

California Compliance Software Symposium 2

Update on Software Efforts: New Construction Energy Use Intensity (EUI) Database

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Energy for What's AheadSM



What will the database be?



- New construction, code compliant energy target database covering most common building types
- Primary audience:
 - Builders
 - State and local governments
 - Utilities
 - Building science experts
- Free and open source

Twenty-seven Commercial Prototypes

Prototype Source	Building Type
DEER	Assembly
DEER	Education - Community College
DEER	Education - Primary School
DEER	Education - Relocatable Classroom
DEER	Education - Secondary School
DEER	Education - University
DEER	Grocery
DEER	Health/Medical - Hospital
DEER	Health/Medical - Nursing Home
DEER	Lodging - Hotel
DEER	Lodging - Motel
DEER	Manufacturing - Bio/Tech
DEER	Manufacturing - Light Industrial
DEER	Office - Large
DEER	Office - Small
DEER	Restaurant - Fast-Food
DEER	Restaurant - Sit-Down
DEER	Retail - Multistory Large
DEER	Retail - Single-Story Large
DEER	Retail - Small
DEER	Storage - Conditioned
DEER	Storage - Unconditioned
<i>New Prototype</i>	<i>Convention Center</i>
<i>New Prototype</i>	<i>Financial Institution</i>
<i>New Prototype</i>	<i>Library</i>
<i>New Prototype</i>	<i>Religious Facility</i>
<i>New Prototype</i>	<i>Theater</i>



Four Residential Prototypes

Prototype Source	Building Type
DEER	Residential - Single Family
DEER	Residential - Multifamily
DEER	Residential - Single-Wide Mobile
DEER	Residential - Double-Wide Mobile



Prototype Variables



Three Code Vintages

- 2008
- 2013
- 2016

Title 24

Three Operating Hour Categories

An analog clock icon with a white face and black hands, representing operating hours.

All Together the Database Will Include:

That's **4,464**
building
simulations

or

Approximately
39 million
simulated hours!

The accumulated hourly performance metrics of:

- 31 prototypes
- 3 code vintages
- 3 operating hour profiles
- 16 climate zones



A STATEWIDE UTILITY PROGRAM

More Than Just EUI

Annually
and
Hourly

Aggregated
and
by End-Use

The database will store:

- Energy Use Intensity (kBTU/ft²)
- Energy Use (kWh)
- DEER Peak Demand (kW)
- Gas Use (therms)
- CO₂ (metric tons)
- Time Dependent Valuation (kBTU)

Software Used to Create the Database

Prototypes

- EnergyPlus – Commercial
- California Simulation Engine – Residential



Database

- Constructed using SQLite
- Accessible via website



What do you think?



Let's move on to a discussion of...

Updates on Software Efforts: **Fixed Baseline**

Bach Tsan

Thank you.

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