IMT Energy Code Compliance Best Practices Strawman

Building-energy codes are one of the nation's most effective means of reducing energy costs and cutting pollution, but their effectiveness is compromise by the fact that compliance rates in the US are low. We know that compliance can be improved substantially from numerous first-hand reports from virtually every part of the country, although there is a lack hard data demonstrating the exact amount of additional savings we could achieve from rigorous enforcement. Improving building-energy code compliance will produce benefits by greening new and renovated buildings, lowering energy costs, creating green jobs and reducing the danger of blackouts through reduced electricity consumption. To accomplish this, we as a nation need to commit resources to meet the huge challenge of educating the public and private sectors to comply with demanding new building codes and to provide building officials the resources and training necessary to enforce building-energy codes and assist stakeholders in complying with them. The pending American Clean Energy and Security Act would provide significant federal resources to states and localities for this purpose.

Current Best Practices

Building energy code compliance training would include excellent all-day and half-day seminars open for free to the private and public sectors, with at least one seminar per month for several months before and after new codes become mandatory. Seminars would be offered at multiple convenient locations across each jurisdiction in partnership with existing utilities, schools and training providers, labor unions, and trade and professional associations representing builders, building trades, general contractors, developers, building owners/operators, affordable housing providers, engineers, architects and energy raters. Trainings would be tailored to the needs of different participant groups. Key potential national partners include AIA, ASHRAE, Energy Star, USGBC, ICC, AEE, RESNET and BPI. All slideshows and other materials would be put online for free download. Seminars would be videotaped and put online for free download. Ideally neighboring jurisdictions will form partnerships (including cost sharing) with their training providers to jointly offer training. Best practitioners include the City of Seattle, Austin Energy, the California Energy Commission and PG&E's Energy Training Center.

Cutting-Edge practices

Ideally, each jurisdiction would phase in over years new licensing and continuing-education (CE) requirements to its builder, contractor, trade, engineering, architect and other licenses and make attendance at a building energy code seminar a licensing/CE requirement. Individuals with current certifications from AEE, ASHRAE, BPI, ICC, USGBC, NATE, NEEP, RESNET and certain other organizations and jurisdictions could waive out of some CE requirements.

Jurisdictions, individually or in partnership with neighboring jurisdictions,[1] would maintain an online database accessible to the public of licensed individuals – builders, contractors, trades people, engineers and others. The database would include the individual's certifications as well as dates and details regarding seminars attended. It would probably also include license numbers and expiration dates. Individuals could decide whether or not to include their contact information in the database. They might also be given the option to submit a short description of their specialties. The online database could serve as a resource to professionals and amateurs doing due diligence before hiring and contracting.

Down the road jurisdictions would add confidential fields to the database accessible only to government officials. In these fields jurisdictions would track building permit application activity. This would allow

[1] Sharing seminars, databases and costs with neighboring jurisdictions could often lower per capita costs.

jurisdictions to identify professionals with an exemplary record of producing excellent buildings. Jurisdictions could give these individuals special benefits, e.g. the right to apply for certain permits with emailed photos of completed work rather than needing a physical inspection.

In order to maximize success, this process should be lead by one excellent person in each jurisdiction's building department. Of course, there will also need to be additional resources for hiring additional inspectors, plan reviewers and permitting intake staff.

Technology-Assisted Building Energy Code Enforcement

Building Information Modeling (BIM) software[2] makers are working to incorporate energy modeling capabilities (and ENERGY STAR Target Finder) into their tools. (Autodesk's Green Building Studio is an example.) If there are widely agreed and open standards for software extensions to assist CEOs by automating certain basic elements of the energy code checking process, the CAD software makers are likely to incorporate capabilities based on these standards into future versions of their software. For instance, BIM software could automatically generate an energy summary checklist page for CEOs. And, if the permit set is submitted electronically (as is now required in Plano, TX) then the software could enable CEOs to hyperlink from the energy checklist directly to key underlying elements and calculations and the software could provide rudimentary automatic error checking.

Affected Professions

Compliance with advanced energy codes will require new skills and practices (and create new green jobs), including in the following job categories:

Architects
Building operators
Carpenters
Construction laborers
Helpers-Carpenters
Brick masons, stonemasons, block masons
Cement masons and concrete finishers
First-line supervisors/managers of construction trades
Construction managers
Operating engineers and other construction equipment operators
Plumbers, pipefitters, and steamfitters
Heating, air conditioning, and refrigeration mechanics and installers
Roofers
Electricians
Painters, construction and maintenance
Construction and building inspectors
Engineers
Glaziers
Cost estimators
Insulation workers
Home energy raters
Energy modelers

[2] Building Information Modeling (BIM) software is a relatively new product that is rapidly gaining acceptance among sophisticated commercial building designers, developers, builders and operators. BIM software is a more advanced descendant of computer-assisted-design (CAD) software.