

**SUBJECT:** 2010 Arkansas Mechanical Code

**DESCRIPTION:** This updates the 2003 Arkansas Mechanical Code to the 2010 Arkansas Mechanical Code to update new standards, materials and practices. This will benefit the state citizens with reduced fire insurance premiums and will provide "green building" technologies and standards that help to enhance energy conservation.

Significant changes from the 2003 Arkansas Mechanical Code to the 2010 Arkansas Mechanical Code:

Chapter #1- Administration- Remains the same except for changing the price of the Code book from \$45.00 to \$50.00.

Chapter #2- Definitions- Some definitions added to reflect language change of ventilation requirements in chapter four, such as: Breathing Zone, Net Occupiable Floor Area and Occupiable Space. Removed some definitions such as: Confined space and unconfined space to reflect the deletion of chapter seven, Combustion Air.

Chapter #3- General Requirements- Section 304.10 changed the language- requires outside equipment to set up at least three inches higher than the surrounding grade, Section 306.3- Appliances in attics- While it doesn't remove the twenty foot rule in attic installations. It does add a new exception- Exception #2- Where the passageway is unobstructed and not less than 6 feet high and 22 inches wide for its entire length, the passageway shall not be greater than 50 feet in length.. Also, changed the language on installations under floors, changed the language to unlimited if the passageway is unobstructed and not less than six feet high and twenty two inches wide for its entire length. Added a new table 307.2.2, Condensate drain sizing- up to 20 tons will require  $\frac{3}{4}$  inch line, over 20 tons to 40 tons, 1 inch, table goes up to 2 inches.

Chapter #4- Ventilation- Probably the most changed chapter in the Proposed 2010 AMC. Some of the language has changed from the ICC language to the language of ASHRAE 62 and changed ventilation table 403.3. In some cases this reduces the required ventilation air and should help reduce cost.

Chapter #5- Exhaust Systems- Remains basically the same, changed some language in order to simplify, Updated reference standards and added table and new requirements in section 504, Dryer (Commercial) Exhaust.

Chapter #6- Duct Systems- updated referenced standards, Changed table 603.4- The exception allowing the use of #30 gauge sheet metal for residential use has been deleted, this change is using the same language as SMACNA duct standard. Minimum for residential is now 28 gauge. added section 603.17.2-Prohibited Locations- Diffusers, registers and grills shall be prohibited in the floor or its upward extension within toilet and bathing rooms required by the Arkansas Fire Prevention Code, Volume II, to have smooth, hard, nonabsorbent surfaces. Exception: Dwelling units.

Chapter #7- Combustion Air- Deleted and references the Arkansas State Fuel Gas Code as well as NFPA 31.

Chapter #8- Chimneys and Vents- Basically the same as the 2003 AMC, updated reference standards.

Chapter #9-Specific Appliances, Fireplaces and Solid Fuel-Burning Equipment.- Updated reference standards, also added Section 926- Gaseous Hydrogen Systems and Section 927-Heat Recovery Ventilators.

Chapter #10- Boilers, Water Heaters and Pressure Vessels- Basically the same, updated reference standards.

Chapter #11- Refrigeration- Added Section 1107.2.1- Piping in concrete floors, Section 1107.2.2- Refrigerant penetrations. Also updated reference standards.

Chapter #12- Hydronic Piping- Updated Reference standards, added new piping materials and standards as well as new fittings and standards. Also added new section 1209.5- Thermal barrier required- Radiant floor heating systems shall be provided with a thermal barrier in accordance with Sections 1209.5.1 through 1209.5.4.

Chapter #13- Fuel Oil Piping and Storage- Updated reference standards, basically the same as the 2003 AMC.

Chapter#14-Solar Systems- Updated reference standards, basically the same as the 2003 AMC.

The majority of the 2010 code tracks the 2009 International Mechanical Code -- the following is a list of Arkansas-specific changes made to the International Mechanical Code as part of the 2010 Arkansas Mechanical Code:

Chapter #1- The Administration chapter of the ICC has been deleted and the Arkansas Administration chapter inserted, this is the same Administration chapter that has been used since the adoption of the 1991 Arkansas Mechanical Code. This chapter works well for the needs of the HVACR Board and the Board has no need to change it at this time.

