

***A World of Cultures
United in Learning***



OHLONE
COLLEGE

ADDENDUM No. 1

Issued September 21, 2009

BID 465-09

Performance Hall Chiller Plant Upgrade

**OHLONE COMMUNITY COLLEGE DISTRICT
ADDENDUM No. 1
FOR
BID 465-09
Performance Hall Chiller Plant Upgrade**

TABLE OF CONTENTS

1. Questions and Answers
2. Substitution Request Response

OHLONE COMMUNITY COLLEGE DISTRICT
ADDENDUM No. 1
FOR
BID 465-09
Performance Hall Chiller Plant Upgrade

The following additions, changes, clarifications, or deletions are being made to the bid documents for Bid 465-09, Performance Hall Chiller Plant Upgrade:

Questions and Answers:

- 1) "Say the chiller unit was running and if the facility loses power, how quickly will the Emergency Generator kick in to maintain the unit running?"

Response: The chiller does not have an emergency generator. The way it works is when the power fails; the high pressure side of the compressor will cause the compressor to run backwards which will basically turn the compressor into a generator spinning the electric motor and generating current. This will happen almost instantaneous due to the high pressure difference on both sides of the compressor. The unit also has capacitors, "what you refer to as the UPS", which will supply power during the time (a second or two at most) the compressor takes to change the direction of rotation. The shaft is then allowed to spin until the rotation comes to a stop, still being supported by the magnetic bearings energized by the capacitors which are continually being charged by the generator action and are fully charged during normal operation. They only start to drain at the moment the power is cut off. The shaft is then de-levitated on to touchdown bearings, so even if the shaft is moving it will not be damaged.

- 2) "My understanding is that with the end/shaft spinning in a magnetic field that without power or loss of, the shaft is at considerable risk of destruction. Is this a concern?"

Response: No, this is a common misconception. Since the magnetic field is generated by the capacitors, even if power is lost the shaft will not see any interruption of power to the magnetic bearing. The capacitors can be thought of as batteries which are always charged during operation, and when power is interrupted, they are used and also continued to be charged by the generator action of the compressor.

- 3) "What is the control of the UPS for the chiller to protect the magnetic field?"

Response: Capacitors are hard wired into the electrical circuitry of the unit and are continuously being charged when the unit draws current. No controls are needed; the unit does not need to "command" them on. It is part of the circuitry.

- 4) "How long will it sustain power?"

Response: Not sure what an exact time would be; however, the job is not to supply power to run the unit, only maintain the magnetic field in the bearings long enough to allow to the unit to shut down safely.

5) "Will the control boards be protected from condensation? This has been a problem of the past but proper insulation usually corrects!"

Response: Yes, condensation will be avoided with the use of insulation to keep warm air from condensing on the cold metal surfaces.

Response to Request for Substitution:

Hello Mr. Robbins,

In this e-mail you find my request for substitution on the Performance Hall Chiller Plant. I've attached the Carrier Evergreen 19XRV Performance Outputs on PFD. for you and your engineers. Also, my equipment engineer and I are available to meet at anytime if more information is needed. The Carrier Chiller does not meet the NPLV of the specified McQuay Chiller, but we feel this is still a better selection for this job. The Carrier chiller is more efficient at most of the true operating conditions of this job site in Fremont, California. Any time the chiller is running at or above 50% load, the Carrier chiller will save you energy. The McQuay chiller only becomes very efficient under 40% load down to 25%. Overall our chiller will save Ohlone operational energy based on the true usage. The Carrier chiller will not only save in operational cost, but you will see savings in initial costs on the equipment.

Thank you, for your time and consideration. Please feel free to contact me if you need any additional information.

Regards,

*Sofo Kyriakopedi
Carrier Commercial Service
East Bay Sale & Account Manager
1951 Fairway Drive
San Leandro, CA 94577
Tel: (510) 347-2022
Fax: (510) 347-2099*

Response: The Carrier 19XR does not meet the performance specification as stated in the bid documents. We compared the integrated part load (IPLV) values and found that at 100% & 75 % load the chiller is less but comparable in performance, but at 50% load and 25 % load the kW/ton is higher than specified. Overall IPLV is higher than the McQuay TurboCore model specified. The Performance Hall load is most of the time below 50% due to the fact that peak loads are only reached with the buildings peak occupancy during performances. This is where TurboCore centrifugal compressor technology is able to offer better kW/ton performance and large annual operating cost savings.

The Carrier 19XR is roughly 4,000lbs heavier than the McQuay TurboCore chiller which would require structural review of any changes required to the construction of the housekeeping pad.

The Carrier 19XR is 14" longer and 22" wider than the McQuay TurboCore. We would need to pour a wider and longer housekeeping pad to accommodate the larger Carrier 19XR.

The Carrier 19XR requires a maximum fuse size of 600amps while the McQuay chiller requires a 250amp. This would require change in the electrical design to accommodate the larger electrical load.

Therefore, we do not find the Carrier 19XR as an equal substitution to the specified McQuay TurboCore chiller.

END OF ADDENDUM NO. 1