



LIVABLE BUILDINGS

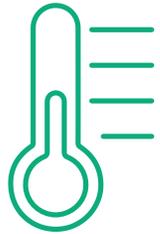
Designing for comfort and productivity



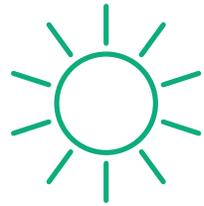
**What is a
livable building?**

Factors Affecting Thermal Comfort

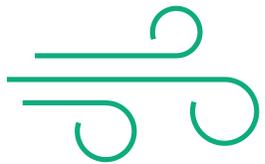
Environmental Factors



Air Temperature



Radiant Heat



Air Circulation



Humidity Levels

Personal Factors



Metabolic Rate



Clothing





Designing
for comfort

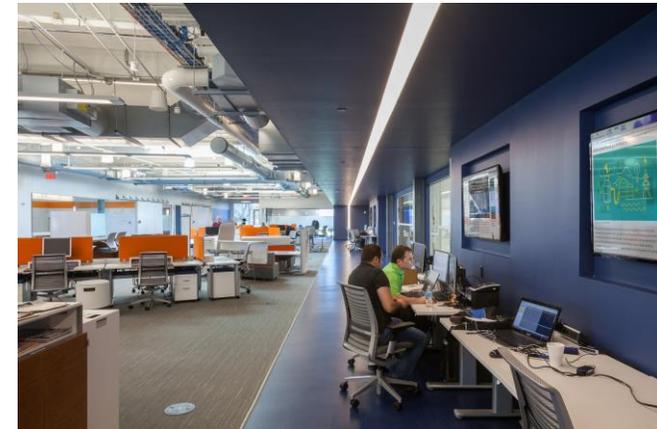




Building Performance

The HELIX: Bringing ideas to life

Broad and blank slate thinking.
Solutions ahead of the pace of
change. Fueled by new kinds of
collaboration and conversation.





Commercial Building Module



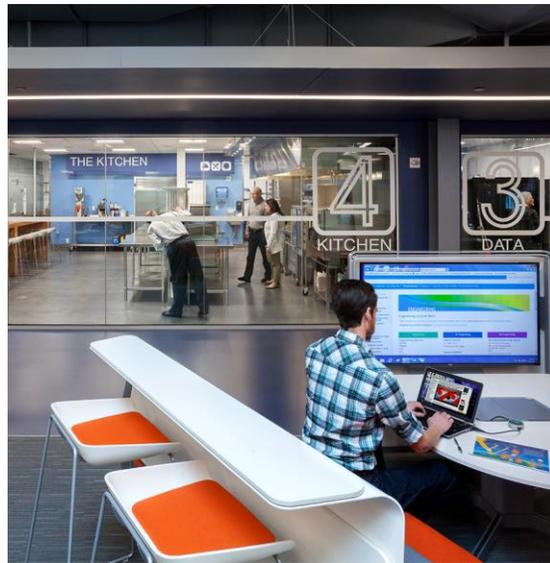
The entire facility is a playground for building controls and HVAC technology



Featuring Emerson controls for all building automation systems



Kitchen Module

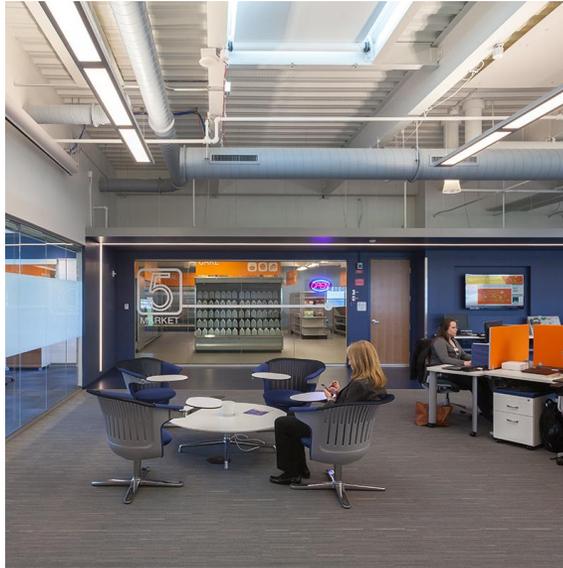


Functioning, licensed commercial kitchen

- 1,500 sq. ft.
- Service up to 150 diners

Fully controllable ambient air for comfort and quality

Supermarket Module



Retail experience designed to simulate supermarket and convenience store

- 2,500 sq. ft.
- Includes refrigeration, dry goods, lighting, HVAC, heat reclamation and point of sale





