottom of rack. The
5 rack will have a cable support bracket installed on side panel towards the top of rack. The
6 grommet and cable support bracket will be installed on the same side of rack.
- 7 The cable support bracket will be used to store (when not is use) a twenty-five foot VGA
8 cable, data cable, and power extension cable. The cables will be covered by a mesh to
9 keep cables together. The Contractor shall provide all cables.
- 10 These cables will have connections for a laptop provided by University or a document
11 camera, provided by Contractor from the portable equipment list. When equipment needs
12 to be connected the instructor will remove the cable from the hook, connect to the laptop
13 or document camera, then return the cables to the hook when finished. The Contractor
14 shall use flexible stranded cable. Use of solid conductor cable is not acceptable.
- 15 All cables from the rack to A/V junction box will pass through knockouts at the bottom
16 rear of rack then through a grommet on A/V junction box. The knockout where the cables
17 exit the rack shall be provided with a bushing to protect the cables. The cables will be
18 wrapped in a mesh to keep them all together. The cables will be secured at both ends to
19 provide strain relief.
- 20 The classrooms will have capability to playback video tape, DVD (all regions) and have
21 connections for a laptop or document camera. A permanent computer will not be
22 installed.
- 23 The laptop or document camera VGA video will connect directly to the projector as
24 shown on the drawings. The projector shall switch to this input when the laptop input is
25 selected. If a document camera and a laptop are to be used at the same time, the instructor
26 will need to connect the laptop to the document camera and then the document camera to
27 the VGA cable.
- 28 The VCR composite video will connect to an integrated A/V switcher / control system.
29 Composite video from the A/V switcher/control system will connect to the projector.
- 30 The DVD component video will connect directly to the projector. The projector will
31 switch to this input when DVD is selected as a source.
- 32 Power for both the DVD and VCR shall be plugged into a constant on outlet. Power will
33 be initiated through commands by the control system
- 34 All audio for these sources will connect to the A/V switcher/control system. The audio
35 section will be able to switch between laptop, VCR and DVD audio sources in
36 conjunction with the projector switching.

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1 The VCR will be connected to a cable television (CATV) feed supplied by the
2 University. The Contractor shall supply a jumper cable from the cable TV feed to the
3 VCR CATV input.

4 Output of the AV switcher/control system will feed audio to the amplifier housed in the
5 rack that will then feed the loudspeakers.

6 The loudspeakers will be suspended from the ceiling by the Contractor with pole mounts
7 on either side of the screen. Loudspeaker cables will run inside the pole mount. The
8 Contractor shall be responsible for installing all mounting hardware.

9 The Contractor will install projector in the ceiling. A 60 X 80" electric projection screen
10 will be provided by University.

11 The projector will be provided a data connection by University. The Contractor shall
12 supply jumper cable.

13 The projection screen will have a wall switch to control the screen. The room's control
14 system will parallel the wall switch functions.

15 The room will have a control system and 3.6" touch panel. The touch panel will be
16 mounted on a custom rack mount. The custom rack mount will allow the touch panel to
17 pivot vertically. The touch panel can pivot up to be used from a standing position or lay
18 flat to meet ADA requirements.

19 The control system will be provided a data connection by University, for the
20 implementation of Room View. The Contractor shall supply jumper cable.

21 The control system will have the following functions:

22 1. System power (through surge protector): System shut down with cool down cycle
23 and system start up with warm up cycle. All items shall be switched off except
24 control system and VCR/DVD. Those devices will be powered on/off by discrete
25 commands.

26 2. Projector as outlined above.

27 3. Source selection for projector and video/audio switcher as required.

28 4. Projection screen: up/stop/down

29 5. VCR: Play, stop, pause, rewind, fast forward, search forward, search reverse,
30 power on, power off, TV tuner select, channel up, channel down, keypad, keypad
31 entry indication

32 6. DVD: Play, scan reverse, scan forward, skip reverse, skip forward, pause, stop,
33 slow forward, slow reverse, up, down, right, left, menu, select, power.

1 7. Volume up/down and mute

2 8. E-control web pages

3 9. Room View integration

4 Provide and install equipment in the racks and furniture as required. Provide power
5 distribution as required.

6 Provide and install the equipment listed below.

7 **System Type 2: Music Room 006**

8 This room is the same as a typical classroom (system one) with the addition of a turntable
9 and a CD/cassette combination deck. All provisions of system one shall apply to this
10 system.

11 The turntable will sit on top of rack. The turntable audio cables and power cord will pass
12 through one of the conduit knockouts (top rear) of the rack. These cables will be secured
13 to provide strain relief.

14 The turntable audio cables will connect to the A/V switcher/control system. The turntable
15 specified does not need a preamplifier. If another turntable is substituted, a preamplifier
16 must be provided. The turntable will not be controlled by the control system.

17 The CD/cassette combination deck will be mounted in rack. The CD/cassette audio
18 cables will connect to the A/V switcher/control system.

19 In addition to the control functions listed in system one, the control system in this room
20 will include all transport functions for the CD/Cassette deck including deck selection.
21 The CD/cassette deck shall be switched on/off with discrete power commands to the IR
22 port on the deck. .

23 Provide and install equipment in the racks and furniture as required. Provide power
24 control and distribution as required.

25 Provide and install the equipment listed below.

26 **System Type 3: Lobby/Lounge 117**

27 The lobby will consist of three touch sensitive monitors that will be used for building
28 directory and other functions. The Contractor shall install the monitors into the kiosk
29 provided by others. The Contractor shall connect the monitors through USB extenders to
30 computers in an adjacent room off the lobby. The Contractor shall install drivers into the
31 University furnished computer and align the monitor as required so that proper
32 commands are initiated when the screen is touched.

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1 The University will provide either three separate computers or one computer with three
2 video cards. The Contractor shall provide VGA line amplifiers to insure that adequate
3 video signal strength is received at the monitors.

4 Provide and install equipment in kiosk as required. Provide VESA mounts as required to
5 install monitor in kiosk. Provide power control and distribution as required.

6 The University will provide all software programming for the kiosk.

7 The Lounge is adjacent to the Lobby. It will have its own AV system that will be separate
8 from the Lobby. Equipment will be housed in a rack that will be installed by the
9 Contractor in a corner of the room near the windows.

10 The Contractor should note that the conduit rough in for the projector was installed based
11 on a previous design. This placed the junction box for the video projector signals about
12 eight feet behind the final location of the video projector under this design. The
13 Contractor will be responsible for providing cabling (including power cable) from the
14 existing infrastructure to the video projector.

15 This system will operate similarly to the classrooms except it will have a wireless control
16 panel and a voice reinforcement system. Ceiling loudspeakers will be provided and
17 installed by the Contractor. They will be used for both voice reinforcement and program
18 audio.

19 The voice reinforcement system consists of four microphone inputs. Two inputs will be
20 installed on a wall plate near the projection screen. The other two inputs will be installed
21 on a rack panel.

22 Each of the microphone inputs, along with the program audio sources will input into a
23 digital signal processor (DSP). The DSP will be augmented by a custom microphone
24 input volume panel that will be fabricated and installed by the Contractor. The panel shall
25 consist of four volume control potentiometers rated between 5 – 50K ohms. The
26 potentiometers shall be linear taper. Consult manufacturer operational instructions for
27 further information.

28 The knobs shall interface to the DSP through a voltage control box as shown on the
29 drawings. The voltage control box shall be installed at the rear of the rack by the
30 Contractor.

31 In addition to the volume controls specified above, overall volume control for
32 microphone and program volume shall be included on the touch panel.

33 At system power up all inputs on the DSP will be active All speaker zones within the
34 room shall be turned on. DSP programming in this mode shall include:

35 A. Fixed parametric equalization for all microphones turned on and preset for
36 maximum gain before feedback. In addition add feedback suppression filters to

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1 each microphone input. Use the feedback suppression filters primarily as a search
2 and destroy insurance tool. Any engaged filters during an event are not to be
3 locked and need to be reset to zero after the system is powered down so the
4 roaming filters are zeroed and ready for the next event.

5 B. Split the mono program signal input to separate program signal chain level
6 controllers. The Crestron control system will control the program volume of the
7 program signal chains.

8 C. Add overall equalization, low and hi pass filters per speaker manufacturers
9 specifications and limiters on all speaker zones to prevent speaker overloading.

10 The Contractor shall install loudspeakers into the ceiling tiles. Secure loudspeakers to
11 structure as required per code. Zone loudspeakers as shown on the drawings.

12 The Lounge has a projection screen provided by the University. See architectural plans
13 for screen placement. The Contractor shall be responsible for installing the projector
14 mount so that the projected image fills the screen.

15 The rack will have a remote controlled surge protector that will be used to power all the
16 equipment. The surge protector will be controlled by the control system relays to turn the
17 equipment on and off.

18 The Contractor shall provide security covers mounted in front of the audio amplifier and
19 the surge protector. This will prevent the rack master power from being shut down. The
20 rack should only be shut down through the control system. The cover over the amplifier
21 will prevent unauthorized adjustments to the audio system.

22 The Contractor shall supply a drawer with lock for cable, microphone and remote control
23 storage.

24 The lounge will have capability to playback video tape, DVD (all regions) and have
25 connections for a laptop or document camera. A permanent computer will not be
26 installed.

27 All video sources (laptop, rack aux inputs, VCR and DVD) will connect to a presentation
28 switcher. The video, s-video and VGA outputs of the switcher will input to the video
29 projector. Component output of the DVD player will input directly to the projector. When
30 DVD is selected, the projector shall switch to the component input. When other sources
31 are selected the projector will switch to the input of the appropriate format.

