East Energy Chiller 1
Cooling Tower Addition
State Project Number H27-1969

Addendum Three

July 12, 2012

NOTE: The following amendments, additions, and deletions shall be made to the Construction Documents and Contract Documents. Insofar as those documents are at variance with this Addendum, this Addendum shall govern.

Specifications

Item No.	Description
1.	Revision: The bid date has been postponed to July 18, 2012 at 1:30 PM.
2.	Revision: Reference the bid form SE-330. A revised bid form SE-330 is attached. The bid date has been revised and Alternate 1 has been added to the form.
3.	Revision: Reference Section 230500 Heating Ventilation and Air Conditioning. Add the following specification for the Alternate 1 Cooling Tower:

Marley NC Steel Cooling Tower Specification

Options:
Stainless Steel Tower
Extended Lube Line
Single Hot Water Inlet (Bottom)
Basin Equalizer
Basin Heater
Ladder and Guardrail
Ladder Extension
Access Door Platform
Plenum Walkway
Interior Mechanical Equipment Access Platform
Vibration Switch

1.0 Base:

1.1 Provide an induced draft, crossflow type, factory assembled, film fill, industrial duty, stainless steel cooling tower situated as shown on the plans. The limiting overall dimensions of the tower shall be 21 ft wide, 11.9 ft long, and 16.48 ft high. Total operating power of all fans shall not exceed 29.502 Hp, consisting of 1 @ 30 Hp motor(s). Tower shall be similar and equal in all respects to Marley Model NC8407SAS1.

2.0 Thermal Performance:

2.1 The tower shall be capable of cooling 1500 gpm of water from 95 °F to 85 °F at a design entering air wet-bulb temperature of 79 °F, and its thermal rating shall be Certified by the Cooling Technology Institute.

2.2 The tower shall be capable of a minimum 68.232 gpm/Hp efficiency per ASHRAE Standard 90.1.

2.3 CTI Certification notwithstanding, the cooling tower manufacturer shall guarantee that the tower supplied will meet the specified performance conditions when the tower is installed according to plan. If, because of a suspected thermal performance deficiency, the owner chooses to conduct an on-site thermal performance test under the supervision of a qualified, disinterested third party in accordance with CTI or ASME standards during the first year of operation; and if the tower fails to perform within the limits of test tolerance; then the cooling tower manufacturer will pay for the cost of the test and will make such corrections as are appropriate and agreeable to the owner to compensate for the performance deficiency.

3.0 Warranty:

3.1 The entire tower, including structure, casing, basins, decking, fan(s), motor(s), and all mechanical drive components (including belts, if used) shall be warranted against failure due to defects in materials and workmanship for a period of five (5) years from the date of shipment to the job. Towers not covered by a warranty of this scope will not be accepted.

4.0 Design Loading:

4.1 The tower structure, anchorage and all its components shall be designed by licensed professional engineers, employed by the manufacturer, per the International Building Code to withstand a wind load of 30 psf, as well as a .3g seismic load. The fan deck, hot-water basin covers and, where specified, maintenance platforms shall be designed for 60 psf live load or a 200 lb concentrated load. Guardrails, where specified, shall be capable of withstanding a 200 lb concentrated live load in any direction, and shall be designed in accordance with OSHA guidelines.

4.2 The tower shall be structurally capable of being supported at the four outer corners of the tower cell. Alternatively, the tower manufacturer shall provide supporting steel to adapt tower to be supported at four outer corners.

5.0 Construction:

5.1 Except where otherwise specified, all components of the cooling tower shall be fabricated of series 300 stainless steel. The tower shall be capable of withstanding water having a chloride content (NaCl) up to 750 ppm; a sulfate content (SO4) up to 1200 ppm; a calcium content (CaCO3) up to 800 ppm; silica (SiO2) up to 150 ppm; and design hot water temperatures up to 125°F. The circulating water shall contain no oil, grease, fatty acids, or organic solvents.

Fiberglass casing, polyurethane barriers, and thermosetting hybrids and the components they are adhered to shall be considered non-recyclable and not allowed.

