APPENDIX

TABLE 1

Filter Efficiencies for Central Ventilation and Air Conditioning Systems in Health Care Facilities			
Area Designation	No. Filter Beds	Filter Bed No.1 (%)	Filter Bed No.2 (%)
All areas for patient care, treatment, and diagnosis, and those areas providing direct service or clean supplies such as sterile and clean processing.	2	30	90
Positive Protective Environment Room	2	30	99.97
Laboratories	1	80	-
Administrative, Bulk Storage, Soiled Holding Areas, Food Preparation Areas, and Laundries	1	30	-

Notes: The filtration efficiency ratings are based on average dust spot efficiency per ASHRAE 52-76.1 – 1992.

Additional roughing or prefilters should be considered to reduce maintenance required for filters with efficiencies higher than 75 percent.

TABLE 2

Sound Transmission Limitations in Health Care Facilities		
	Airborne Sound Transmission Class (STC)[1]	
	Partitions	Floors
NEW CONSTRUCTION[2]		
Patients' Room to Patients' Room	45	40
Public Space to Patients' Room[2]	55	40
Service Areas to Patients' Room[3]	65	45
Patient room access corridor [4]	45	45
Toilet room to public space	45	——
Consultation rooms/ conference rooms to public space	45	——
Consultation rooms/ Conference rooms to patient rooms	45	——
Staff lounges to patient rooms	45	——
Existing Construction		
Patient room to patient room	35	40
Public space to patient room [2]	40	40
Service areas to patient room [3]	45	45

1. Sound transmission class (STC) shall be determined by tests in accordance with methods set forth in ASTM Standard E90 and ASTM E413. Where partitions do not extend to the structure above, sound transmission through ceilings and composite STC performance shall be considered.

2. Public space includes corridors (except patient room access corridors), lobbies, dining rooms, recreation rooms, and similar spaces.

3. Service areas include kitchens, elevators, elevator machine rooms, laundries, and similar spaces garages, maintenance rooms, boiler and mechanical equipment rooms, and similar spaces of high noise. Mechanical equipment located on the same floor or above patient rooms, offices, nurses stations, and similar occupied space shall be effectively isolated from the floor.

4. Patient room access corridors contain composite walls with doors/windows and have direct access to patient.

TABLE 3

Temperature and Relative Humidity Requirements		
Area Designation	Dry Bulb Temperatures °F[1]	Relative Humidity (%) Minimum-Maximum[2]
Sterile Storage	75	70 (max)

[1]Note: Where temperature ranges are indicated, the systems shall be capable of maintaining the rooms at any point within the range. A single figure indicates a heating or cooling capacity of at least the indicated temperature. This is usually applicable when patients may be undressed and require a warmer environment. Nothing in these guidelines shall be construed as precluding the use of temperatures lower than those noted when the patients' comfort and medical conditions make lower temperatures desirable. Unoccupied areas such as storage rooms shall have temperatures appropriate for the function intended.

TABLE 4

Ventilation, Medical Gas, and Air Flow Requirements in Health Care Facilities[1]

Area Designation	Air Movement Relationship To Adjacent Area[2]	Minimum Air Changes Outside Air Per Hour[3]	Minimum Total Air Changes Per Hour[4,5]	Air Recirculated By Means of Room Units[7]	All Air Exhausted Directly Outdoor[6]
NURSING AREAS					
Patient Room	-	2	6 [9]	Optional	Optional
Toilet Room	In	-	10	Optional	Yes
Protective environment room [8, 10]	Out	2	12	No	Optional
Airborne Infectious Isolation [8, 11]	In	2	12	No	Yes
Patient Corridor	-	-	2	Optional	Optional
ANCILLARY AREAS					
Pharmacy	Out	-	4	Optional	Optional
DIAGNOSTIC AND TREATMENT AREAS					
Soiled Workroom or Soiled Holding	In	-	10	No	Yes
Clean Workroom or Clean Holding	Out	-	4	Optional	Optional
SERVICE AREAS					
Food Preparation Centers[12]	-	-	10	No	Optional
Warewashing	In	-	10	No	Yes
Dietary Day Storage	In	-	2	Optional	Optional
Laundry, General	-	-	10	Optional	Yes
Soiled Linen Sorting and Storage	In	-	10	No	Yes
Clean Linen Storage	Out	-	2	Optional	Optional
Soiled Linen and Trash Chute Room	In	-	10	No	Yes
Bedpan Room	In	-	10	Optional	Yes
Bathroom	In	-	10	Optional	Optional
Janitor's closet	In	-	10	No	Yes

