



February 7, 2018

CEDR
Fairbanks, AK

Subject: Bentley Mall Starbucks – Recommend New AHU's without Economizers.

Dear Alex:

With regard to the IECC requirements for economizer cooling on each individual piece of cooling equipment, that requirement is, or should be, preempted by the following considerations:

1. The City of Fairbanks did not adopt the commercial chapters of the IECC, so the tenant request for economizers is not for the purpose of permitting with the City.
2. If the intent is to comply with the IECC anyway, then the system capacity, per 2012 IECC C403.2.2 Equipment Sizing, shall not be greater than the calculated load.

If the tenant's intent is to avoid compliance with C403.2.2, and yet choose to comply with an IECC paragraph requiring economizers on individual equipment, then the referenced paragraph is "403.3 Economizers (Prescriptive). Each cooling system that has a fan shall include either an air side or water economizer complying with Sections C403.3.1 through C403.3.4." There are exceptions but none seem applicable. There is a question of why the tenant would insist on providing too much capacity, double what the calculations show, which is out of compliance with C403.2.2, and then insist on complying with C403.3.1 by providing economizers on each piece of equipment.

The existing AHU, 2000 cfm, with economizer, can provide over 5 tons of economizer cooling whenever the OAT is 50 degF or below. This covers internal gains year-round. When the OAT is higher, which is possible late May through September, the envelope loads can cause total cooling loads to increase to the vicinity of 9 tons. When this happens, one of the proposed new AHU's, currently shown without economizer, will be called upon to run. During these conditions the economizer(s) (the one on the existing AHU and possible others on the new AHU's) will be non-functional due to high OAT, the outside air damper will be at its minimum position for ventilation of the occupants, and the mechanical cooling (compressor-condenser equipment) will be running.

I recommend that the equipment arrangement remain as currently shown. However, I understand Krausz Co. has a commitment to this tenant and therefore await direction from you and Krausz Co. on this item. Please feel free to contact me if you need more information.

Sincerely,

Helena Brêtas Rueter, P.E.
HB Rueter Engineering, Inc.

cc: Paul Knight