

Source: City Manager

Agenda Item No: Supplemental
Information

To: **City Council**

From: **City Manager and Staff**

Council Meeting Date: Sep 16, 2013

Re: EEC recommendations for residential building codes corrected letter- Supplemental information for Council

EXECUTIVE SUMMARY:

An incorrect letter from the Environment and Energy Commission was mistakenly introduced at the September 3, 2013 City Council meeting. The introduced letter was submitted as supplemental information for Agenda items B239-13 through B246-13. The corrected letter, dated April 17, 2013 is attached here as supplemental information.

DISCUSSION:

The Environment and Energy Commission (EEC) was requested by City Council to review changes to the building code in regards to energy efficiency. The commission originally submitted their recommendations to City staff in a letter dated January 17, 2013. Upon further review of their recommendations, the EEC re-submitted their letter to staff and City Council on April 17, 2013. The January 17, 2013 letter to staff was mistakenly submitted as supplemental information to Agenda items B239-13 through B246-13 at the September 3, 2013 City Council meeting.

The recommendations from the April 17, 2013 letter are the recommendations Council heard at their June 17 pre-Council meeting. Those recommendations are to adopt the 2012 energy code as written or accept the three compromises as recommended by the EEC. Those compromises are:

1. The amount of attic insulation
2. The amount of wall insulation
3. Perimeter foundation insulation

Staff apologizes for the confusion and have attached the correct letter, which has been seen by the City Council before, for clarification.

FISCAL IMPACT:

None

VISION IMPACT:

<http://www.gocolumbiamo.com/Council/Meetings/visionimpact.php>

By adopting the 2012 energy code, newer homes will be more energy efficient

SUGGESTED COUNCIL ACTIONS:

The Environment and Energy Commission requests that Council amend the proposed changes to building codes with the recommendations from the EEC.

FISCAL and VISION NOTES:					
City Fiscal Impact Enter all that apply		Program Impact		Mandates	
City's current net FY cost	\$0.00	New Program/ Agency?		Federal or State mandated?	
Amount of funds already appropriated	\$0.00	Duplicates/Expands an existing program?		Vision Implementation impact	
Amount of budget amendment needed	\$0.00	Fiscal Impact on any local political subdivision?		Enter all that apply: Refer to Web site	
Estimated 2 year net costs:		Resources Required		Vision Impact?	Choose One
One Time	\$0.00	Requires add'l FTE Personnel?		Primary Vision, Strategy and/or Goal Item #	
Operating/ Ongoing	\$0.00	Requires add'l facilities?		Secondary Vision, Strategy and/or Goal Item #	
		Requires add'l capital equipment?		Fiscal year implementation Task #	

ENVIRONMENT & ENERGY COMMISSION

City of Columbia & County of Boone

City Hall, Conference Room 1A

April 17, 2013

Mayor McDavid and Council Members,

The Environment & Energy Commission has reviewed the 2012 Energy Code (Chapter 11 of the International Residential Code), and the recommendations of the Building Code Commission. The BCCC has done extensive research into the energy conservation sections of the residential code, and deserves recognition for this effort. The recommendations of the EEC are as follows:

Insulation of hot water piping: The EEC agrees with the BCCC's proposal of eliminating hot water insulation requirements except in the case of hot water circulating pump piping.

Wood frame wall insulation: The 2012 Energy Code requires R20 or R13+5 (R13 batt and R5 cladding). We agree with the BCCC that this new insulation requirement be kept in force. The BCCC has proposed an exception allowing high density batts to substitute for exterior continuous insulation cladding, however this does not meet the letter of *R402.1.3 U-Factor Alternative*. The EEC does not agree with the BCCC proposal allowing high density batts to substitute for continuous insulation cladding.

Termite exemption for slab-on-grade and foundation insulation: The EEC recommends the retention of section *R402.2.9 Slab-on-grade-floor* insulation requirement in the 2012 International Energy Conservation Code. We suggest using standard termite barrier details which has been allowed as an option by City Authorities for some time. This is not in agreement with the BCCC recommendations for an exemption.

Ceiling or Attic R-value: The 2012 Code recommends an increase in Attic insulation from R-38 to R-49, and in the case of an "Energy Band" truss, reduction to R-38 is allowed. The EEC Recommends that this requirement, which may result in reduced mechanical equipment size if properly implemented, will be cost effective. Contractors using proper "Manual J" Calculations will reduce equipment size, thus reduce overall building cost and energy use compared to the old Code. This reduced HVAC equipment size can directly reduce electric utility demand charges, reaping benefits to the City Utility as well as to the consumer. This is not in agreement with BCCC recommendations which propose to keep 2009 insulation requirements.

Air leakage: The 2012 Code requires a blower door test on all new houses to determine air leakage. The EEC would agree with BCCC that a relaxed standard which requires a visual inspection of air leakage control measures during construction is feasible. The blower door test should be allowed as an option at the discretion of the Building Inspector in questionable or disputed cases.

Duct leakage: The 2012 Code requires a duct pressure test on all new houses to determine duct leakage. Mechanical contractors are more aware of leakage requirements, and testimony shows they are taking care to seal ductwork. The EEC would agree with the BCCC that a relaxed standard which requires a visual inspection of duct leakage control measures during construction be allowed. The duct pressure test should be allowed as an option at the discretion of the Building Inspector in questionable or disputed cases.

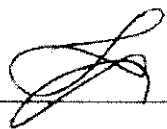
Outdoor air duct: The EEC agrees with the BCCC recommendation of a single outside air duct, with insect screen and damper, routed to the furnace return air intake to satisfy Section R303 and M1507 Mechanical Ventilation requirements. This duct should be 4" for houses less than 1500 square feet, 6" for houses less than 2400 square feet, and 8" for larger houses. If there are multiple furnaces, the requirements may be applied to the area served by the furnace, or to one of the multiple furnaces as long as the furnace is properly sized to handle the additional heating or cooling load imposed by the outside air. The duct should be placed as to discharge into the return air filter, to reduce allergens or dust from outdoors.

Building cavities as return air The EEC agrees with the BCCC that building cavities may be used as return air cavities without full duct lining, as long as leakage to outside air, attics, or unconditioned spaces is prevented by visually inspection.

High efficacy lamps: The EEC agrees with the BCCC recommending that the 2012 requirement that 75 percent of the *lamps* in light fixtures be high efficacy type, be changed to read 75 percent of the *fixtures shall* be high efficacy. This allows a few multiple bulb fixtures, such as candelabras, to be conventional bulbs, while retaining the requirement for high efficacy bulbs in most areas.

Programmable thermostats: The 2012 Code specifies that the initial heating setpoint shall be 70F and the cooling setpoint be 78F. The EEC agrees with the BCCC in recommending that this paragraph be changed from *shall* to *should*, which makes the requirement non-mandatory.

Respectfully Yours,

By:  _____
Signature

Lawrence Lile,

Vice Chair and Acting Chair

Environment and Energy Commission

Introduced by _____

First Reading _____

Second Reading _____

Ordinance No. _____

Council Bill No. B 244-13

AN ORDINANCE

repealing Article VII of Chapter 6 of the City Code relating to the 2009 Edition of the International Property Maintenance Code and enacting in lieu thereof a new Article VII adopting the 2012 Edition of the International Property Maintenance Code; and fixing the time when this ordinance shall become effective.

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF COLUMBIA, MISSOURI, AS FOLLOWS:

SECTION 1. Article VII of Chapter 6 of the Code of Ordinances, City of Columbia, Missouri, relating to the 2009 Edition of the International Property Maintenance Code is hereby repealed and in lieu thereof a new Article VII, relating to the 2012 Edition of the International Property Maintenance Code, is hereby enacted reading in the word and figures as follows:

CHAPTER 6 BUILDING AND BUILDING REGULATIONS

...

ARTICLE VII. Property Maintenance Code

Sec. 6-71. Adopted.

The 2012 Edition of the International Property Maintenance Code, published by the International Code Council, Inc., including all appendices, one copy of which has been on file with the city clerk for a period of ninety (90) days prior to the adoption of this article, is hereby adopted by reference and made a part of the Code of Ordinances, City of Columbia, Missouri as fully as if set forth in its entirety. At least one (1) copy of the 2012 Edition of the International Property Maintenance Code shall remain on file in the office of the city clerk and shall be kept available for public use, inspection and examination.

Sec. 6-72. - Amendments.

The code adopted by this article is hereby amended by substituting the following sections in lieu of those sections with corresponding numbers in the code, or, where there

is no corresponding section in the code, the following sections shall be enacted as additions to the code:

101.1 Title: These regulations shall be known as the Property Maintenance Code of Columbia, Missouri, hereinafter referred to as "this code."

101.5 Appendix A is hereby adopted as published.

102.3 Other codes: References to the International Zoning Code and the International Existing Building Code are deleted from this code.

102.7 Referenced standards: The standards referenced in this code, listed in Chapter 8 and Appendix A shall be considered part of the requirements of this code to the prescribed extent of each such reference. (Other codes shall not apply except individual regulations of such other codes that are specifically incorporated by reference into this code). Where differences occur between provisions of this code and referenced standards, the provisions of this code shall apply.

Section 103 Department of Community Development

103.1 Director: The administration and enforcement of this ordinance shall be the duty of the director of community development, who is designated the code official for purposes of this code. The code official is hereby authorized to take such action as may be reasonably necessary to enforce the provisions of this code. Such persons may be appointed and authorized as assistants or representatives of the director as may be necessary to carry out the provisions of this code.

103.1.1 The division of Building and Site Development and Office of Neighborhood Services: The persons employed in these offices, may be appointed, by the director, as assistants to the administration and enforcement of this ordinance and code.

103.2 Appointment: Deleted.

103.3 Deputies: Deleted.

103.4 Restriction of employees: An employee connected with the Department of Community Development - Division of Building and Site Development shall not be engaged in or directly or indirectly connected with the furnishing of labor, materials or appliances for the construction, alteration or maintenance of a building, or the preparation of plans or of specifications therefore, unless such employee is the owner of the building; nor shall such employee engage in any work which conflicts with such employee's official duties or with the interest of the department.

103.4.1 Liability: Any officer or employee charged with the enforcement of this code, while acting on behalf of the city, shall not thereby render such individual liable personally, and is

hereby relieved from all personal liability for any damage accruing to persons or property as a result of any act performed in the discharge of official duties. Any suit instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The officer or employee shall not be liable for costs in any action, suit or proceeding that is instituted pursuant to the provisions of this code; and any officer or employee acting within the scope of employment and in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection therewith. Nothing contained herein shall be deemed a waiver of the immunities and protection afforded to the city or officers and employees pursuant to state and federal law.

103.5 Re-Inspection Fees: A re-inspection fee under the Rental Unit Conservation Law, Section 22-188(a)(3) will not be charged when the only violation of "this code" is the failure of battery power for the smoke detector.

104.3.1 Search warrant:

(a) If a complaint in writing is filed by the code official with the judge of the municipal court of the city, stating that there is probable cause to believe that a certain structure or premises, more particularly described therein, is or may be in violation of this code and is within the territorial jurisdiction of the city, and if such complaint is verified by the oath or affirmation stating evidential facts from which such judge determines the existence of probable cause, then such judge shall issue a search warrant directed to the code official commanding the code official to search the structure or premises therein described. Such search warrant may be executed and returned only within ten (10) days after the date of its issuance. The code official shall make a return promptly after concluding the search, and such return shall contain an itemization of all violations of this code discovered pursuant to such search. The refusal to admit the code official to a structure or premises when the code official is in lawful possession of a search warrant commanding the code official to enter therein is hereby declared to be a misdemeanor.