32 Power for both the DVD and VCR shall be plugged into a constant on outlet. Power will
33 be initiated through commands by the control system

34 Audio from all these sources will input into the DSP as shown on the drawings. Selection
35 of any source will switch the presentation switcher, DSP and video projector as
36 appropriate.

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- 1 The VCR will be connected to a cable television (CATV) feed supplied by the
2 University. The Contractor shall supply a jumper cable from the cable TV feed to the
3 VCR CATV input.
- 4 The Contractor will install projector in the ceiling. A 60 X 80" electric projection screen
5 will be provided by University.
- 6 The projector will be provided a data connection by University. The Contractor shall
7 supply jumper cable.
- 8 The projection screen will have a wall switch to control the screen. The room's control
9 system will parallel the wall switch functions.
- 10 The room will have a control system and a wireless touch panel. The touch panel operates
11 over a WiFi signal. The University will supply and configure wireless access points for
12 the control panel along with other wireless data access for the lounge. Coordinate
13 configuration with the University.
- 14 The control system will be provided a data connection by University, for the
15 implementation of Room View. The Contractor shall supply jumper cable.
- 16 The control system will have the following functions:
- 17 1. System power (through surge protector): System shut down with cool down cycle
18 and system start up with warm up cycle. All items shall be switched off except
19 control system and VCR/DVD. Those devices will be powered on/off by discrete
20 commands.
 - 21 2. Projector as outlined above.
 - 22 3. Source selection for projector and video/audio switcher as required.
 - 23 4. Projection screen: up/stop/down
 - 24 5. VCR: Play, stop, pause, rewind, fast forward, search forward, search reverse,
25 power on, power off, TV tuner select, channel up, channel down, keypad, keypad
26 entry indication
 - 27 6. DVD: Play, scan reverse, scan forward, skip reverse, skip forward, pause, stop,
28 slow forward, slow reverse, up, down, right, left, menu, select, power.
 - 29 7. Volume up/down and mute for program and voice
 - 30 8. DSP control as described above
 - 31 9. E-control web pages

1 10. Room View integration

2 Provide and install equipment in the racks and furniture as required. Provide power
3 distribution as required.

4 Provide and install the equipment listed below.

5 **System Type 4: Distance Learning 112 – Base Contract**

6 The Distance Learning Room has two displays. A video projector in the front of the room
7 for the near end students to view instructional materials and the far end sites and a flat
8 panel display at the rear of the room for the instructor to view the far end sites..

9 There will be two cameras. One camera will be on the front wall to the side of the
10 projection screen, it will be used to photograph near end students. The second camera at
11 the rear of the room will be used to photograph the instructor. The Contractor shall be
12 responsible for completely installing all displays, cameras and loudspeakers. The
13 projection screen will be provided by the University.

14 A lectern will be provided by the Contractor. It will house the following equipment:

- 15 • Microphone
- 16 • University supplied permanent computer and LCD monitor
- 17 • Computer interface
- 18 • Wired control system touch panel
- 19 • Touch panel interface
- 20 • Cable cubby

21 The lectern will house a computer provided by the University along with connections for
22 a laptop and document camera. Each of these devices will connect into a three input
23 computer interface.

24 All equipment will be housed in a lectern (presenter's station) that will be provided by
25 the Contractor. The Contractor shall provide a complete set of submittals on the lectern
26 including finish samples for the University to approve. Submittals shall include drawings,
27 photographs, cut sheets and other documentation as requested by the University.

28 The total cost of the lectern shall be calculated as follows: The Contractor shall budget
29 \$6,500.00 dealer cost. The Contractor shall markup from this dealer cost. This will
30 provide a preliminary final cost to the University. The Contractor shall provide the
31 University with the percentage markup as part of their proposal.

32 Once the lectern has been approved, the Contractor shall present to the University final
33 quotes and invoices from the manufacturer(s) showing the actual cost of all products to
34 the dealer including shipping. The dealer may then mark up the actual cost of the lectern

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1 at the same percentage as the bid submitted. This will be handled as a change order to the
2 Contractor.

3 The lectern shall provide space to house a University furnished PC. The lectern shall
4 provide facilities for the touch panel. It is likely that the touch panel will be installed on
5 an articulating arm to allow easy adjustment. The lectern shall provide proper venting so
6 that the ambient temperature inside the lectern does not exceed specifications for any of
7 the equipment installed in the lectern. The lectern will be provided with a low voltage
8 light on a gooseneck so that the instructor has sufficient light to view papers (Littlelight
9 or equal). The lectern shall be provided with a clock.

10 The lectern shall be provided with support and/or storage for a document camera.

11 Wire management shall be provided within the lectern. Power and low voltage wiring
12 shall be fed into the lectern from the floor.

13 As part of the design and submittal process the Contractor shall meet with the University
14 and the consultant to itemize all devices that must be accommodated in the lectern. After
15 this meeting, the Contractor may provide a lectern from pre-qualified suppliers including
16 Marshall Furniture, KSI, R.T. Hogg Cabinetmakers, Van San and Forbes Industries.
17 Other suppliers may be considered if samples of their work are submitted or the
18 University and/or its Consultant have previous positive experience with the supplier.

19 Under the lectern there will be a floor box with connections as shown on the drawings.
20 The floor box has been provided by the general contractor. The Contractor is responsible
21 for providing all connections in the floor box with the exception of power and data. .

22 There will be an additional rack in this room that will house all the support equipment.
23 This rack will be in front of room behind podium. This rack will have casters.

24 The podium computer interface will connect to input one on the VGA matrix switcher.

25 Outputs one and two from the VGA matrix switcher will connect to the VGA inputs one
26 and two on the digital processor. This will allow two VGA sources to be displayed at the
27 same time.

28 A document camera shall be setup so that a USB mouse (supplied with the document
29 camera) can be used for annotation. It shall be setup so that images may be captured into
30 the PC. The Contractor shall be responsible for installing this software into the
31 University's PC.

32 Outputs one and two from the S-video matrix switcher will connect to s-video inputs one
33 and two on the digital processor. This will allow two s-video sources to be displayed at
34 one time.

35 The digital processor will have two inputs and two outputs. It will have dual window
36 capabilities allowing for the display of two VGA and two s-video sources on either

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1 display. The digital processor DVI outputs will connect to the projector and flat panel
2 display VGA inputs with an adapter cable. The adapter cable will convert the DVI-I
3 signal to five wire RGBHV signals for input to the displays.

4 Other outputs of the VGA switcher will connect into the flat panel display and the codec
5 as shown on the drawings. Outputs from the s-video switcher will connect to the touch
6 panel, the VCR and camera inputs on the codec and directly to the VCR.

7 Other devices will connect to the matrix switcher as shown on the drawings.

8 The connectivity shown will allow the projector to display the near end instructional
9 materials in full screen along with far end camera video as a picture in picture, or far end
10 cameras as full screen.

11 The podium computer interface audio will connect to audio input one on the VGA matrix
12 switcher through a transformer.

13 Other sources will connect to the system as shown on the drawings. Feedback eliminators
14 shall be provided on all sources that could be used for recording to prevent a feedback
15 loop.

16 There will be eight microphone plates placed through out the room. There will be two
17 microphones per plate. The sixteen microphones will connect to the first sixteen inputs on
18 the audio digital signal processor (DSP). The Contractor shall provide microphones with
19 12' goosenecks. The microphones will be provided with a switch that can be set to mute
20 the microphone or to activate the microphone. For initial setup, set the switches to mute
21 the microphone when pressed. If during the course of this project the University decides
22 to change this function to push-to-talk, change the settings without charge to the
23 University.

24 There will be one 18" lectern microphone with shock mount at the podium. This
25 microphone will connect to input 17 on the audio DSP.

26 Outputs of the DSP will connect to the codec and the program audio amplifier. Output of
27 the amplifier will feed the loudspeakers on either side of the projection screen.

28 The codec will be configured for IP configuration to operate over the University
29 computer network. This network connects into a state wide ATM network linking the
30 University of Maine System campuses and provides gateway services for external video
31 conferencing.

32 The microphone system is used for distance learning and video conferencing only. All
33 microphone signals are mixed by the automatic microphone mixers within the DSP The
34 microphone signals are combined together and sent to the codec as the "send audio."

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1 When a program source is added to the “send audio” supply a separate control page for
2 the program source add feature. For example, allow for sending VCR audio with speech
3 to a remote site. Provide this capability for all program sources.

4 When using the add feature the selected program source to be sent is also mixed together
5 with the return audio for playback. The combined program and speech signal is a second
6 output of the router and appears as its own input to the DSP matrix mixer. Provide a
7 technician page on the touch panel for adjustment of the speech and program mix and an
8 overall send level control. This page will be password protected and used only by
9 authorized personnel

10 During a conference the return audio from the conference far end is routed through the
11 router and the DSP matrix mixer to the program playback speakers. For recording
12 purposes, only the return audio and the send audio are mixed together in the DSP matrix
13 mixer to the record output.

14 Provide a level control for the record output on a technician page as described above.

15 Add DSP processing to the conference and record signals. On the send audio and
16 recording signals provide any necessary band pass filters required by the frequency
17 limitations of the codec and recorder. Provide a compressor/limiter to maintain uniform
18 levels and to prevent signal overload.

19 Program audio from all the sources available on the router shall be reproduced, as shown
20 on the drawings, through the program loudspeakers only. This shall be accomplished
21 through a dedicated router output and DSP matrix mixer input for the program sources.

22 The control panels will have a volume control for program audio. Add DSP processing
23 for room equalization and compressor/limiter and band pass filters for the program
24 loudspeakers.

25 Program the DSP so that near end audio can never go to the program speakers

26 The Contractor will install projector in ceiling. A 60 X 80” electric projection screen will
27 be provided by University.

28 The projection screen will be provided by the University with a wall switch. The screen
29 shall also be controlled by the AV control system.

