

DEPARTMENT OF COMMERCE
SUMMARY OF PUBLIC HEARING COMMENTS AND AGENCY RESPONSE
(HVAC Excerpts and Draft Responses)

Clearinghouse Rule Number: 06-120		Hearing Location: Madison	
Rule Number: Chapters Comm 14 and Comm 60 to 66		Hearing Date: December 21, 2006	
Relating to: Fire Prevention Code and Commercial Building Code			
Speaker	Presenter, Group Represented, City and State	Comments/Recommendations	Agency Response
14	Steve Edlund Waukesha, WI	Explains that he is a union journeyman HVAC service technician with 24 years of experience in the commercial HVAC industry. Suggests a change in the design of the HVAC distribution systems (See exhibit #197 for his detailed proposal.)	See agency response under mail comments #197.
27	David Soens Department of Health and Family Services Madison, WI Soens continued	Proposes to include previous language, maintain current language or update the following code requirements relating to mechanical ventilation for hospitals: <ol style="list-style-type: none"> 1. Comm 64.0300 (use previous language from 7-1-02) 2. Comm 64.0401 (4) (a) 4. (maintain current language) 3. Comm 64.0403 (4) (a) (maintain current language) 4. Comm 64.0403 (6) (c) 6. (update Table references from the AIA Guidelines) 5. Comm 64.0403 (8) (d) (update Table references from the AIA Guidelines) 6. Comm 64.0404 (1) (a) and (b) (maintain current language) 7. Comm 64.0605 (1), (2) and (3) (maintain current language) 8. Comm 64.0900 (maintain current language) 9. Comm 64.1500 (2) (update the edition to reflect the more current standards of practice) 	Issues are covered by the adopted AIA guidelines. Issues are covered by the adopted AIA guidelines. Issues are covered by the adopted AIA guidelines. The proposed rules have been changed and reflect the correct title of the referenced document. The proposed rules have been changed and reflect the correct title of the referenced document. The IMC provision as written is acceptable. Issues are covered by the adopted AIA guidelines. Issues are covered by the adopted AIA guidelines. The proposed rules have been changed and reflect the correct title of the referenced document.

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132	Jay Griggs Griggs Aviation New Richmond, WI	<p>Explains the biggest issue for them having just constructed an aircraft hangar, was that a sprinkler system was required for an aircraft hangar with more than 12,000 square feet of space. Since city water is not available to our site and the cost of putting in our own wells and sprinkler system would have added nearly \$500,000 to the cost of a \$650,000 building. Indicates they were forced to build a much smaller building than the lot was designed for.</p> <p>Believes that a sprinkler system in this type of facility would be ineffective in extinguishing it since the burning fuel floats on the surface of the water. Indicates a much better idea would be to have some kind of fire extinguishers required or perhaps some kind of foam system that would be effective on fuel fires.</p> <p>Explains they were not happy about the requirement to put in a \$35,000 air handling system in a building that contains 300,000 cubic feet of air and has two people working in it, with no painting, welding or chemical fumes. Believes the air handling system serves only to pump out the cool air in the summer and hot air in the winter, substantially increasing our air conditioning and heating bills and serving no beneficial purpose. Suggests that the changes being proposed rectify the unreasonable requirement to sprinkler aircraft hangars.</p>	<p>In addition to building a smaller building, there are other options available in lieu of providing a sprinkler system., including the installation of fire barriers to compartmentalize the building into multiple smaller fire areas. The code does allow the use of foam suppression systems under NFPA 11 and 11A when a water-based system would be ineffective.</p> <p>The proposed rules have been changed to recognize the option of providing natural ventilation.</p>
191	Wade Rudolph North Central Health Care Wausau, WI	<p>Supports the sprinkling of residential units per NFPA 13 R and explains the programs at North Central Health Care serve many mentally and physically disabled individuals. Believes the additional protection will save our clients lives in the event of a fire.</p> <p>Included letter from the Wisconsin Healthcare Engineering Association identifying the following concerns relating to HVAC issues: Propose that the 2006 edition of the Guidelines for the Design and Construction of Health Care Facilities as published by the American Institute of Architects. Comm 63.0403 (2), the words “and return” should be removed from the sentence. Return air plenums cannot be insulated as stated. The proposed wording would eliminate all return plenums from being un-ducted and force all plenums to be fully ducted. Suggested the statement is not located in the correct area of the code.</p>	<p>Support noted.</p> <p>The proposed rules have been changed to reflect the correct title of the referenced document.</p> <p>The proposed rules have been revised to clarify that the exception under IECC 403.2.1 still applies, providing an exception for “ducts” within the building thermal envelope. Plenums are created within the building thermal envelope.</p>