106.4 Penalty for noncompliance or delay.

(a) Any person who shall violate any provision of this code shall upon conviction be subject to a fine of not less than twenty-five dollars (\$25.00) nor more than five hundred dollars (\$500.00) or three (3) months in jail or both such fine and imprisonment; provided however, that each day that a violation continues shall be deemed a separate offense.

(b) Any person who shall fail to comply with a notice of violation given under 107.1 or order under 107.7 or order under 107.10 shall upon conviction be subject to a fine of not less than twenty-five dollars (\$25.00) nor more than five hundred dollars (\$500.00) or three (3) months in jail or both such fine and imprisonment; provided, however, that in those cases involving failure to comply with a notice of violation given under 107.1 every

day that a violation continues after the expiration of the reasonable period of time for the completion of the work specified by the director shall be deemed a separate offense; and provided that every day that a violation continues in violation of an order under 107.7 or 107.10 shall be deemed a separate offense.

107 DEMOLITION OR REPAIR OF STRUCTURES CONSTITUTING A PUBLIC NUISANCE

107.1 Structures Constituting a Public Nuisance: All structures which have any of the following defects are public nuisances:

- (1) Those structures whose interior walls or other vertical structural members list, lean or buckle to such an extent that a plumb line passing through the center of gravity falls outside of the middle third of its base.
- (2) Those structures which, exclusive of the foundation, show thirty-three percent (33%) or more of damage or deterioration of the supporting member or members, or fifty percent (50%) of damage or deterioration of the non-supporting enclosing or outside walls or covering.
- (3) Those structures which have improperly distributed loads upon the floors or roofs or in which the same are overloaded, or which have insufficient strength to be reasonable safe for the purpose used.
- (4) Those structures which have been damaged by fire, wind or other causes so as to be dangerous to life, safety, health or welfare of the occupants or the residents of the city.
- (5) Those structures which are so dilapidated or decayed that they are a danger to the life, safety, health or welfare of the occupants or the residents of the city.
- (6) Those structures having inadequate facilities for egress in case of fire or panic or those having insufficient stairways, elevators, fire escapes or other means of communication.
- (7) Those structures which have parts which are so attached that they may fall and injure members of the public or property.
- (8) Those structures which exist in violation of any provision of the Building Code of Columbia, Missouri or other ordinances of this city and which are a danger to the life, safety, health or welfare of the occupants or residents of the city.
- (9) Those structures which, if occupied, would constitute a hazard to the safety, health, or welfare of the occupants because they lack maintenance, are in disrepair, are

unsanitary, vermin infested or rodent infested, lack sanitary facilities or equipment or otherwise fail to comply with minimum provisions of this code.

- (10) Those structures which have unsafe equipment including any boiler, heating equipment, elevator, moving stairway, electrical wiring or device, flammable liquid containers or other equipment on the premises or within the structure which is in disrepair or conditions that such equipment is a hazard to life, health, property or safety of the public or occupants of the premises or structure .

107.2 Notice of Violation:

(a) Whenever the building regulations supervisor determines a structure to be a public nuisance, a notice shall be given to the owner, occupant, mortgagee, agent and all other persons having an interest in the structure or premises as shown by the land records of the county recorder of deeds who shall be parties to the action. Such notice shall be in writing and shall:

- (1) Include a description of the property sufficient for identification;
- (2) Specify the violations of this code constituting a public nuisance;
- (3) Specify if the property or any part of it is totally or partially vacated and, if so, the date;
- (4) Specify if the property is to be repaired, reconditioned, remodeled, demolished, placed in a sanitary condition, or made to conform to the occupancy requirement of this code;
- (5) State a time for the commencement of such work and a reasonable period of time for the completion of such work.

(b) The notice of violation shall be served either by personal service or by certified mail, return receipt requested. If service cannot be obtained by either of these methods of service, then service may be had by publication in a newspaper of general circulation in the city.

107.3 Standards: The following standards should be followed by the building regulations supervisor and the director in ordering repair, reconditioning, remodeling, total or partial vacation, demolition, or cleaning of structures constituting a public nuisance.

- (1) If the structure can be reasonably repaired, reconditioned or remodeled so that it will no longer exist in violation of this code, it shall be ordered repaired, reconditioned or remodeled.

- (2) If the structure is in such a condition as to make it dangerous to the health, safety or general welfare of its occupants or any other person, it shall be ordered repaired, reconditioned, remodeled or demolished.
- (3) In any case where the structure is fifty percent (50%) damaged, decayed or deteriorated from its original value or structure, it shall be vacated, repaired, reconditioned or remodeled and in all cases where the structure is not or cannot be repaired, reconditioned or remodeled so that it will no longer exist in violation of the requirements of this code, it shall be demolished.
- (4) If the structure is a hazard to the safety, health or welfare of its occupants or of any person because it lacks sanitary facilities and equipment or is otherwise unsanitary because of an accumulation of garbage or trash or because of infestation, it shall either be placed in a clean and sanitary condition or demolished.
- (5) Any structure determined to be unfit for human occupancy shall be totally or partially vacated within a reasonable period of time to be determined by the building regulations supervisor or director. No structure or its affected part, ordered vacated shall again be used or leased for human occupancy by any occupant or owner until written approval is secured from the building regulations supervisor.

107.4 Failure to Comply With Notice of Violation: Upon failure of the parties to the action to commence the work specified within the time specified by the notice of violation issued by the building regulations supervisor under 107.2 or upon failure to proceed continuously with the work without unnecessary delay in order to complete the work within the specified period of time, the director may call and have a full adequate hearing upon the matter.

107.5 Notice of Hearing:

(a) Whenever the director calls a hearing under 107.4, the director shall give at least ten (10) days written notice of the hearing to the owner, occupant, lessee, mortgagee, agent and all other persons having an interest in the structure or premises as shown by the land records of the county recorder of deeds. Such notice shall:

- (1) Include a description of the property sufficient for identification;
- (2) State the time, date and place of the hearing;
- (3) State who shall preside at the hearing;
- (4) State the notice is being given pursuant to this section.

(b) The notice of hearing shall be served either by personal service or by certified mail, return receipt requested. If service cannot be obtained by either of these methods of

service, then service may be had by publication in a newspaper of general circulation in the city.

107.6 Hearing Procedure: The director shall preside over the hearing and shall cause the hearing to be suitably recorded and preserved. Any party may have a copy of all or any part of the record upon payment of a reasonable charge for reproduction. All parties must make oral entry of appearance for the benefit of the record. Oral evidence shall be taken only on oath or affirmation. Any party may be represented by counsel. All parties shall be given a full and adequate opportunity to be heard. Hearings need not be conducted according to the technical rules relating to evidence and witnesses.

107.7 Order of Director: After a hearing under 107.6, if the evidence supports a finding that the structure is a nuisance and detrimental to the health, safety or welfare of the residents of the city, the director shall make written and specific findings of fact based upon competent and substantial evidence, which show the structure to be a nuisance and detriment to the health, safety or welfare of the residents of the city, and he shall order the structure to be repaired, reconditioned, remodeled, totally or partially vacated, demolished or placed in a sanitary condition. If the evidence does not support a finding that the structure is a nuisance or detrimental to the health, safety or welfare of the residents of the city, no order shall be issued. Immediately upon reaching a decision, the director shall give written notice of the director's decision by delivering or mailing to each party, or the party's attorney of record, a copy of the director's findings of fact and order, if any. If notice of the director's decision cannot be obtained by either of these two (2) modes of service, then service may be had by posting a copy of the director's findings of fact and order, if any upon the affected property.

107.8 Appeals: An aggrieved party may appeal to the circuit court pursuant to the procedure established in Chapter 536, Revised Statutes of Missouri.

107.9 Special Tax Bills: If the work or act ordered by the director under 107.7 is not done within the time as stated in the order, and if no appeals of the order are pending, the director may certify such fact to the city council. The city council shall consider such certified facts and may order the city manager to have the work done either by city employees or bidding the work through the purchasing division. No person shall enter private property to perform such work unless the property owner or occupant has consented to the entry or unless the municipal judge has issued a warrant for the entry. The actual cost of the performance including administrative costs, shall be submitted to the owner of the property. If the charge is not paid within thirty (30) days of receipt, the city manager shall certify the actual cost of performance, including administrative costs to the director of finance, who shall cause a special tax bill against the property to be prepared and collected. At the request of the taxpayer the tax bill may be paid in installments over a period of not more than ten (10) years. If any installment is not paid when due, the balance of the tax bill shall be then due and payable in full, together with all accrued interest. The tax bill from date of issuance shall be a personal debt against the property owner and shall also be a lien on the property until paid. Tax bills issued pursuant to this section shall bear

interest from the date of issuance at the rate of ten (10) percent per annum for the first two (2) years and twelve (12) percent per annum thereafter.

107.10 Emergency Power: Notwithstanding any other section of this code, in any case where, in the opinion of the director, it reasonable appears there is an immediate danger to the health, safety or welfare of any person, the director may take or order emergency action to vacate and repair or demolish any structure. The actual cost of performance shall be collected as provided by 107.9.

107.11 Judicial Actions Authorized: In case any order under 107.7 or 107.10 is not immediately complied with, the director may request the city counselor to institute an appropriate judicial action to compel compliance with this code.

107.12 Placarding: Any structure determined by the code official to be a public nuisance may be posted with a placard by the code official. The placard shall include the following information in the form prescribed by the director: Name of city; name and address of the director; section of this code violated; if required to be vacated, an order that the structure, or its affected part, must remain vacated until the violation are corrected and the order to vacate is withdrawn by the building inspector; date the placard is posted; and a statement of the penalty for defacing or removing the placard.

107.13 Removal of Placard: No person shall deface or remove any placard posted by the code official pursuant to 107.12 except by written authority from the code official.

107.14 Prohibited occupancy: No person shall occupy a placarded premises in violation of an order that it be vacated and no owner or person responsible for the premises shall allow anyone to occupy such a placarded premises.

107.15 Transfer of ownership: It shall be unlawful for the owner of any dwelling unit or structure who has received a compliance order or upon whom a notice of violation has been served to sell, transfer, mortgage, lease or otherwise dispose of the such dwelling unit or structure to another until the provisions of the compliance order or notice of violation have been complied with, or until such owner shall first furnish the grantee, transferee, mortgagee or lessee a true copy of any compliance order or notice of violation issued by the code official and shall furnish to the code official a signed and notarized statement from the grantee, transferee, mortgagee or lessee, acknowledging the receipt of such compliance order or notice of violation and fully accepting the responsibility without condition for making the corrections or repairs required by such compliance order or notice of violation.

108 UNSAFE STRUCTURES AND EQUIPMENT: Deleted.

109.1 Imminent danger: Deleted.

109.2.1 Time limit: If an order is issued to board-up the openings of a structure out of compliance with this code, the structure shall be brought into compliance and the structure shall not remain boarded-up longer than ninety (90) days from the date of the notice.

110 DEMOLITION: Deleted.

111 MEANS OF APPEAL: Delete.

111.1 Application for appeal: Except for appeals from orders of the director under section 107.8, any aggrieved person shall have the right to appeal a decision of the code official to the building construction codes commission. Application for appeal must be filed in accordance with the procedures set out in Section 112 of the Building Code of Columbia, Missouri.

112.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine of not less than one dollar and or more than 500 dollars.

202.0 GENERAL DEFINITIONS: Add the following definitions:

Building regulations supervisor: The building regulations supervisor or the supervisor's designee.

Director: The director of community development or the director's designee.

Family: The definition of "family" in chapter 29 shall apply to this code.