30 The control system will have the following functions:

- 31 1. System power on/off with projector cool down and warm up indications.
- 32 2. Projector controls as specified above.
- 33 3. Flat panel display power: on/off, input select, aspect ratio select (default shall
34 be 16:9), menu controls for all adjustments on tech pages

- 1 4. Source selection for near end viewing and far end transmission.
- 2 5. DSP routing
- 3 6. Computer interface input selection
- 4 7. Routing switchers: input and output selection. Provide basic selection on main
5 pages for typical configurations. Provide complete routing capabilities on tech
6 pages.
- 7 8. Video conferencing codec: All functions as available on the Crestron control
8 module including: volume, privacy, picture in picture, address book with two
9 numbers per entry, site name and call quality, call speed, audio only
10 conferencing, camera control including five presets, local presets, emulation
11 of all functions on the IR remote, internet streaming, source selection of
12 transmit and receive video
- 13 9. VCR: Play, stop, pause, rewind, fast forward, search forward, search reverse,
14 power on, power off, TV tuner select, channel up, channel down, keypad,
15 keypad entry indication
- 16 10. DVD: Play, scan reverse, scan forward, skip reverse, skip forward, pause,
17 stop, slow forward, slow reverse, up, down, right, left, menu, select, power.
- 18 11. Volume up/down and mute
- 19 12. E-control web pages
- 20 13. Room View integration

21 Provide and install equipment in the racks and furniture as required. Provide power
22 control and distribution as required.

23 Provide and install the equipment listed below

24 **System Type 6: Dean's Conference Room 238A – Base Contract**

25 This room will consist of a flat panel display at one end of the conference room and a
26 rack that will be housed in millwork at the other end of the room. The rack shall be
27 installed on the adjustable shelves in the millwork so that the top of the rack is near the
28 top of the cabinet.

29 The flat panel display will be provided and installed by the Contractor. The Contractor
30 will be responsible for all structural support. The flat panel display will be provided with
31 loudspeakers that shall be installed on either side of the display. When ordering the
32 loudspeakers, be sure to inform the manufacturer of the display being used so the right
33 size loudspeaker enclosure will be provided.

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1 Source equipment, such as the VCR and DVD player will be contained in millwork. The
2 Contractor shall provide power distribution as required.

3 The system will have a controlled surge protector that will be used to power all the
4 equipment. Security covers will be provided by the Contractor for the amplifier and surge
5 protector.

6 A laptop connection will be provided on the front wall of the room underneath the flat
7 panel display. It will connect directly to the flat panel display as shown on the drawings.
8 A VCR and an all region DVD player will be contained in the racks and will connect
9 directly to the flat panel display. Audio from these sources shall be balanced as they leave
10 the rack or wall plate and then unbalanced at the audio input to the flat panel display

11 The VCR shall be connected to the University's CATV system by the Contractor. The
12 Contractor shall be responsible for providing cabling to the CATV jack provided by
13 others.

14 A 60 X 80" electric projection screen will be provided by University. The projection
15 screen shall be operable through the control system.

16 The control system will be provided a data connection for the implementation of Room
17 View. The Contractor shall be responsible for connecting the control system and
18 configuring it onto the University's network. .

19 There will be a wireless touch panel in this room. The University will provide a Wireless
20 Access Point. The Contractor shall closely coordinate touch panel configuration with the
21 University to put it onto the wireless network.

22 The Contractor will provide and install a docking station for the touch panel. This will
23 provide charging for the touch panel battery.

24 The control system will have the following functions:

- 25 1. System power on/off with projector cool down and warm up indications.
- 26 2. Flat panel display power: on/off, input select, aspect ratio select (default shall be
27 16:9), menu controls for all adjustments on tech pages
- 28 3. Projection screen: up/stop/down
- 29 4. VCR: Play, stop, pause, rewind, fast forward, search forward, search reverse,
30 power on, power off, TV tuner select, channel up, channel down, keypad, keypad
31 entry indication
- 32 5. DVD: Play, scan reverse, scan forward, skip reverse, skip forward, pause, stop,
33 slow forward, slow reverse, up, down, right, left, menu, select, power.

1 6. Volume up/down and mute

2 7. E-control web pages

3 8. Room View integration

4 Provide and install equipment in the racks and furniture as required. Provide power
5 control and distribution as required.

6 Provide and install the equipment listed below

7 **System Type 7A 7B and 7C: Conference Rooms 319, 322 and 240**

8 The three conference rooms will simply consist of a flat panel display installed on the
9 wall at the front of the room and a wall plate to connect sources into the display

10 The wall plate will be mounted on wall at receptacle height on the same wall as the flat
11 panel display. The wall plate will have the same inputs as the flat panel display. If during
12 the course of procurement of this contract the configuration of the display changes or if
13 the display specified is discontinued, the wall plate shall be adjusted to mirror the inputs
14 of the display actually installed.

15 Wiring going to the flat panel display will pass through a grommet on a plate that is
16 mounted behind the display.

17 An integrated control system will not be provided in these rooms. The remote control that
18 comes with the flat panel display will be used to switch between sources.

19 The flat panel display shall be provided with loudspeakers. The loudspeakers shall be
20 installed on either side of the display. The flat panel will be provided with an integrated
21 TV tuner; the Contractor shall connect the display to the CATV outlet provided by others
22 and program the tuner for all available channels.

23 Provide and install equipment as required. Provide power distribution as required.

24 Provide and install the equipment listed below

25 **System Type 8: Portable Equipment**

26 Provide the portable equipment listed below. Unpack, test and assemble all equipment
27 and accessories. Be sure all equipment is in operational order. Any equipment found to be
28 defective out of the box shall be exchanged for non-defective equipment. Repairing new
29 equipment is not acceptable.

30 Inventory and store all equipment as directed by the University.

1 System Type 4A: Distance Learning Alternate

2 *Note this alternate adds rear projection capability to this room. If this alternate is taken,*
3 *the entire cost of system four as described above will be deducted and the entire cost of*
4 *system 4A will be added to the contract. Therefore, this specification is written to stand*
5 *independently of system six. Under this alternate a rear projection enclosure is*
6 *substituted for front video projection. To this end, due to requirements for a wide angle*
7 *lens, the projector is changed.*

8 The Distance Learning Room has two displays. There is a rear screen video projector in
9 the front of the room for the near end students to view instructional materials and the far
10 end sites. There is a flat panel display at the rear of the room for the instructor to view the
11 far end sites.

12 There will be two cameras. One camera will be installed within the rear projection unit; it
13 will be used to photograph near end students. The second camera at the rear of the room
14 will be used to photograph the instructor. The Contractor shall be responsible for
15 completely installing all displays, cameras and loudspeakers.

16 There will be a rack in this room that will house all the support equipment. The rack will
17 be housed in the rear projection enclosure along with the loudspeakers. Use a swing out
18 rack to aid in servicing. .

19 A lectern will be provided by the Contractor. It will house the following equipment:

- 20 • Microphone
21 • University supplied permanent computer and LCD monitor
22 • Computer interface
23 • Wired control system touch panel
24 • Touch panel interface
25 • Cable cubby

26 The lectern will house a computer provided by the University along with connections for
27 a laptop and document camera. Each of these devices will connect into a three input
28 computer interface.

29 All equipment will be housed in a lectern (presenter's station) that will be provided by
30 the Contractor. The Contractor shall provide a complete set of submittals on the lectern
31 including finish samples for the University to approve. Submittals shall include drawings,
32 photographs, cut sheets and other documentation as requested by the University.

33 The total cost of the lectern shall be calculated as follows: The Contractor shall budget
34 \$6,500.00 dealer cost. The Contractor shall markup from this dealer cost. This will
35 provide a preliminary final cost to the University. The Contractor shall provide the
36 University with the percentage markup as part of their proposal.

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1 Once the lectern has been approved, the Contractor shall present to the University final
2 quotes and invoices from the manufacturer(s) showing the actual cost of all products to
3 the dealer including shipping. The dealer may then mark up the actual cost of the lectern
4 at the same percentage as the bid submitted. This will be handled as a change order to the
5 Contractor.

6 The lectern shall provide space to house an University furnished PC. The lectern shall
7 provide facilities for the touch panel. It is likely that the touch panel will be installed on
8 an articulating arm to allow easy adjustment. The lectern shall provide proper venting so
9 that the ambient temperature inside the lectern does not exceed specifications for any of
10 the equipment installed in the lectern. The lectern will be provided with a low voltage
11 light on a gooseneck so that the instructor has sufficient light to view papers (Littlelight
12 or equal). The lectern shall be provided with a clock.

13 The lectern shall be provided with support and/or storage for a document camera.

14 Wire management shall be provided within the lectern. Power and low voltage wiring
15 shall be fed into the lectern from the floor.

16 As part of the design and submittal process the Contractor shall meet with the University
17 and its consultant to itemize all devices that must be accommodated in the lectern. After
18 this meeting, the Contractor may provide a lectern from pre-qualified suppliers including
19 Marshall Furniture, KSI, R.T. Hogg Cabinetmakers, Van San and Forbes Industries.
20 Other suppliers may be considered if samples of their work are submitted or the
21 University and/or its consultant have previous positive experience with the supplier.

22 Under the lectern there will be a floor box with connections as shown on the drawings.
23 The floor box has been provided by the general contractor. The Contractor is responsible
24 for providing all connections in the floor box with the exception of power and data. .

25 Under the lectern there will be a floor box with connections as shown on the drawings.
26 The floor box has been provided by the general contractor. The Contractor is responsible
27 for providing all connections in the floor box with the exception of power and data. .

28 The podium computer interface will connect to input one on the VGA matrix switcher.

29 A document camera shall be setup so that a USB mouse (supplied with the document
30 camera) can be used for annotation. It shall be setup so that images may be captured into
31 the PC. The AVC shall be responsible for installing this software into the University's
32 PC.