5.2 The specifications, as written, are intended to indicate those materials that will be capable of withstanding the above water quality in continuing service, as well as the loads described in paragraph 4.1. They are to be regarded as minimum requirements. Where component materials peculiar to individual tower designs are not specified, the manufacturers shall take the above water quality and load carrying capabilities into account in the selection of their materials of manufacture.

6.0 Mechanical Equipment:

6.1 Fan(s) shall be propeller-type, incorporating aluminum alloy blades attached to galvanized hubs with U-bolts. Blades shall be individually adjustable. Maximum fan tip speed shall be 13,000 ft/min. Fan(s) shall be driven through a right angle, industrial duty, oil lubricated, geared speed reducer that requires no oil changes for the first five (5) years of operation. All gearbox bearings shall be rated at an L10A service life of 100,000 hours or greater and the gear sets shall have AGMA Quality Class of 9 or greater. The gearbox shall include any modifications to enable operation down to 10% of full speed.

An external oil level dipstick shall be located adjacent to the motor at the fan deck surface and shall be accessible from a portable maintenance ladder.

6.2 Baldor Direct Drive 30 Hp maximum, TEAO, Permanent Magnet Rotor Type Motor, Cooling Tower Operation. Baldor Direct Drive Motor supplied with Baldor NEMA 1 VFD for remote mounting.

6.3 The Motor shall be Baldor Direct Drive type with Baldor NEMA 1 VFD for remote mounting.

6.4 The complete mechanical equipment assembly for each cell shall be supported by two horizontal steel beams that resist misalignment between the motor and the gear reducer/ belt drive system.

A vibration limit switch in a NEMA 4 housing shall be installed on the mechanical equipment support and wired to the shutdown circuit of the fan motor starter or VFD. The purpose of this switch will be to interrupt control power voltage to a safety circuit in the event of excessive vibration causing the starter or VFD equipment to de-energize the motor. It shall be adjustable for sensitivity, and include a means to reset the switch.

7.0 Fill, Louvers & Drift Eliminators:

7.1 Fill shall be film type, thermoformed of 15 mil thick PVC before forming, with louvers and eliminators formed as part of each fill sheet. Fill shall be suspended from stainless steel structural tubing supported from the tower structure, and shall be elevated above the floor of the cold-water basin to facilitate cleaning. Air inlet faces of the tower shall be free of water splash out. Fill shall be capable of withstanding a hot water temperature of 125°F.

7.2 Drift eliminators shall be PVC, triple-pass, and shall limit drift losses to 0.005% or less of the design water flow rate.

8.0 Hot Water Distribution System:

8.1 Two open stainless steel basins (one above each bank of fill) shall receive hot water piped to each cell of the tower. These basin components shall be installed and sealed at the factory and assembled with bolted connections. Tap screws shall not be allowed. The basins shall be equipped with removable, stainless steel covers capable of withstanding the loads described in paragraph 4.1. The water distribution system shall be accessible and maintainable during tower fan and water operation.

8.2 Each cell of the tower shall include a single hot-water inlet connection located as shown on the plans. An internal system of PVC piping shall deliver water equally to the distribution basins without the need for balancing valves. This internal piping system shall require no scheduled maintenance, and shall be located such that it does not interfere with normal maintenance access. The internal piping shall extend to the exterior surface of the tower.

8.3 The water distribution system shall be accessible and maintainable while tower is operating.

9.0 Casing, Fan Deck and Fan Cylinder:

9.1 The casing and fan deck shall be stainless steel, and shall be capable of withstanding the loads described in paragraph 4.1. The top of the fan shall be equipped with a conical, non-sagging, removable fan guard, fabricated of welded 5/16" and 7 gauge rods, and hot dip galvanized after fabrication. Fan cylinders 5'-0" in height and over shall not be required to have a fan guard.

10.0 Access:

10.1 A large stainless steel, rectangular access door shall be located on both cased faces for entry into the cold-water basin. Doors shall provide convenient access to the fan plenum area to facilitate inspection and allow maintenance to the fan drive system. The access doors shall be at least 30" wide by 33" high.