Rooming House: A building arranged or occupied for lodging, with or without meals, for compensation and not occupied as a one-family dwelling or a two-family dwelling. This definition shall also include the housing provided by fraternities and sororities organized for students of any college or university; however, a hotel, motor hotel or motel licensed under state statute shall not be deemed a rooming house for the purposes of this article.

Structure: That which is built or constructed or a portion thereof. This definition shall include manufactured housing.

302.4 Weeds: Delete in its entirety.

302.7 Accessory structures. All accessory structures, including detached garages, fences, walls, and retaining walls shall be maintained structurally sound and in good repair.

302.8 Motor and non-motorized vehicles. Except as provided for in other regulations, no inoperative, licensed or unlicensed motor vehicle, no licensed or unlicensed utility trailers, boat trailers with or without a boat, motorized or pull type camping trailers or any similar

type vehicles shall be parked, kept or stored on an unapproved non-dust free surface on any premises, and no vehicle stated above shall at any time be in a state of major disassembly, disrepair, or in the process of being stripped or dismantled. Painting of vehicles is prohibited unless conducted inside an approved spray booth.

Exception: A vehicle of any type is permitted to undergo major overhaul, including bodywork, provided that such work is performed inside a garage, structure or similarly enclosed area designed and approved for such purposes.

Exception: Lawn and yard vehicles motorized or non-motorized, utility trailers or similar type vehicles four (4) feet wide and eight (8) feet long or smaller and not licensed for street operation.

303.2.1 Gate latches: All existing swimming pools shall have a self-latching, self-closing gate. The latches shall be a minimum of forty-eight (48) inches from the bottom of the gate.

303.3 Drain cover: All existing swimming pools shall have an anti-vortex drain cover.

Exception: Use groups R-3 and R-4

304.3 Street numbers: Each structure to which a street number has been assigned shall have such number displayed in a position easily observed and readable from the public right-of-way. All numbers shall be in Arabic numerals at least four (4) inches high with one-half (1/2) inch stroke and of contrasting color.

Exception: Existing two (2) inch high with one-half (1/2) inch stroke in Arabic numerals that are being maintained and are in good condition may remain until replaced.

304.5 Foundation walls: All foundation walls shall be maintained plumb and free from open cracks and breaks and shall be kept in such condition so as to prevent the entry of rats. All cracks that permit the entry of water, insects, or rats or jeopardize the support of the structure shall be repaired. Small cracks that do not exhibit these problems and are three-eighths (3/8) of an inch or less shall not be required to be repaired.

304.14 Insect screens: During the period from April 1 to October 15, every door, window and other outside opening utilized or required for ventilation purposes serving any structure containing habitable rooms, food preparation areas, food service areas, or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged or stored, shall be supplied with approved tightly fitting screens of no less than sixteen (16) mesh per inch and every swinging door shall have a self-closing device in good working condition.

Exception #1: Screen doors shall not be required for out-swinging doors or other types of openings which make screening impractical, provided other approved means, such as air curtains or insect repellent fans are employed.

Exception #2: Screening is not required for air-conditioned spaces.

Exception #3: Screen doors are not required where there is at least one screened window in the room where the exterior door is located.

304.18.1.1 Exception: Doors between dwelling units and fully enclosed attached, garages are not required to have dead bolt locks. (All other swinging egress doors from structure are required to have dead bolts.)

307.1.1 Guard Standards: Guards may be constructed of slats in a horizontal, vertical or any other pattern and shall not allow passage of a six (6) inch diameter sphere through any opening.

308.2.1 Exception: In one- and two-family residences, the tenant shall provide a leak proof, covered, outside rubbish container.

308.3.1 Exception: In one- and two-family residences, the tenant shall provide a leak proof, covered, outside garbage container if there is no food waste grinder or incinerator.

309.4 Multiple occupancies. The owner of a structure containing two or more dwelling units, a multiple occupancy, a rooming house or a nonresidential structure shall be responsible for extermination in the public or shared areas of the structure and exterior property. If infestation is caused by failure of an occupant to prevent such infestation in the area occupied, the occupant shall be responsible for extermination.

403.2 Exception: Structures and premises that had a current certificate of compliance during the three (3) year inspection cycle prior to January 1, 1993, may have a mechanical ventilation system that exhausts air into the attic space provided the attic space has adequate ventilation.

404.3.1 Exception: Structures and premises that had a current certificate of compliance during the three (3) year inspection cycle prior to January 1, 1993, shall have a minimum ceiling height of six feet, six inches (6'-6") for laundry areas, bathrooms, toilet room and corridors serving only these areas.

502.2.1 Exception: Fraternities or sororities shall have at least one toilet, one lavatory basin, and one bathtub or shower, in good working condition and properly connected to water and sewer systems approved by the code official for each eight (8) persons residing within a fraternity or sorority.

602.3 Heat supply: Every owner and operator of any building who rents, leases or lets one or more dwelling units, rooming units, dormitory or guest rooms on terms, either express or implied, to furnish heat to the occupants thereof shall supply sufficient heat during the period from September 1 to June 1 to maintain the room temperatures specified in Section 602.2 during the hours between 6:30 a.m. and 10:30 p.m. of each day and not less than 60 degrees F. (16 degrees C.) during other hours.

602.4 Nonresidential structures: Insert dates as follows; September 1 to June 1.

702.4.1 Emergency escape: Every sleeping room located in a basement in occupancies of Use Group I-1 or R shall have at least one openable window or exterior door approved for emergency egress or rescue; or shall have access to not less than two approved independent exits. Existing windows in a sleeping room shall not be eliminated.

Exceptions:

1. Buildings equipped throughout with an automatic fire suppression system.
2. Structures that have previously received a certificate of compliance during the three (3) year inspection cycle prior to January 1, 1993 or a certificate of occupancy have been maintained accordingly and comply with the following:
 - a. Smoke detectors shall be installed in all shafts and corridors, on the ceiling or wall outside or within the vicinity of each separate bedroom and on each additional story of the dwelling, including the basements, but not including crawl spaces and uninhabitable attics.
 - b. Smoke detectors described in paragraph a. of this exception shall receive their primary power from the building wiring and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for over-current protection.
 - c. All smoke detectors shall be interconnected such that the actuation of one alarm will actuate all the alarms throughout the structure. This exception 2 shall not apply to structures that are renovated, remodeled or altered in excess of fifty percent (50%) of the current value of the structure.

702.5 Number of exits: In nonresidential buildings, every occupied story more than six (6) stories above grade shall be provided with not less than two (2) independent exits. In residential buildings, every story exceeding two (2) stories above grade shall be provided with not less than two (2) independent exits.

Exceptions: Where any structure has previously received a certificate of compliance during the three (3) year inspection cycle prior to January 1, 1993 or a certificate of occupancy, has been maintained accordingly and complies with following:

1. Buildings equipped throughout with an automatic fire suppression system.
2. Structures that have previously received a certificate of compliance or a certificate of occupancy have been maintained accordingly and comply with the following:
 - a. Smoke detectors shall be installed in all shafts and corridors, on the ceiling or wall outside or within the vicinity of each separate bedroom and on each additional story of the dwelling, including the basements, but not including crawl spaces and uninhabitable attics.
 - b. Smoke detectors shall receive their primary power from the building wiring and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for over-current protection.
 - c. All smoke detectors shall be interconnected such that the actuation of one alarm will actuate all the alarms throughout the structure. This exception 2 shall not apply to structures that are renovated, remodeled or altered in excess of fifty percent (50%) of the current value of the structure.

702.6 Number of exits in manufactured housing: Every dwelling unit shall have not less than two (2) doors, or not less than one (1) door and one (1) unobstructed emergency exit. One (1) exit shall be located near the front of the dwelling unit and one (1) door shall be located near the rear of the dwelling unit. An emergency exit may be substituted for the rear door when the length of the dwelling unit does not permit or is not sufficient for the use of the two (2) doors. Each door or exit shall be supplied with a properly installed lock.

702.7 Corridor enclosure: All corridors serving an occupant load greater than thirty (30) and the openings therein shall provide an effective barrier to resist the movement of smoke. All transoms, louver, doors, and other openings shall be closed or shall be self-closing.

Exceptions: Where any structure has previously received a certificate of compliance during the three (3) year inspection cycle prior to January 1, 1993 or a certificate of occupancy, has been maintained accordingly and complies with following:

1. Buildings equipped throughout with an automatic fire suppression system.

2. Structures that have previously received a certificate of compliance or a certificate of occupancy has been maintained accordingly and comply with the following:
 - a. Smoke detectors shall be installed in all shafts and corridors; on the ceiling or wall outside or within the vicinity of each separate bedroom and on each additional story of the dwelling, including the basements, but not including crawl spaces and uninhabitable attics.
 - b. Smoke detectors shall receive their primary power from the building wiring and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for over-current protection.
 - c. All smoke detectors shall be interconnected such that the actuation of one alarm will actuate all the alarms throughout the structure. This exception 2 shall not apply to structures that are renovated, remodeled or altered in excess of fifty percent (50%) of the current value of the structure.

SECTION 2. The repeal of Article VII of Chapter 6 of the Code of Ordinances, City of Columbia, Missouri, relating to the 2009 Edition of the International Property Maintenance Code shall not affect any offense or act committed or done or any penalty or forfeiture incurred before the effective date of this ordinance.

SECTION 3. This ordinance shall be in full force and effect from and after October 1, 2013.

PASSED this _____ day of _____, 2013.

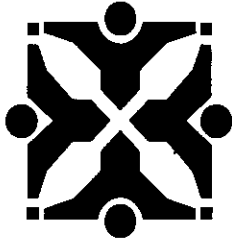
ATTEST:

City Clerk

Mayor and Presiding Officer

APPROVED AS TO FORM:

City Counselor



Source: Community Development - BSD 

Agenda Item No:

To: City Council

From: City Manager and Staff 

Council Meeting Date: Sep 3, 2013

Re: Update of Building Codes

EXECUTIVE SUMMARY:

The Building Construction Codes Commission has completed their review of the 2012 International Code Council Codes and 2011 National Electrical Code for adoption by the city. There are numerous minor changes and several major changes. The new codes provide clarity and enhance the life safety, protection of property, and energy efficiency of buildings. Among the major changes, the cost implications of the energy efficiency chapter of the residential code is the largest concern.

DISCUSSION:

Numerous meetings were held evaluating the effect of the new codes and determining what local addendums would be needed. These meetings were staffed by representatives of the Building and Site Development Division of the Community Development Department and the Fire Department.

Some of the most significant changes deal with the energy conservation requirements of the code. Staff has attached memorandums from both the BCCC and the Environment and Energy Commission (EEC). Members of the BCCC and EEC met to discuss the changes in the code. The BCCC brought forth their suggestions and the EEC agreed with all but three items. Staff supports the BCCC's recommendations on the basis that the codes are specifically designed to be minimum requirements. The EEC has made recommendations for higher standards on the broader basis of long term energy conservation.

The three differences between the BCCC and EEC recommendations are:

1. The amount of attic insulation.
2. The amount of wall insulation (changing from 2x4 framing to 2x6 framing).
3. Perimeter foundation insulation.

If the codes are to continue to be minimum standards, the recommendation of the BCCC should be adopted. Adopting the higher standards of insulation recommended by the EEC, on the other hand, would be in keeping with the City's commitment to conservation of energy resources. It is important that the new codes be adopted even if there is to be further consideration of the energy code requirements.

Below are some of the other significant changes and the BCCC's recommendations. Where no recommendations are listed, the BCCC is in favor of adopting the code as written:

International Residential Code:

1. Manufactured wood I-joists used in floor assemblies will be required to have ½" of gypsum board applied to the underside of the floor framing member. The new code requires a closer on the door between the residence and garage. The BCCC chose not to adopt this provision due to the inconvenience to the home owner.