Notes for Table 4:

1. The ventilation rates in this table cover ventilation for comfort, as well as for asepsis and odor control in areas that directly affect patient care and are determined based on healthcare facilities being predominantly "No Smoking" facilities. Where smoking may be allowed, ventilation rates will need adjustment. Areas where specific ventilation rates are not given in the table shall be ventilated in accordance with ASHRAE Standard 62, Ventilation for Acceptable Indoor Air Quality; and ASHRAE Handbook-HVAC Applications. OSHA standards and/or NI0SH criteria require special ventilation requirements for employee health and safety within healthcare facilities.

2. Design of the ventilation system shall provide air movement which is generally from clean to less clean areas. If any form of variable air volume or load shedding system is used for energy conservation, it shall not

3. Compromise the corridor-to-room pressure balancing relationships or the minimum air changes required by the table.

4. To satisfy exhaust needs, replacement air from the outside is necessary. Table 4 does not attempt to describe specific amounts of outside air to be supplied to individual spaces except for certain areas such as those listed. Distribution of the outside air, added to the system to balance required exhaust, shall be as required by good engineering practice. Minimum outside air quantities shall remain constant while the system is in operation.

5. Number of air changes may be reduced when the room is unoccupied if provisions are made to ensure that the number of air changes indicated is reestablished any time the space is being utilized. Adjustments shall include provisions so that the direction of air movement shall remain the same when the number of air changes is reduced. Areas not indicated as having continuous directional control may have ventilation systems shut down when space Is unoccupied and ventilation is not otherwise needed, if the maximum infiltration or exfiltration permitted in Note 2 is not exceeded and if adjacent pressure balancing relationships are not compromised. Air quantity calculations shall account for filter loading such that the indicated air change rates are provided up until the time of filter change-out.

6. Air change requirements indicated are minimum values. Higher values should be used when required to maintain indicated room conditions (temperature and humidity), based on the cooling load of the space (lights, equipment, people, exterior walls and windows, etc.).

7. Air from areas with contamination and/or odor problems shall be exhausted to the outside and not recirculated to other areas.

8. Recirculating room HVAC units refers to those local units that are used primarily for heating and cooling of air, and not disinfection of air. Because of cleaning difficulty and potential for buildup of contamination, recirculating room units shall not be used in areas marked "No." However, for airborne infection control, air may be recirculated within Individual isolation rooms if HEPA filters are used. Isolation rooms may be ventilated by reheat induction units in which only the primary air supplied from a central system passes through the reheat unit.

9. Differential pressure shall be a minimum of 0.01" water gauge (2.5 Pa). If alarms are installed, allowances shall be made to prevent nuisance alarms of monitoring devices.

10. Total air changes per room for patient rooms may be reduced to 4 when supplemental heating and/or cooling systems (radiant heating and cooling, baseboard heating, etc.) are used.

11. The protective environment airflow design specifications protect the patient from common environmental airborne infectious microbes (i.e., Aspergillus spores). These special ventilation areas shall be designed to provide directed airflow from the cleanest patient care area to less clean areas. These rooms shall be protected with HEPA filters at 99.97 percent efficiency for a 0.3 micron sized particle in the supply airstream. These Interrupting filters

protect patient rooms from maintenance-derived release of environmental microbes from the ventilation system components. Recirculation HEPA filters can be used to increase the equivalent room air exchanges. Constant volume airflow is required for consistent ventilation for the protected environment. It the facility determines that airborne infection isolation is necessary for protective environment patients, an anteroom shall be provided. Rooms with reversible airflow provisions for the purpose of switching between protective environment and airborne infection isolation functions are not acceptable.