The top of the tower shall be equipped with a guardrail complete with kneerail and toeboard, designed according to OSHA guidelines and factory welded into subassemblies for ease of field installation. Posts, toprails and kneerails shall be 1.5" square tubing. The guardrail assembly shall be hot dipped galvanized after welding and capable of withstanding a 200 pound concentrated live load in any direction. Posts shall be spaced on centers of 8'-0" or less. A 1'-6" wide aluminum ladder with 3" I-beam side rails and 1.25" diameter rungs shall be permanently attached to the endwall casing of the tower, rising from the base of the tower to the top of the guardrail.

Provide a ladder extension for connection to the foot of the ladder attached to the tower casing. This extension shall be long enough to rise from the roof (grade) level to the base of the tower. The installing contractor shall be responsible for cutting the ladder to length; attaching it to the foot of the tower ladder; and anchoring it at its base.

There shall be an access platform at the base of the tower extending from the vertical ladder to the access door. The platform shall be surrounded by an OSHA compliant guardrail system welded into subassemblies for ease of installation. The walking surface of the platform shall be perforated to provide a non-slip surface for personnel safety.

Provide a factory-installed, walkway extending from one cased-face access door to the other cased face. A steel framework shall support the walkway and the top of the walkway shall be at or above the cold-water basin overflow level. The walkway and framework shall be stainless steel and have a minimum width of 36".

A factory-installed, elevated stainless steel grating platform convenient to the care and maintenance of the tower's mechanical equipment shall be provided.

11.0 Cold Water Collection Basin:

11.1 The collection basin shall be S300 stainless steel and assembled with bolted connections. Tap screw shall not be allowed. The basins shall include the number and type of suction connections required to accommodate the outflow piping system shown on the plans. Suction connections shall be equipped with debris screens. A factory installed, float operated, mechanical make-up valve shall be included. An overflow and drain connection shall be provided in each cell of the cooling tower. The basin floor shall slope toward the drain to allow complete flush out of debris and silt that may accumulate. Towers of more than one cell shall include a method for flow and equalization between cells. The basin shall be accessible and maintainable while water is circulating.

A hole and bolt circle shall be provided in the depressed section of the basin for equalizer piping between cells. A full-face, .25" thick, 50 durometer gasket shall be provided at each equalizer location.

11.2 Provide a system of electric immersion heaters and controls for each cell of the tower to prevent freezing of water in the collection basin during periods of shutdown. The system shall consist of one or more stainless steel electric immersion heaters installed in threaded couplings provided in the side of the basin. A NEMA 4 control panel and associated temperature probe shall include circuitry to monitor cold water temperature and low water level, providing ON OFF thermostatic like control. The temperature probe shall be located in the cold-water basin. The system shall be capable of maintaining 40°F water temperature at an ambient air temperature of 15 °F.

Drawings

4. Revision: Reference Drawing M-3. This sketch adds a new cooling tower schedule to be bid as Alternate 1. An alternate cooling tower type is to be included in Alternate 1. All structural support and electrical connections shall remain as shown in the Base Bid.

END OF ADDENDUM

Attachments:

SE-330
M-3

SE-330 – LUMP SUM BID
BID FORM

Rev. 9/21/2011

Bidders shall submit bids on only Bid Form SE-330.

BID SUBMITTED BY:_____

(Bidder's Name)

BID SUBMITTED TO: University of South Carolina

(Owner's Name)

FOR PROJECT: PROJECT NAME East Energy Chiller 1 - Cooling Tower Addition

PROJECT NUMBER H27-I969

OFFER

§ 1. In response to the Invitation for Construction Bids and in compliance with the Instructions to Bidders for the above-named Project, the undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Contract with the Owner on the terms included in the Bidding Documents, and to perform all Work as specified or indicated in the Bidding Documents, for the prices and within the time frames indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

§ 2. Pursuant to Section 11-32-3030(1) of the SC Code of Laws, as amended, Bidder has submitted Bid Security as follows in the amount and form required by the Bidding Documents:

☐ Bid Bond with Power of Attorney ☐ Electronic Bid Bond ☐ Cashier's Check

(Bidder check one)

§ 3. Bidder acknowledges the receipt of the following Addenda to the Bidding Documents and has incorporated the effects of said Addenda into this Bid:

ADDENDUM No:_____

§ 4. Bidder accepts all terms and conditions of the Invitation for Bids, including, without limitation, those dealing with the disposition of Bid Security. Bidder agrees that this Bid, including all Bid Alternates, if any, may not be revoked or withdrawn after the opening of bids, and shall remain open for acceptance for a period of 60 Days following the Bid Date, or for such longer period of time that Bidder may agree to in writing upon request of the Owner.