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	Rudolph continued	<p>Comm 63.0403 (3), suggests the code requirement relating to dampers should be modified to state: “Automatic or gravity dampers that close when the system is not operating shall be provided for all outdoor air relief openings.” Indicates the exhaust systems in healthcare are to get rid of “bad” or sometimes dangerous air. In healthcare we never want to close off true exhaust air for the safety of our residents, patients, visitors and staff. Comm 63.0503 (4) (a), suggests the word “exhaust” be replaced with “relief ducts.” Requiring dampers that can at times fail could create an unsafe environment inside the space of healthcares.</p> <p>Suggest that there be a continuation of the exception to areas of refuge in buildings that are fully sprinklered or provided with residential sprinkler devices. Indicates that fully sprinklered buildings have the ability to extinguish a fire in the room of origin such that the areas of refuge are not required for the life safety of the occupants of the building.</p>	<p>The referenced code section pertains to low-rise residential occupancies. It is unclear how the comment is relevant to healthcare facilities.</p> <p>All types of dampers are susceptible to failure and require some level of maintenance to ensure operate. The proposed rules have been revised to permit gravity dampers in certain situations. The proposed rules have been revised to incorporate this exception.</p>
197	Stephen R. Edlund Waukesha, WI	<p>Recommends eliminating ceiling exhaust fans.</p> <p>Indicates for all forced air heating systems in commercial applications zoned for service to exterior zones, return air to the HVAC system must be from within 4 inches of the interior grade level no more than 32” from the exterior walls and be returned from each room serviced by the HVAC system supply air. This includes vestibules and entry ways.</p> <p>Adjacent walls to the exterior may utilize a wall cavity between the sheet metal studs and deliver the return air above the ceiling height to either a plenum return design, or in the case of a ducted return, duct may be attached to the sheet metal studs via a collar and flashing assembly.</p> <p>Where privacy walls are required, the general contractor may construct a return soffit on the exterior of the privacy wall.</p> <p>Interior spaces shall return air from an elevation not greater than 4 inches from interior grade.</p> <p>Open concept architectural design spaces with no ceiling must duct the return air within 4 inches from interior grade.</p>	<p>The suggested specifications are too rigid and impractical for compliance in that the suggestions do not take in account various building designs and building functions as well as the ducts serving air conditioning purposes.</p>

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	Edlund continued	Exception to this proposal is that any application of design for HVAC systems where high ceilings cause stratification of air may be exempt, if anti-stratification fans are incorporated into the system design and activated by either owner manual control or automatic control based on exterior ambient temperature of less than 45-degrees Fahrenheit. (Also includes a detailed justification paper)	
212	Doug Schorr Department of Administration Madison, WI	<p>Recommends the following changes:</p> <p>IMC 607.3.2.1 Smoke damper actuation methods, IMC 607.5.4.1 Smoke Damper and IBC 716.3.2.1/suggest that a sixth method of smoke damper actuation be added to all of these sections, which is to install a smoke detector at the discharge of the supply air handling unit with no air outlets between the air handling unit discharge and the duct smoke detector.</p> <p>IMC 607.3.2.1 and IBC 716.5.3 Shaft enclosures/suggests that an exception be added to eliminate the requirement for smoke dampers in penetrations of shaft enclosures for exhaust ducts. (Includes draft language)</p> <p>Comm 64.0002 Application and IMC 601.2 Air Movement in Egress Elements. Indicates the code is not clear when the restriction in using a corridor for air movement applies in an existing building. Design consultants have received different interpretations from the Department on when the entire system must be upgraded. Recommends that clarification be added to the code on when the corridor air movement restrictions apply in existing buildings.</p> <p>Comm 64.0002 Applications and IMC 607.5.5 Shaft Enclosures and IBC 716.5.3. Indicates it is not clear when the shaft penetration requirements apply to existing buildings when the HVAC system is being renovated or replaced and the existing shaft and existing duct and duct penetrations within the shaft are to remain. Suggest clarification on this issue.</p>	<p>The suggested methodology appears to match up with a provision already called for within NFPA 72 [5.16.4.2.1].</p> <p>No justification was provided for the suggested additional exception. Currently, the code includes an option for a mechanical smoke control system to be designed to function without smoke dampers. The code does not apply retroactively to existing corridors, see s. Comm 61.03. Not enough information is provided to know whether the differing interpretations were erroneous. Differing interpretations may be warranted based upon the extended of the alterations or whether new corridors are being created. It is believed that the incorporation of the IEBC will result in a more consistent requirement, less prone to differing interpretation.</p> <p>The code does not apply retroactively to existing shaft penetrations. It is believed that the incorporation of the IEBC will result in a more consistent requirement, less prone to differing interpretation.</p>

