

DOCKETED

Docket Number:	21-BSTD-01
Project Title:	2022 Energy Code Update Rulemaking
TN #:	238367
Document Title:	Harley Ellis Devereaux Comments - Economizer Requirements for Computer Rooms
Description:	N/A
Filer:	System
Organization:	Harley Ellis Devereaux
Submitter Role:	Public
Submission Date:	6/21/2021 2:40:36 PM
Docketed Date:	6/21/2021

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Submitted On: 6/21/2021
Docket Number: 21-BSTD-01*

Economizer Requirements for Computer Rooms

Section 140.9 and 141.1 - Refrigerant Economizer

I would like to voice my support for the proposed addition of refrigerant economizers to section 140.9 and 141.1 of CEC guidelines. Refrigerant economization has become very commonly used for data center applications but is often not addressed by the codes which requires design firms to make assumptions for compliance. As a design engineer I support the clarity this inclusion will bring to our design efforts.

Section 140.9 - Water Economizer Temperature Increase

The proposed 10°F increase in water economization temperatures will eliminate or greatly oversize air cooled chillers with integral economizers for data center applications and may result in higher overall energy usage. To meet the economization requirements the chillers must operate at a higher leaving water temperature. While this approach is generally acceptable for data center applications, as chilled water temperatures increase the CRAH fans speeds increase to provide as much cooling capacity as possible. At some point the energy savings at the chillers is offset by the increased fan energy at the CRAHs. I recommend a study be performed to determine what chiller and CRAH performance results in the most efficient overall system before this temperature setpoint is increased. Changing the economizer temperature may result in higher overall energy usage if not studied appropriately.