§ 5. Bidder herewith offers to provide all labor, materials, equipment, tools of trades and labor, accessories, appliances, warranties and guarantees, and to pay all royalties, fees, permits, licenses and applicable taxes necessary to complete the following items of construction work:

§ 6.1 BASE BID WORK ***(as indicated in the Bidding Documents and generally described as follows)*****:** Installation of new cooling tower on roof of East Energy Plant,

_____, which sum is hereafter called the Base Bid.

(Bidder - insert Base Bid Amount on line above)

SE-330 – LUMP SUM BID
BID FORM

§ 6.2 BID ALTERNATES - as indicated in the Bidding Documents and generally described as follows:

ALTERNATE # 1 *(Brief Description)*: Provide Alternate Cooling Tower Type

☐ **ADD TO** or ☐ **DEDUCT FROM BASE BID:** _____

(Bidder to Mark appropriate box to clearly indicate the price adjustment offered for each alternate)

ALTERNATE # 2 *(Brief Description)*: N/A

☐ **ADD TO** or ☐ **DEDUCT FROM BASE BID:** _____

(Bidder to Mark appropriate box to clearly indicate the price adjustment offered for each alternate)

ALTERNATE # 3 *(Brief Description)*: N/A

☐ **ADD TO** or ☐ **DEDUCT FROM BASE BID:** _____

(Bidder to Mark appropriate box to clearly indicate the price adjustment offered for each alternate)

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BID FORM

§ 7. LISTING OF PROPOSED SUBCONTRACTORS PURSUANT TO SECTION 3020(b)(i), CHAPTER 35, TITLE 11 OF THE SOUTH CAROLINA CODE OF LAWS, AS AMENDED – ***(See Instructions on the following page BF-2A)***

Bidder shall use the below-listed Subcontractors in the performance of the Subcontractor Specialty work listed:

SUBCONTRACTOR SPECIALTY **By License Classification and/or Subclassification** (Completed by Owner)	**SUBCONTRACTOR'S PRIME CONTRACTOR'S NAME** (Must be completed by Bidder) **BASE BID**	**SUBCONTRACTOR'S PRIME CONTRACTOR'S SC LICENSE NUMBER**
Electrical		
Structural Framing		
ALTERNATE 1		
Electrical		
Structural Framing		
ALTERNATE 2		
ALTERNATE 3		

If a Bid Alternate is accepted, Subcontractors listed for the Bid Alternate shall be used for the work of both the Alternate and the Base Bid work.

INSTRUCTIONS FOR SUBCONTRACTOR LISTING

1. Section 7 of the Bid Form sets forth a list of subcontractor specialties for which bidder is required to identify by name the subcontractor(s)Bidder will use to perform the work of each listed specialty. Bidder must identify only the subcontractor(s) who will perform the work and no others.

2. For purposes of subcontractor listing, a Subcontractor is an entity who will perform work or render service to the prime contractor to or about the construction site. Material suppliers, manufacturers, and fabricators that will not perform physical work at the site of the project but will only supply materials or equipment to the bidder or proposed subcontractor(s) are not subcontractors and Bidder should not insert their names in the spaces provided on the bid form. Likewise, Bidder should not insert the names of sub-subcontractors in the spaces provided on the bid form but only the names of those entities with which bidder will contract directly.

3. Bidder must only insert the names of subcontractors who are qualified to perform the work of the listed specialties as specified in the Bidding Documents and South Carolina Licensing Laws**.**

4. If under the terms of the Bidding Documents, Bidder is qualified to perform the work of a specialty listed and Bidder does not intend to subcontract such work but to use Bidder's own employees to perform such work, the Bidder must insert its own name in the space provided for that specialty.

