City of Lawrence
PLANNING & DEVELOPMENT SERVICES

Building Codes Interpretation Manual
City of Lawrence Adopted Codes and Standards
Chapter V, Building and Construction

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Article 1 – Administration

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Article 2 – Building Code

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Article 3 – Residential Code

5-308, City of Lawrence Code

Issue: Table 1102.1 Note H is added by local amendment. Note H provides for substitution of slab edge insulation for slab on grade construction when high efficiency heating systems are provided. The following questions are at issue:

1) Are trench footings extending to or below the frost line considered part of the slab for insulation purposes?
2) Is slab edge insulation required for slab on grade additions with existing heating appliances rated less than 90% efficient? What if equipment is upgraded to 90% or greater efficiency?

5-308, 2006 IRC Table N1102.1 Note H:

5-308 Table N1102.1 of the International Residential Code is hereby amended to read as follows:

TABLE N1102.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	FENESTRATION *U*-FACTOR	SKYLIGHT[b] *U*-FACTOR	GLAZED FENSTRATION SHGC	CEILING *R*-VALUE	WOOD FRAMED WALL	MASS WALL *R*-VALUES	FLOOR *R*-VALUE	BASEMENT[c] WALL *R*-VALUE	SLAB[d,h] *R*-VALUE AND DEPTH	CRAWL SPACE WALL *R*-VALUE
1	1.2	0.75	0.40	30	13	3	13	0	0	0
2	0.75	0.75	0.40	30	13	4	13	0	0	0
3	0.65	0.65	0.40[e]	30	13	5	19	0	0	0
4 except Marine	0.40	0.60	NR	30	13	5	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.35	0.60	NR	30	19 or 13+5[g]	13	30[f]	10/13	10, 2 ft	10/13
6	0.35	0.60	NR	30	19 or 13+5[g]	15	30[f]	10/13	10, 4 ft	10/13
7 and 8	0.35	0.60	NR	30	21	19	30[f]	10/13	10, 4 ft	10/13

(A) R-values are minimums. U-factors and SHGC are maximums. R-19 insulation shall be permitted to be compressed into a 2X cavity
(B) The fenestration U-factor column excludes skylights. The solar heat gain coefficient (SHGC) column applies to all glazed fenestration.
(C) The first R-value applies to continuous insulation, the second to framing cavity insulation; either insulation meets the requirement.
(D) R-5 shall be added to the required slab edge R-values for heated slabs.
(E) There are no solar heat gain coefficient (SHGC) requirements in the Marine Zone.
(F) Or insulation sufficient to fill the framing cavity, R-19 minimum.
(G) "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25% or less of the exterior, R-5 sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25% of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.
(H) Slab edge insulation may be eliminated for slab on grade floors when heating systems efficiency rating is 90% or better.

Question 1 Interpretation (See 4/17/08 Building Code Board minutes)
Trench footings extending to or below the frost line for slab on grade floors are considered part of the slab edge for the purpose of insulation requirements.

Question 2 Interpretation
Slab edge insulation is required for slab on grade additions with existing heating appliances rated less than 90% efficient. If equipment is upgraded to 90% or greater efficiency rating slab edge insulation is not required.

Approved By: Scott McCullough, PDS Director Date: 10/17/08

5-311, City of Lawrence Code

Issue: The International Residential Code is altered by local amendment to require verification that HVAC equipment meets minimum efficiency requirements mandated by the federal government. The following questions are at issue:

1) What agency or agencies are approved for certification of the minimum standards, or what data must be supplied by the manufacturer to verify that the minimum standards are met?
2) What type of installation triggers the requirement that certification be submitted for verification that minimum efficiency standards are met?

5-311 City of Lawrence Code Chapter V "…The efficiency shall be verified through certification under an approved certification program or, if no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the manufacturer…"

5-311 Section N1103.7 of the International Residential Code is amended to read as follows:

N1103.7 HVAC equipment performance requirements. Equipment shall meet the minimum efficiency requirements mandated by federal government minimum efficiency standards when tested and rated in accordance with the applicable test procedure. **The efficiency shall be verified through certification under an approved certification program or, if no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the manufacturer.** Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein.

Question 1 Interpretation

The following documentation is acceptable for verification that installations comply with minimum efficiency standards:

- Certificate of Air conditioning and Refrigeration Institute (ARI) - Certified Performance available online at www.aridirectory.org; **or**
- Copies of engineering calculations provided by the equipment manufacturer showing the energy efficiency of the installed equipment.

Question 2 Interpretation: (See 5/12/08 Mechanical Board minutes)

Certification is required to be submitted to the Building Safety Division for replacement of air conditioning equipment utilizing existing coils to verify that the combination of new condenser and existing coils meets or exceeds the minimum required Seasonal Energy Efficiency Rating (SEER) of 13.0.

