



**University of Colorado at Boulder
Housing and Dining Services**

**Design- Build Technical Criteria
Andrews Hall Renovation - PR 002504
Addendum No. 4
February 28, 2008**

1. On page 8, SCOPE OF WORK SUMMARY, Hazardous Materials, **ADD:** "The Design/Build Team will select from pre-qualified abatement contractors from the state of Colorado State Building's Approved List."
2. On page 29, under Room Name: Faculty Office: Engineering Honors Program, **CHANGE:** "Faculty Office: Engineering Honors Program" to "Hall Director's Office." **CHANGE:** "Adjacent to: EHP Reception, EHP Work Room, EHP Director" to "Adjacent to: Reception/Information Desk."
3. On page 32, under TECHNICAL CRITERIA: EXTERIOR SCOPE AND MATERIALS, I. SITE, D., **ADD:** "Provide a permeable hardscape surface under bike racks and provide concrete "mow" strips around the bike rack areas."
4. On page 32, under TECHNICAL CRITERIA: EXTERIOR SCOPE AND MATERIALS, I. SITE, F. 4., **DELETE:** "Eave lighting around the building shall be replaced with LED fixtures and lamps so as to comply with LEED standards." **ADD:** "Eave lighting around the building shall be replaced with fixtures and lamps so as to comply with LEED standards. Note that incandescent lights are not permitted in this application as per UCB standards."
5. On page 35, under II. BUILDING ENVELOPE, B. INSULATE THE BUILDING ENVELOPE, 3. Roof, **ADD:** "Remove existing insulation in roof structure during demolition."
6. On page 52, under E. SPECIALTIES, 1. Visual Display, a. Tackboards: **DELETE:** "Provide Wall Technology's A108 Series composite panel, or Approved Substitute." **ADD:** "Provide Tack Boards **similar** to the Fabricmate Systems Interactive Panel System with square edge profile, reCore substrate, 2100 FR701 fabric. Student room tackboards can not be pre-fabricated, but must be constructed in the field as per Housing Maintenance standards."
7. On page 66, under VI. INFORMATION TECHNOLOGY, K., **DELETE:** "Provide a converged wireless network system capable of supporting multiple wireless data and voices services over a single broadband infrastructure. Services are to be added by a simple "plug and play" module insertion. The main system components are to be designed to initially support cellular and Wi-Fi services using passive antennae and access points. The system is to have Head End Radio Interface Unit equipment and hubs/switches as required for wireless laptop computers, PDA's, etc. The Design-Build Team shall engage MobileAccess Networks, Inc. to layout and provide the system components." **ADD:** "Provide two wireless systems: 1) a discrete WiFi system; and 2) a MobileAccess Distributed Antenna System (DAS). For WiFi service, install ceiling access boxes provided by owner. Ceiling access boxes include a CAT 5E jack inside the box and must be secured to the ceiling at all four corners. Pull CAT 5E cable from the IDF closet closest to the ceiling access boxes. Follow the CU standards for pulling CAT 5E cable and all cable runs. D/B team is responsible for 100% coverage of wireless. See Attachment 1 of this addendum for complete specifications for the wireless

infrastructure for WiFi and DAS and suggested locations for ceiling access boxes.” See Attachment 1 for complete specifications for wireless infrastructure.

8. On page 67, under VII. SECURITY SYSTEMS, A., **ADD:** “All C-Cure locations require door contacts and motion sensors.”
9. On page 67, under VII. SECURITY SYSTEMS, C., **DELETE:** “Maintain the existing cameras presently in the operation at the exterior doors.” **ADD:** “Provide wiring for CU supplied cameras at all C-Cure locations. Cameras will be installed in the interior of the buildings.”
10. Provide a detailed cost estimate in the CSI format as an attachment to the Cost Proposal Form. Cost detail should include costs related to profit, overhead, home office staff, home office expenses, accounting and/or legal fees, insurance (exclusive of on-site staff payroll related insurance), reimbursable general condition expenses, and any other costs or expenses consistent with the Draft Design Build Agreement and Draft General Conditions issued with RFP. Provide a separate line item amount for abatement.
11. UCB is very interested in maximizing heat recovery to the building through a heat recovery system.
12. The elevator shafts and stairwell shafts are currently not fully fire-rated. Provide fully fire-rated shafts in these locations.
13. Provide one RA single room (which will use the common bathroom) on **each** floor of **each** wing.
14. Provide for the sound and impact transmission to the Engineering Faculty in Residence Apartment from the spaces above and below as appropriate.
15. Provide sub-metering for utilities for the Engineering Faculty in Residence Apartment.
16. Coordinate with the CU CAD office for building room numbers. Contact Marina Florian to help with coordination during the design development phase.
17. Regarding “ship’s ladders” to the attics where there is an existing access panel: A “ship’s ladder” is acceptable, as long as it can be climbed without the aid of one’s hands. Electricians and mechanics servicing the equipment in the attics will need to be able to exit safely in case of an emergency and also need to be able to carry tools in their hands when climbing the “ship’s ladder.” If the “ship’s ladder” is installed so steeply that it cannot be climbed without the aid of using hands then it is not acceptable. A preferred option is to provide stairs to attics where there is mechanical and electrical equipment.
18. Provide four (4) copies of the submittal package, not ten (10) as outlined in the RFP.