5. If Bidder intends to use multiple subcontractors to perform the work of a single specialty listing, Bidder must insert the name of each subcontractor Bidder will use, preferably separating the name of each by the word **"and"**. If Bidder intends to use both his own employees to perform a part of the work of a single specialty listing and to use one or more subcontractors to perform the remaining work for that specialty listing, bidder must insert his own name and the name of each subcontractor, preferably separating the name of each with the word **"and"**.

6. Bidder may not list subcontractors in the alternative nor in a form that may be reasonably construed at the time of bid opening as a listing in the alternative. A listing that requires subsequent explanation to determine whether or not it is a listing in the alternative is non-responsive. If bidder intends to use multiple entities to perform the work for a single specialty listing, bidder must clearly set forth on the bid form such intent. Bidder may accomplish this by simply inserting the word "**and**" between the name of each entity listed for that specialty. Owner will reject as non-responsive a listing that contains the names of multiple subcontractors separated by a blank space, the word "or", a virgule (that is a /), or any separator that the Owner may reasonably interpret as a listing in the alternative.

7. If Bidder is awarded the contract, bidder must, except with the approval of the owner for good cause shown, use the listed entities to perform the work for which they are listed.

8. If bidder is awarded the contract, bidder will not be allowed to substitute another entity as subcontractor in place of a subcontractor listed in Section 7 of the Bid except for one or more of the reasons allowed by the SC Code of Laws.

9. Bidder's failure to insert a name for each listed specialty subcontractor will render the Bid non-responsive.

§ 8. LIST OF MANUFACTURERS, MATERIAL SUPPLIERS, AND SUBCONTRACTORS OTHER THAN SUBCONTRACTORS LISTED IN SECTION 7 ABOVE *(FOR INFORMATION ONLY):* Pursuant to instructions in the Invitation for Bids, if any, Bidder will provide to Owner upon the Owner's request and within 24 hours of such request, a listing of manufacturers, material suppliers, and subcontractors, other than those listed in Section 7 above, that Bidder intends to use on the project. Bidder acknowledges and agrees that this list is provided for purposes of determining responsibility and not pursuant to the subcontractor listing requirements of SC Code Ann § 11-35-3020(b)(i).

§ 9. TIME OF CONTRACT PERFORMANCE AND LIQUIDATED DAMAGES

a. CONTRACT TIME: Bidder agrees that the Date of Commencement of the Work shall be established in a Notice to Proceed to be issued by the Owner. Bidder agrees to substantially complete the Work within **60** calendar days from the Date of Commencement, subject to adjustments as provided in the Contract Documents.

b. LIQUIDATED DAMAGES: Bidder further agrees that from the compensation to be paid, the Owner shall retain as Liquidated Damages the sum of $100.00for each calendar day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. This sum is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty for nonperformance.

§ 10. AGREEMENTS

a. Bidder agrees that this bid is subject to the requirements of the law of the State of South Carolina.

b. Bidder agrees that at any time prior to the issuance of the Notice to Proceed for this Project, this Project may be canceled for the convenience of, and without cost to, the State.

c. Bidder agrees that neither the State of South Carolina nor any of its agencies, employees or agents shall be responsible for any bid preparation costs, or any costs or charges of any type, should all bids be rejected or the Project canceled for any reason prior to the issuance of the Notice to Proceed.

§ 11. ELECTRONIC BID BOND

By signing below, the Principal is affirming that the identified electronic bid bond has been executed and that the Principal and Surety are firmly bound unto the State of South Carolina under the terms and conditions of the AIA Document A310, Bid Bond, included in the Bidding Documents.

Electronic Bid Bond Number: _____

Signature and Title: _____

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BID FORM

Rev. 9/21/2011

BIDDER'S TAXPAYER IDENTIFICATION

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER:_____

OR

SOCIAL SECURITY NUMBER:_____

CONTRACTOR'S CLASSIFICATIONS AND SUBCLASSIFICATIONS WITH LIMITATIONS

Classification(s)& Limits: _____

Subclassification(s) & Limits:_____

SC Contractor's License Number(s):_____

BY SIGNING THIS BID, THE PERSON SIGNING REAFFIRMS ALL REPRESENTATIONS AND CERTIFICATIONS MADE BY BOTH THE PERSON SIGNING AND THE BIDDER, INCLUDING WITHOUT LIMITATION, THOSE APPEARING IN ARTICLE 2 OF THE INSTRUCTIONS TO BIDDER. THE INVITATION FOR BIDS, AS DEFINED IN THE INSTRUCTIONS TO BIDDERS, IS EXPRESSLY INCORPORATE BY REFERENCE.

