

**DOCUMENT 00 90 00  
ADDENDUM**

**ADDENDUM NO. [4]                      Date: May 17, 2018**

**RE:                      WESTERN TECHNICAL COLLEGE  
                             INDOOR SHOOTING RANGE  
                             11177 COUNTY RD A  
                             SPARTA, WI 54656**

**FROM:                HSR Associates, Inc  
                             100 Milwaukee Street  
                             La Crosse, WI 54603  
                             (608) 784-1830**

**To:                    Prospective Bidders**

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated May 2018. Acknowledge receipt of this Addendum in the space provided on the bid form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of [1] page, pre-bid attendance, [1] Specification Section and [1] 24 x 36 Drawing.

**CHANGES TO SPECIFICATIONS:**

1. Pre-bid attendance attached hereto.
2. Section 08 71 00 DOOR HARDWARE
  - a. 3.04, Hardware Schedule
    - i. At Group 4 add: 1 EA    CLOSER                      4011 REG 689                      LCN
    - ii. Hardware Group 6: At threshold and sweep product numbers, change "48" to "60" and weatherstrip product number from "4884" to "6084".
3. Section 23 31 00 TERMINAL UNITS: Add section hereto as part of Contract Documents.

**CHANGES TO DRAWINGS**

4. Sheet M600R HVAC SCHEDULES 24 x 36 attached hereto.
  - a. Revisions clouded on Drawing.

**PRIOR APPROVALS**

5. Section 28 31 00 FIRE DETECTION AND ALARM
  - a. Gamewell FCI.

**END OF DOCUMENT 00 90 00**

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## Pre-Bid Meeting Sign-In Sheet

May 10, 2018

**PROJECT: WESTERN TECHNICAL COLLEGE  
SPARTA INDOOR SHOOTING RANGE  
SPARTA, WISCONSIN 54601  
HSR 18003**

BID OPENING: 2:00 PM, May 24, 2018

Name	Company	Phone No.	E-mail
1. Doug Ramsey	HSR	608-784-1830	dramsey@hsrassociates.com
2. Tom Kampa	HSR	608-784-1830	tkampa@hsrassociates.com
3. Jay McHenry	WTC	608-785-9120	McHenryJ@westerntc.edu
4. Art Herbst	Kub Electric	608-769-8403	Art@kubelectric.com
5. Mark Clough	Stauch Electric	608-792-1814	Mark@stauchelectric.com
6. Stan Orick	Orick Bros	608-769-1722	Stan@orickbros.com
7. Ben Johnson	Brick Bros	608-769-7953	bjohnson@brickbros.com
8. Brad Burke	American	608-780-4159	brad@americanconstruction.com
9. RYAN BUKE	Faulke + Hammer	608-792-1722	rburke@faulkehammer.com
10. Steve Treu	ETB INSULATION	608-386-8400	Steve.Treu@treuteam.com
11. CHRIS HACKMAN	WISSEBROTHERS	608-769-9188	Chris@wissebros.com
12. JAY MCHENRY	WTC		
13.			

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## **SECTION 23 81 01**

### **TERMINAL UNITS**

#### **PART 1: GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A.** Conditions of the Contract and portions of Division One of this Project Manual apply to this Section as though repeated herein.
- B.** The requirements of Section 23 05 00 apply to this Section.

##### **1.02 SUBMITTALS**

- A.** Submit in accord with Section 01 30 00.
  - 1. Shop drawings and descriptive product data describing all material furnished under Part 2 of this Section.

#### **PART 2: PRODUCTS**

##### **2.01 HOT WATER SYSTEM**

- A.** Based on products by Rittling.
  - 1. Daikin, Modine, Reznor, Sigma, Sterling and Vulcan equals are acceptable.
- B.** Cabinet Heaters:
  - 1. Cabinet heaters shall be model, size and capacity listed in schedule on Drawings.
  - 2. Cabinet shall be 16 gauge.
  - 3. Hinged access door is flush with the unit.
  - 4. Finish to be baked enamel of color selected by Architect.
  - 5. Include a throwaway filter and rack, replace with new filter prior to building occupancy by Owner, if units are used for temporary heating.
  - 6. Fans shall be centrifugal forward curved DW wheels, direct drive.
  - 7. Motor shall be permanent split capacitor and have built-in overload protection; provide electric disconnect.
  - 8. Heating coil shall be designed for use with hot water, 200 degrees F. (maximum); seamless copper tubes with aluminum fins.

##### **2.02 TERMINAL UNITS**

- A.** Base on 20 degrees F. temperature drop, unless indicated otherwise in schedules.