2. Whole house mechanical ventilation is required (an exhaust fan running intermittently or continuously).
The BCCC made provisions to add an exterior opening ducted to the return ductwork to provide additional natural ventilation in lieu of mechanical ventilation.
3. The BCCC has now defined that grass and landscaped areas are not walking surfaces therefore adjacent walls do not require guards.
4. A simplified wall bracing section has been added which is applicable to how homes are constructed in Columbia and will simplify construction and inspection of braced walls.
5. The 2012 code requires additional hold downs are required for long span rafters and trusses.
6. Continuous sidewall flashing is now acceptable in lieu of step flashing only.
7. The 2012 code requires a drip edge is now required at roofs.
8. The BCCC has amended the code so that the use of purple primer on waste and vent piping obviates the need for testing.
9. The BCCC decided to delete the requirement for Arc Fault Circuit Interrupters in one and two family dwellings.
10. The BCCC amended the requirement for sanitary sewer backwater valves that the waste piping does not need to be separated based on the flood rim of the fixture.
11. The BCCC has established a maximum number of receptacles based on the circuit breaker amperage. This simplifies the code requirements.
12. The supplemental electrode (additional grounding rod) requirement was deleted by the BCCC.

International Building Code:

1. The 2012 code more clearly defines different types of care facilities.
2. Children's structures (playgrounds) are more broadly regulated.
3. The area of furniture manufacturing and sales where a sprinkler system is required is now defined. The BCCC has accepted the code change and removed our current amendment.
4. Basements with walls or partitions must be sprinklered.
5. Educational occupancies are required to have an Emergency Voice/Alarm Communication System (EV/ACS). The BCCC recommended this requirement only apply to occupancies over 75 people.
6. Reduced exit widths are allowable for buildings equipped with EV/ACS.
7. Carbon monoxide alarms are now required in buildings with residential or institutional occupancies that have fuel burning appliances.
8. Exits may now be arranged to serve a portion of a story instead of the entire story.
9. Retained the reference to the 2009 International Energy Conservation code due to the complexity of the 2012 IECC and the fact that there is no software that meets the 2012 IECC requirements.
10. Firestop system third party inspections are now mandatory in risk category III or IV buildings.
11. No thermal barrier is required on the floor side of a structural insulated panel system floor.
12. Foam plastic meeting certain requirements may be used in plenums.
13. Toilet facilities are no longer required in parking garages.
14. Chapter 34 provisions take precedence over other codes. The BCCC has included an amendment which further clarifies which other codes are applicable.
15. The previous amendment regarding retaining walls has been removed as it is adequately addressed by the code book.

Other changes include the number of members for a quorum and the ability of alternates to sit on the commission for any absent member.

FISCAL IMPACT:

None.

VISION IMPACT:

<http://www.gocolumbiamo.com/Council/Meetings/visionimpact.php>

By adopting the 2012 ICC Codes, new homes will be more energy efficient.

SUGGESTED COUNCIL ACTIONS:

Passage of the ordinances.

FISCAL and VISION NOTES:					
City Fiscal Impact Enter all that apply		Program Impact		Mandates	
City's current net FY cost	\$0.00	New Program/Agency?	No	Federal or State mandated?	No
Amount of funds already appropriated	\$0.00	Duplicates/Expands an existing program?	No	Vision Implementation impact	
Amount of budget amendment needed	\$0.00	Fiscal Impact on any local political subdivision?	No	Enter all that apply: Refer to Web site	
Estimated 2 year net costs:		Resources Required		Vision Impact?	Yes
One Time	\$0.00	Requires add'l FTE Personnel?	No	Primary Vision, Strategy and/or Goal Item #	9.3.3
Operating/Ongoing	\$0.00	Requires add'l facilities?	No	Secondary Vision, Strategy and/or Goal Item #	
		Requires add'l capital equipment?	No	Fiscal year implementation Task #	

Significant changes from the 2009 to 2012 IRC energy code:

Background:

The BCCC spent eight weeks reviewing the energy code portion of the IRC, far longer than they spent on any other portion of the code. During this period they sought the advice of several experts including:

Terry Freeman, Energy Services Supervisor, Water & Light
Fred Malicoat, P.E., Malicoat-Winslow Engineers (chairman of the BCCC)
Guy Ford, Missouri Insulation Supply
Dan Riepe, Home Performance Experts

The committee also reviewed the following documents:

- North Carolina 2012 Energy Code
- BCAP - Kansas City Residents Buying 2012 IECC Homes Will Save Thousands
- USDoE – Missouri Energy and Cost Savings
- BCAP - Illinois – Your Home, More Affordable with the 2012 IECC
- Alliance for Environmental Sustainability – Comparing IECC in Illinois to Above-Code Programs
- BCAP - Local Energy Code Action Kit for Municipalities in Missouri
- Texas A&M University Energy Systems Laboratory – A Comparison of Building Energy Code Stringency: 2009 IRC Versus 2012 IRC for Single-Family Residences in Texas
- Midwest Energy Efficiency Alliance – 2012 International Energy Conservation Code (Residential)
- Instructions for the Residential Building Data Collection Checklist 2012 IECC – Residential Provisions
- Carroll County Maryland – 2012 IECC Residential Energy Efficiency Code Requirement Flow Chart
- USDoE – Residential Code Change Proposals for the 2015 IECC
- Energy Efficient Codes Coalition – Estimate of Energy and Cost Savings from Proposed IECC Code Changes for 2012
- USDoE – Guide to the Changes between the 2009 and 2012 International Energy Conservation Code
- Testimony Regarding Montgomery County (MD) Department of Permitting Services Proposal to Adopt the 2012 International Residential and Energy Conservation Codes
- USDoE – Air Leakage Guide
- Association of Professional Energy Consultants – Measuring the Baseline Compliance Rate for Residential and Non-Residential Buildings in Illinois Against the 2009 International Energy Conservation Code
- BCAP – True Cost of the 2009 International Energy Conservation Code

The committee members who attended included:

John Page, Owner, J-Bar Construction
Fred Malicoat, P.E., Owner, Malicoat-Winslow Engineers
Kas Carlson, Owner, C&C Construction
Jay Creasy, Benchmark Testing and Inspections
Doug Muzzy, Owner, Muzzy Builders
David Weber, P.E., Allstate Consultants
Phil Clithero, Kliethermes Custom Homes
Dan McCray, McCray Builders

Others in regular attendance included:

David Forward, Chief Building Inspector, Boone County
Phil Teeple, P.E., Building Regulations Supervisor, City of Columbia
Stephen Adair, Building Inspector, City of Columbia
Shane Creech, P.E., Building and Site Development Manager, City of Columbia

General issues:

The 2012 code allows for a prescriptive based approach and a simulated performance alternative. In the discussions and based on the APEC report, the way to higher compliance is thru having an easy to understand prescriptive compliance option. The BCCC has drafted a one page section of a house that shows what insulation goes where and other important energy considerations. This is based on work done by North Carolina. When dealing with a large number of builders of various size and complexity, the KISS (keep it simple stupid) method should be adopted to achieve a high rate of compliance.

The simulated performance option will still be available however the APEC study showed that both the modelers and code officials did not properly perform or understand the modeling and there were substantial compliance problems.

The Department of Energy plans to achieve 50% better energy performance over the 2006 code by changing the energy code. They are limited to heating, cooling, water heating, and lighting. However they do not get to take credit for increased efficiency of the furnace or air conditioner as it is considered an appliance which falls under the NAECA. The DoE is mandating that furnaces be 90% efficient starting in March of 2013. They are currently required to be 78% efficient. This presents its own unique challenges to the building community. All of the studies reviewed by the committee were based on 78% efficient furnaces. The result of this is the magnitude of savings shown by some studies will be reduced by the required appliance changes.

Individual Changes

Wall Insulation requirements

The code requires R-20 or R-13+5 for exterior walls. Essentially for most builders this would mean 2x6 framing for exterior walls. BCAP estimates the increased framing cost for their model 2,400 ft² house at \$1,404. This does not include additional costs for jamb extensions for windows and doors. The usable area of the home is also reduced. The Texas A&M study found that the increased wall insulation accounted for 3.3% energy savings above the 2009 code. The structural requirements should govern and it is the BCCC's opinion that at a minimum the wall cavity should be filled with insulation. High density batts are also available for 2x4 walls though they are more expensive (approximately 2.5x more expensive than R-13 batts).

BCCC recommendation: Walls must meet an R-20, R-13+5, or be completely filled with insulation. On a 2x4 wall, the minimum R-value shall be R-15.

Slab-on-grade floors

The 2012 code requires that for slab on grade floors a minimum of 2' of R-10 insulation be provided either interior or exterior, vertically or horizontally. The code says this insulation is not required in jurisdictions designated by the building official as having a very heavy termite infestation. The committee views adding this insulation as a route and place for termites to enter buildings and live. According to the IRC we are in the "moderate to heavy" termite infestation probability portion of the country.

BCCC recommendation: Exempt the requirement for slab-on-grade floor insulation unless it is a heated floor.

Air leakage

The 2012 code requires a blower door test on all new houses to determine the rate of air leakage. Based on testimony by Terry Freeman of the Columbia Water & Light Department and Dan Riepe of Home Performance Experts, the houses currently being constructed and blower door tested meet the code requirements of less than 3 air changes per hour. Texas A&M research found that meeting the air leakage requirements would provide the most substantial cost saving of any of the changes in the 2012 code. Mr. Freeman also stated that walls of current houses are often too tight to meet fresh air requirements. The other issue with blower door tests is that they are performed when construction is near completion and addressing flaws in the building envelope would be difficult and expensive. The test alone costs approximately \$250.

BCCC recommendation: Ensure the building envelope is properly sealed at the insulation inspection. Allow the blower door test if a contractor does not agree with the building inspector as an option.

Mechanical ventilation

The proposed code requires mechanical ventilation but this is not mentioned in the Energy Efficiency chapter. It is specified in Section R303 – Light, Ventilation and Heating and is further specified in Section M1507 – Mechanical Ventilation. The code requires for a 1,500 square foot, 3 bedroom home, continuous exhaust of 45 CFM. This is 64,800 ft³ per day, or for a house with 8' ceilings, 5.4 air changes per day. The report by the Montgomery County Energy and Air Quality Advisory Committee found that the code requirements for air leakage and mechanical ventilation are at odds with each other. Montgomery County, MD is a county of approximately 1 million residents. Two Illinois jurisdictions had concerns about this as well as stated in the APEC report. The tight envelope requires forced mechanical ventilation which increases energy use compared with the natural ventilation thru the walls. Terry Freeman made similar comments. The Montgomery County Energy and Air Quality Advisory Committee proposed to keep houses naturally ventilating. The BCCC has provided a middle of the road solution because they often see combustion air intakes filled with insulation and are also concerned that if there is a fan that runs continuously or intermittently, people could shut it off.

BCCC recommendation: Provide a duct from the return air to the outside. A 4" duct for houses < 1,500 ft², a 6" duct for houses < 2,400 ft², and an 8" duct for larger houses. The duct would be insulated to prevent condensation, contain a manual damper to adjust to the required amount of fresh air, and have a screen on the exterior to stop insects and animals.

Duct tightness

The adopted code requires testing if the duct is outside of the building's thermal envelope. Nemow Insulation has done a significant amount of duct testing in Columbia. When Phil Teeple contacted Nemow, they stated they had one failure in over 90 tests. Similar sentiments were echoed by Mr. Freeman and Mr. Riepe. Boone County requires the ducts to be sealed but not tested. Ducts which have been subsequently tested in Boone County have passed. The test costs \$400.

