SECTION 23 64 00: CHILLERS

1. GENERAL
   A. Water-cooled chillers are preferred for new installations. If air-cooled chillers are proposed, perform a life cycle cost analysis vs. water-cooled to confirm selection
   B. Avoid the use of small local DX equipment within a building wherever possible due to their high maintenance requirements
   C. Variable-flow primary chilled water systems are preferred over constant-volume and primary-secondary designs
   D. Larger chillers incorporating the use of variable speed drives (VFDs) shall require a building Harmonic Study to establish the level of harmonic filtration required for the chiller VFD
   E. Provide multiple chillers or compressors, if required, to achieve minimum turndown. Use of hot-gas bypass for turndown shall be the last option considered; consolidate into low load chiller discussion
   F. Variable-speed driven compressors are preferred, where applicable
   G. Magnetic bearing chillers are preferred for centrifugal chiller applications
   H. For centrifugal chillers, provide marine-style water boxes with hinged end access flanges on both ends of evaporator and condenser barrels. Where marine-style boxes are not available, provide swinging davit arms to facilitate removal of evaporator and condenser barrels for cleaning and tube access.
   I. Chiller VFD cooling is preferred to be by chilled water or refrigerant. If manufacturer only offers cooling by condenser water, provide dual y-type strainers for water filtration. Strainer bank shall have DP sensor across it tied into the BAS
   J. Chillers using HCFC-123, HCFC-22 and R-134A refrigerants are not allowed
   K. Air-cooled units shall be provided with low-ambient controls if located outdoors
   L. Submit product literature detailing the following:
      1. Ratings
      2. IPLV performance curves for accurate energy modeling analysis inputs
      3. Dimensions
      4. Materials of construction
      5. Applicable wiring diagrams
      6. Control interfaces
      7. BACNET communications address mapping
      8. Accessories
   M. Warranty: chillers to be provided with a minimum 5-year extended warranty, including parts and labor
N. Manufacturers:
   1. Carrier, McQuay, York (water cooled)
   2. Carrier, McQuay, York, Trane (air-cooled)
   3. Multistack (modular)

2. CONTROLS
   A. All equipment controls shall be able to be fully integrated into the campus JCI controls system through full BACnet.
   B. Water–cooled chillers shall be provided with microprocessor-based controls, and shall interface with the campus BAS through BACnet.
   C. Air–cooled chiller and split-system DX units shall have start/stop, status and alarm interface with the campus BAS.
   D. Provide chillers with individual manufacturer-furnished chilled water (and condenser water as required by the manufacturer) flow-proving switches

3. FILTRATION & WATER TREATMENT
   A. Evaluate the need for side stream filters on chilled water systems
   B. Provide side stream filters, with 5 micron filtration, on condenser water systems
   C. All “modular” chiller installations shall include a manufacturer-furnished strainer assembly or dual basket strainers, with manual flow transfer capability and DP gauge, on the chilled water return line to the chillers.
   D. Coordinate with Brown’s water treatment vendor for chemical treatment system requirements