Green Building Practice Summary 3/17/2011

Sector: Commercial

Category/Practice: Energy Efficiency / Electric-Heat Envelope Specifications

Proposed GB Practice

Description

Electrically-heated buildings must meet increased building envelope requirements for exterior insulation, door insulation and window U-values based on ASHRAE 189.1 as specified in Table 502.2(3) of the 2009 *International Energy Conservation Code* (IECC) as amended .

Applicability

New Construction: Applies

Existing Buildings/Additions: Applies

Existing Buildings/Alterations: Does not apply

Intent

Reduce energy use and associated upstream carbon emissions in buildings heated with electric heat.

Benefits and Costs

Triple Bottom Line Benefits

People: Improved comfort

Economic: Energy cost savings for utility customers. Reduction in utility peak demand.

Environment: Reduced CO_2 emissions through reduction of fuel use associated with heating and cooling.

Costs Passed to Owner

The increased cost for increased insulation and improved windows is approximately $0.15 - $0.25 per SF of floor space for the reference building depending on insulation and glazing type.

Lost Opportunity

Once construction is complete the opportunity is for improvement is limited.

Implementation

Availability of Products and/or Services

Products are readily available.

Practicality
Requirements would not affect standard insulation and window installation practices.

Enforcement Procedures

Permit application/plan review: Plans must include details on type of electric heating system used, verification of insulation values and specifications of required electrical panels solely dedicated for such use.

Field inspection: City building inspectors will visually inspect electric heat system and verify increased insulation installed.

Certificate of Occupancy: Nothing additional.

Support Materials Needs
City to provide information on higher R-value insulation and higher U-value windows.

Training Needs – Industry
Education on new requirements

Training Needs – Staff
No additional

Background

Current Practice
IECC 2009 does not require additional thermal performance for building enclosures in electrically heated buildings.

Context
Buildings that use electric resistance heat use a large amount of electric energy in the winter. Increasing insulation level requirements would cut down on heating costs as well as improving occupant comfort. Insulation improvements are only cost effective at the time of construction; retrofits are rarely a viable option.

Related Green Building Practices
Continuous air barrier, insulation installation standards

Known Objections
- Increased cost of construction
- Possible increase lead times on insulation procurement