Attachments:

Attachment 1 – Questions and Answers #4 of February 28, 2008

Attachment 2 – Wireless Infrastructure Specification

Attachment 3 - Revised Alternate and Unit Price Form (dated 02.28.08)

Attachment 1



**University of Colorado at Boulder
Housing and Dining Services**

Andrews Hall Renovation - PR 002504

Questions and Answers #4

February 28, 2008

- Question:** Per Addendum #3, item 6 the MDF room cannot be relocated and per the original technical requirements Page 36 (F) IDF or MDF rooms cannot be next to any common bathroom. The MDF is currently located adjacent to a common bathroom; can the MDF room be located adjacent to a common bathroom for this renovation?

Answer: If the MDF room is located next to a bathroom, provide a 6" curb between the two rooms with waterproofing at bathroom side of curb. For privacy issues, provide one layer of 16 gauge sheet metal screwed to the studs between the two rooms. A limited relocation of the MDF room is possible if there is enough slack in the existing cable/wiring. Research regarding relocation will be at the cost of the D/B Teams. The MDF room must remain a separate, enclosed room with cooling.
- Question:** The UCB Telecommunication Standards in Appendix 3 of the UCB Building and Construction Standards state "No liquid piping, dry liquid piping, or steam piping shall pass through or within the walls..." (Section 1.4, Paragraph i), but there is nothing in the UCB Telecom standards that specifically indicates IT MDF or IDF rooms cannot be adjacent to any bathroom or toilet room as noted on page 66 of the Technical Criteria. Can the IT MDF or IDF rooms be next to a bathroom as long as there is no piping in the wall between them?

Answer: Yes, see the answer to last question for specific requirements.
- Question:** Addendum No.2, item 5, specifies 150 SF for each Building Common, Public Toilet, and Attachment 5 included in the Addendum specifies 50 SF each in the answer to question #13. Which is correct?

Answer: Both of these are incorrect. Provide 2 public toilets at 75 SF each, for total of 150 SF.
- Question:** Per Q&A #3 in regards to pumps on the generator; If the pumps are all on the generator, does CU want the fan coil units on the generator as well or just what is stated in the answer?

Answer: No, provide what is stated in the answer.
- Question:** If the MDF and IDF rooms require cooling, will the telecom closets require cooling as well?

Answer: MDF and IDF rooms are the telecom closets. All telecom closets require cooling.
- Question:** Who is the manufacturer of the windows at Arnett?

Answer: EFCO Corporation.
- Question:** Are TV brackets, CATV and outlets necessary in the laundry room(s)? See Technical Criteria, II. Criteria for Rooms, G. Laundry Rooms, 3. Other (pg 43) and Electrical and Systems, VIII Cable TV, Power IT and CATV Systems Schedule (page 68).

Answer: Yes.