Approved By: Scott McCullough, PDS Director Date: 10/17/08

5-513, City of Lawrence Code
Issue: The residential code is altered by local amendment to require that HVAC equipment loads calculated in accordance with ACCA (Air-Conditioning Contractors of America) Manual J be provided with permit application submittals to the Building Safety Division. The following questions are at issue:

1) What is the appropriate design temperature?
2) What is meant by "each new building permit application"?
3) Are there projects for which these calculations are not required to be submitted at the time of application?

5-313, 2006 IRC Section M1401.3 Sizing. Heating and cooling equipment shall be sized based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.

5-313 Section M1401.3 of the International Residential Code is hereby amended to read as follows:

M1401.3 Sizing. Heating and cooling equipment shall be sized based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. These calculations shall be provided with each new building permit application submitted to the department having jurisdiction and shall include the following:

(A) The capacity of each piece of heating and cooling equipment,

(B) A drawing of each duct system including the size and length of each duct trunk, branch and CFM of each duct branch run,

(C) The calculation shall include but is not limited to window efficiency and sizes, insulation R-value for floor, wall, and ceiling, orientation of the house, house color, roof color,

(D) Be submitted with every new one and two family dwelling and any addition that will change the heating and cooling load of the dwelling.

Exception: Duct design shall be submitted prior to rough-in inspection.

Question 1 Interpretation: (4/14/08, see 4/14/08 Mechanical Code Board minutes)
The acceptable design temperature is 95 degrees F, plus or minus 2 degrees.

Question 2 Interpretation: (See 5/12/08 Mechanical Board minutes)
Heating and cooling load and equipment sizing calculations will be required for review at time of permit application when an entire HVAC system, including ductwork and equipment, is installed; such as in conjunction with the following types of projects:

- New dwelling units
- Dwellings where the entire HVAC system is removed and replaced
- Dwelling additions (either vertical or horizontal)
    - For new systems dedicated to the newly constructed space; or
    - To verify that the capacity of existing system is sufficient for the additional heating/cooling load

5-513, City of Lawrence Code, Continued

Question 3 Interpretation: (See 5/12/08 Mechanical Board minutes)
Calculations will not be required to be submitted for review for the following types of projects:

- Dwelling remodels when the building footprint is not increased and the entire HVAC system is not removed and replaced
- Replacement of existing equipment not associated with other work; such as replacement of furnaces or air conditioning equipment when the duct system is not altered

Approved By: Scott McCullough, PDS Director Date: 10/17/08

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Article 4 – Electrical Code

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Article 5 – Plumbing Code

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Article 6 – Mechanical Code

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Article 7 – Fuel Gas Code

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Article 8 – Energy Code

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Article 9 – Existing Building Code

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Article 10 – Property Maintenance Code

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Article 11 – Dangerous Structures

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Article 12 – Demolition of Structures

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Article 13 – Accessibility Standards for Public Buildings

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Article 14 – Swimming Pools and Non-Residential Spas

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Article 15 – Contractor Licensing Regulations

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Article 17 – Trade Licensing

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Article 18 – Signs

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Article 19 – Underground Wiring Districts

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Article 20 – Siting of Utility Facilities

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Article 21 – Excavations and Structures in Utility Easements

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Appendix A – Policy for Official Code Interpretations

Purpose

The Planning and Development Services Department (PDS) strives to provide accurate and consistent enforcement of adopted building codes and ordinances as detailed by Chapter V of the City of Lawrence Code. The manual of official code interpretations (Interpretation Manual) is intended to document the official position of the City of Lawrence regarding enforcement of the City's adopted building codes and ordinances; to promote consistent understanding of the various provisions by PDS staff; and to provide the public with a clear understanding of how codes are interpreted and enforced.

Requests for Interpretations

Anyone may request an official code interpretation. Requests for interpretations should be received in a written format and include the following:

- The code edition and specific section number (such as 2006 IRC section M1401.3)
- A brief summary of the issue for which clarification is sought
- One or more specific questions for interpretation

PDS staff may generate official code interpretations as needed to clarify enforcement questions that arise.

Development of Interpretations

Requests for interpretations will be researched by PDS staff as assigned by the Building Official. Appropriate reference materials will be utilized, as well as internal or external experts. Code publishing organizations such as International Code Council or National Fire Protection Agency may be consulted for written staff opinions or formal interpretations if needed. Questions pertaining to local amendments may be forwarded to the appropriate code review board for clarification of intent. Interpretations will be formulated by staff based on information provided by these various sources and approved by the Planning and Development Services Director.

Official interpretations should be formatted to include the following:

1. Code reference number
2. Analysis of the issue(s)
3. Specific questions the interpretation will address
4. Code text
5. Interpretations
6. PDS Director's signature and date

Appeals

Appeals of official code interpretations may be made to the appropriate code review board, as provided by Section 5-1.209 of the City of Lawrence Code.

Publication

The Interpretation Manual will be posted on the PDS website and made available in the PDS offices.