##### **2.03 ACCESSORIES**

- A.** Provide end pockets as required to conceal valves within cabinet and as noted in schedules.
- B.** Provide required access.

## **PART 3: EXECUTION**

### **3.01 TERMINAL UNITS**

- A.** Mount all units securely to structure, where shown on Drawings.
- B.** All new equipment shall be installed as recommended by manufacturer.
- C.** Install compressible filler strip between cabinet and wall to prevent heat streakage and adjust for wall irregularities

### **3.02 WIRING**

- A.** Wiring of motors under Division 26, Electrical.

**END OF SECTION 23 81 01**

## ROOFTOP HEATING/COOLING UNIT ON GRADE

UNIT NO.	MODEL NUMBER	NOMINAL TONS	TOTAL CFM	SUPPLY FAN (2)				GAS HEATING			HOT GAS REHEAT			COOLING DATA						MIN. O.A. %	RETURN/EXHAUST FAN (2)				REMARKS			
				E.S.P.	RPM	HP.	VOLT/PH	E.A.T.	INPUT MBH	OUTPUT MBH	L.A.T.'F		D.B.	W.B.	MBH	E.A.T.'F		L.A.T.'F			MBH		E.S.P.	RPM		HP.	VOLT/PH	
											D.B.	W.B.				D.B.	W.B.	TOTAL	SENS		E.S.P.	RPM					HP.	VOLT/PH
AHU-1	RN060-3-A-EBD-3-B	60	24000	1.50	1250	20	480/3	-20	1080	864	67.0	60.0	160.0	80.3	67.8	55.0	54.9	700.0	628.0	33.3	2.6	1750	20	480/3	1,2,3,4,5,6			
REMARKS:																												
<div>1. SELECTION BASED ON PRODUCT BY AAO</div> <div>2. UNIT SHALL HAVE OUTSIDE AIR ECONOMIZER (MODULATING 0 – 100%)</div> <div>3. UNIT SHALL BE A DOWN-FLOW CONFIGURATION</div> <div>4. INCLUDE POWERED CONVENIENCE OUTLET, 4" PLEATED MERV 13 UNIT FILTER AND STAINLESS STEEL HINGED ACCESS PANELS.</div> <div>5. INSTALL UNIT ON FACTORY PLENUM CURB ON GRADE. UNIT OPERATING WEIGHT IS 8000 LBS. SEE PLANS.</div> <div>6. PROVIDE GAS REGULATOR TO REDUCE 2 PSI GAS PRESSURE TO 14.0 INCHES W.C. (MAX.)</div> <div>7. UNIT SHALL BE VARIABLE CAPACITY SCROLL WITH HIGH EFFICIENCY COMPRESSOR.</div>																												

## AIR HANDLING UNIT

UNIT NO.	MODEL NUMBER	NOM. TONS	TOTAL SEN CLG MBH NET	TOTAL CAPACITY MBH	AMB. TEMP. DB/WB	ENT. TEMP. DB/WB	REFR. TYPE	CFM	E.S.P.	ANLGED FILTER	SUPPLY FAN HP. (VOLT)	MIXING BOX	MIN. O.A. %	REMARKS
AHU-2	DESTINY 004	10	76	115	95/67	80/67	R-410A	3000	1.50	MERV 8	3 (208/3)	YES	24.2	1,2,3,4,5
REMARKS:  1. SELECTION BASED ON DESTINY BY DAIKIN APPLIED 2. OUTSIDE AIR ECONOMIZER (MODULATING 0 - 100%) 3. UNIT SHALL BE HORIZONTAL CONFIGURATION 4. UNIT SHALL HAVE DIRECT DRIVE PLENUM FAN AND TOSHIBA VFD SHIPPED LOOSE. VFD INSTALLED BY ELECTRICAL. 5. INCLUDE FUSED DISCONNECT SWITCH														

## AIR COOLED CONDENSERS

UNIT NUMBER	SERVES	TOTAL CAPACITY (MBH)	CONDENSER DATA				ELECTRICAL DATA			BASIS OF MODEL NO.	REMARKS REF. NO.
			FAN NO.	FAN HP	NO. CKT	AMB. TEMP.	VOLTAGE	PHASE	MIN. CIR. AMP.		
ACU-1	AHU-2	113.7	2	1/3	1	95	460	3	25	RCS-11-F-125-D	1,2,3,4
REMARKS: 1. BASED ON PRODUCT BY DAIKIN APPLIED 2. SEE DETAIL 6M500 FOR INSTALLATION 3. PROVIDE VIBRATION ISOLATION 4. PROVIDE HIGH EFFICIENCY COPELAND SCROLLS WITH 50% UNLOADING											

