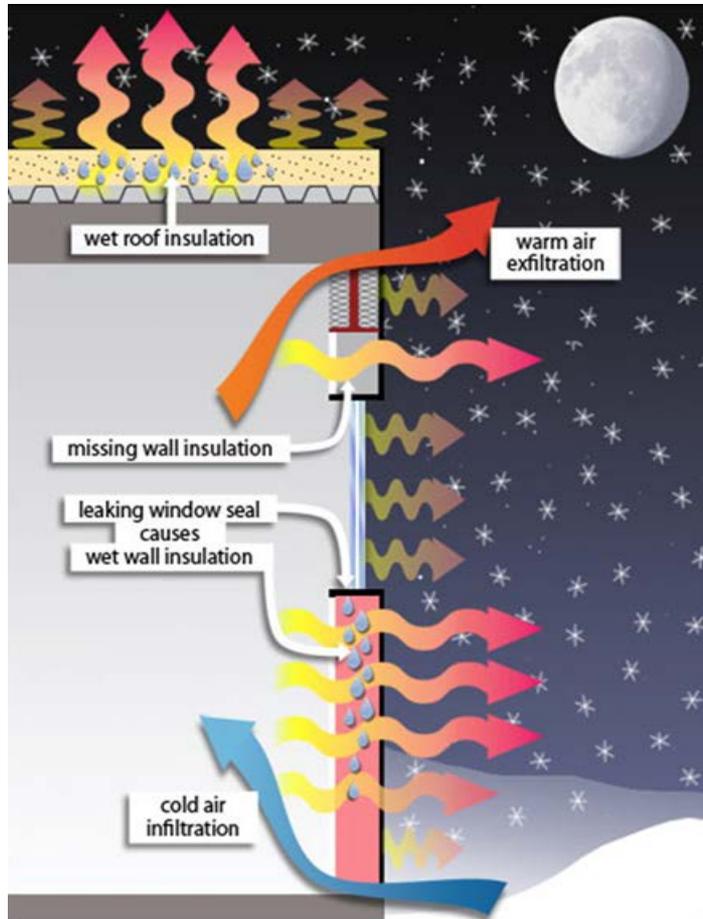


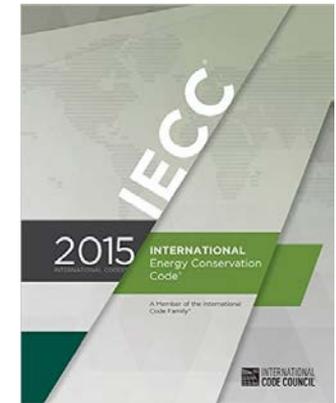
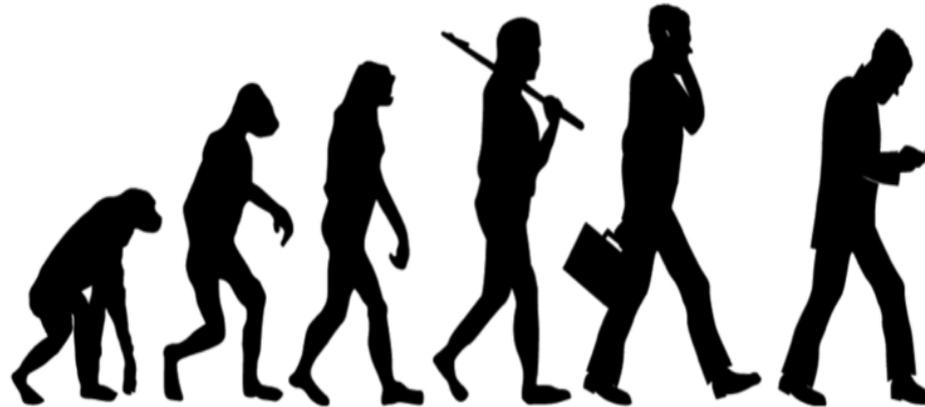
COMMERCIAL CONSTRUCTION:

Energy Code Compliance for Existing Buildings



DOE National Codes Conference
2016

THE EVOLUTION OF ENERGY CODES FOR EXISTING BUILDINGS



1990.....2000.....2010.....2016...>

Minimal requirements
Code mirrors standard practice
New construction only

Codes become more aggressive
Major renovations
Many exception for existing buildings

50% Rule: System & subsystem replacement
Insulate exposed cavities
Simple commissioning
Daylighting

Renovations
Replacement
Repairs
Change of space use
Unconditioned > conditioned
Re-roofing
50% rule

