ADDENDUM No. 1, February 27, 2019

RE: Hargreaves Music Building Air Handling Unit Replacement
    Ball State University
    BSU Project No. 2019-021.01 MU

FROM: Ball State University
    Facilities Planning and Management
    Showalter Building
    3401 North Tillotson Avenue
    Muncie, Indiana 47306

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents. Acknowledge receipt of this Addendum in the space provided on the Quote Form.

This Addendum consists of this page as items indicated below and six (6) drawings:

CHANGES TO THE SPECIFICATIONS:

1. Section 230900 “INSTRUMENTATION AND CONTROL FOR HVAC”
   a. Replace 3.3.A.1 with the following:
      “Four hours of on-site orientation (provided in two, two hour session) by a system technician who is fully knowledgeable of the specific installation details of the project. This orientation shall, at a minimum, consist of a review of the project as-built drawings, the BMS software layout and naming conventions, and a walk through of the facility to identify panel and device locations. The first one, two hour session will take place at the beginning of the warranty period. The final, two hour session will take place over the remainder of the warranty period and after the first season change.”

2. Section 237414 “CUSTOM AIR HANDLING UNITS”
   a. Replace 2.3.A.1 with the following:
      “Thermal Performance: 6-12 at 75°F mean temperature.”
   b. Replace 2.3.A.2 with the following:
      “Thickness: 2” foam panels.”

REPLACE LISTED DRAWINGS:

1. MD401
2. MH101
3. M-401
4. M-501
5. M-601
6. M-701

END OF ADDENDUM No. 1
1 REMOVE AND DISPOSE OF EXISTING AHU. MECHANICAL CONTRACTOR SHALL NOT REMOVE EXISTING HEATING COIL. CONTRACTOR SHALL SUPPORT
2 REMOVE AND DISPOSE OF EXISTING 72/24 RETURN AIR DUCT AFTER RADIUS ELBOW.
3 REMOVE AND DISPOSE OF OUTSIDE AIR DUCT FROM AHU TO RISER DUCT.
4 DISCONNECT CHILLED WATER PIPING BACK TO VALVE. EXISTING VALVE TO BE REMOVED AND PREPARE EXISTING PIPING FOR INSTALL OF NEW VALVE AND PIPING RECONNECTION.
5 REMOVE AND DISPOSE OF OUTSIDE AIR AND EXHAUST AIR RISER TO ELEVATION OF NEW DUCT. PREPARE FOR TRANSITION AND RECONNECTION.
6 REMOVE AND DISPOSE OF EXISTING AIR DUCT AT AHU.
7 REMOVE AND DISPOSE OF EXISTING FAN.
8 REMOVE AND DISPOSE OF EXISTING DUCT. PREPARE FOR NEW CONNECTION.
9 REMOVE EXISTING DUCTWORK AND PREPARE FOR NEW STAINLESS STEEL CONNECTION, COORDINATE LENGTH WITH NEW HUMIDIFIER GRID.
10 REMOVE EXISTING HUMIDIFIER GRID, DAMAGED SECTION OF DUCTWORK, AND STEAM PIPING BACK TO VALVES.
11 3" EXISTING CAST IRON SANITARY PIPE TO BE DISCONNECTED AT THE ELBOW.
12 3" EXISTING CAST IRON SANITARY PIPE TO BE DISCONNECTED AT THE BOTTOM ELBOW.
13 REMOVE EXISTING ABANDONED CONTROLS BOX TO ALLOW INSTALL OF HUMIDIFIER.
14 EXISTING CONTROLS PANEL TO REMAIN. NEW CONTROLS ARE TO CONNECT TO HERE.
15 EXISTING DUCTWORK SHALL BE DISASSEMBLED TO ALLOW CONTRACTOR TO REMOVE INTERNAL LINING UP TO THE VERTICAL ELBOW. DUCT SHALL LEFT OPEN TO ALLOW CLEANING.
16 PRIOR TO DISCONNECTING EXISTING SANITARY PIPING, CONTRACTOR SHALL WORK WITH OWNER/ENGINEER TO CONFIRM WHAT FIXTURES ARE CONNECTED TO SANITARY LINE. CONTRACTOR SHALL INFORM OWNER PRIOR TO DISCONNECTING. WORK TO BE PERFORMED AFTER HOURS TO MINIMIZE THE AFFECT TO THE OCCUPANTS.
17 DISCONNECT PIPING TO REHEAT COILS.
18 (2) EXISTING REHEAT COILS TO BE DISCONNECTED FROM THE DUCT AND RELOCATED TO ALL RECONNECTION TO NEW DUCTWORK.
Sheet Keynotes:

1. Contractor to open up wall to allow the controls, humidifiers, and sensors, switching to small metal “bell” of 12" x 12" for maintenance.

2. (Blank).

3. Refer to M-401 for additional information.

4. Contractor to install building pressure sensor. Information to be pulled back into BMS system.
1. Connect new return air duct to existing duct. Provide new miter elbow down with shoe tap & flexible canvas connection to AHU.

2. Connect new exhaust air duct to existing exhaust air duct. Route over new AHU and connect to exhaust air opening with shoe tap & flexible canvas connection.

3. Connect new outside air duct to existing outside air duct. Route over new AHU and connect to outside air opening with shoe tap & flexible canvas connection.

4. Field fabricate duct connection to heating water coil.

5. Provide new duct and cap for outside air and exhaust ductwork. Seal air and weather tight.

6. Field assemble and install AHU. AHU representative and mechanical contractor to field survey existing conditions to confirm maximum piece size and dimensions of assembled unit.