Indoor air quality

Design tips



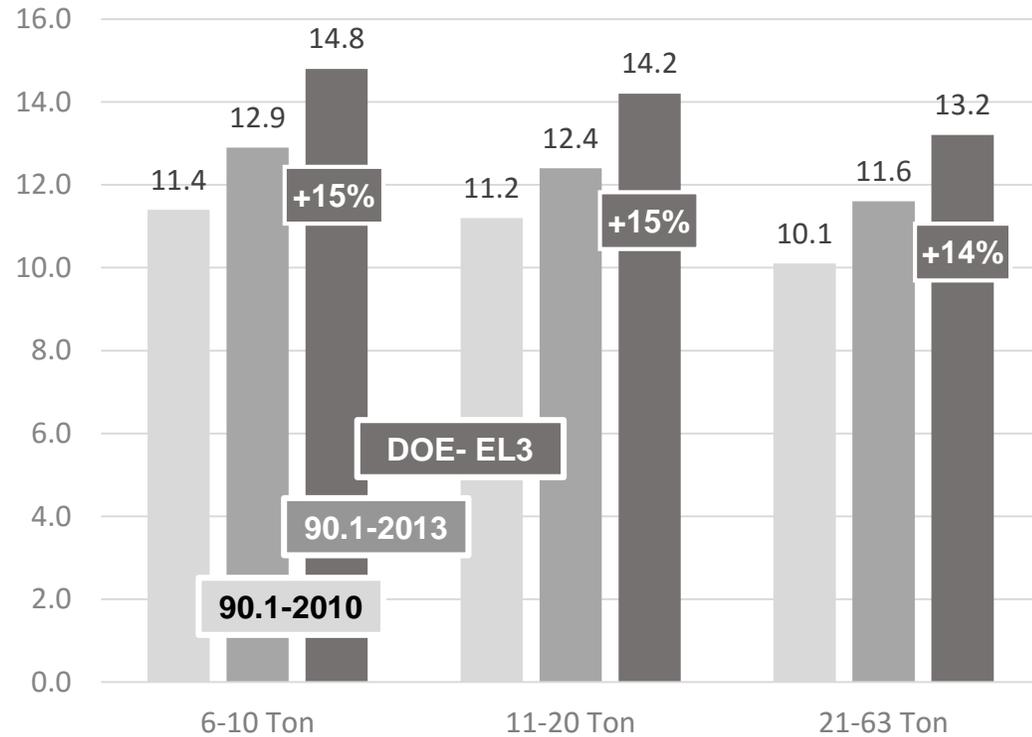
The future of livable buildings



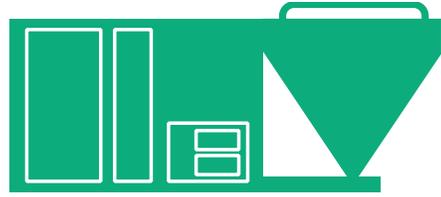
HOW BIG IS THIS?

According to the Department of Energy (DOE), over half of the commercial real estate space in the U.S. is cooled by packaged HVAC equipment.

National IEER Minimums, by Tonnage



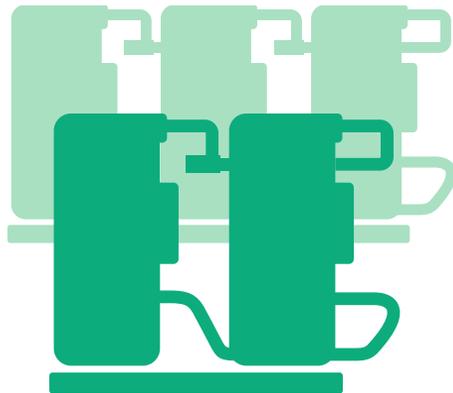
**NEW REGULATIONS
WILL BE IN TWO PHASES**



PREMIUM TIER
18.0 IEER



MID-TIER
14.0 IEER



REGULATIONS ARE DRIVING SYSTEM REDESIGN

System manufacturers have redesigned air conditioning equipment to meet **2018 minimums**, as well as product portfolios to include new mid- and premium tiers above the minimum levels.

MEETING REGULATIONS WITH MODULATION SOLUTIONS

A cost effective way to meet efficiency standards is by installing tandems. In fact, **11% of contractors** expect an increase in sales of tandems and trios as a result of new efficiency standards.

CEE commercial specification for air cooled packaged/split systems (with electric heat)			
	6 to 10T	11-20T	21-63T
CEE Tier 1	12.2 EER 14 IEER	12.2 EER 13.2 IEER	10.5 EER 12.3 IEER
CEE Tier 2	12.2 EER 14.8 IEER	12.2 EER 14.2 IEER	10.8 EER 13.2 IEER
CEE Advanced Tier	12.6 EER 18 IEER	12.2 EER 17 IEER	10.8 EER 14.5 IEER

ADVANCED ROOFTOP UNITS (RTUs)



ESTIMATED SAVINGS

Over the lifetime of the products, businesses will save **\$167 billion** on their utility bills, and carbon pollution will be reduced by **885 million** metric tons.