## BOILERS

UNIT NUMBER	SERVES	SERIES	MODEL NO.	FUEL SOURCE	INPUT MBH	OUTPUT MBH	NET RATING MBH	VOLTAGE	THERMAL EFF.	PRESS. RELIEF VALVE	REMARKS REF. NO.
B-1	H.W. HEATING	PRESTIGE SOLO	SOLO 110	NAT. GAS	110	102	89	(120/1)	95.1	30 #	1,2
B-2	H.W. HEATING	PRESTIGE SOLO	SOLO 110	NAT. GAS	110	102	89	(120/1)	95.1	30 #	1,2
REMARKS:  1. SEALED COMBUSTION BOILER SYSTEM BASED ON PRODUCT BY TRIANGLE TUBE 2. GAS PRESSURE TO BOILERS IS 7 INCHES. PROVIDE ALL REQUIRED REGULATORS (VENT TO OUTSIDE THRU ROOF) 3. SEE 3M101 FOR INSTALLATION.											

## PUMPS

PUMP NO.	ROOM LOCATION	SERVES	TYPE		MODEL NO.	GPM	TOTAL HEAD ( FEET )	SIZE IMPELLER ( INCHES )	MOTOR HP MAXIMUM	REMARKS REF. NO.
			IN-LINE	FLOOR MOUNTED						
P-1	103	HEATING	YES	-	MAGNA3 32-100F	30.4	20	STD	1/3 (120/1)	1
P-2	103	HEATING	YES	-	MAGNA3 32-100F	30.4	20	STD	1/3 (120/1)	1
BP-1	103	BOILER	YES	-	UPS 15-58FC	9	10	STD	1/25 (120/1)	1,2
BP-2	103	BOILER	YES	-	UPS 15-58FC	9	10	STD	1/25 (120/1)	1,2
REMARKS: 1. BASED ON PRODUCT BY GRUNDFOS 2. SEE DETAIL 3M101 FOR INSTALLATION. 3. PUMP SHALL HAVE AUTO-ADAPT FEATURE										

## VAV BOXES

UNIT NO.	SERVES ROOM	MODEL NO.	INLET DUCT SIZE	MAX CFM	MIN COOLING CFM	MIN HEATING CFM	AVAILABLE DESIGN INLET S.P.	MAX UNIT S.P. DROP	DOWNSTREAM UNIT S.P. DROP	NC LEVEL (BOX) RADIATED	COL. SIZNG AND CAPACITY DATA								REMARK REF. NO.	
											MAIN COL. TYPE	HTG FLOW RATE GPM	COL. FLUID P.D. FT H2O	ENT. H.W. TEMP.	LVG H.W. TEMP.	ENT. AIR TEMP.	ROOM HTG SETPOINT	TOTAL MBH		
2-1	103 Classroom, 104	VCWF	10"ø	800	300	400	1.0	0.42	0.25	<30	4-RW	3.6	1.16	140	120	44.0	72	29.0	1. 2. 3.	
2-2	101, 107, 108	VCWF	10"ø	700	400	400	1.0	0.34	0.25	<30	4-RW	3.6	1.16	140	120	44.0	72	29.0	1. 2. 3.	
2-3	109 Shooting Range	VCWF	14"ø	1500	400	1500	1.0	0.39	0.25	<30	4-RW	15.3	2.65	140	120	44.0	72	94.5	1. 4.	
NOTES:																				
1. REHEAT COILS SIZED WITH 30% PROPYLENE GLYCOL.																				
REMARKS:																				
1. BASED ON PRODUCT BY ETL.																				
2. UNIT WILL HAVE 2-WAY VALVE. SEE DETAIL 5M500.																				
3. HEATING COL. CAPACITY IS DETERMINED AT MINIMUM BOX CFM AND INCLUDES SPACE HEAT LOSS PLUS REHEAT LOAD.																				
4. HEATING COL. CAPACITY IS DETERMINED AT MAXIMUM BOX CFM AND INCLUDES SPACE HEAT LOSS PLUS REHEAT LOAD. UNIT WILL HAVE 3-WAY VALVE. SEE DETAIL 5M500.																				

## CABINET UNIT HEATER

UNIT TAG	ROOM NUMBER	MBH	MODEL NO.	SIZE	FULL DEPTH	RECESS DEPTH	CABINET		FRONT PANEL SIZE	GPM	CFM	HP	REMARKS REF.	
							WIDE	HIGH						
CUH-1	VESTIBULE	100	16.2	RWI-310	02	10	-	38.2	24	-	1.7	220	1/60(120/1)	1,2,3,4,5

REMARKS:

1.

2.

3.

4.

5.