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	Schorr continued	<p>IMC 604.3 Coverings and linings. This section requires duct coverings to have a flame spread index not more than 25 and smoke developed not more than 50 in accordance with ASTM E84. There are no exceptions to this requirement and recommend that an exception be added to the duct covering flame/smoke spread requirement for ductwork located outside the building. This would allow the use of roofing systems that provide superior insulation and water proofing qualities to cover ductwork located outside the building. Comm 64.0404 (1) (c). Requires mechanical ventilation for a minimum of five hours out of a 24 hour period. This can create a significant operating cost for a heated vehicle storage facility that is greater than 50 square feet. Suggest an exception be included to use an occupancy sensor to activate the mechanical ventilation for a minimum time interval in lieu of the timed requirement. This would protect the personnel entering the facility if there would be any build-up in CO or NO2 below the alarm levels.</p> <p>Chapter Comm 66 Existing Buildings. Concerned with the adoption of this chapter as it appears to assume that existing buildings are not code compliant with the code in effect at the time of original construction or need further regulation. Indicates he is not sure what the intent of this chapter is, retro-active requirements on an already existing structure, or a perceived minimum standard for an existing building.</p> <p>Appears the administration of chapter Comm 66 will require the building envelope upgrades where “energy use of the building is increased.” This may require existing buildings with an upgraded electrical service or air conditioning where not previously there would require the building envelope modification to be retroactively applied to an existing structure. From DOA’s standpoint, this requirement will become more problematic and expensive to operate and maintain existing buildings.</p>	<p>The purpose of the rule is to reduce the possible contribution to the spread of fire and smoke throughout the building via a duct system.</p> <p>Agree, the proposed rules have been changed to repeal the current modification, thereby, allowing IMC 404.1 to provide this flexibility.</p> <p>The application of WCBC including ch. Comm 66 is addressed under s. Comm 61.03. The provisions of ch. Comm 66 and the IEBC apply to the alterations, changes of use and additions occurring within or for existing buildings.</p> <p>The administration of ch. Comm 66 will reflect the current rules which require compliance for changes in occupancies that “would result in an increase in demand for either fossil fuel or electrical energy supply.”</p>