33 Outputs one and two from the VGA matrix switcher will connect to the VGA inputs one
34 and two on the digital processor. This will allow two VGA sources to be displayed at the
35 same time.

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1 Outputs one and two from the S-video matrix switcher will connect to s-video inputs one
2 and two on the digital processor. This will allow two s-video sources to be displayed at
3 one time.

4 The digital processor will have two inputs and two outputs. It will have dual window
5 capabilities allowing for the display of two VGA and two s-video sources on either
6 display. The digital processor DVI outputs will connect to the projector and flat panel
7 display VGA inputs with an adapter cable. The adapter cable will convert the DVI-I
8 signal to five wire RGBHV signals for input to the displays.

9 Other outputs of the VGA switcher will connect into the flat panel display and the codec
10 as shown on the drawings. Outputs from the s-video switcher will connect to the touch
11 panel, the VCR and camera inputs on the codec and directly to the VCR.

12 Other devices will connect to the matrix switcher as shown on the drawings.

13 The connectivity shown will allow the projector to display the near end instructional
14 materials in full screen along with far end camera video as a picture in picture, or far end
15 cameras as full screen.

16 The podium computer interface audio will connect to audio input one on the VGA matrix
17 switcher through a transformer.

18 Other sources will connect to the system as shown on the drawings. Feedback eliminators
19 shall be provided on all sources that could be used for recording to prevent a feedback
20 loop.

21 There will be eight microphone plates placed through out the room. There will be two
22 microphones per plate. The sixteen microphones will connect to the first sixteen inputs on
23 the audio digital signal processor (DSP). The Contractor shall provide microphones with
24 12' goosenecks. The microphones will be provided with a switch that can be set to mute
25 the microphone or to activate the microphone. For initial setup, set the switches to mute
26 the microphone when pressed. If during the course of this project the University decides
27 to change this function to push-to-talk, change the settings without charge to the
28 University.

29 There will be one 18" lectern microphone with shock mount at the podium. This
30 microphone will connect to input 17 on the audio DSP.

31 Outputs of the DSP will connect to the codec and the program audio amplifier. Output of
32 the amplifier will feed the loudspeakers on either side of the projection screen.

33 The codec will be configured for IP configuration to operate over the University
34 computer network. This network connects into a state wide ATM network linking the
35 University of Maine System campuses and provides gateway services for external video
36 conferencing.

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- 1 The microphone system is used for distance learning and video conferencing only. All
2 microphone signals are mixed by the automatic microphone mixers within the DSP The
3 microphone signals are combined together and sent to the codec as the “send audio.”
- 4 When a program source is added to the “send audio” supply a separate control page for
5 the program source add feature. For example, allow for sending VCR audio with speech
6 to a remote site. Provide this capability for all program sources.
- 7 When using the add feature the selected program source to be sent is also mixed together
8 with the return audio for playback. The combined program and speech signal is a second
9 output of the router and appears as its own input to the DSP matrix mixer. Provide a
10 technician page on the touch panel for adjustment of the speech and program mix and an
11 overall send level control. This page will be password protected and used only by
12 authorized personnel
- 13 During a conference the return audio from the conference far end is routed through the
14 router and the DSP matrix mixer to the program playback speakers. For recording
15 purposes, only the return audio and the send audio are mixed together in the DSP matrix
16 mixer to the record output.
- 17 Provide a level control for the record output on a technician page as described above.
- 18 Add DSP processing to the conference and record signals. On the send audio and
19 recording signals provide any necessary band pass filters required by the frequency
20 limitations of the codec and recorder. Provide a compressor/limiter to maintain uniform
21 levels and to prevent signal overload.
- 22 Program audio from all the sources available on the router shall be reproduced, as shown
23 on the drawings, through the program loudspeakers only. This shall be accomplished
24 through a dedicated router output and DSP matrix mixer input for the program sources.
- 25 The control panels will have a volume control for program audio. Add DSP processing
26 for room equalization and compressor/limiter and band pass filters for the program
27 loudspeakers.
- 28 Program the DSP so that near end audio can never go to the program speakers
- 29 The Contractor will install projector in ceiling. A 60 X 80” electric projection screen will
30 be provided by University.
- 31 The projection screen will be provided by the University with a wall switch. The screen
32 shall also be controlled by the AV control system.
- 33 The control system will have the following functions:
- 34 1. System power on/off with projector cool down and warm up indications.

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- 1 2. Projector APA adjust (auto button). Projector advanced functions including:
2 projector lamp hour monitoring, quick setup, Easy MP mode (wireless
3 presentation, Contractor shall setup projector for wireless and network
4 presentations, coordinate IP addresses and other information with University.)
- 5 3. Projector image mute, picture preview (allows preview of other inputs through
6 the projector)
- 7 4. Flat panel display power: on/off, input select, aspect ratio select (default shall
8 be 16:9), menu controls for all adjustments on tech pages
- 9 5. Source selection for near end viewing and far end transmission.
- 10 6. DSP routing
- 11 7. Computer interface input selection
- 12 8. Routing switchers: input and output selection. Provide basic selection on main
13 pages for typical configurations. Provide complete routing capabilities on tech
14 pages.
- 15 9. Video conferencing codec: All functions as available on the Crestron control
16 module including: volume, privacy, picture in picture, address book with two
17 numbers per entry, site name and call quality, call speed, audio only
18 conferencing, camera control including five presets, local presets, emulation
19 of all functions on the IR remote, internet streaming, source selection of
20 transmit and receive video
- 21 10. VCR: Play, stop, pause, rewind, fast forward, search forward, search reverse,
22 power on, power off, TV tuner select, channel up, channel down, keypad,
23 keypad entry indication
- 24 11. DVD: Play, scan reverse, scan forward, skip reverse, skip forward, pause,
25 stop, slow forward, slow reverse, up, down, right, left, menu, select, power.
- 26 12. Volume up/down and mute
- 27 13. E-control web pages
- 28 14. Room View integration
- 29 Provide and install equipment in the racks and furniture as required. Provide power
30 control and distribution as required.
- 31 Provide and install the equipment listed below

1 System Type 6A: Dean's Conference Room Alternate

2 *Note this alternate adds video conferencing capability to this room. If this alternate is*
3 *taken, the entire cost of system six as described above will be deducted and the entire*
4 *cost of system 6A will be added to the contract. Therefore, this specification is written to*
5 *stand independently of system six. Under this alternate two flat panel displays are*
6 *substituted for the video projector.*

7 This room will consist of a flat panel display at one end of the conference room and a
8 rack that will be housed in millwork at the other end of the room. The rack shall be
9 installed on the adjustable shelves in the millwork so that the top of the rack is near the
10 top of the cabinet.

11 The flat panel display will be provided and installed by the Contractor. The Contractor
12 will be responsible for all structural support. The flat panel display will be provided with
13 loudspeakers that shall be installed on either side of the display. When order the
14 loudspeakers, be sure to inform the manufacturer of the display being use so the right size
15 loudspeaker enclosure will be provided.

16 Source equipment, such as the VCR and DVD player will be contained in millwork. The
17 Contractor shall provide power distribution as required.

18 The system will have a controlled surge protector that will be used to power all the
19 equipment. Security covers will be provided by the Contractor for the amplifier and surge
20 protector.

21 A laptop connection will be provided on the front wall of the room underneath the flat
22 panel display. A VCR and a DVD player will be housed in the equipment racks.

23 The VCR shall be connected to the University's CATV system by the Contractor. The
24 Contractor shall be responsible for providing cabling to the CATV jack provided by
25 others.

26 A 60 X 80" electric projection screen will be provided by the University. The projection
27 screen shall be operable through the control system.

28 The control system will be provided a data connection for the implementation of Room
29 View. The Contractor shall be responsible for connecting the control system and
30 configuring it onto the University's network. .

31 There will be a wireless touch panel in this room. The University will provide a Wireless
32 Access Point. The Contractor shall closely coordinate touch panel configuration with the
33 University to put it onto the wireless network.

34 The Contractor will provide and install a docking station for the touch panel. This will
35 provide charging for the touch panel battery.

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- 1 The room will have video conferencing capability. There will be a video codec in rack
2 one.
- 3 RGBHV video from the wall plate will connect to the video codec.
- 4 The output of the VCR will connect to a 6 X 1 switcher in the main equipment rack.
- 5 The DVD component video will connect to the VGA/component input on flat panel
6 display one. The DVD S-video will connect to a 6 X 1 s-video switcher.
- 7 The output of the 6 X 1 switcher will connect into the “VCR” input on the codec.
- 8 The Contractor shall install a camera above the flat panel display facing into the
9 conference room. The camera will connect to a CAT 5e transmitter. The Contractor will
10 provide a Cat5e cable from camera position to rack one. This cable will connect to a CAT
11 5e receiver mounted in rack one. From the CAT 5e receiver output a custom cable will
12 connect to two places on the video codec, the camera one input and the camera control
13 input.
- 14 The Contractor shall be responsible for providing and installing a camera mount above
15 the flat panel display
- 16 The VCR output will connect to the VCR for recording.
- 17 The video codec VGA output will connect to the RGBHV position of flat panel display.
- 18 The video codec will have a data connection provided by University. The Contractor
19 shall be responsible for configuring the codec to work on the University’s network.
20 Coordinate addressing and other information with the University’s IT department.
- 21 Audio from the laptop input will connect to the VGA audio input on the video codec.
- 22 Audio from the VCR and DVD will connect to the 6 X 1 switcher. Audio from the 6 X 1
23 switcher will connect to the VCR input on the video codec. Audio from the video codec
24 VCR output will connect to the VCR for recording.
- 25 Three table microphones will connect to the wall plate at the front of the room. Provide
26 the microphones along with enough cable to allow the microphones to be placed
27 anywhere on the table.
- 28 Audio from the video codec VGA output will connect to the flat panel displays through
29 buffer amplifiers.
- 30 The control system will be provided a data connection for the implementation of Room
31 View. The Contractor shall be responsible for connecting the control system and
32 configuring it onto the University’s network. .