12. The infectious disease isolation room described in these guidelines is to be used for isolating the airborne spread of infectious diseases, such as measles, varicella, or tuberculosis. The design of airborne infection isolation (All) rooms should include the provision for normal patient care during periods not requiring Isolation precautions. Supplemental recirculating devices may be used in the patient room, to increase the equivalent room air exchanges; however, such recirculating devices do not provide the outside air requirements. Air may be recirculated within individual isolation rooms if HEPA filters are used. Rooms with reversible airflow provisions for the purpose of switching between protective environment and All functions are not acceptable.

13. Food preparation centers shall have ventilation systems whose air supply mechanisms are interfaced appropriately with exhaust hood controls or relief vents so that exfiltration or infiltration to or from exit corridors does not compromise the exit corridor restrictions of NFPA 90A, the pressure requirements of NFPA 96, or the maximum defined in the table. The number of air changes may be reduced or varied to any extent required for odor control when the space is not in use.

TABLE 5

Final Occupancy Inspection Check List

Inspector:_____ Date:_____
Facility:_____ Job:_____
General Contractor:_____

The following items shall be located at the site and copies furnished to the Division of Health Facilities Services (DHFS) prior to the final inspection and approval for occupancy of the project area(s). These items are in no specific order. Some items may not apply in every case.

Item	Yes	No	Comments
1. Architect/Engineer's Certification of Substantial Completion?			
2. Interior finishes - smoke development and fire spread rating information?			
3. Fire Protection Systems- Portable fire extinguishers are inspected, and tagged, and shop drawings for standpipe/sprinkler systems are available?			
4. Certificate of Occupancy - City Building Inspector?			
5. **Certification** - fire alarm system, smoke detection system, sprinkler system, and any other fire suppression system has been installed, tested and meets all applicable standards?			
6. **Certification** - medical gas system?			
7. **Certification** - electrical system has been installed, tested and meets all applicable standards of the NEC, NFPA?			
8. **Certification** - emergency generator has been installed, tested and meets all applicable standards of the NFPA, NEC?			
9. **Certification** - mechanical system has been installed, tested, balanced, and approved by the engineer of record?			
10. **Certification** - communication system(s) has been installed, tested and meets all applicable standards of the NEC, NFPA?			
11. Are there manufacturer's operation and maintenance manuals with equipment warranties on site for all newly installed equipment or a letter from the general contractor stating that the above items will be turned over to the owner?			
12. Have all applicable pieces of equipment installed during the construction been incorporated into the existing preventive maintenance system? Or, have new maintenance policies and procedures been written to insure that said items are maintained per the manufacturers recommendations?			
13. Are there as-built drawings on site or a letter from the general contractor stating that the as-built drawings will be turned over to the owner?			
14. Are there copies of the Architect's and Engineer's final punch lists with verification that all items have been repaired or remedied?			

RULES FOR HOSPICE IN ARKANSAS

Referenced Publications

1. General: These rules include references to other codes and standards. The most current codes and standards adopted at the time of this publication are used. Later issues will normally be acceptable where requirements for function and safety are not reduced; however, editions of different dates may have portions renumbered or re-titled. Care shall be taken to ensure that appropriate sections are used.

2. Publications adopted in whole by these rules are as listed below:

   a) American National Standards Institute (ANSI) Standard A17.1, "American National Standard Safety Code for Elevators, Dumbwaiters, Escalators and Moving Stairs."

   b) American Society of Civil Engineers, (ASCE), "Minimum Design Loads for Buildings and Other Structures."

   c) National Fire Codes - 2002.

   d) Rules Pertaining to the Management of Regulated Waste from Health Care Related Facilities, Arkansas Department of Health.