8. **Question:** In addendum # 2 there was a statement to make provisions for wall mounted flat screen television(s). How many wall mounted locations per room? One per bed? Are the CATV jacks in addition to the already required one per bed? Do we need one down low AND one up high per bed? We assume they want a receptacle up high to plug in the TV. Do these add to the total quantity of receptacles per bed or should we delete one of the other receptacles that are required (only a duplex at regular height instead of a double duplex)?
Answer: The selection committee has further reviewed this concept and has determined to not to go forward with this requirement for the Andrews Renovation Project.
9. **Question:** In regard to elevator rework, the DB team was originally required to provide for architectural upgrades to the two existing cars as well as provide stainless steel control consoles and a partial code upgrade for only "suppression, detection and shunt trip." Since the Addendum # 3 question and subsequent response regarding elevator equipment room machinery, we want to confirm that these original program items are still required and will not now be contracted by UCB. Please confirm who is to contract these services?
Answer: The Design/Build Team is to contract for these services as per the Criteria. UCB will perform maintenance items only.
10. **Question:** Do we need to abate wall panels in mechanical room if the wall system remains in place?
Answer: If the walls and ceilings are not going to be effected then the material would be able to stay in place if approved in the design build plan. All other regulated asbestos containing materials would still need to be abated.
11. **Question:** We would like to verify that the only hot pipe insulation found in the crawl space tunnel system is in the northwest corner of the building.
Answer: The only pipe insulation that is asbestos in the partial tunnel section 51 is 20 LF, 6", steam line straights and fittings within the West Wing, NW Corner coming from the main tunnel section to the building.
12. **Question:** We are observing other insulation joint compound in the attic space. Is there any other testing data that indicates that these are hot and need to be abated?
Answer: Pipe insulation **outside** of the Mechanical Room 137 and Partial Tunnel Section 51 are homogenous materials and have been inspected and determined to be not regulated.
13. **Question:** Page 14 of the RFP indicates that the project is tax exempt but later says that materials purchased in "certain political sub-divisions" (i.e. City of Boulder) may not recognize this exemption. What is the tax rate you would like the DB teams to use in their costing proposals?
Answer: Contact the Sales/Use Tax Division of the City of Boulder for their rates at 303.441.3050.
14. **Question:** The original DB Criteria (pg 63) indicates that an elevator should be on the generator for the alternate. Subsequent addenda and alternate list (of addendum #2) did not mention the elevator. Should the elevator not be considered as a load on the generator?
Answer: The elevator should be on the generator. See the revised Alternate and Unit Price Form – Attachment 2 of this Addendum.
15. **Question:** The luminaries cut sheets do not match the types called out in the luminaries schedule in the DB Criteria (pg 64). Can you provide the luminaries cut sheets that go with the DB Criteria and also correct the luminaries schedule to match the cut sheets that were provided with the DB Criteria?
Answer: Use these cut sheets as examples. This will be resolved during the design process.

16. **Question:** Please confirm that primary and pad-mounted transformers are by the Contractor as indicated in the DB Criteria (pg 62).
Answer: Contractor to provide transformer as per DB Criteria.
17. **Question:** Please confirm that ground-fault protection is wanted (although no needed per code since at 208V) per DB Criteria (pg 62). If ground-fault protection is wanted, do you want external ground-fault sensing as indicated in UCB standards?
Answer: Yes, provide GFI as per UCB standards.
18. **Question:** The UCB Standards say to follow Xcel guidelines for locating pad mounted transformers. Xcel standards say that such transformers cannot be located below operable windows. Operable windows are desired for the remodel. Please confirm that a variance will be provided to the UCB standards for this project or the new pad mounted transformer will need to be in a different location than existing and primary extended.
Answer: The design for the transformer location must comply with the electrical code. If the current location does not comply, the Design-Build Team must propose several alternatives to accomplish code compliance without relocating the transformer. The campus AHJ's will review and comment on the alternatives. The Design-Build Team must look at all the issues involved, i.e., open windows, trees and vegetation, vicinity to the building and vicinity to egress and building access."
19. **Question:** The UCB Standards say the design team shall perform a Lightning Protection analysis. Assuming the analysis indicates the building is at high risk, should we provide alternate pricing for a Lightning Protection System?
Answer: No.
20. **Question:** Who is responsible for removing the existing connectivity/cabling and to ensure no loss of service is experienced within the university?
Answer: The Design/Build Team.
21. **Question:** Will UCB be providing a speaker layout? If so, will that be provided within the next week for pricing?
Answer: Once the final design is established, CU will work with the D/B Team to provide a speaker layout.
22. **Question:** Addendum #1, 4 M. Indicated the replacement of existing heat trace. We do not see any existing heat trace indicated on the as-built drawings. Can UCB please identify where the heat trace is currently installed?
Answer: The heat trace system is in the gutters.
23. **Question:** Can the existing sanitary sewer remain in place?
Answer: The sanitary sewer line must be replaced as per the D/B Criteria.

Attachment 2

Andrews Hall Wireless Infrastructure Specification

There will be two wireless systems installed at Andrews Hall: 1) a discrete WiFi system based on Cisco infrastructure, and; 2) a MobileAccess Distributed Antenna System (DAS) that will support the cellular wireless service providers.

