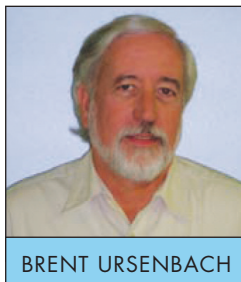


# MECHANICAL CODE DISCUSSION

## Energy Efficiency in Existing Buildings



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THE CODE DISCUSSION SUBJECT in the 2016 November/December *Pipeline* addressed requirements when HVAC systems are replaced in existing buildings. The items discussed included permits, load calculations, building envelope improvements, duct system improvement and vent system upgrades.

In this discussion, we'll consider repairs, alterations, and additions to existing buildings and how these changes may impact existing HVAC

systems or trigger additional HVAC upgrades, including International Energy Conservation Code (IECC)

compliance. This is a limited, brief review. Please contact me if you would like to discuss further. Also see IRC N1107 and IECC Chapter 5.

### Repairs and Maintenance:

A repair is defined in the Code as: *The reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.*

The I-codes do not require permits for maintenance and repair of building components including plumbing piping and valves, HVAC component replacement and building repairs. The

only requirement is *building structures and parts thereof*, shall be maintained in a *safe and sanitary condition*. Never should a repair impact or alter the safe operation of an HVAC or other building system.

### Alterations:

Defined as: Any construction, retrofit or renovation to an existing structure other than repair or addition. Also, a change in a building, electrical, gas, mechanical

or plumbing system that involves an extension, addition or change to the arrangement, type or purpose of the original installation. Alterations are modifications within an existing building

footprint and includes any altered building components or building systems. Examples include building tenant improvements, HVAC retrofits, restroom modifications or upgrades, window replacements including frames, roof replacements, and insulation upgrades. Each altered item must comply with the energy code.

A tenant improvement (TI) to an empty building shell basically requires the entire construction process to comply with the current code, including ADA, fire sprinklers, HVAC design, ventilation/exhaust, economizers,

lighting systems and controls. The only exception may be the building thermal envelope, i.e., windows, doors, and insulation are not required to comply with current code, IF, the initial shell construction complied with the envelope energy code at the time of construction.

**Important item!** Where an alteration creates conditioned space, in a previously un-conditioned space, the entire space must be brought into full compliance with the energy code. In other words: adding heating and/or cooling systems to a previously unconditioned warehouse, garage, storage, or similar space, triggers the requirement to fully insulate walls, roofs, floors, and to upgrade doors and windows in accordance with the current energy code.

Another condition triggering *full energy code compliance* is where there is a change in use or occupancy in a space, where there is an increase in energy usage, due to the new use. An example of this condition is an office space in a strip mall building is vacated and the new tenant is a restaurant. This is a completely different use/occupancy; therefore, this TI is treated like a new space, and must comply with the current adopted code. There is limited 'grandfathering'. The space must comply with all IECC requirements including IECC mechanical requirements such as load calculations, equipment efficiencies, controls, damper



leakage, demand-controlled ventilation, heat/energy recovery, duct sealing, testing and insulation, kitchen hoods, make-up air, fire suppression, and possibly full building commissioning.

One final HVAC alteration item:

Where a new HVAC system is added to a residential dwelling unit, with the air handler and/or duct located in an attic or crawlspace, duct blaster testing per the energy code is required.

### Additions:

Defined as; *An extension or increase in the conditioned space floor area, number of stories or height of a building or structure.* This is simpler, as the entire addition must fully comply with the energy code. The existing portion of the building is exempt, if it remains unaltered. The typical addition often includes an alteration in the existing building, creating a condition where the entire building may have to comply with all codes for a new building.

In closing, please remember I retired from Salt Lake County, May 1, 2018; however, I continue to work part time teaching energy code and serving as an energy code resource across the state. I continue to welcome your input and questions. Please use the following email for questions or comments: [bursenbach@gmail.com](mailto:bursenbach@gmail.com).

*Happy New Year! May it be a great year for each of you. —Brent ■*

## Develop talent now for a successful future

While incentives such as bonuses and profit sharing are important, recognizing achievements and building self-esteem are priceless.

Some business owners procrastinate or avoid communicating their succession plans because they fear how family members and employees might react. However, their silence may actually create more stress and cause harm to the business. Most employees—including family members—will feel more secure about the future if they know what to expect and how they will fit in.

It's never too late to develop a business succession plan. But the earlier you start, the better. Estate planning experts agree that long-term plans to transfer businesses are generally much more successful than those "patched together" following the unexpected death or disability of an owner.

## Business succession actually begins with each employee's first day on the job

Think about it, whether he or she is one of our children or a high school student working part-time, that young person could someday be the head of the company.

Experts agree—succession planning includes creating an environment that motivates employees to use their talents and skills to reach their full potential and contribute to the success of the business. Sounds simple, but how do you accomplish it?

Perhaps a mentor program or an apprenticeship is a good start. Talented young people are more likely to stay with the company if they feel involved in something bigger than their own job. It is wise to provide opportunities by matching experienced workers with newer employees to guide them as they grow in their jobs.

As employees gain experience, they become assets to your business and their value increases. Providing key employees opportunities to gain well-rounded business experience through cross-functional training and experience is admirable. This no doubt helps them become dependable managers who can make good decisions and take initiatives to improve operations.

*This article from Federated Insurance. More can be found at: <https://www.federatedinsurance.com/ws/fi/InsuranceResources/index.htm>*

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