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1 There will be a wireless touch panel in this room. The University will provide a Wireless
2 Access Point. The Contractor shall closely coordinate touch panel configuration with the
3 University to put it onto the wireless network.

4 The Contractor will provide a docking station for the touch panel. This will provide
5 charging for the touch panel battery.

6 The control system will have the following functions:

- 7 1. System power on/off for both flat panel displays.
- 8 2. Source selection for both flat panel displays and audio for speakers.
- 9 3. VCR: Play, stop, pause, rewind, fast forward, search forward, search reverse,
10 power on, power off, TV tuner select, channel up, channel down, keypad, keypad
11 entry indication
- 12 4. DVD: Play, scan reverse, scan forward, skip reverse, skip forward, pause, stop,
13 slow forward, slow reverse, up, down, right, left, menu, select, power.
- 14 5. Video conferencing codec: All functions as available on the Crestron control
15 module including: volume, privacy, picture in picture, address book with two
16 numbers per entry, site name and call quality, call speed, audio only conferencing,
17 camera control including five presets, local presets, emulation of all functions on
18 the IR remote, internet streaming, source selection of transmit and receive video
- 19 6. Volume up/down and mute
- 20 7. E-control web pages
- 21 8. Room View integration

1 **4.0 Equipment**

2 Provide and install the following equipment. Approved equals will only be accepted as
3 provided herein.

4 **System Type 1: Classrooms**

5 This section of the specifications applies to the following rooms:

<u>Room Name</u>	<u>Room Number</u>
Snow Sports	001
Art Education	012
Resource Classroom 1	114
Resource Classroom2	115
EMS Classroom	111
Classroom	107
Classroom	106
Literacy Classroom	103
Center for Excellence in Teaching	329

Item	Manufacturer	Model	Description	Quan
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Sources

1	Pioneer	DV-383S	DVD player	1
2	Middle Atlantic	RSH-4S	Rack Shelf for Pioneer	1
3	Panasonic	PV-V4628S	VCR	1
4	Middle Atlantic	RSH-4S	Rack Shelf for Panasonic	1
5	Extron	VGA A M-M MD/25	25' VGA cable with audio for CPU/laptop	1
6	Custom	CAT6	25' Data cable	1
7	Custom	Power Cord	25' Power extension cord	1

Video Display

8	Epson	Powerlite 835P	Video Projector 1024 x 768 3000 Lumens	1
9	Chief Manufacturing	RPA-149	Projector mount	1
10	Custom	Hardware	To mount projector	1

Program Audio System

11	Electro-Voice	7100	2 channel power amplifier	1
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Item	Manufacturer	Model	Description	Quan
12	JBL	Control 28	Program Speakers	2
13	Omnimount	20.5 CA-PA	Ceiling mount for Speaker	2
14	Custom	Hardware	To mount speakers	1
<u>Control System</u>				
15	Crestron	MP2E	Control System	1
16	Crestron	TPS-4L	3.6" Touch Panel	1
17	Lowell	C10-1947	Rack Panel Mount for TPS-4L	1
18	Crestron	CNSP-XX	Serial Interface Cable for projector	1
19	Crestron	IRP2	Infrared Emitter Diode	2
20	Crestron	Programming	Custom	1
<u>Peripherals</u>				
21	RT Hogg	Custom rack	Per specifications	1
22	Lowell	L18-193L	19" Rack Storage Drawer with Lock	1
23	Chatsworth	10900-500	Cable Support Bracket	1
24	SurgeX	SX1115RT	Surge Suppressor with Remote	1
Total Equipment				
Contractor labor and supervision to install				
Materials to install				
Freight				
Training				
As-built documentation				
System test and acceptance				
Total non equipment				
<u>TOTAL SYSTEM COST</u>				

1 **System Type 2: Music Room 006**

Item	Manufacturer	Model	Description	Quan
<u>Sources</u>				
1	Pioneer	DV-383S	DVD player	1
2	Middle Atlantic	RSH-4S	Rack Shelf for Pioneer	1
3	Panasonic	PV-V4628S	VCR	1
4	Middle Atlantic	RSH-4S	Rack Shelf for Panasonic	1
5	Tascam	CD-A500	Combo CD/Cassette deck	1
6	Denon	DP-29F	Turntable with cartridge and equalizer	1
7	Extron	VGA A M-M MD/25	25' VGA cable with audio for CPU/laptop	1
8	Custom	CAT6	25' Data Cable	1
9	Custom	Power Cord	25' Power extension cord	1
<u>Video Display</u>				
10	Epson	Powerlite 835P	Video Projector 1024 x 768 3000 Lumens	1
11	Chief Manufacturing	RPA-149	Universal Projector Mount	1
12	Custom	Hardware	To mount projector	1
<u>Program Audio System</u>				
13	Electro-Voice	7100	2 channel power amplifier	1
14	JBL	Control 28	Program Speakers	2
15	Omnimount	20.5 CA-PA	Ceiling mount for Speaker	2
16	Custom	Hardware	To mount speakers	1
<u>Control System</u>				
17	Crestron	MP2E	Control System	1
18	Crestron	TPS-4L	3.6" Touch Panel	1
19	Lowell	C10-1947	Rack Panel Mount for TPS-4L	1
20	Crestron	CNSP-XX	Serial Interface Cable for projector	1
21	Crestron	IRP2	Infrared Emitter Probe	3

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Item	Manufacturer	Model	Description	Quan
22	Crestron	Programming	Custom	1
<u>Peripherals</u>				
23	RT Hogg	Custom rack	Per specifications	1
24	Lowell	L18-193L	19" Rack Storage Drawer with Lock	1
25	Chatsworth	10900-500	Wall Cable Support Bracket	1
26	SurgeX	SX1115RT	Surge Suppressor with Remote	1
Total Equipment				
Contractor labor and supervision to install				
Materials to install				
Freight				
Training				
As-built documentation				
System test and acceptance				
Total non-equipment				
<u>TOTAL SYSTEM COST</u>				

1 System Type 3: Lounge Lobby 117

Item	Manufacturer	Model	Description	Quan
<u>Source Equipment</u>				
1	Pioneer	DV-383S	DVD player	1
2	Middle Atlantic	RSH-4S	Rack Shelf for Pioneer	1
3	Panasonic	PV-V4628S	VCR	1
4	Middle Atlantic	RSH-4S	Rack Shelf for Panasonic	1
5	Extron	AAP 102	Two-Gang AAP Mounting Frame	1
6	Extron	70-103-14	Two XLR 3 Female AAP Plate	2
7	Extron	70-147-12	Active Extender AAP	1

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Item	Manufacturer	Model	Description	Quan
8	Extron	AAP 301	Full Rack Width, 1U AAP Mounting Frame	1
9	Extron	70-161-11	Computer Video and Audio AAP Plate	1
10	Extron	70-093-72	Three RCA Females w/ Silkscreen AAP plate	1
11	Extron	70-107-73	One S-video, Two RCA w/ Silkscreen AAP Plate	1
12	Extron	70-100-11	Two RJ45 Female to Female Barrel AAP Plate	1
13	Extron	70-090-11	Blank Plate Single	1
14	RDL	STA-1	Line Amplifier	1
<u>Switching and Processing</u>				
15	Extron	MPS 112	Media Presentation Switcher	1
<u>Video Display</u>				
16	Epson	Powerlite 835P	Video Projector 1024 x 768 3000 Lumens	1
17	Chief Manufacturing	RPA-149	Projector Mount	1
18	Custom	Hardware	To mount projector	1
<u>Kiosk Equipment</u>				
16	ELO	1947L	19" Touch Screen LCD Monitor	3
17	Black Box	IC244A	USBCAT5 Extender	3
18	Extron	P/2 DA1	VGA Line Driver	3
<u>Program Audio</u>				
19	Electro voice	EVIDC8.2	Ceiling speakers (pair)	13
20	Crown	CH1	600 Watt Amplifier	1
21	Bi-Amp	Nexia PM	Line/Microphone DSP Mixer	1
22	Bi-Amp	VCB	Voltage control box	1
23	Custom	As specified	Volume control panel	1
24	Electro-Voice	N/D367S	General purpose hand held microphone with on/off	4

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Item	Manufacturer	Model	Description	Quan
			switch	
25	Atlas Soundolier	DS7E	Standard adjustable desk mic stand	2
26	Atlas Soundolier	MS 10CE	2 section all purpose mic stand/ebony base	2
27	Atlas Soundolier	BB28XE	18"-37" boom arm attachment	2
28	Pro-Co	AXMB-25	25ft mic cables with black connectors	4
<u>Control System</u>				
29	Crestron	AV2	Control System	1
30	Crestron	TPMC-10	WI-FI Touch Panel	1
31	Crestron	TPMC-10-DS	Docking Station for TPMC-10	1
32	Crestron	C2ENET-2	Dual Port Ethernet Card for AV2	1
33	Crestron	CNSP-XX	Serial Interface Cable for projector	1
34	Crestron	IRP2	Infrared Emitter Probe	3
35	Crestron	Programming	Custom	1
<u>Peripherals</u>				
36	Middle Atlantic	RK20	20RU Rack	1
37	Lowell	L18-197L	Utility Drawer	1
38	SurgeX	SX1115RT	Surge Suppressor with Remote	1
Total equipment				
Contractor labor and supervision to install				
Materials to install				
Freight				
Training				
As-built documentation				
System test and acceptance				
Total non-equipment				