BCCC recommendation: Allow a duct test if a contractor does not agree with the visual inspection performed by the building inspector.

Building cavities as ducts/plenums

The energy code does not allow building framing cavities to be used as ducts or plenums. The mechanical code still allows this. This would require all returns to be ducted. BCAP mentions this change but only caught the ducts in floor joists, and not the returns that go up the walls to the grills and estimated this would cost \$172. Ducting the returns in the wall would add substantial costs above and beyond those BCAP figured.

BCCC recommendation: Amend the energy code to conform to the mechanical code.

Hot water pipe insulation

The code has a list of 9 different instances combined with a table with pipe diameter and run length to determine if hot water pipes should be insulated. Water use in homes is on an intermittent basis. The committee based on their experience with standard and recirculating water systems did not see value in insulating the hot water pipes due to the substantial increase in costs and minimal energy savings.

BCCC recommendation: Amend the energy code to remove the hot water pipe insulation requirement.

ENVIRONMENT & ENERGY COMMISSION

City of Columbia & County of Boone

City Hall, Conference Room 1A

January 17, 2013

Mayor McDavid and Council Members,

The Environment & Energy Commission has reviewed the 2012 Energy Code (Chapter 11 of the International Residential Code), and the recommendations of the Building Code Commission. The BCCC has done extensive research into the energy conservation sections of the residential code, and deserves recognition for this effort. The recommendations of the EEC are as follows:

Insulation of hot water piping: Along with BCCC, the EEC recommends eliminating hot water insulation requirements except in the case of hot water circulating pump piping.

Wood Frame Wall Insulation: The 2012 Energy Code requires R20 or R13+5 (R13 batt and R5 cladding). We agree with the BCCC that this new insulation requirement be kept in force. The Code also allows an overall U-Factor of 0.057, roughly equivalent to an average R-value of R17.5. As this can be achieved with a high-density R-15 batt in a standard 2X4 wall, we recommend that this be an allowable method as it meets the letter of the new code.

Termite Exemption for slab-on-grade and foundation insulation: We recommend that the Columbia jurisdiction continue to exempt houses from slab and foundation insulation requirements as this is a heavy termite infestation area, and these kinds of insulation can allow termites access to walls. This practice has a long history and is consistent with BCCC recommendations.

Cieling or Attic R-Value: The 2012 Code recommends an increase in Attic insulation from R-38 to R-49, and in the case of an "Energy Band" truss, R-38 is allowed. The EEC Recommends that this requirement, which may result in reduced mechanical equipment size if properly implemented, will be cost effective. Contractors using proper "Manual J" Calculations will reduce equipment size, thus reduce overall building cost and energy use compared to the old Code. This reduced HVAC

equipment size can directly reduce electric utility demand charges, reaping benefits to the City Utility as well as to the consumer. This is not in agreement with BCCC recommendations.

Air Leakage: The 2012 Code requires a blower door test on all new houses to determine air leakage. The EEC would agree with BCCC that a relaxed standard which requires a visual inspection of air leakage control measures during construction is feasible. The blower door test should be allowed as an option at the discretion of the Building Inspector in questionable or disputed cases.

Duct Leakage: The 2012 Code requires a duct pressure test on all new houses to determine duct leakage. Mechanical contractors are more aware of leakage requirements, and testimony shows they are taking care to seal ductwork. The EEC would agree with the BCCC that a relaxed standard which requires a visual inspection of duct leakage control measures during construction be allowed. The duct pressure test should be allowed as an option at the discretion of the Building Inspector in questionable or disputed cases.

Outdoor Air Duct: The EEC agrees with the BCCC recommendation of a single outside air duct, with insect screen and damper, routed to the furnace return air intake to satisfy Section R303 and M1507 Mechanical Ventilation requirements. This duct should be 4" for houses less than 1500 square feet, 6" for houses less than 2400 square feet, and 8" for larger houses. If there are multiple furnaces, the requirements may be applied to the area served by the furnace, or to one of the multiple furnaces as long as the furnace is properly sized to handle the additional heating or cooling load imposed by the outside air. The duct should be placed as to discharge into the return air filter, to reduce allergens or dust from outdoors.

Building Cavities as Return Air The EEC agrees with the BCCC that building cavities may be used as return air cavities without full duct lining, as long as leakage to outside air, attics, or unconditioned spaces is prevented by visually inspection.

High Efficacy Lamps: The EEC recommends that the 2012 requirement that 75 percent of the *lamps* in light fixtures be high efficacy type, be changed to read 75 percent of the *fixtures* be high efficacy. This allows a few multiple bulb fixtures, such as candelabras, to be conventional bulbs, while retaining the requirement for high efficacy bulbs in most areas. Previously the 2009 amendment changed *shall* to *should* in this paragraph.

Programmable Thermostats: The 2012 Code specifies that the initial heating setpoint shall be 70F and the cooling setpoint be 78F. The EEC recommends that this paragraph be changed from *shall* to *should*, which makes the requirement non-mandatory.

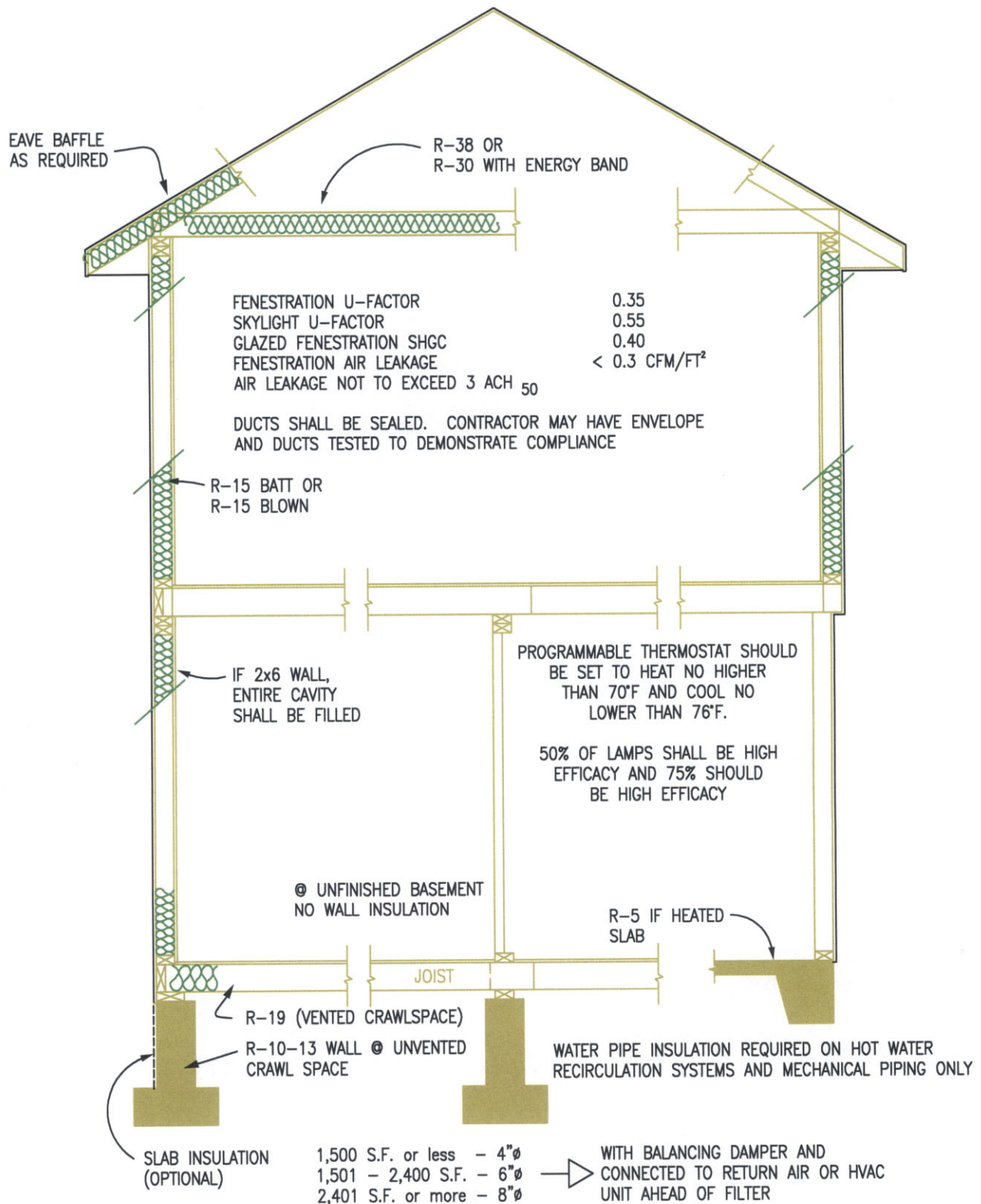
Respectfully Yours,

Karl Skala,

Chair

Environment and Energy Commission

RESIDENTIAL ENERGY CODE REQUIREMENTS DIAGRAM



THIS SHEET IS NOT AN EXHAUSTIVE LIST. SEE IRC CHAPTER 11 FOR FULL REQUIREMENTS

ALTERNATIVE 1.1

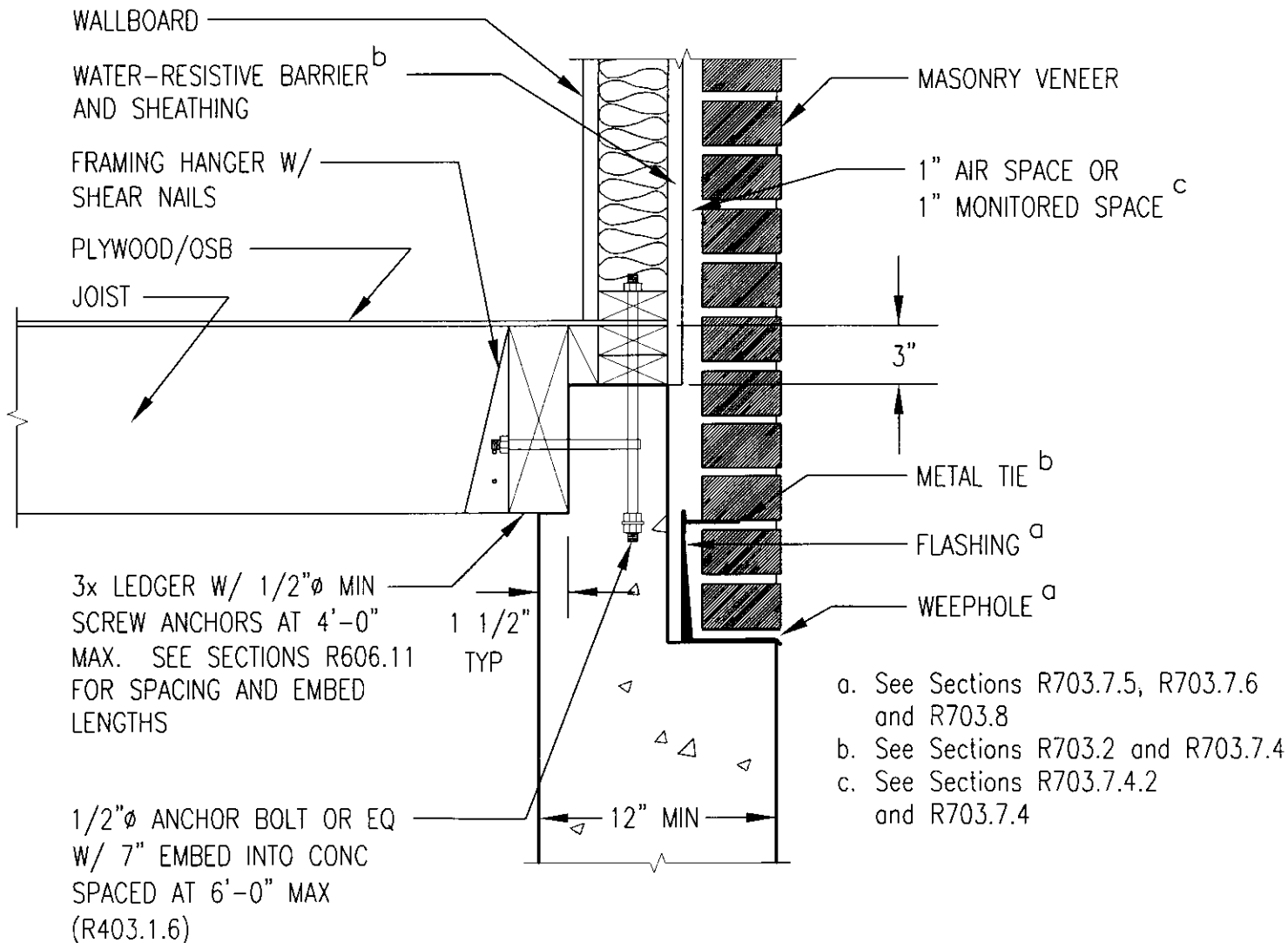
Joist Perpendicular to Wall W/ Brick

2012 IRC

Section R404 Foundations and Retaining Walls

Section R404.1 Concrete and Masonry Foundation Walls

*This figure is provided as an example. This is not an all inclusive list of code requirements.