7. 3" existing sanitary piping to be rerouted to allow the installation of new return air ductwork. Work to be performed on the weekend after coordinating with the owner the fixtures connected to the existing sanitary piping.

8. Connect existing return air duct with radius elbow.

9. Extend 4" chilled water piping to new AHU-1. Split the piping to 2 sets of 2" supply and return as the unit is a stacked coil. Refer to detail.

10. Install new stainless steel ductwork with sloped bottom and drain fitting. Install new humidifier grid in this section of ductwork. Route piping to new steam exchange unit. Route drain line to floor drain below ductwork.

11. Provide drop in 3" existing sanitary piping to be rerouted to allow the installation of new return air ductwork.

12. Existing controls panel.

13. Existing ductwork shall be cleaned and sealed for operation up to the vertical riser. Exterior shall be insulated and sealed.

14. Humidifier to be installed on 4" fabricated base. Contractor to route 3/4" domestic water line to humidifier. Provide 3/4" drain line out. Size steam lines per manufacturers recommendations based on install. Drain to be connected to existing sink drain. Contractor shall rework existing drain to provide open sight connection. Use type k copper, insulate and support where required.

15. Split steam piping and route 1 3/4" piping to connect to each humidifier grid. Provide balance valve.

16. Existing steam line.

17. Existing flanged connection. Connect new steam line to existing.

18. Existing steam connection. Connect main steam line to new steam line. Ensure valve selection.

19. Reinstall reheat coil(s) on new supports. Connect new duct to existing heating coils. Reconnect to existing piping.
## AIR HANDLING UNIT SCHEDULE

| Model | Location | Motor Type | Size | Width | Height | Length | V/Ph/Hz | HP | Nameplate | MCA | MOCP | MOT | Adj FR | Adj AR | Adj LR | Adj UR | Adj DR | Adj DL | Adj TL | Adj BL | Adj FL | Adj RL | Adj LR | Adj UL | Adj AL |
|-------|----------|------------|------|-------|--------|--------|---------|-----|-----------|------|-------|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| AHU 1 | Supply   |             |      |       |        |        |         |    |           |      |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|       | Return   |             |      |       |        |        |         |    |           |      |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |

## HUMIDIFIER GRID SCHEDULE

| Model | Location | Size | Width | Height | Length | V/Ph/Hz | HP | Nameplate | MCA | MOCP | MOT | Adj FR | Adj AR | Adj LR | Adj UR | Adj DR | Adj DL | Adj TL | Adj BL | Adj FL | Adj RL | Adj LR | Adj UL | Adj AL |
|-------|----------|------|-------|--------|--------|---------|-----|-----------|------|-------|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| GRD 1 |          |      |       |        |        |         |    |           |      |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |

## HUMIDIFIER SCHEDULE

| Model | Location | Size | Width | Height | Length | V/Ph/Hz | HP | Nameplate | MCA | MOCP | MOT | Adj FR | Adj AR | Adj LR | Adj UR | Adj DR | Adj DL | Adj TL | Adj BL | Adj FL | Adj RL | Adj LR | Adj UL | Adj AL |
|-------|----------|------|-------|--------|--------|---------|-----|-----------|------|-------|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| HUM 1 |          |      |       |        |        |         |    |           |      |       |     |        |        |        |        |        |        |        |        |        |        |        |        |        |

### NOTES
- Location: AHU manufacturer to provide 2 VFDs for the return fan and 2 VFDs for the supply fans.
- Provide 120V circuit to power lights. Provide 1 light switch on external of unit.
- Contractor to provide a flat and level surface to mount air handling unit.
- Controls: contractor to install all control devices in the field.
- Humidifier manufacturer to supply CV valve, actuator, balance valve, and wye strainer.
- Provide balancing valve for each grid.

### Specifications
- **Air Handling Unit Schedule**
  - Supply CFM: 18,000
  - Return CFM: 16,000
  - Steam OA CFM: 4,500
  - Steam RELATIVE HP: 37
  - Air (%): 100
  - Size: 44.6
  - Height (IN): 70
  - Motor Type: MCA
  - Motor: 1.25
  - Motor: 1.0
  - SUPPLY FAN: YES
  - RETURN FAN: YES
  - Width: 7.5
  - Height: 4.92
  - V/Ph/Hz: 4
- **Humidifier Grid Schedule**
  - Width: 1
  - Height: 1
  - Length: 1
  - V/Ph/Hz: 1
  - HP: 1
  - Nameplate: 1
  - MCA: 1
  - MOCP: 1
- **Humidifier Schedule**
  - Width: 1
  - Height: 1
  - Length: 1
  - V/Ph/Hz: 1
  - HP: 1
  - Nameplate: 1
  - MCA: 1
  - MOCP: 1

### Sheet Information
- Project #: 208/3/60
- Design Public:\ Suite 202
- Carmel, IN 46032
- Date: 02/13/2019
- Scale: 0.5"=1'-0"
- Sheet: 18071
- Revision: 1
CONTROLS
BSU MEA AHU REPLACEMENT
BALL STATE UNIVERSITY
MUNCIE, IN 47306

AHU-1 SCHEMATIC

1 Revision 1 02/27/2019

DESCRIPTION DATE

REVISIONS:

DATE:

CHECKED BY:

DESIGNED BY:

DRAWN BY:

BSU MEA AHU REPLACEMENT
BALL STATE UNIVERSITY
MUNCIE, IN 47306

M-701