Chapter #2- Definitions- same as the ICC Mechanical except that the Definition of attic was added. This came about because the industry had different definitions of what an attic was. Therefore: the HVACR Board added the definition for clarification purposes.

Chapter #3- The language in section 304.1 has been changed from “Manufacturer’s installation instructions shall be available at the time of inspection” to “Manufacturer’s installation instructions shall be available on the job site at all times.” This language is the same as the 2003 Arkansas Mechanical Code.

Chapter #4- Section 406.2 has been added, 406.2- Supply air- “Use of the crawl space for supply air plenum is prohibited.” This section is the same as the 2003 Arkansas Mechanical Code and it matches the Language of the 2007 Arkansas Fire Prevention Code, Volume III.

Chapter #5- Section 501.2.1, exception 3, dealing with environmental air exhaust, was added to the 2003 Code but is not in the ICC Mechanical Code.

Chapter #6- Added section 601.5- Debris. The air distribution system, including equipment, shall be protected during construction to be maintained free of debris or other foreign material. This language is the same as the 2003 Arkansas Mechanical Code. This language helps keep the duct systems and the equipment clean.

Section 604.7- Changed language, did read-“Identification. External duct insulation, except spray foam, and factory-insulated flexible duct shall be legibly printed or indentified at intervals not greater than 36 inches with the name, etc.” now reads-“ External duct insulation and factory-insulated flexible duct shall be legibly printed or identified at intervals not greater than 36 inches with the name, etc.” Removed, except polyurethane foam and exception #4- “For spray polyurethane foam, the aged R-value per inch, etc.” The HVACR Board has not (at this time) approved spray foam for the use of duct insulation because of the absence of a vapor barrier; the language in this section is the same as the 2003 Arkansas Mechanical Code. The spray product can be approved on a need to basses under section 104.3 Alternative materials, methods, equipment, and appliances.

Section 606.2.1.1 -- this section, dealing with fan shut down (in units smaller than 2,000 cfm) in case of a fire, was mistakenly omitted from this Code. It was also not present in the 2003 Code. This can be handled through Section 102.6 (Requirements not covered by the Code) and should not pose a problem.

Chapter #7- Same as the 2009 International Mechanical Code.

Chapter #8- Same as the 2009 International Mechanical Code.

Chapter #9- Same as the 2009 International Mechanical Code.

Chapter #10- Same as the 2009 International Mechanical Code.

Chapter #11- Section 1101.10- Locking access port caps- Refrigerant circuits access ports located outdoors shall be fitted with locking-type tamper-resistant caps. This section has been removed from the proposed 2010 Arkansas Mechanical Code. The HVACR Board has the opinion that this requirement should be met by the manufacturer and not by the installing contractor or consumer. The product can be purchased and added to the system if the design professional specifies it or if the consumer request it.

Chapter #12- Same as the 2009 International Mechanical Code.

Chapter #13- Same as the 2009 International Mechanical Code.

Chapter #14- Same as the 2009 International Mechanical Code.

Chapter #15- Same as the 2009 International Code.

**PUBLIC COMMENT:** The department held a public hearing on April 23, 2010 with 4 members of the public in attendance. The department received a question from Erik Shollmier regarding the deletion of the section on locking access port caps. The department responded that the HVACR board felt these caps should be installed during the manufacturing process and the cost should not be put on the installing contractor or the consumer. However, the locking access caps are available at local supply houses and they consumer or design professional can require them if they want. Mr. Shollmier indicated his support for this change.

An attorney with the Bureau of Legislative Research noted some typographical errors in the rule. The department indicated these resulted from software provided by the ICC to generate a markup version. The department will correct typos before publishing the Code.

During the promulgation process the department found that Section 606.2.1.1 had been omitted by mistake. That section was also left out of the 2003 Code. The department did not add it back as they feel Section 102.6 (Requirements not covered by Code) can address the omitted provision, which deals with fan shut down (in units smaller than 2,000 cfm) in case of a fire.

The proposed effective date is September 1, 2010.