I. WiFi System

1. Electronics
 - a. UCB will provide all Electronics (Switches, Access Points, etc.).
 - b. UCB will physically install all Electronics in the IDFs (rack-mount) and ceiling access boxes.
 - c. UCB will configure the Electronics and commission the WiFi system.
2. Wireless Design
 - a. Access Points (APs) will be located per the design attached.
 - b. UCB will be responsible for the wireless performance of the system.
3. Lock Boxes
 - a. All APs will be housed in secure ceiling access boxes. The Design-Build team will install locked ceiling access boxes at the AP locations identified on the attached design. Spec sheets for the locked ceiling boxes are also attached.
 - b. UCB will provide the ceiling access boxes.
4. Cabling
 - a. The Design-Build team will install, terminate, and test a single Category 5e cable from each AP location to the serving IDF in that wing.
 - b. The length of that Category 5E cable shall be within the distance standard defined in the UCB Telecomm specification.

II. Distributed Antenna System

1. System Description
 - a. The Design-Build team will provide a turn-key installation of MobileAccess DAS that will enhance the coverage current and future broadband wireless services. The Design-Build team will be responsible for providing, determining quantities, and installing all equipment and cabling. They will also be responsible for designing and commissioning the system to the specified design requirements.
 - b. Design-Build team will provide a wireless distributed antenna system (DAS) to support various services, applications and technologies as follows:
 - i. Wireless operators – Sprint/Nextel, Verizon, ATT, T-Mobile, Cricket
 1. Cellular (800MHz)
 2. PCS (1900MHz)
 3. iDEN (800/900MHz)
 4. 700 MHz (recent FCC auctions)
 5. AWS (1900/2100 MHz)
 6. WiMAX

Note 1: it is understood that MobileAccess' 700 MHz, WiMAX and AWS offerings are not available at this time. However, if these items are commercially released prior to the DAS electronics needing to be procured for installation, the Design-Build team shall provide the latest equipment.

Note2: It is not known at this time what type of equipment the Wireless Operators will use to drive the DAS (BTS, BDA, Fiber-Fed amplifier, etc.). That will be clarified before the system needs to be installed.

- ii. Public Safety (800/900 SMR)

2. Equipment

Head-End Equipment

Head-end equipment shall be located in the MDF and is comprised of the following:

- a. Wide Band Base Units
Provides connectivity to main cabinet components from Remote Hubs in the IDFs
 - i. Mounting: 19" Rack Mount
 - ii. Input Voltages: 25-48 VDC
 - iii. Fiber Connections: 4 or 8 sets (To and From) SC/APC
 - iv. Auxiliary inputs: RF DL and UL – N Female Connectors
- b. Radio Interface Units
 - i. Provides interface between BDA's and Wide Band Base Units
 - ii. Mounting: 19" Rack Mount
 - iii. Output: 8 sets (DL/UL) of N Female Connectors
 - iv. Input Voltages: 25-48 VDC
- c. BDA/BTS Conditioners for Cellular, iDEN, PCS, etc.
 - i. Input Voltages: 25-48 VDC
- d. Local AC/DC Converter 100W
All DAS power will run on UPS.
 - i. Power converter
 - ii. Input Voltage Range 90~260VAC (Auto Range), 47~63Hz
 - iii. Efficiency 80% full load, 115VAC (DC conversion)
 - iv. Output Voltage (Vo) +48V
 - v. Voltage Regulation $\pm 3\%$
 - vi. Current Limit $\pm 3\%$
 - vii. Protection Over voltage protection (OVP), AC recycle
 - viii. Ratings: UL 1950, CSA 22.2 – 234, TUV EN60950
 - ix. MTBF: >100,000 hours at full load and 25°C ambient temperature
- e. Network Controller -Ethernet/IP Interface
 - i. Mounting: 19" Rack Mount
 - ii. Input Voltages: 25-48 VDC
 - iii. Auxiliary inputs: Eight (8) RS485, RJ45 Ports for Connecting Base or Radio Interface Units

- f. GUI and server S/W package
 - i. Provides GUI for wireless infrastructure

Remote Wireless Equipment

Remote wireless equipment will be installed in the IDFs

- g. Remote Hub Units
 - i. Mounting: Wall or rack mountable
 - ii. Output: Four (4) N Female Antenna Ports – all services
 - iii. Input Voltages: 120vAC or optional 48 VDC
 - iv. Provide remote access to floors from main equipment room
 - v. Rating: 9/125 SM Fiber, Corning SMF-28 or compatible
 - vi. Connectors: SC/APC

- h. Misc Ports for Cell, PCS, iDEN
 - i. Utilized to support wireless services on remote floors
 - ii. c. Input Voltages: 25-48 VDC
 - iii. Fiber inputs: SC/APC fiber connectors
 - iv. Auxiliary inputs: DL and UL for PCS add on units
 - v. Auxiliary Outputs: High Band duplexed output for High Band services, RS232 9 pin port for add on control
 - vi. Output: Four (4) N Female Antenna