REPLACING/RETROFITTING RTUs WITH HIGHER EFFICIENCY UNITS

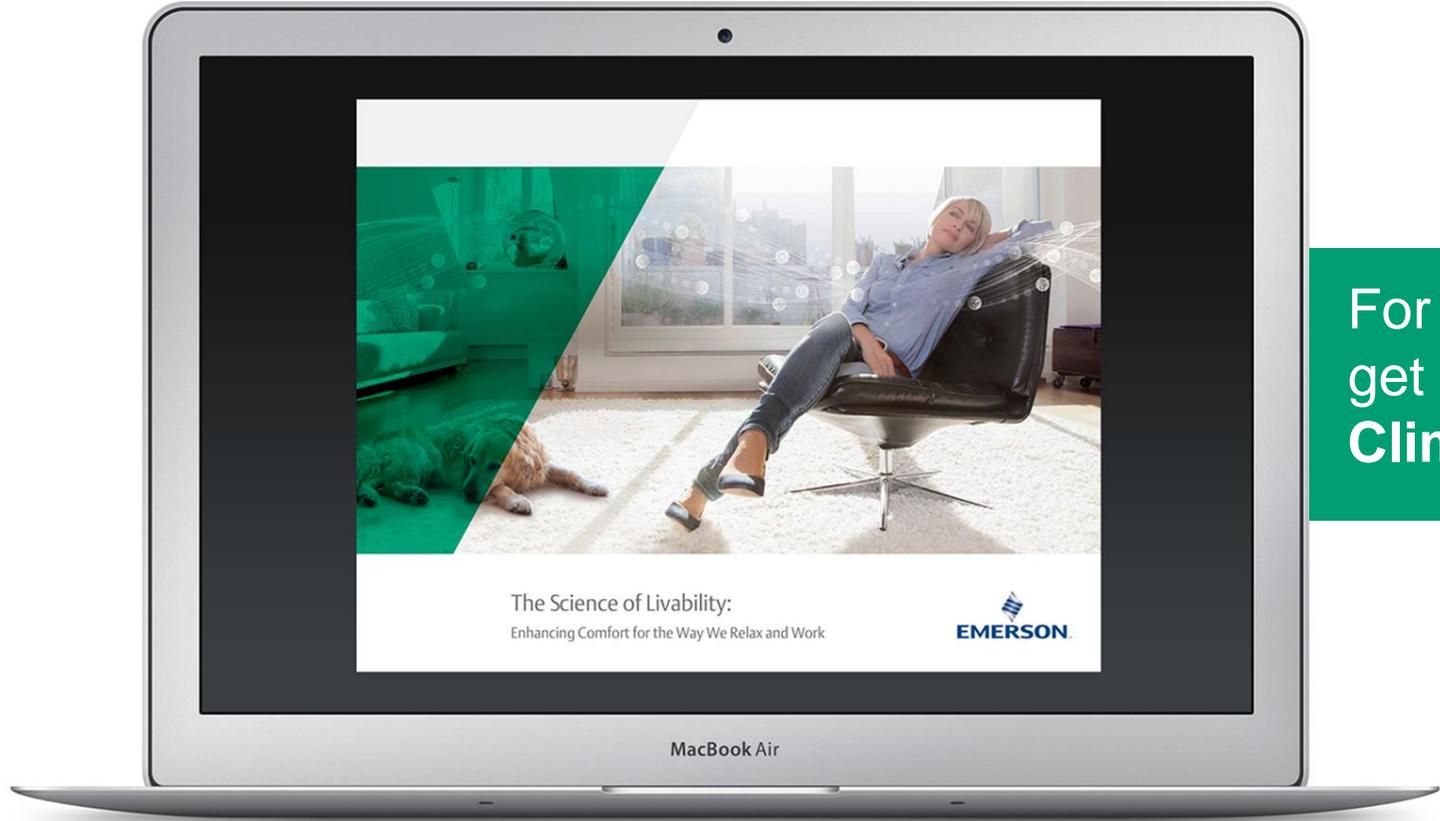
A building owner can save on average **\$3,700** per RTU by replacing aging equipment with high-efficiency units or retrofitting with advanced controls. Now consider a typical big box retailer may have more than **20 units**.

For more information go to dsire.org



What you need
to keep in mind

Q & A



For more information
get our ebook at
Climate.Emerson.com/livability

Stay tuned for upcoming webinars and check out AC-HeatingConnect.com to stay up-to-date on the latest industry information and tools