SIGNATURE

BIDDER'S LEGAL NAME: _____

ADRESS: _____

_____

BY:_____ **DATE:**_____
(Signature)

TITLE:_____

TELEPHONE:_____

EMAIL: _____

COOLING TOWER SCHEDULE (ALTERNATE 1)

TAG	MARLEY MODEL NO.	ENT. WTR.	LVG. WTR.	GPM	HEAD FT.	ENT. AIR WB	MOTOR H.P.	REMARKS
CT-1	NC8407SAS1	95	85	1,500	12.3	79	30	1,2,3

1. PROVIDE CROSSFLOW INDUCED DRAFT TOWER WITH ALL STAINLESS CONSTRUCTION.
2. PROVIDE BALDOR TEAO ADJUSTABLE SPEED DIRECT DRIVE FAN MOTOR INCLUDING ADJUSTABLE SPEED DRIVE AND SEVERE DUTY RATING.
3. PROVIDE WITH PVC FILL.

1

COOLING TOWER SCHEDULE

TAG	CCS MODEL NO.	ENT. WTR.	LVG. WTR.	GPM	HEAD FT.	ENT. AIR WB	MOTOR H.P.	REMARKS
CT-1	P3K-707	95	85	1,500	20.8	79	30	1,2,3,4

1. PROVIDE CROSSFLOW INDUCED DRAFT TOWER WITH ALL FRP CONSTRUCTION, AND STRUCTURAL CONNECTORS CONSTRUCTED FROM 304 STAINLESS STEEL.
2. PROVIDE BALDOR TEAO ADJUSTABLE SPEED DIRECT DRIVE FAN MOTOR INCLUDING ADJUSTABLE SPEED DRIVE AND SEVERE DUTY RATING.
3. PROVIDE WITH PVC FILL.
4. TOWER MANUFACTURER SHALL PROVIDE ALL ERECTION ON SITE.

ISOLATION AND SEISMIC SCHEDULE

OCCUPANCY CATEGORY = I			SEISMIC SITE CLASS = D	
EQUIPMENT TAG	COMPONENT Ip	ISOLATION SPECIFICATION	SEISMIC REST. SPECIFICATION	ISOLATION DEFLECTION
COOLING TOWER (ON ROOF)	1.0	SPEC W SPEC K	NOTE 1	.15"

1. ANCHOR BOLTS FOR NON-ISOLATED AND INTERNALLY ISOLATED EQUIPMENT SHALL BE SIZED BY THE SEISMIC RESTRAINT SUPPLIER. IF REQUIRED, SPEC. SL SNUBBERS OR SPEC. SC CABLE KITS SHALL BE PROVIDED.
2. ROOF CURBS PROVIDED BY OTHERS MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER FOR THE REQUIRED SEISMIC LOADS.
3. PADS REINFORCED AND DOWELED IN ACCORDANCE WITH ASHRAE SEISMIC GUIDELINES.
4. DIFFUSERS WEIGHING LESS THAN 20 LBS MUST BE MECHANICALLY ATTACHED TO CEILING GRID, BUT REQUIRE NO ADDITIONAL RESTRAINT.