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Item	Manufacturer	Model	Description	Quan
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TOTAL SYSTEM COST

1

2 **System Type 4: Distance Learning 112**

Item	Manufacturer	Model	Description	Quan
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Sources

1	Pioneer	DV-383S	Multi Region DVD player	1
2	Middle Atlantic	RSH-4S	Rack Shelf for Pioneer	1
3	JVC	HR-S5902U	S-VHS VCR	1
4	Middle Atlantic	RSH-4S	Rack Shelf for JVC	1
5	Extron	RGB 203Rxi	Triple Input Computer Interface	1
6	Extron	MBU 125	Under-Desk Mount	1
7	Extron	VGA M-M MD10	VGA cable with for doc camera	1
8	Extron	VGA-A M-M MD/12	VGA cable with audio for computer/laptop	2
9	Extron	Cable Cubby 600	Surface -mountable Enclosure for cables	1

Video Display

10	Epson	Powerlite 835P	Video Projector 1024 x 768 3000 Lumens	1
11	Chief Manufacturing	RPA-149	Universal Projector Mount	1
12	Custom	Hardware	To mount projector	1

Video Switching and Processing

13	Extron	MAV Plus 128 SVA	12 X 8 S-video Matrix Switcher with audio	1
14	Extron	MVX 44 VGA A	4 X 4 VGA Matrix Switcher with audio	1
15	RGB Spectrum	DV-XL-2/0	Display Processor	1

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Item	Manufacturer	Model	Description	Quan
16	Extron	DVIAM-VGAF	DVI-A Male to 15-pin HD Female Cable	2
17	Aurora Multimedia	BTL	Feedback Eliminator	1
18	RDL	STA-1	Electronic Transformer	1
19	Technical Necessities or equal	SV4-2B-6	S-Video Adapter	12
20	Custom	Per Drawing	6 Gang AV floor box plate	1
21	Custom	Per Drawing	3 Gang Microphone floor box plate	1
<u>Audio System</u>				
22	Biamp	Audia FLEX CM	AudiaFlex chassis with Cobranet	1
23	Biamp	AEC2w	2 channel wide band acoustic echo cancelling/noise suppression input card	9
24	Biamp	OP2e	2 channel mic/line output card	3
25	Biamp	Audia EXPI	8 channel mic/line analog inputs to Cobra net output expansion unit	1
26	Electro-Voice	PC Desktop-12	Polar Choice free standing 12" desktop mic with switch module	16
27	Electro-Voice	PC Plus-18	Polar Choice 18' Lectern microphone with base mount	1
28	Electro-Voice	7100	2 channel power amplifier	1
29	JBL	Control 28	Program Speakers	2
30	Omnimount	20.5 CA-PA	Ceiling mount for speaker	2
31	Custom	Hardware	To mount speakers	1
32	Custom	Per Drawing	2 Gang Microphone Plate	8
<u>Videoconference System</u>				
33	Mitsubishi	MDT-461S	46" LCD Display Monitor	1
34	Chief Manufacturing	PSM 2049	LCD mount	1

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Item	Manufacturer	Model	Description	Quan
35	Polycom	VSX-7000E (CP-3372B)	Videoconferencing Codec 7000 System	1
36	Polycom	4870-00001-100	Premier Maintenance 1yr upgrade	1
37	Polycom	5150-21297-001	Multipoint Software	1
38	Polycom	7200-22785-001	Image Share II Software	1
39	Sony	EVID70	Camera	2
40	Innovative Communications	WM-30B	Wall Mounts for Sony Cameras	2
<u>Control System</u>				
41	Crestron	PRO2	Professional Dual Bus Control System	1
42	Crestron	C2ENET-1	Single Port Ethernet Card	1
43	Crestron	CNPWS-75	Power Supply	1
44	Crestron	TPS-15B	15" Touch Panel	1
45	Crestron	CNSP-XX	Serial Interface Cable	10
46	Crestron	IRP2	Infrared Emitter Probe	2
47	Crestron	C2COM3	3 Port RS-232 Comm. Card	2
48	Crestron	Programming	Custom	1
<u>Peripherals</u>				
49	RT Hogg	Custom	Lectern (Provide an allowance of \$6,500 dealer cost).	1
50	RT Hogg	Custom rack	Per specifications	1
51	Lowell	L18-193L	19" Rack Storage Drawer with Lock	1
52	SurgeX	SX1115RT	Surge Suppressor with Remote	1
Total Peripherals				
Total equipment				
Contractor labor and supervision to install				

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Item	Manufacturer	Model	Description	Quan
			Materials to install	
			Freight	
			Training	
			As-built documentation	
			System test and acceptance	
			Total non-equipment	
			<u>TOTAL SYSTEM COST</u>	

1

2 **System Type 6: Dean's Conference Room 238A**

Item	Manufacturer	Model	Description	Quan
			<u>Sources</u>	
1	Pioneer	DV-383S	DVD player	1
2	Middle Atlantic	RSH-4S	Rack Shelf for Pioneer	1
3	Panasonic	PV-V4628S	VCR	1
4	Middle Atlantic	RSH-4S	Rack Shelf for Panasonic	1
5	RDL	STA-1	Line Amplifier	5
6	Extron	AAP 104	Four-Gang AAP Mounting Frame	1
7	Extron	70-147-12	Active Extender AAP	1
8	Extron	70-090-12	Blank Plate Double	3
			<u>Video Display</u>	
9	Panasonic	TH65PHD9UK	65" plasma	1
10	Chief Manufacturing	PLP-2000 + PSB-H2458	Plasma Wall Mount	1
			<u>Program Audio System</u>	
11	Innovox	Sound Frame Flex	Speakers for Panasonic TH65PHD8UK (pair)	1

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Item	Manufacturer	Model	Description	Quan
<u>Control System</u>				
12	Crestron	AV2	Control System	1
13	Crestron	TPMC-10	WI-FI Touch Panel	1
14	Crestron	TPMC-10-DS	Docking Station for TPMC-10	1
15	Crestron	C2ENET-2	Dual Port Ethernet Card for AV2	1
16	Crestron	CNSP-XX	Serial Interface Cable for projector	1
17	Crestron	IRP2	Infrared Emitter Probe	2
18	Crestron	Programming	Custom	1
<u>Peripherals</u>				
19	Middle Atlantic	5--8	Slim 5 Eight Rack Unit Rack	2
20	SurgeX	SX1115RT	Surge Suppressor with Remote	1
Total Equipment				
Contractor labor and supervision to install				
Materials to install				
Freight				
Training				
As-built documentation				
System test and acceptance				
Total non-equipment				
<u>TOTAL SYSTEM COST</u>				

1

2 **SYSTEM TYPE 7A, 7B AND 7C: CONFERENCE ROOMS 319, 322 AND 240**

3

4 **System 7A**

Item	Manufacturer	Model	Description	Quan
1	Extron	AAP 104	Four-Gang AAP Mounting	1

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Item	Manufacturer	Model	Description	Quan
			Frame	
2	Extron	70-107-xx	Video/s-video AAP Panel (RCA/S-Video)	1
3	Extron	70-094-x2	Three RCA AAP Panel w/ silkscreen	1
4	Extron	70-094-x1	Two RCA Audio AAP Panel w/ silkscreen	2
5	Extron	70-101-x3	VGA/HD w/ audio AAP Panel w/silkscreen	1
6	Extron	70-090-x1	Single AAP Blank Panel	3
7	Extron	97-001-01	One-time charge silkscreen	1
8	Extron	97-002-01	Silk Screen	1
9	Samsung	LN-S4092D	40" LCD Display Monitor	1
10	Chief	MTR-6241	Tilt wall-mount	1

Total equipment

Contractor labor and supervision to install

Materials to install

Freight

Training

As-built documentation

System test and acceptance

Total non-equipment

TOTAL SYSTEM COST

1 System 7B

Item	Manufacturer	Model	Description	Quan
1	Extron	AAP 104	Four-Gang AAP Mounting Frame	1
2	Extron	70-107-xx	Video/s-video AAP Panel(RCA/S-Video)	1

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3	Extron	70-094-x2	Three RCA AAP Panel w/ silkscreen	1
4	Extron	70-094-x1	Two RCA Audio AAP Panel w/ silkscreen	2
5	Extron	70-101-x3	VGA/HD w/ audio AAP Panel w/silkscreen	1
6	Extron	70-090-x1	Single AAP Blank Panel	3
7	Extron	97-001-01	One-time charge silkscreen	1
8	Extron	97-002-01	Silk Screen	1
9	Samsung	LN-S4692D	46" LCD Display Monitor 16x9	1
10	Chief	PLP-2534	Tilt wall mount	1

Total equipment

Contractor labor and supervision to
install

Materials to install

Freight

Training

As-built documentation

System test and acceptance

Total non-equipment

TOTAL SYSTEM COST

1 **System 7C**

Item	Manufacturer	Model	Description	Quan
1	Extron	AAP 104	Four-Gang AAP Mounting Frame	1
2	Extron	70-107-xx	Video/s-video AAP Panel(RCA/S- Video)	1
3	Extron	70-094-x2	Three RCA AAP Panel w/ silkscreen	1
4	Extron	70-094-x1	Two RCA Audio AAP Panel w/ silkscreen	2

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5	Extron	70-101-x3	VGA/HD w/ audio AAP Panel w/silkscreen	1
6	Extron	70-090-x1	Single AAP Blank Panel	3
7	Extron	97-001-01	One-time charge silkscreen	1
8	Extron	97-002-01	Silk Screen	1
9	Samsung	LN-S4692D	46" LCD Display Monitor 16x9	1
10	Chief	PLP-2534	Tilt wall mount	1