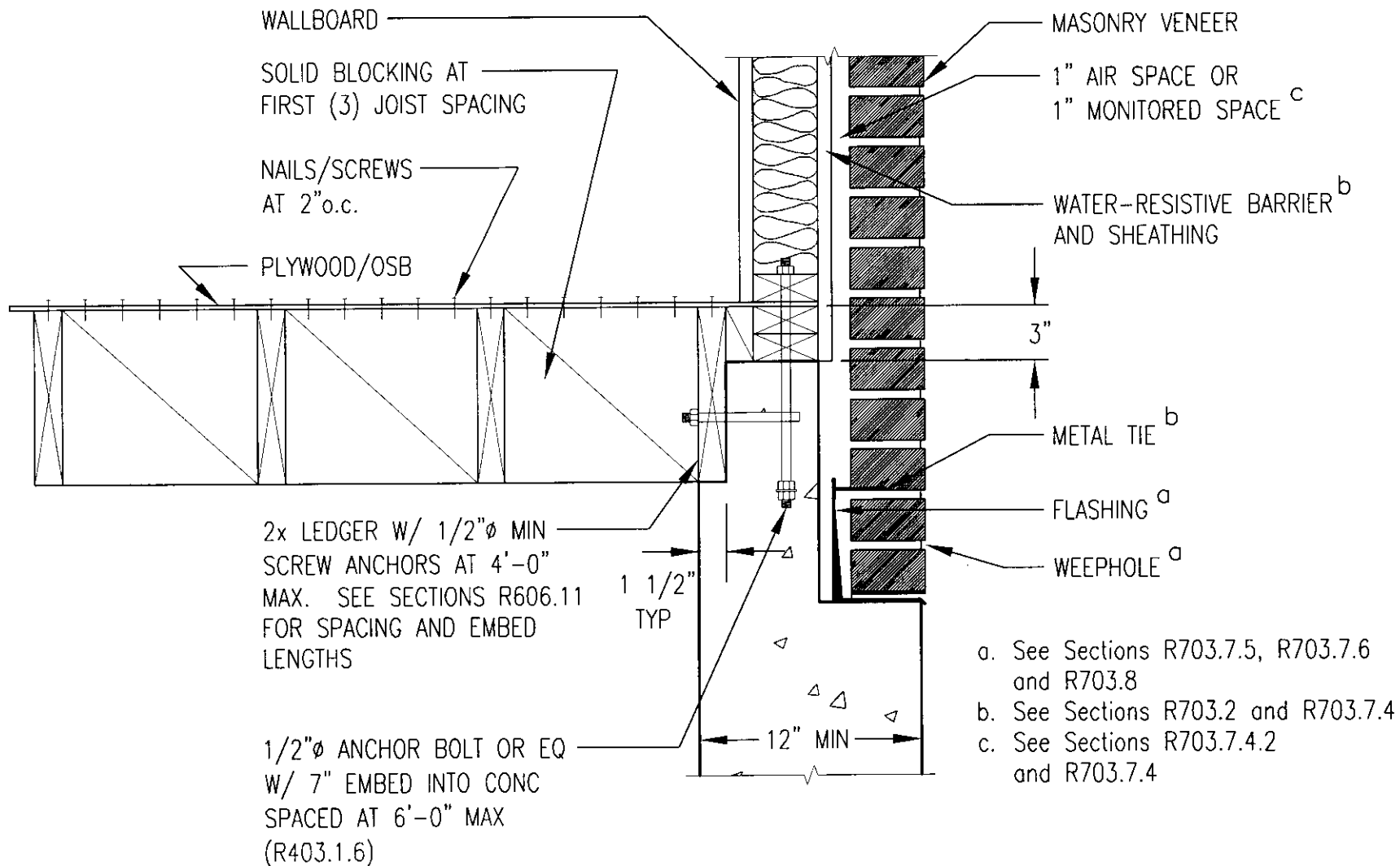


ALTERNATIVE 1.2

2012 IRC

Section R404 Foundations and Retaining Walls
Section R404.1 Concrete and Masonry Foundation Walls

*This figure is provided as an example. This in not an all inclusive list of code requirements.



ALTERNATIVE 1.3

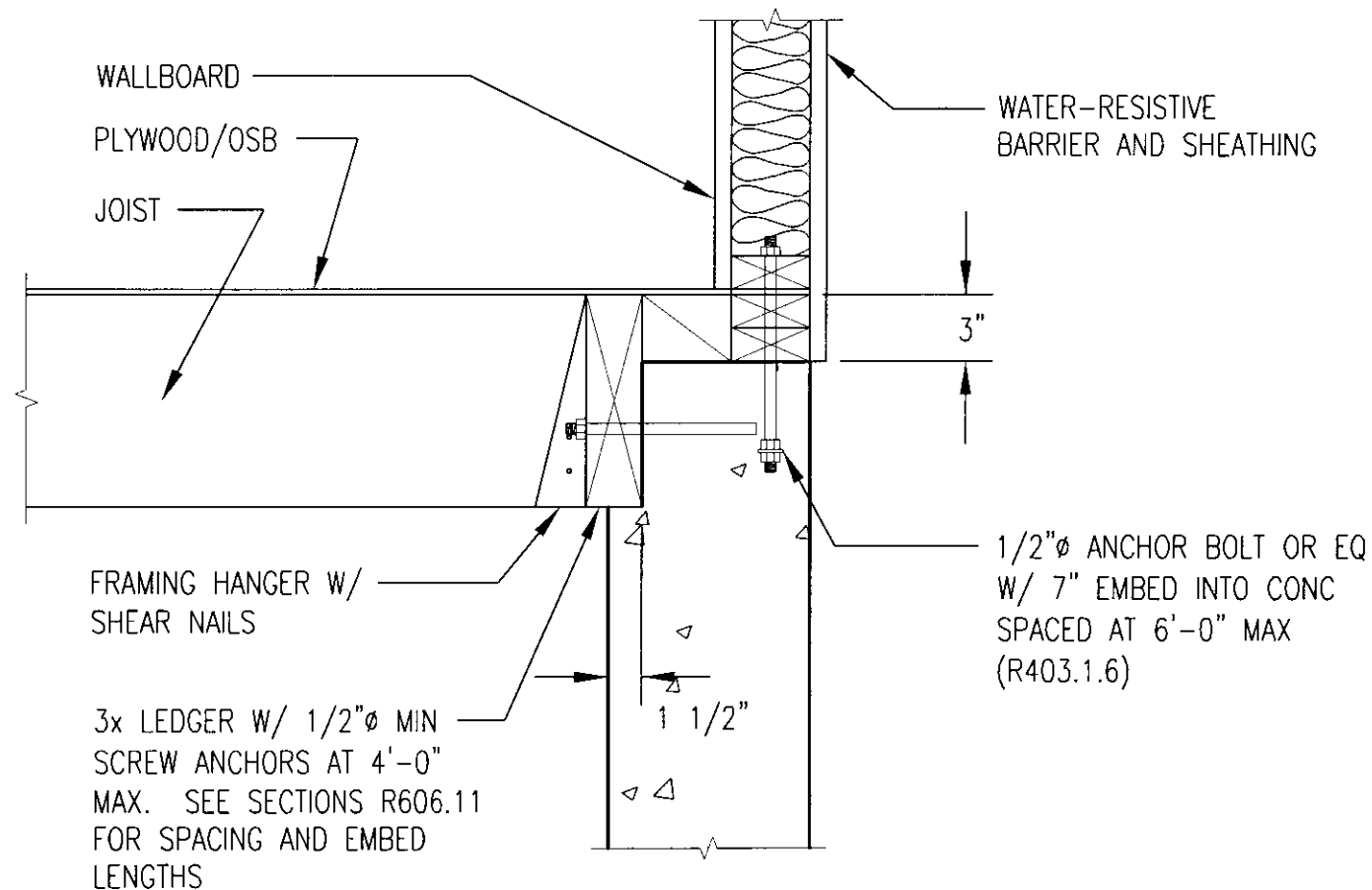
Joist Perpendicular to Wall W/O Brick

2012 IRC

Section R404 Foundations and Retaining Walls

Section R404.1 Concrete and Masonry Foundation Walls

* This figure is provided as an example. This is not an all inclusive list of code requirements.