- i. Local AC/DC Converter 100W
All DAS power will run on UPS.
 - i. Power converter
 - ii. Input Voltage Range 90~260VAC (Auto Range), 47~63Hz
 - iii. Efficiency 80% full load, 115VAC (DC conversion)
 - iv. Output Voltage (Vo) +48V
 - v. Voltage Regulation $\pm 3\%$
 - vi. Current Limit $\pm 3\%$
 - vii. Protection Over voltage protection (OVP), AC recycle
 - viii. Ratings: UL 1950, CSA 22.2 – 234, TUV EN60950
 - ix. MTBF: >100,000 hours at full load and 25°C ambient temperature

RF ancillaries, Cable, and Antennas

Design-Build team will provide and install all necessary RF ancillary parts, cable, and antennas.

3. Services

The Design-Build team will be responsible for designing, testing, installing the system.

- a. Performance and Design Criteria
 - i. All services shall be designed to provide signal strength of -85 dBm minimum over at least 95% of the coverage area.

- ii. The system shall be designed to support the following offered load at a minimum:
 - 1. Verizon – F6 CDMA, 1 x EVDO
 - 2. Sprint – F6 CDMA, 10 x iDEN
 - 3. ATT – 8 GSM, EDGE
 - 4. T-Mobile – 8 GSM, EDGE

- b. Commissioning
 - i. If no Wireless Operator is available to connect to the system, Design-Build team shall verify coverage using a configurable RF source to emulate the RF load stated in the design criteria.
 - ii. Design-Build team shall verify coverage performance and document the results for UCB's sign-off.

- c. Cabling and Antenna Installation
 - i. Provide plenum rated coax cable in the horizontal runs and broadband antennas in the distribution area, unless coax cable is run in conduit. This method of broadband distribution enables each antenna to radiate all services simultaneously.
 - ii. Coaxial cable shall be terminated and tested.
 - iii. Antennas will be visible and mounted in the ceiling tiles or hard lid as appropriate. Antennas will be aesthetically pleasing and unobtrusive.
 - iv. Splice and test fiber terminations per MobileAccess's specifications in the MDF and IDFs to support the MobileAccess equipment located there.
 - v. Install necessary power wiring.



State of Colorado / University of Colorado at Boulder

Alternate and Unit Price Form

Andrews Hall Renovation (Rev. 2) dated 02.28.08

A. ALTERNATES:

Alternate No. 1: Expand the existing Great Room as per the Design Technical Criteria (see II.4.b, page 35).

Indicate (circle) ADD or DEDUCT:

_____ DOLLARS (\$) _____)
Amount must be spelled out as well as numerically written.

Alternate No. 2: Add design, provide, and install diesel powered emergency generator capable of powering emergency lighting, fire and life safety, elevator and mechanical room circuits. Enclose with 6' high campus standard stone screen wall. Break out separate pricing for elevator circuitry to emergency generator.

Indicate (circle) ADD or DEDUCT:

_____ DOLLARS (\$) _____)
Amount must be spelled out as well as numerically written.

Alternate No. 3: Provide a working gas fireplace controlled by reception desk as per Addendum No. 2.

Indicate (circle) ADD or DEDUCT:

_____ DOLLARS (\$) _____)
Amount must be spelled out as well as numerically written.

Alternate No. 4: Sub-meter utilities in order to compare utility use of different floors and wings.

Indicate (circle) ADD or DEDUCT:

_____ DOLLARS (\$) _____)
Amount must be spelled out as well as numerically written.

Alternate No. 5: DDC "Andover" automated controls system monitoring for fan coil units only.

Indicate (circle) ADD or DEDUCT:

_____ DOLLARS (\$) _____)
Amount must be spelled out as well as numerically written.

Attachment 3

Andrews Hall Renovation - Alternate and Unit Price Form (continued)

B. UNIT PRICES:

- a. Abatement of concealed pipe insulation per linear foot.

_____ DOLLARS (\$) _____) lineal ft.
Amount must be spelled out as well as numerically written.

- b. Abatement of concealed floor tile per square foot.

_____ DOLLARS (\$) _____) sq. ft.
Amount must be spelled out as well as numerically written.

- c. For each lineal foot of masonry tuck-pointing 6'-0" above grade and lower.

_____ DOLLARS (\$) _____) lineal ft.
Amount must be spelled out as well as numerically written.

- d. For each lineal foot of masonry tuck-pointing 6'-0" above grade and higher.

_____ DOLLARS (\$) _____) lineal ft.
Amount must be spelled out as well as numerically written.

END