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213	Joe Monfire Department of Administration Madison, WI	Has concerns with the following requirements as the IMC applies to Comm 45: IMC 1104.2 Machinery Room. Indicates the definition for “machinery room” is based on whether the quantity of refrigerant exceeds the quantity as prescribed by Table 1103.1. The construction of machinery rooms is described in IMC 1105 and 1106, if required by the safety classification. Believes this implies that any large volume space can have a piece of refrigeration equipment without the need to meet the requirements of IMC 1105 and 1106. Suggests this application be clarified especially if the space might be a large industrial space or central plant that has fuel fired devices, such as boilers or chillers. Believes IMC 1105 and 1106 only apply to spaces requiring a machinery room as defined by IMC 1104.2.	The understanding that a “refrigerant” machinery room is not always required is correct. There are several exceptions when machinery rooms are not required, including IMC 1104.2.1 and 1104.2.2.
219	Randall R. Dahmen Madison, WI	IBC 1204.1, indicates this code section has not been amended to correspond with modification associated with Comm Table 64.0309. IEBC 709.2 Level 2 Alterations. Explains the code requires that in mechanically ventilated spaces, existing mechanical ventilation systems that are altered, reconfigured, or extended shall provide not less than 5 cfm per person of outdoor air and not less than 15 cfm of ventilation air per person, or not less than the amount of ventilation air determined by the ASHRAE 62. Questions why Comm 64.0403 (6) (a) 1. requires 7.5 of outside? IECC chapter 4, indicates this chapter fails to address HVAC system controls in low rise residential units. Explains that HVAC controls are required in both low rise residential and commercial buildings under the 2000 IECC and believes for enforcement and effective energy management, the requirements of IECC 503.2.4 should be incorporated into IECC chapter 4 Comm 63.0404, explains the draft clearly recognizes the use of REScheck computer program for demonstration of building envelope compliance but does recognize COMcheck-EZ. Recommends an amendment to recognize the use of COMcheck-EZ computer program under chapter 5. IECC Table 503.2.8 references steam, hot water, chilled water, brine or refrigerant. States the code fails to define the temperatures at which these are to be recognized.	The matter is addressed under treatment SECTION 78 in the public hearing draft. Agree, the proposed rules have been changed to eliminate this option which would appear to result in creating situations less healthy than existing conditions. The 2006 edition of IECC chapter 4 reflects the study and proposals of the federal Department of Energy. The proposed rules have been changed to include a note referencing COMcheck for determining building envelope compliance. The exceptions under IECC 503.2.8 and the dictionary would establish the parameters for the various fluids.

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	Dahmen continued	<p>IECC 505.6, indicates this requirement fails to include language that would allow for enforcement. Explains IECC 505.5 clearly identifies how compliance can be achieved for interior lighting and believes similar enforcement language was not carried over for exterior lighting. Suggests that an amendment be included for exterior lighting for enforcement purposes.</p> <p>Comm 63.0505 (1) includes a wrong cross-reference. Indicates (3) does not exist.</p> <p>IFGC 303.3, indicates the use of unvented room heaters under 3. and 4. Explains Comm 65.0621 specifically prohibits the use of this equipment. Suggests that an amendment be included to delete these references.</p> <p>Comm 65.0630, explains the draft does not include the language proposed to go with the new section. Assumes that since the draft does not include any new language that the existing language currently associated with Comm 65.0630 will still be maintained.</p> <p>IFGC 304.5 addresses two methods for combustion air from within the building which are acceptable for use with fuel gas appliances. Believes all fuel gas equipment installed in new commercial buildings will be required to either be 1) direct vent sealed combustion, thus no internal building combustion air would be required, or 2) designed with outside air louvers per IFGC 304.6. Requests the code address conflict by creating an amendment recognizing 4% openings to the space in which fuel gas equipment is located under IFGC 304.5 as an option to having greater than 0.4 air changes per hour.</p> <p>Comm 65.0400 requires application of NFPA 54 for gas piping and gas piping installations and is still retained in combination with the existing Comm 65.0700, which defines that ANSI Z223/NFPA 54-2002 be the base reference. Identifies the following concerns: 1) Comm 65.0700 is an amendment to 2000 IFGC chapter 7. References in the 2006 IFGC are now contained in IFGC chapter 8, thus Comm 65.0700 should be renumbered Comm 65.0800, and 2, why was NFPA-54-2006 not chosen since this the most recent edition available to the public?</p>	<p>The IECC provisions and the ASHRAE provisions for exterior lighting are basically identical. The compliance with 505.6 is interpreted to be achieved similar to IECC 505.5.</p> <p>The proposed rules have been changed to correct the error. The reference to 3. and 4. are currently deleted under s. Comm 65.0303 (2); no change is proposed for this rule.</p> <p>Treatment SECTION 206 only amends the introduction of the renumbered Comm 65.0630, the remainder of the rule remains unchanged.</p> <p>The IFGC provisions already allow openings to connect spaces in order to provide for combustion air. It is only when it is "known" or when the designer chooses a more conservative approach, that the combustion air determination is limited to only one method.</p> <p>The rules are to be amended to reference the correction 2006 IFGC citations. The 2002 edition of NFPA 54 is also adopted by reference under ch. Comm 40. The standard references for both the WCBC and ch. Comm 40 will be updated together in the future.</p>