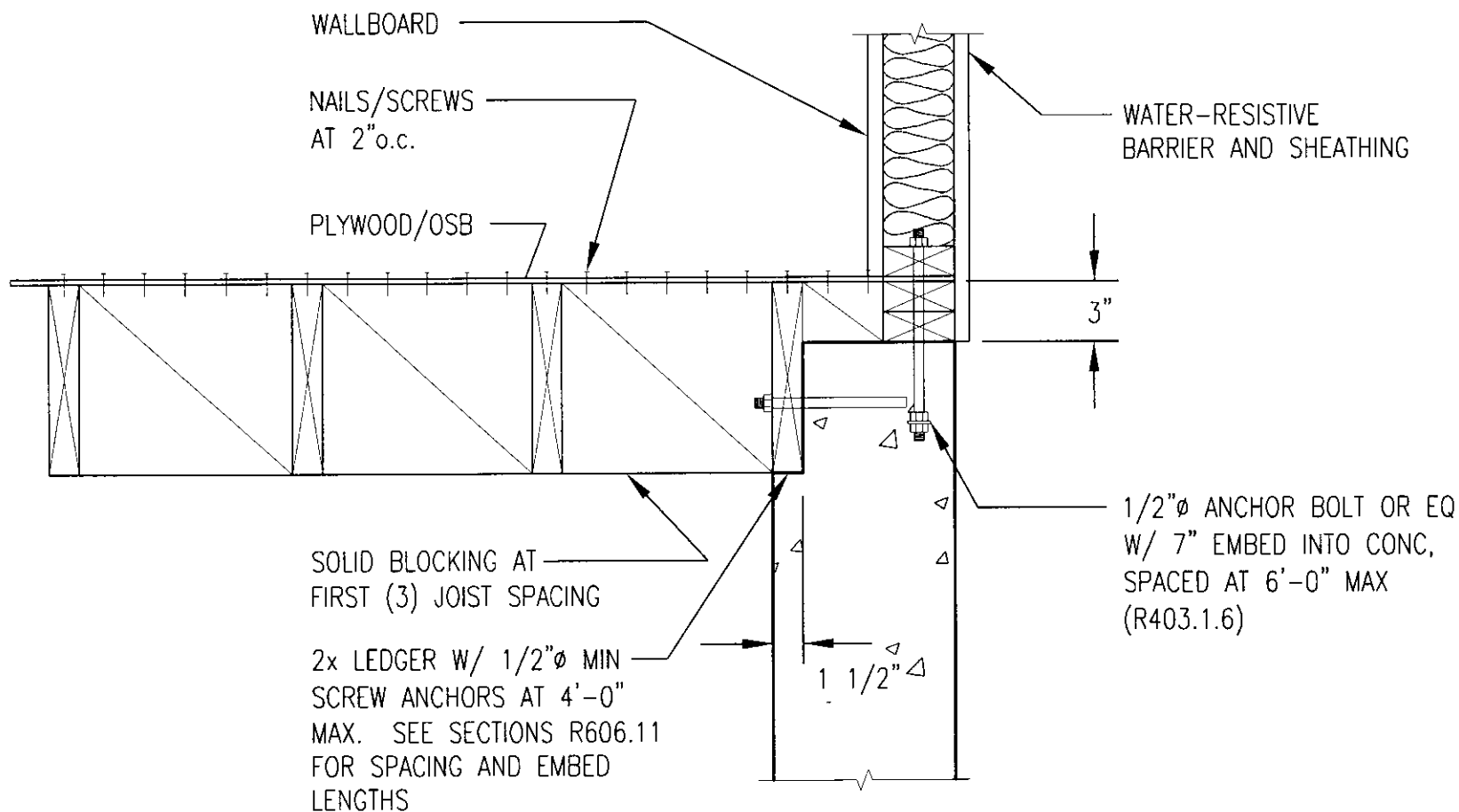
ALTERNATIVE 1.4

2012 IRC

Section R404 Foundations and Retaining Walls

Section R404.1 Concrete and Masonry Foundation Walls

* This figure is provided as an example. This in not an all inclusive list of code requirements.



ALTERNATIVE 2.1

Joist Perpendicular to Wall

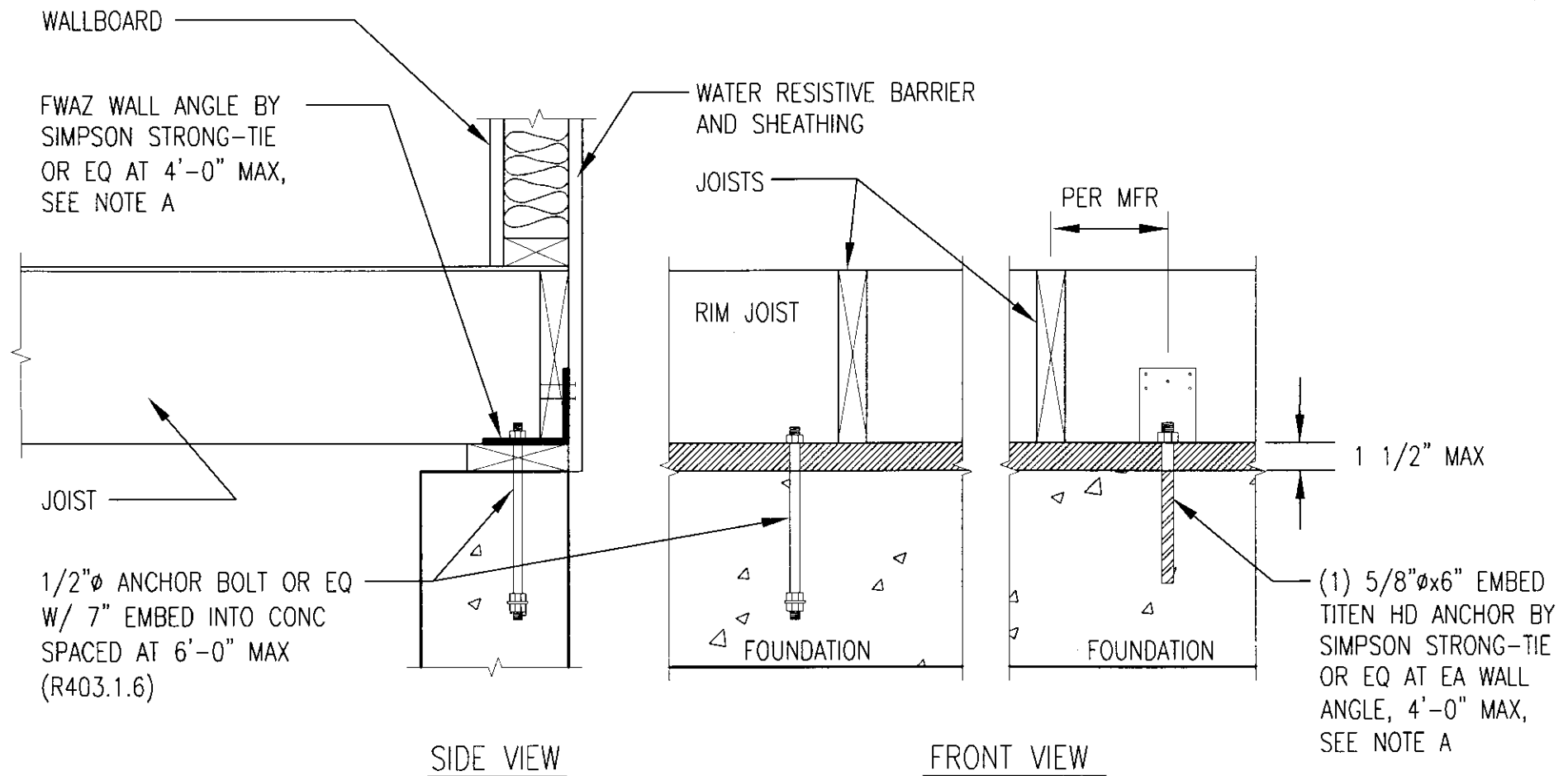
2012 IRC

Section R404 Foundations and Retaining Walls

Section R404.1 Concrete and Masonry Foundation Walls

* This figure is provided as an example. This is not an all inclusive list of code requirements.

NOTE A: Refer to the manufacturers tables for required spacing and placement of FWAZ wall angles



ALTERNATIVE 2.2

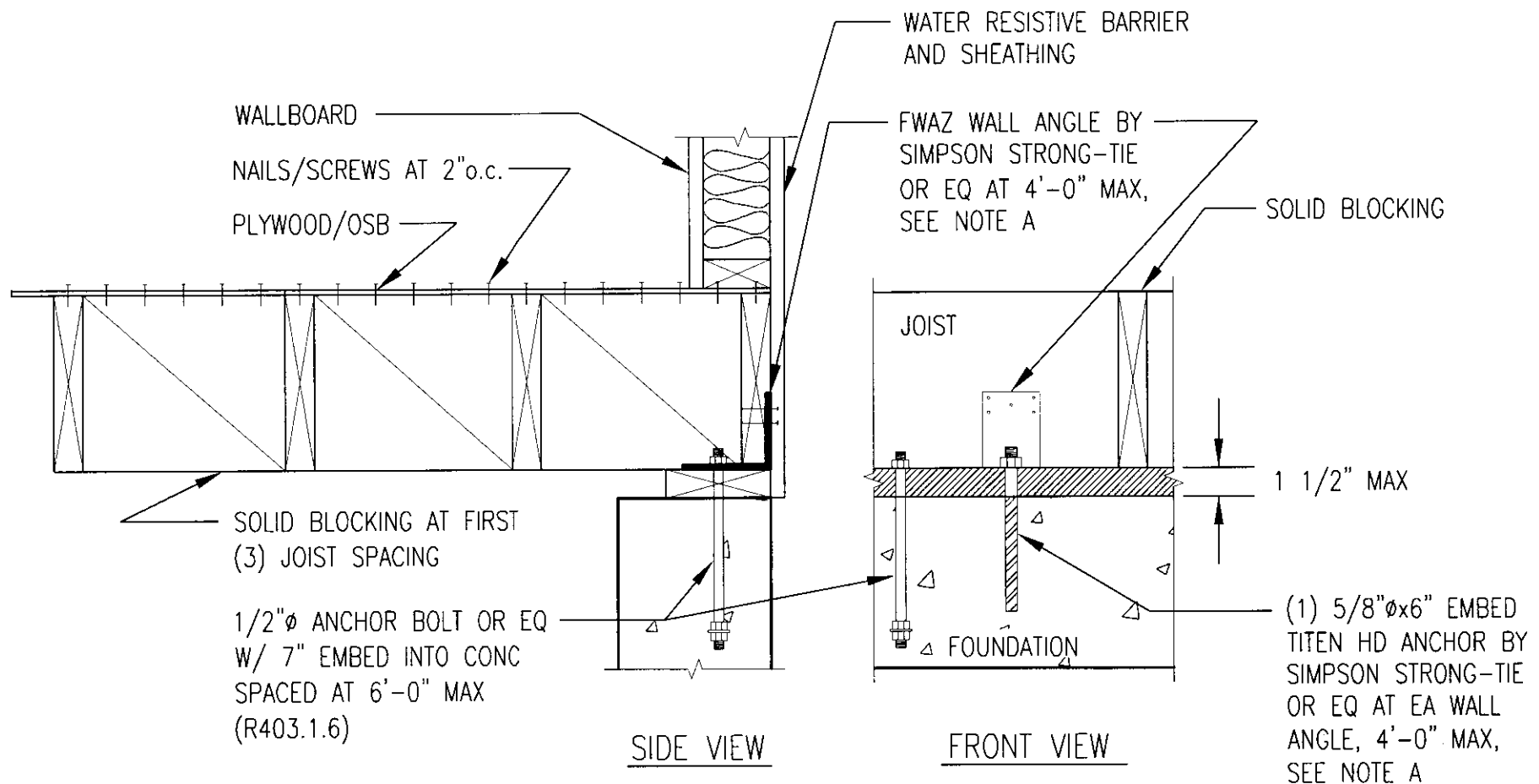
Joist Parallel to Wall

2012 IRC

Section R404 Foundations and Retaining Walls
Section R404.1 Concrete and Masonry Foundation Walls

* This figure is provided as an example. This is not an all inclusive list of code requirements.