Total equipment

Contractor labor and supervision to install

Materials to install

Freight

Training

As-built documentation

System test and acceptance

Total non-equipment

TOTAL SYSTEM COST

1 System Type 8: Portable Equipment

Item	Manufacturer	Model	Description	Quan
1	Samsung	SDP-950 DX	Document camera with VGA output	3
2	Bretford	MP24-E4	Cart for Document Camera	3
3	Smart Technologies	Model 680	77" diagonal interactive white board	1
4	Smart Technologies	FS670	Floor stand for Model 680	1
5	Smart Technologies	USB-XT	USB Extension cable	1
6	Smart Technologies	20-00653-00	Replacement stylus and eraser	1

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Item	Manufacturer	Model	Description	Quan
7	Epson	Powerlite 835P	Video Projector 1024 x 768 3000 Lumens	1
8	Bretford	A26TG42E-GM	Tech-Guard Adjustable Cart w/e-unit	1
9	Epson	V13H010L31	UHE Replacement Lamp	2
10	Epson	V13H134A07	Replacement filter set	2
Total equipment				
Contractor labor and supervision to install				
Freight				
Total non-equipment				
<u>TOTAL SYSTEM COST</u>				

1

2 **System Type 4A: Distance Learning Alternate**

Item	Manufacturer	Model	Description	Quan
<u>Sources</u>				
1	Pioneer	DV-383S	Multi Region DVD player	1
2	Middle Atlantic	RSH-4S	Rack Shelf for Pioneer	1
3	JVC	HR-S5902U	S-VHS VCR	1
4	Middle Atlantic	RSH-4S	Rack Shelf for JVC	1
5	Extron	RGB 203Rxi	Triple Input Computer Interface	1
6	Extron	MBU 125	Under-Desk Mount	1
7	Extron	VGA M-M MD10	VGA cable with for doc camera	1
8	Extron	VGA-A M-M MD/12	VGA cable with audio for computer/laptop	2
9	Extron	Cable Cubby 600	Surface -mountable Enclosure for cables	1
<u>Video Display</u>				
10	Large Screen Solutions	RM120VFA	120" Vista Power rear screen	1

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Item	Manufacturer	Model	Description	Quan
			module	
11	Sanyo	PLV-80	16:9 Video Projector	1
12	Sanyo	LNS-W32	0.79:1 Lens	1
<u>Video Switching and Processing</u>				
13	Extron	MAV Plus 128 SVA	12 X 8 S-video Matrix Switcher with audio	1
14	Extron	MVX 44 VGA A	4 X 4 VGA Matrix Switcher with audio	1
15	RGB Spectrum	DV-XL-2/0	Display Processor	1
16	Extron	DVIAM-VGAF	DVI-A Male to 15-pin HD Female Cable	2
17	Aurora Multimedia	BTL	Feedback Eliminator	1
18	RDL	STA-1	Electronic Transformer	1
19	Tenneco	SV4-2B-6	S-Video Adapter	12
20	Custom	Per Drawing	6 Gang AV floor box plate	1
21	Custom	Per Drawing	3 Gang Microphone floor box plate	1
<u>Audio System</u>				
22	Biamp	AudiaFlex CM	AudiaFlex chassis with Cobranet	1
23	Biamp	AEC2w	2 channel wide band acoustic echo cancelling/noise suppression input card	9
24	Biamp	OP2e	2 channel mic/line output card	3
25	Biamp	Audia EXPI	8 channel mic/line analog inputs to Cobranet output expansion unit	1
26	Electro-Voice	PC Desktop-12	Polar Choice free standing 12" desktop mic with switch module	16
27	Electro-Voice	PC Plus-18	Polar Choice 18' Lectern microphone with base mount	1
28	Crown	CDi-1000	2 channel 275 watt @ 8 ohm power amplifier	1

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Item	Manufacturer	Model	Description	Quan
29	Electro-Voice	XI-1082	Program playback speakers	2
30	Custom	Per Drawing	2 Gang Microphone floor box plate	8
<u>Videoconference System</u>				
31	Mitsubishi	MDT-461S	46" LCD Display Monitor 16x9	1
32	Chief Manufacturing	PSM 2049	LCD mount	1
33	Polycom	VSX-7000E (CP-3372B)	Videoconferencing Codec 7000 System	1
34	Polycom	4870-00001-100	Premier Maintenance 1yr upgrade	1
35	Polycom	5150-21297-001	Multipoint Software	1
36	Polycom	7200-22785-001	Image Share II Software	1
37	Sony	EVID70	Camera	2
38	Innovative Communications	WM-30B	Wall Mount for Sony Cameras	1
<u>Control System</u>				
39	Crestron	PRO2	Professional Dual Bus Control System	1
40	Crestron	C2ENET-1	Single Port Ethernet Card	1
41	Crestron	CNPWS-75	Power Supply	1
42	Crestron	TPS-15B	15" Touch Panel	1
43	Crestron	CNSP-XX	Serial Interface Cable	10
44	Crestron	IRP2	Infrared Emitter Probe	2
45	Crestron	C2COM3	3 Port RS-232 Comm. Card	2
46	Crestron	Programming	Custom	1
<u>Peripherals</u>				
47	RT Hogg	Custom	Lectern (Provide an allowance of \$6,500 dealer cost).	1

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Item	Manufacturer	Model	Description	Quan
48	Middle Atlantic	SRSR-4-20	Rotating Rail System (for installation in rear projection enclosure)	1
49	Lowell	SRSR-Catrim	Trim Panel	1
50	Lowell	L18-193L	19" Rack Storage Drawer with Lock	1
51	SurgeX	SX1115RT	Surge Suppressor with Remote	1
Total equipment				
Contractor labor and supervision to install				
Materials to install				
Freight				
Training				
As-built documentation				
System test and acceptance				
Total non-equipment				
<u>TOTAL SYSTEM COST</u>				

1 System Type 6A: Dean's Conference Room Alternate

Item	Manufacturer	Model	Description	Quan
<u>Sources</u>				
1	Pioneer	DV-383S	DVD player	1
2	Middle Atlantic	RSH-4S	Rack Shelf for Panasonic	1
3	JVC	HR-S5902U	S-VHS VCR	1
4	Middle Atlantic	RSH-4S	Rack Shelf for JVC	1
5	Extron	AAP 104	Four-Gang AAP Mounting Frame	1
6	Extron	70-147-12	Active Extender AAP	1
7	Extron	70-103-14	Two XLR-3 Female AAP Plate	2

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Item	Manufacturer	Model	Description	Quan
8	Extron	70-090-12	Blank Plate Double	1
8	RDL	RU-DA4D	Audio DA	2
9	RDL	STA-1	Line Amplifier	3
<u>Switching and Processing</u>				
10	Kramer	VS-61YC	6 X 1 YC Switcher	1
<u>Video Display</u>				
11	Panasonic	TH65PHD9UK	65" plasma	1
12	Chief Manufacturing	PLP-2000 + PSB-H2458	Plasma Wall Mount	1
<u>Program Audio System</u>				
13	Shure	SCM 410	Four Channel Microphone Mixer	1
14	Innovox	Sound Frame Flex	Speakers for Panasonic TH65PHD8UK (pair)	1
<u>Video Conferencing</u>				
15	Polycom	7200-21962-001	VSX Presenter includes VSX 8000, PowerCam, 2 microphones, Image Share 2, and People + contend IP	1
16	Polycom	5150-22762-001	VSX MP Plus Multi Point Option	1
17	Clock Audio	C009E	Boundary Microphone without mounting holes	3
18	Sound Control Tech	RC1-SP	Camera Mount and Cable for Polycom Power Cam	1
<u>Control System</u>				
19	Crestron	AV2	Control System	1
20	Crestron	C2ENET-2	Ethernet Card for AV2	1
21	Crestron	TPMC-10	WI-FI Touch Panel	1
22	Crestron	TPMC-10-DS	Touch Panel docking station/charger	1
23	Crestron	CNSP-XX	Serial Interface Cable	3

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Item	Manufacturer	Model	Description	Quan
24	Crestron	IRP2	Infrared Emitter Probe	2
25	Crestron	Programming	Custom	1
<u>Peripherals</u>				
26	Middle Atlantic	5--8	Slim 5 Eight Rack Unit Rack	2
27	SurgeX	SX1115RT	Surge Suppressor with Remote	1
Total Equipment				
Contractor labor and supervision to install				
Materials to install				
Freight				
Training				
As-built documentation				
System test and acceptance				
Total non-equipment				
<u>TOTAL SYSTEM COST</u>				

END OF SPECIFICATIONS

SECTION 6 – PROPOSAL CONTENT

The following sections of the Request for Proposal outline the general proposal format and procedures required for submission to the University. All terms of this Request for Proposal are hereby incorporated into the final proposal form.

Any Offeror may withdraw its Proposal by written request at any time prior to the proposal due date. No Offeror may withdraw its proposal for a period of thirty (30) days after the due date, and all bids shall be subject to acceptance by the University during this period.

Only one proposal may be submitted by each Offeror.

Each responding Offeror shall furnish verifiable evidence that its organization and personnel meet the following minimum qualifications. Any sub-contractor to the Offeror must comply with the following requirements:

1 **Offeror's Qualifications**

2 Each Offeror shall include a description of the professional and technical experiences,
3 background, qualifications and expertise of the organization's key personnel assigned to
4 this project. The description shall show that Offeror possesses the demonstrated skills and
5 experience in specific areas of the project scope. In addition, Offeror shall identify a
6 project manager for the project and shall provide resumes of all personnel who shall be
7 assigned to this project. Offeror shall estimate the percentage of time each individual
8 shall be working on this project.