BOLD STATEMENTS



Commercial building energy codes are rarely effectively enforced

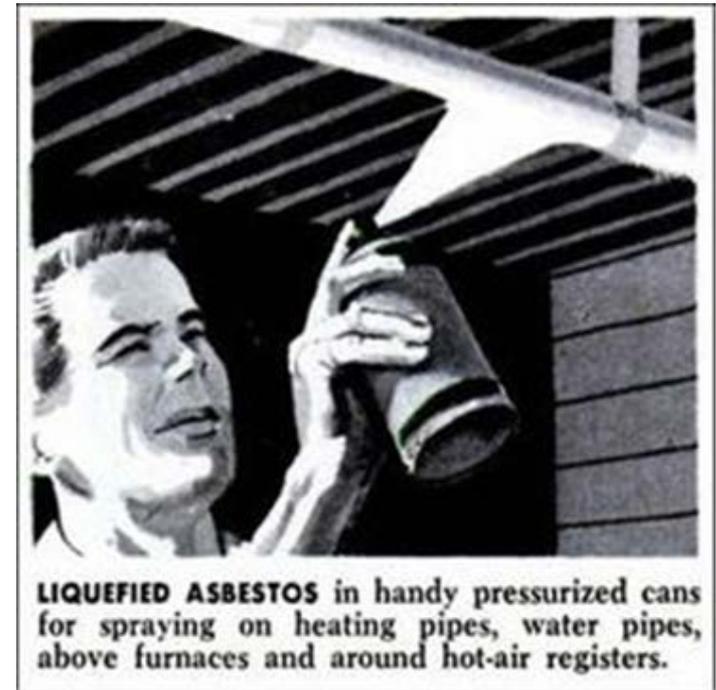
And, enforcement is the weakest for existing building projects

Regardless; compliance does occur, and can be improved through non-enforcement methods

KEY BARRIERS TO EXISTING BUILDING COMPLIANCE

Fewer permits pulled

- ❑ Permits trigger code official action
- ❑ And, permits often trigger tax assessment revisions
- ❑ Interior renovations, equipment replacement, repairs often completed without permits



KEY BARRIERS – CONT.

Smaller & specialized contractors are not necessarily familiar with energy code

- ❑ Electricians know the electrical code
- ❑ Plumbers know the sanitary code
- ❑ Carpenters know the building code
- ❑ Design professionals not involved
- ❑ Commercial renovations often completed by residential tradespeople



KEY BARRIERS – CONT.

Code officials are burdened

Quotes from 2013 - 2015 trainings:

- “I have no time for the energy code.”
- “You can’t just keep adding duties without adding time or funds.”
- “We aren’t even aware of most renovation projects.”
- “It has become too complicated; I can only cover the basics such as insulation levels.”
- “I’m not going to bother with those new daylighting provisions”

CODE COMPLEXITY

“Automatically reset the supply water temperature using zone-return water temperature, building-return water temperature as an indicator of building heating or cooling demand. The temperature shall be capable of being reset by at least 25 percent of the design supply-to-return water temperature difference.”

“Skylights... shall have a glazing material or diffuser with a measured haze factor greater than 90 percent when tested in accordance with ASTM D1003.”



ARE CODES SOMETIMES BARRIERS TO EFFICIENCY?

For many jurisdictions; energy code is the mandated baseline

- ❑ Code is often stricter than typical practice
- ❑ For existing buildings, efficiency program baselines have been:
 - Existing conditions
 - Or; standard/typical practice
- ❑ Efficiency programs promote efficiency
 - Expanding codes eliminates measures and restricts measure incentives/promotion (dreaded free-ridership)
 - No enforcement = no stick
 - No incentives = no carrot



ENFORCEMENT & COMPLIANCE

Compliance does not always require strict enforcement

- Health and safety codes – enforcement
- Energy codes – cooperative compliance



IMPROVING COMPLIANCE



Regulators!

- Energy codes and efficiency programs have the same goal – allow them to work together
 - Third-party assistance
- Allow programs to claim savings for promoting code compliance

Evaluators!

- Stop obsessing over free-ridership
 - Potential studies promise – evaluations limit
- Credit cooperative efforts

Code developers!

- Make existing building provision distinct and clear

ADDITIONAL STRATEGIES



Promote above-code programs

Most renovations are not comprehensive:

- Publish and distribute project specific code guides through supply houses
- Produce project specific webinars

Focused trainings for existing buildings

If contractors are licensed, make energy code a professional responsibility

Align product standards and codes (windows, HVAC equipment, etc.)

TRAINING

Trainers! Don't simply recite the code:

- What, why, and how – not just what
- Case studies
- Hands on
- Site visits



SUMMARY

Stricter codes on paper only,
do not save energy

Enforcement is difficult for
existing buildings

Focus on compliance and
performance rather than
enforcement

Cooperate – We are all in
this together



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