NOTE A: Refer to the manufacturers tables for required spacing and placement of FWAZ wall angles



ALTERNATIVE 3.1

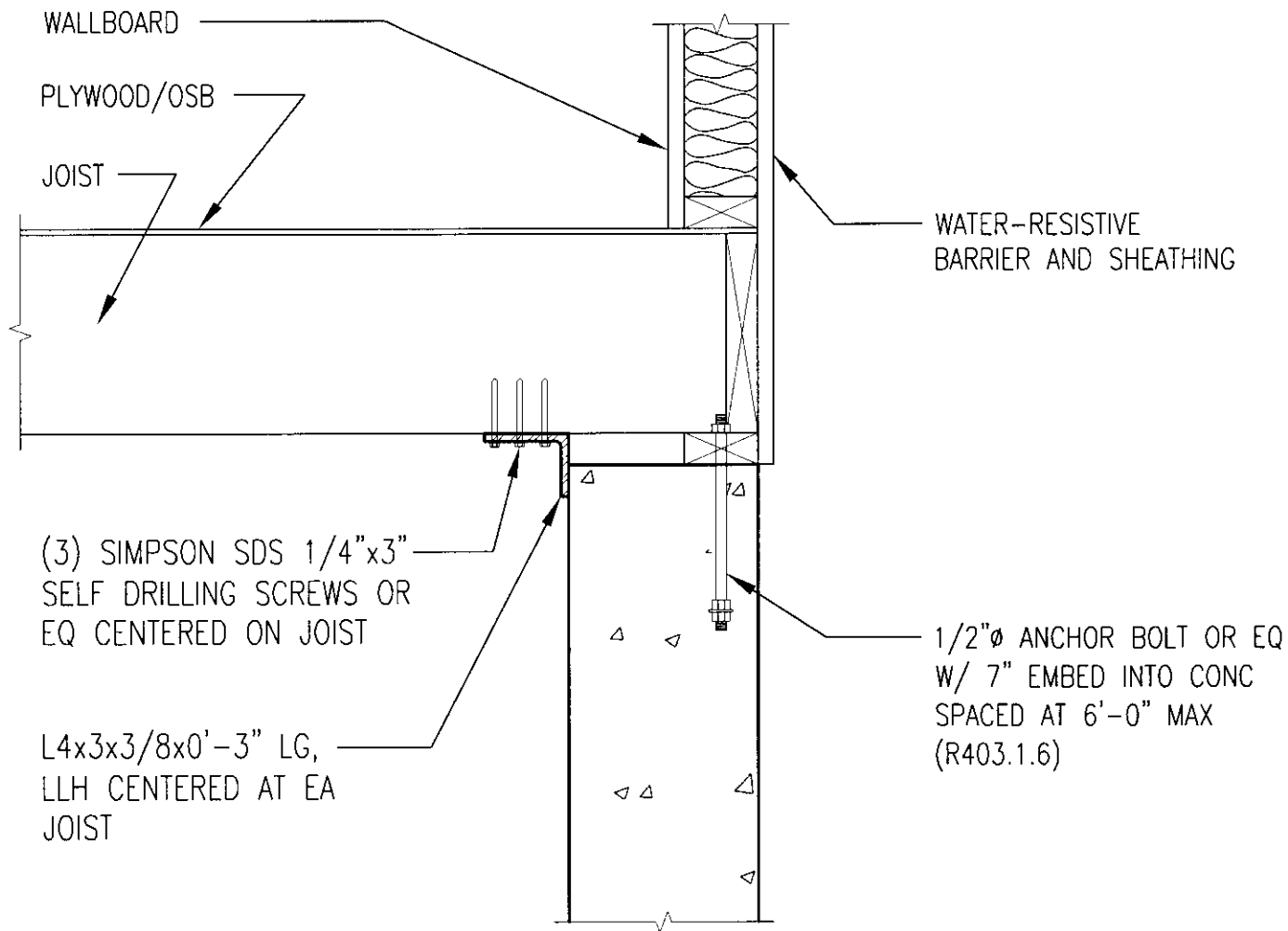
Joist Perpendicular to Wall W/O Brick

2012 IRC

Section R404 Foundations and Retaining Walls

Section R404.1 Concrete and Masonry Foundation Walls

* This figure is provided as an example. This is not an all inclusive list of code requirements.



ALTERNATIVE 3.2

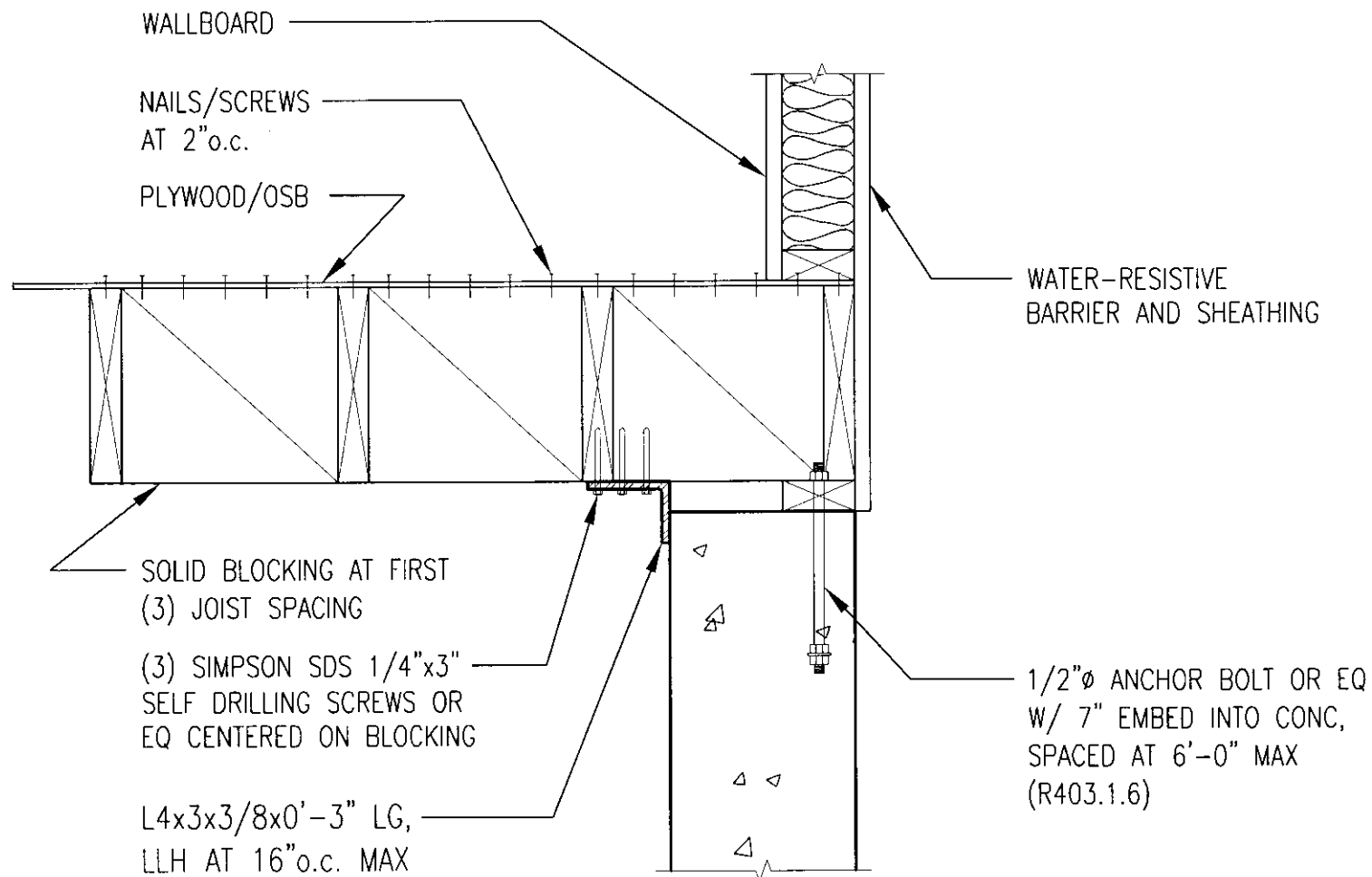
Joist Parallel to Wall W/O Brick

2012 IRC

Section R404 Foundations and Retaining Walls

Section R404.1 Concrete and Masonry Foundation Walls

* This figure is provided as an example. This is not an all inclusive list of code requirements.



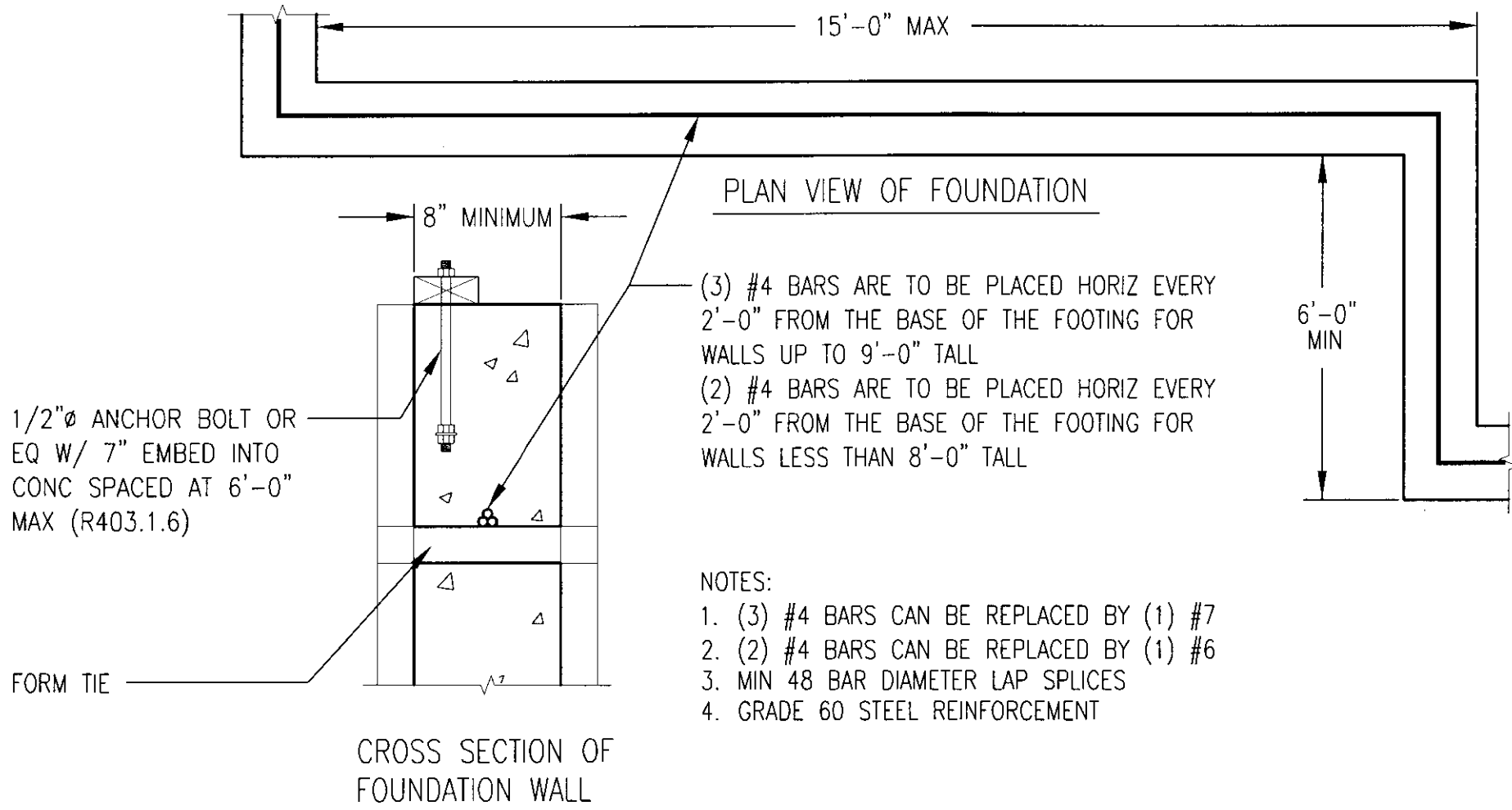
ALTERNATIVE 4

2012 IRC

Section R404 Foundations and Retaining Walls

Section R404.1 Concrete and Masonry Foundation Walls

* This figure is provided as an example. This is not an all inclusive list of code requirements.



FOUNDATION DRAINAGE

FIGURE R405.1

2012 IRC

Section R405 Foundation Drainage

Section R406 Foundation Waterproofing and Dampproofing

- * This figure is provided as an example. This is not an all inclusive list of code requirements.
- ** Either a filter fabric sock around drintile or filter fabric on the gravel shall be required, not both unless desired by the contractor.