BASED ON PRODUCT BY RITTLING

INSTALL CONTROL VALVE IN MECH/ELECT 103

CAPACITY IS BASED ON 200° E.W.T. ACTUAL E.W.T. 140°. CALCULATED HEAT LOSS IS 7.2 MBH.

PROVIDE 2-WAY CONTROL VALVE

PROVIDE STANDARD MOTOR

## AIR DISTRIBUTION DEVICES

UNIT REF.	FIXTURE TYPE	SIZE	LOCATION	DAMPER	INLET SIZE	MODEL NUMBER	MOUNTING	REMARKS REF. NO.
G-1	SUPPLY	24 X 24	CEILING	RADIAL	12"ø	SERIES PLO 4-WAY	LAY-IN	1,2,3
G-2	SUPPLY	24 X 24	CEILING	RADIAL	10"ø	SERIES PLO 4-WAY	LAY-IN	1,2,3
G-3	SUPPLY	24 X 24	CEILING	RADIAL	8"ø	SERIES PLO 4-WAY	LAY-IN	1,2,3
G-4	SUPPLY	24 X 24	CEILING	RADIAL	6"ø	SERIES PLO 4-WAY	LAY-IN	1,2,3
G-5	RETURN	24 X 24	CEILING	NO	N/A	EGC-5 1/2" EGG CRATE	LAY-IN	1,4
G-6	RETURN	24 X 12	CEILING	NO	N/A	EGC-5 1/2" EGG CRATE	LAY-IN	1,4
G-7	RETURN	24 X 6	CEILING	NO	N/A	EGC-5 1/2" EGG CRATE	LAY-IN	1,4
REMARKS: 1. BASED ON PRODUCT BY KRUEGER 2. DIFFUSERS SHALL BE STEEL CONSTRUCTION 3. INCLUDE DIRECTIONAL BLOW PATTERN CONTROL TABS FOR DIFFUSERS SHOWN OTHER THAN 4-WAY THROW 4. GRILLES SHALL BE ALUMINUM CONSTRUCTION								

## LOUVERS

LOUVER REF. NO.	TYPE	SIZE W x H	FREE AREA SQ.FT.	MAX. S.P.	MODEL NO.	TYPE OF BLADE	CONSTRUCTION				REMOV-ABLE CORE	SERVES UNIT NO.	REMARKS REF. NO.
							GALV. STEEL	ALUM.	OTHER	FRAME DEPTH			
L-1	INTAKE	24x48	4.4	0.07	ESD-635	DRAINABLE		X		6"	NO	AHU-2	1,2,3
L-2	RELIEF	24x48	4.4	0.06	ESD-635	DRAINABLE		X		6"	NO	AHU-2	1,2,3
L-3	EXHAUST	20x16	0.7	0.06	ESD-635	DRAINABLE		X		6"	NO	EF-2	1,2,3
REMARKS:  1. BASED ON PRODUCT BY GREENHECK. 2. SEE DETAIL 4M100. 3. PROVIDE CLEAR ANODIZED ALUMINUM FINISH.													

## FANS

UNIT NUMBER	SERVES	FAN TYPE	LOCATION	MODEL NO.	DISCHARGE ARRANG.	CFM	MIN. CFM	EXT. STATIC PRESS.	HP (VOLTAGE)	ZONE LEVEL	REMARKS REF. NO.
EF-1	102, 106	EXHAUST	CUSTODIAN 106	CSP-B200	-	150	-	-	2.2 AMPS (120/1)	4.4	1,2
EF-2	104	EXHAUST	CLASSROOM 104	CSP-A710	-	500	-	-	4.4 AMPS (120/1)	9.5	1,3
REMARKS:  1. BASED ON PRODUCT BY GREENHECK. 2. PROVIDE WALL CAP. INTERLOCK WITH AHU-2. 3. PILOT SWITCH BY ELECTRICAL. VAV BOX 2-1 SHALL DROP TO MINIMUM AND MOTORIZED RETURN AIR DAMPER SHALL CLOSE. 4. SEE DETAIL 6M500 FOR INSTALLATION.											

ARCHITECTURE  
ENGINEERING  
INTERIOR DESIGN



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Project Title:  
**WESTERN TECH. COLLEGE  
INDOOR SHOOTING RANGE**

Project Location:  
**11177 COUNTY ROAD A  
SPARTA, WISCONSIN 54656**

Sheet Title: HVAC SCHEDULES

HSR Project Number: <b>18003</b>		
Project Date: <b>MAY 2018</b>		
Drawn By: <b>KIM LEE</b>		
Key Plan:		
Revisions:		
No.	Description	Date
A2	ADDENDUM #2	05/09/2018
A4	ADDENDUM #4	05/18/2018

Graphic Scale:  
**VARIES**

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