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	Dahmen continued	<p>IFGC chapter 7, believes that plan submittal for gaseous hydrogen system will be required after the implementation of the 2006 codes of the ICC codes and under Comm 40.10. Asks how the fees will be defined and believes the double submittal was not intended. Suggests that an amendment be made deleting IFGC chapter 7, which would maintain the current status for gas systems plan submittal and inspection requirements.</p> <p>Comm 64.0403 (6) and (8), believes the elimination of the 7.5 cfm/person of outside air is controversial and detrimental to the future of Wisconsin's energy reserves and energy independence since the IMC requires 15-20 cfm/person. References a letter from Gene Strehlow, Committee Chair of ASHRAE Technical Committee 9.1 relating to this same issue.</p> <p>Suggest the current requirement of 7.5 cfm of outside air per person in commercial buildings be maintained, unless a code listed exception is met.</p> <p>Comm 64.0403 (8) (b) 1. c., suggests the following sentence be added to the current amendment: "Where a supply system serves only one room the required minimum air change may be achieved by circulation within the room at the required rate." Feels this addition will clarify current interpretations by the Department.</p> <p>IMC 502.14 addresses the need for a source capture for a vehicle repair area. Explains the Department currently recognizes the use of tail pipe exhaust system through the Q & A section on the web page. Suggests that Comm 64.61 (3) (b), which was a code requirement prior to July 1, 2002 be referenced.</p> <p>IMC 502.14, Exception 3., believes this requirement is in conflict with Comm Table 64.0403 relating to "enclosed parking garage", footnote d. Suggests eliminating IMC 502.14, Exception 3.</p> <p>IMC 602.2.1, indicates this section defines the test standard to which plenum materials are to be tested. Requests that currently approved alternate standard also be referenced within the code text.</p> <p>IMC 607.5.5, believes this section has not been amended to reflect the proposed IBC/Comm 62.0716 (1), which states smoke dampers are not required with NFPA 45 systems. Requests that a modification be done to the wording under the Wisconsin amendment to reference NFPA 45, which also recognizes that fire dampers are not required in such systems.</p>	<p>When plans are required to be submitted is addressed under s. Comm 61.30. The proposed rules do not include revisions for Comm 61.30 requiring the submission of plans for gaseous hydrogen systems. Therefore, the status quo is in effect where gaseous hydrogen plans are reviewed under ch. Comm 40.</p> <p>The current rules already have a pronounced effect on energy by requiring mechanical ventilation over natural ventilation for most occupancies. The current rules allowing just 7.5 cfm per person have been criticized in contributing to air quality problems especially in schools. The latest IECC provisions require Energy Recovery Ventilation systems in certain situations.</p> <p>The proposed rules having been changed to be consistent with the IMC.</p> <p>The proposed rules having been changed to be consistent with the IMC.</p> <p>The suggestion is unnecessary in light of the proposed rules having been changed to be consistent with the IMC.</p> <p>The proposed rules have been changed to reference the alternate standard.</p> <p>Agreed, the proposed rules have been changed to coordinate the two code provisions.</p>

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	Dahmen continued	IMC chapter 13 Fuel Oil Piping and Storage, indicates this chapter will be adopted but believes it is unclear how this chapter will be used in reference to Comm 10, Flammable and Combustible Liquids Code. Asks the following questions: 1) Are plans required to be submitted when fuel oil tanks are installed or removed? 2) What will the cost be for plan review? 3) Are the commercial building inspectors required to inspect since IMC chapter 13 will be adopted in the Commercial Building Code.	The necessity for submitting alteration plans is addressed under s. Comm 61.30. The fees for building plan review are established under ch. Comm 2. Construction projects falling under the scope of the WCBC are subject to inspections; no specific types of inspection are required under the WCBC.

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