3. Publications adopted in part (only the sections specifically identified by these rules are applicable) by these rules are as listed below:

   a) American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), "Handbook of Fundamentals" and "Handbook of Applications."

   b) American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), Standard 52, "Method of Testing Air Cleaning Devices Used in General Ventilation for Removing Particulate Matter."

   c) Illuminating Engineering Society of North America, IESNA Publication CP29, “Lighting for Health Care Facilities.”

4. A partial list of other publications that are applicable to the design and construction of healthcare facilities that are not a part of these rules but may be enforced by other authorities having jurisdiction is provided below:

   a) Arkansas State Fire Prevention Code Volumes I, II, and III (based on the 2000 International Building Code).

   b) Arkansas State Mechanical Code, Arkansas Department of Health.

   c) Arkansas State Plumbing Code, Arkansas Department of Health.

   d) Arkansas Boiler Code, Arkansas Department of Labor.

5. Publications that are not a part of these rules but potentially helpful as reference material in the design and construction of healthcare facilities are as listed below:

    a) American Institute of Architects (AIA), "Guidelines for Design and Construction of Hospital and Health Care Facilities 2001 Edition".

    b) American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), "HVAC Design Manual for Hospitals and Clinics".

6. Availability of Codes and Standards. Referenced publications can be ordered, if they are Government publications, from the Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, DC 20402. Copies of non-government publications can be obtained at the addresses listed below.

    a) Air Conditioning and Refrigeration Institute, 1501 Wilson Boulevard, Arlington, VA 22209.

    b) American National Standards Institute, 1430 Broadway, New York, NY10018.

    c) American Society of Civil Engineers, 345 East 47th Street, New York, NY 10017.

    d) American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

    e) American Society of Heating, Refrigerating, and Air Conditioning, 1741 Tullie Circle, NE, Atlanta GA 30329.

    f) Arkansas Building Authority, 1515 West 7th Street, Suite 700, Little Rock, AR 72201.

    g) Arkansas Department of Labor, 10421 West Markham, Little Rock, AR 72205.

    h) Illuminating Engineering Society of North America (IESNA), 120 Wall Street, 17th Floor, New York, NY 10005.

    i) National Fire Protection Association, 1 Batterymarch Park, Post Office Box 9101, Quincy, MA 02269-9101.

    j) International Building Code Congress International, Inc., 900 Montclair Road, Birmingham, AL 35213.

7. Interpretations of Requirements. Memorandum of Understanding: Conflicts between the Arkansas Fire Prevention Code and NFPA 101 Life Safety Code are to be resolved using the Memorandum of Understanding as indicated below:

    a) The Arkansas Fire Prevention Code is the fire prevention code for the State of Arkansas.

    b) When the Arkansas State Fire Prevention Code conflicts with the chapters of NFPA 101 Life Safety Code governing new and existing health care and ambulatory health care occupancies (Chapters 18, 19, 20, and 21), the provisions of the Life Safety Code shall govern.

c) Requirements found only in the Arkansas Fire Prevention Code (requirements not addressed by NFPA 101) may be provided at the option of the facility (compliance with these requirements is not mandatory).

8. Safety Improvement Plans: Nothing in these rules shall be construed as restrictive to a facility that chooses to do work as a part of a long-range safety improvement plan.

9. Provisions in Excess of Regulatory Requirements: Nothing in these rules shall be construed to prohibit a better type of building construction, an additional means of egress, or an otherwise safer condition than that specified by the minimum requirements of these rules.

10. Equivalency: The Division may approve alternate methods, procedures, design criteria, and functional variations from these rules, because of extraordinary circumstances, new programs, new technology, or unusual conditions when the facility can effectively demonstrate that the intent of the rules is met and that the variation does not reduce the safety or operational effectiveness of the facility below that required by the exact language of the rules.