9 **Contacts**

10 Offeror shall identify the following individuals who shall act as contacts for the
11 University:

- 12 1. The sales representative/account manager responsible for the sale
- 13 2. The corporate executive who has the authority to negotiate on behalf of and bind
14 the company if the contract is awarded
- 15 3. A qualified technician who can answer detailed questions about the
16 products/services offered

17 **References**

18 In order to qualify for consideration, the Offeror must show evidence of at least five (5)
19 years previous experience in the design and construction of facilities of similar scope and
20 magnitude, using similar equipment. Provide three (3) references, including telephone
21 numbers and the names of people to contact, at locations where the Offeror has
22 performed work on a scale and manner similar to this installation.

23 Provide references of key personnel who will be working on this project including but not
24 limited to project manager, systems engineer and lead technicians.

25 **Financial Statement**

26 Offeror must demonstrate its financial ability to enter into this contractual relationship
27 and to sustain this project by providing the following documentation and such other
28 documentation, as the University shall reasonably request:

- 29 1. Annual Report with audited Financial Statement for the most recent three
30 years; or
- 31 2. Audited Financial Statements for the most recent three years; or
- 32 3. Audited Balance Sheets for most recent three years

1 **Insurance**

2 Evidence that the Offeror can meet insurance requirement section of this document.

3 **Warranties**

4 Indicate the extent of all warranties applied to this contract.

5 **Test Equipment**

6 Provide a listing including manufacturer, model number, serial number and date of latest
7 calibration of all test equipment that will be used in performance of this contract. See test
8 equipment section below for details of required equipment.

9 **Sample Documentation**

10 Provide sample rack elevations, audio flows, control flows and video flows showing as-
11 built conditions of previous projects. Submittals shall be full size.

12 Provide user operations and troubleshooting manuals from a previous project. Provide
13 complete bound manuals.

14

15 **Authorized Dealer**

16 A letter of confirmation from the manufacturer(s) that the vendor is authorized to service
17 all items of equipment quoted, and retains full-time employees who are factory trained
18 and certified to perform field service on all major items of equipment. For each major
19 product, provide a letter from the manufacturer stating that the dealer is authorized to sell,
20 install and service the equipment specified herein.

21 A joint proposal may be submitted provided that each participating Offeror signs the
22 proposal. If the contract is awarded to Joint Contractors, each Joint Contractor shall be
23 jointly and severally liable for the performance of the entire contract, and the Joint
24 Contractors must designate, in writing, one individual having authority to represent the
25 Joint Contractors in all matters relating to the contract. The University assumes no
26 responsibility or obligation for the allocation of orders or purchases among the Joint
27 Contractors. Provide collateral material for each organization or individual listed, in
28 addition and to the extent provided herein by the primary Offeror on this contract.

29 The primary Offeror shall clearly state the role of any sub-contractor, partner or other
30 persons with regards to furnishing equipment, services, installation, design, engineering,
31 and warranty or post-warranty equipment maintenance. The University shall hold the
32 primary Contractor (Offeror) liable for compliance with all terms of this specification,
33 and all terms of this contract. If the Offeror is a primary manufacturer, or a manufacturer

1 who is a Value Added Reseller of products for all equipment and services specified, the
2 Offeror shall so state in their proposal.

3 **Training**

4 Provide operator and maintenance training as specified below. As part of the proposal,
5 the Offeror shall include a syllabus outlining the training offered. This syllabus shall
6 include a clear set of instructional objectives, and the methods that will be used to
7 achieve those objectives.

8 **Procurement and Installation Timeline**

9 Offeror shall provide a procurement and installation time line with their proposal. The
10 time line shall be in the form of a CPM based PERT or Gantt chart. The chart shall show
11 the various steps required for procurement, assembly and installation. The timeline shall
12 indicate each task to be performed, expected resource allocation, and expected duration
13 of each task. Also, indicate earliest start, earliest finish, latest start and latest finish for
14 each major task. Note prominently expected task milestones, and expected payment
15 milestones. Critical path shall be indicated in the timeline, along with a discussion as to
16 the implications of slippage in the critical path. Offeror shall indicate any “long lead
17 time” equipment or material items with their proposal that could hinder the timely
18 completion of the project.

19 **PRICING**

20 **Equipment**

21 The Offeror shall include with their proposal a complete itemized list including the
22 manufacturer, model number, unit cost and total cost for all specified items; reference
23 each item by “item number” or when necessary a description of the item as it appears in
24 this document. Provide expected delivery information in timeline and include separately
25 cost for any substitutions, or add or deduct items.

26 The University reserves the right to purchase additional equipment, purchase less
27 equipment or delete equipment entirely based on its own best interests.

28 **Labor/Supervision**

29 The Offeror shall provide itemized pricing for all labor and supervision required to set-up
30 and install the systems. Labor shall be itemized for each system. Itemizations shall
31 include all labor and/or supervision to procure, manage and install the systems. Labor
32 shall be provided at a fixed price, time and materials rates are not acceptable.
33 Additionally, the Offeror shall provide labor rates for all personnel to be used in case of
34 change order.

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1 The University reserves the right to purchase additional labor and supervision, purchase
 2 less labor and supervision or delete labor and supervision entirely based on its own best
 3 interests.

4 **Purchased Services**

5 The Offeror shall identify all purchased or sub-contracted services to be provided under
 6 this contract. Indicate, in detail, the extent and cost associated with the purchased
 7 services. The Offeror shall identify, and provide references for all sub-contractors who
 8 may be employed in the execution of the Work under this contract.

9 The University reserves the right to purchase additional services, purchase fewer services
 10 or delete purchased services entirely based on its own best interests.
 11

12 Provide a bid summary as shown below. **NO OTHER FORMAT IS ACCEPTABLE.**
 13 *Note that if alternates are taken for systems four and six, the total cost of system four and*
 14 *six will be deducted and the cost of alternates 4A and 6A will be added to the contract as*
 15 *applicable.*

16

System	Equipment	Labor and Materials	Total
1. Snow Sports 001			
1. Art Education 012			
1. Resource Classroom 1 114			
1. Resource Classroom2 115			
1. EMS Classroom 111			
1. Classroom 107			
1. Literacy Classroom 103			
1. Center for Excellence in Teaching 329			
1. Classroom 106			
2. Music Room 006			
3. Lounge 117			

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System	Equipment	Labor and Materials	Total
4 Distance Learning 112			
6. Dean's Conference Room 238A			
7A. Conference 319			
7B Conference 322			
7C: Conference 240			
8. Portable Equipment			
Total Base Bid			
Alternate 4A Distance Learning Alternate			
Alternate 6A Dean's Conference Room Alternate			
Cost of Bonds			
Other			
Other			

1
2

APPENDICES FOLLOW

Appendix 1

Project Reports

FORM PR-1A

File this form in a timely manner as instructed in the contract documents. This form is available electronically or in paper format. It may be reproduced for administration of this project only. Complete all sections. If a section is not applicable, place NA in the appropriate space. Return this form as instructed in the specifications. Reports are due by 3:00PM on the dates indicated in the contract documents.

Project Name	
Report Date	
Division Number	
Report Number	
Contractor Name	
Contractor Project Manager	
Contractor Telephone/e-mail	
Person filing report	

Section 1: Equipment (Use separate sheets as necessary)

A. Percent of all equipment received to date but not on-site	
B. Percent of equipment ordered but not received	
C. Percent of equipment not ordered (explain)	
D. Percent of equipment on-site	
E. Value of all equipment received	\$
F. List any items with procurement/delivery problems. Describe problem	
G. List any equipment that is defective or requires service. Describe problem.	
H. Describe any system integration problems relative to the equipment.	
I. Are there any other equipment-related issues that need to be resolved?	

Section 2: Installation Status (Use separate sheets as necessary)

A) Days of work performed in the last report period	
B) Expected days of work for the next report period	
C) Average number of personnel provided during this report period	
D) Average number of personnel expected to be provided in the next report period	
E) Estimated overall percent of project completed	
F) List areas completed	
G) List areas started but not completed. Provide estimated completion date	
H) List areas not started	

Section 3: Conflicts and Problems:

A) Describe work completed during this report period

B) Document all meetings that took place during this report period. List attendees, items discussed and decisions made. (Attach separate sheets if necessary)

C) Provide a narrative of any problems encountered that require University, Manufacturer or others' intervention (attach separate sheets if necessary).

Provide narrative of conflicts with other trades that may be holding up installation progress:

D) Report any unusual incidents or occurrences:

E) Provide any other information you deem appropriate to aid in the management of this project:

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FORM PR-2

File this form prior to commencing work in a room, or as otherwise instructed. One form shall be filed for each room, and anytime the room condition changes. All surveys must be witnessed either the University's representative, or be documented with photographs/videos. This form is available electronically or in paper format. It may be reproduced for administration of this project only. Complete all sections. If a section is not applicable, place NA in the appropriate space. Return this form as instructed in the specifications. Use the back of this form for additional comments

Project Name	
Report Date	
Room Number	
Contractor Name	
Contractor Project Manager	
Contractor Telephone and e-mail	
Division Number	
Room Surveyed by contractor (name/date/time)	
Survey witnessed by University's representative (name/date/time)	

Section 1: Document Room Condition (attach photos or additional sheets if necessary)

Area	Good	Damaged	Unfinished	Describe
North Wall				
South Wall				
East Wall				
West Wall				
Other Wall				
Floor				
Ceiling				
Doors				
Windows				
Lights				
HVAC				
Tables				
Chairs				
Chalkboards				
Bulletin Board				
Display rails				
Portable Equip				

Release of responsibility: I/we, as University's representative, have reviewed the condition of this room post-installation, and find it to require repair not require repair (check one), and hereby release do not release (check one) this contractor from liability.

Signed/dated: _____

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Appendix 2

Rack Specifications