GENERAL NOTES

1. VISIT SITE PRIOR TO BIDDING. THIS CONTRACTOR SHALL DETERMINE DIFFICULTY OF INSTALLATION AND REFLECT THIS IN HIS BIDDING.
2. DO NOT SCALE DRAWINGS. THIS CONTRACTOR SHALL VERIFY ALL EXISTING ITEMS AND LOCATIONS IN THE FIELD.
3. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE.
4. THIS CONTRACTOR SHALL COORDINATE STEEL AND EQUIPMENT SUPPORT WITH STEEL SHOP DRAWINGS TO CONFIRM DIMENSIONS MATCH WITH EQUIPMENT SUPPLIED.
5. EXISTING PIPE, DUCTWORK, CONDUIT, ETC THAT INTERFERES WITH THE ROUTING OF NEW SYSTEMS SHALL BE RELOCATED. THIS CONTRACTOR SHALL INCLUDE THE COST OF SUCH IN HIS BID UNLESS NOTED OTHERWISE.
6. WATER SYSTEMS SHALL BE DRAINED AS REQUIRED FOR INSTALLATION OF WORK. UPON COMPLETION, SYSTEM SHALL BE FILLED WITH WATER AND VENTED OF ALL AIR.
7. ALL MECHANICAL ITEMS EXTENDING THROUGH ROOF SHALL BE FLASHED AND COUNTERFLASHED. PROVIDE PIPE PORTALS AS REQUIRED FOR PIPING PENETRATIONS THROUGH THE ROOF. COORDINATE WITH ROOFING CONTRACTOR. THIS CONTRACTOR TO FLASH ROOF CURBS AND SEAL TO EXISTING ROOF SYSTEM.
8. ALL PIPING IS SHOWN DIAGRAMMATIC. HOWEVER, THIS CONTRACTOR SHALL PROVIDE ALL REQUIRED FITTINGS, PIPING AND INSULATION FOR ALL OFFSETS AND/OR CHANGES IN ELEVATION.
9. EXTEND ALL DRAIN LINES TO NEAREST ROOF DRAIN AS INDICATED – SO ROUTED AS TO AVOID INTERFERENCE WITH PASSAGEWAYS AND MAINTENANCE.
10. ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATIONS AND FURTHER SUPPORTS OR HANGERS SHALL BE PROVIDED TO PREVENT WEIGHT OF PIPING BEING PLACED ON EQUIPMENT.
11. PROVIDE AND INSTALL 3W/FT HEAT TRACE TAPE ON ALL EXTERIOR WATER PIPING.
12. PROVIDE FOR ACCESS TO ALL EQUIPMENT REQUIRING CLEANING OR ADJUSTMENT.
13. THIS CONTRACTOR SHALL PROVIDE ALL ITEMS OF MISCELLANEOUS STEEL AS REQUIRED FOR INSTALLATION OF ALL MECHANICAL ITEMS.
14. THIS CONTRACTOR SHALL DO ALL CONTROL WIRING. DIVISION 23 WILL DO ALL POWER WIRING. ALL WIRING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE. CONTROL WIRING SHALL BE CONCEALED WITHIN WALL.
15. CORRECT SETTINGS ON ALL BALANCING FITTINGS SHALL BE PERMANENTLY MARKED.
16. THIS CONTRACTOR SHALL PATCH ALL WALLS AND FINISHES TO MATCH EXISTING WHERE ALL ITEMS OR EQUIPMENT ARE REMOVED.

LEGEND

SYMBOL	DESCRIPTION
CWS	CONDENSER WATER SUPPLY LINE
CWR	CONDENSER WATER RETURN LINE
CWE	EXISTING CONDENSER WATER PIPE
	SHUTOFF VALVE
	CHECK VALVE
	STRAINER WITH BLOWDOWN
	BUTTERFLY VALVE
	BALANCING VALVE
	UNION
	PIPE TURNS TO, AWAY
	THERMOMETER / PRESSURE GAGE
	THERMOMETER WELL CAPPED / GAGE COCK
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	CONNECTION POINT OF NEW TO EXISTING

CAMPUS PLANNING AND CONSTRUCTION
COLUMBIA, SC 29208

SEAL:

CHECKED BY: WCL
DRAWN BY: DEM
ORIG. BY: WCL
DRAWN BY: WCL
DATE: 7.12.12

DATE: 30MAY12
DESCRIPTION: ADDENDUM 3
DRAWING: CP00331757
BUILDING:
REV: 1

PROJECT TITLE:
EAST ENERGY CHILLER 1
COOLING TOWER ADDITION
STATE PROJECT NO.: H27-1969
University of South Carolina

Swygert & Associates
CONSULTING ENGINEERS
DBA Swygert & Assoc., Ltd.
Post Office Box 11686
Columbia, S.C. 29211
Telephone: (803) 791-9300
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SHEET: M-3
OF 3
SHEET IN SET:
OF