**CONTROVERSY:** This is not expected to be controversial.

**FINANCIAL IMPACT:** This code impacts the cost on installation of heating, ventilation, air conditioning, and refrigeration equipment. It is impossible to project the actual financial impact. However, the proposed code would allow the heating, ventilation, air conditioning and refrigeration industry to use new materials and installation practices that are generally considered less costly than current standards. It would allow counties and municipalities to have a higher rating from the ISO (Insurance Service Office) which would lower the cost of insurance for the citizens of the state.

### **Economic Impact Statement**

1. Explain the need for the proposed changes. The Mechanical Code covers all HVACR related applications statewide and is intended to protect the public health and safety. It is necessary to keep codes updated to address ever-changing standards and industry trends. There have been no complaints leading to the need to update this code. This is an ongoing process.
2. What are the top three benefits of the proposed rule?
  - Update HVACR standards to reflect current standards in mechanical engineering, materials, and practices.
  - Benefit the citizens of the state by reducing fire insurance premiums through updated codes.
  - Provide for "green building" technologies and standards that help to enhance energy conservation.

3. What would be the consequence of taking no action, thereby maintaining the status quo? The citizens of the state would not be able to use certain types of materials and applications that would in effect reduce overall heating, ventilation, air conditioning, and refrigeration costs.
4. Describe market-based alternatives or voluntary standards that were considered in place of the proposed rule and state the reason for not selecting those alternatives. The HVACR Board did review other alternatives; however, almost every other state has adopted the ICC Mechanical Code and the board decided to keep the ICC Mechanical Code with Arkansas changes to be more in-line with other states and to have updated industry standards for protection of the Arkansas consumer.
5. Estimate the cost to state government of collecting information, completing paperwork, filing, recordkeeping, auditing, and inspecting associated with this new rule. This proposed rule is a national standard; therefore, there has been no cost associated with its development. There have been some costs with copying, public hearing notification, and administrative processing. The estimated overall cost to implement this rule will be under \$2,000.
6. What types of small businesses will be required to comply with the proposed rule? Since this is a minimum HVACR related construction standard, it will affect all buildings statewide in scope regardless of size. Therefore, all businesses large and small will be affected if that business has heating, ventilation, air conditioning and refrigeration equipment installed. HVACR businesses will be directly affected because that business has to meet minimum regulatory standards of installation. However, this is not new. Those businesses already have regulatory requirements to meet. The estimated 4,000 HVACR license holders are directly affected because of the need to purchase a new code book.
7. Does the proposed rule create barriers to entry? If so, please describe those barriers and why those barriers are necessary. The department assumes the meaning of this question is "barriers for entering the state to conduct business." This regulation/code has no bearing on this in any way. These are minimum standards of installation and engineering and have no barriers for persons wanting to get into business either in or out of state. Out-of-state contractors work in Arkansas and move into Arkansas all of the time, and they are able to follow the codes without problems.
8. Explain the additional requirements with which small business owners will have to comply and estimate costs associated with compliance. Since this proposed regulation covers all aspects of HVACR equipment and construction, it is virtually impossible to estimate costs of compliance. There are many variables associated with construction related activities. These proposed standards allow for alternative engineering principles and materials that result in less expensive costs compared to the current codes/standards.
9. State whether the proposed rule contains different requirements for different sized entities, and explain why this is or is not necessary. This does not differentiate in requirements in any way. It is statewide in application for all types of buildings.

10. Describe your understanding of the ability of small business owners to implement changes required by the proposed rule. Small business owners are not impacted unless the small business has a reason to have HVACR equipment in its business. The HVACR contractors will only have to start installing HVACR equipment to the new standards, if applicable.

11. How does this rule compare to similar rules in other states or the federal government? These standards are recognized nationally. In fact, not adopting or updating codes on a regular basis polarizes Arkansas standards from the rest of the country.

12. Summarize the input your agency has received from small business or small business advocates about the proposed rule. HVACR contractors, suppliers, public, and government organizations such as education facilities, engineers, architects, contractor associations, and regulatory officials have shown support for this proposal.

**LEGAL AUTHORIZATION:** Arkansas Code § 17-33-202 provides that the HVACR Licensing Board may adopt a mechanical code and standards for the conduct of HVACR work.