

MEDICAL UNIVERSITY OF SOUTH CAROLINA (MUSC)
OPERATIONS AND MAINTENANCE PROGRAM FOR ASBESTOS

Revised: 9/2007

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The Occupational Safety and Health Division of the Medical University of South Carolina (MUSC) has performed building surveys and identified the buildings, locations and types of asbestos-containing materials located within the MUSC complex. Lack of funding for asbestos projects and the lack of relocation space for occupants has, for the present time, eliminated total removal of all asbestos-containing materials. Since total removal is not feasible at this time, the Medical University of South Carolina (MUSC) has chosen to implement a special Operations and Maintenance (O & M) Program designed to prevent asbestos exposure to building occupants.

The purpose of our Operations and Maintenance Program is to identify the location and condition of asbestos, clean areas where asbestos has previously been released and prevent future release by:

1. Minimizing asbestos-containing material disturbance or damage.
2. Notifying building occupants of the location of asbestos-containing materials.
3. Monitoring the condition of the asbestos-containing materials.

Visual inspections will be conducted to monitor the condition of asbestos-containing materials on an annual basis. The Medical University of South Carolina Operations and Maintenance Program will continue until all asbestos-containing material is removed.

The Medical University of South Carolina's Occupational Safety and Health Division has developed and implemented the Operations and Maintenance Program. Medical University of South Carolina employees have received notification regarding locations, types of asbestos, health hazards involving asbestos, and the condition of asbestos-containing materials in Medical University of South Carolina buildings. Engineering & Facilities employees are trained not to disturb asbestos-containing materials and to inform the Occupational Safety and Health Division if they see an illegal removal or disturbance. Any illegal removal or disturbance of asbestos-containing materials by Medical University of South Carolina employees will result in severe disciplinary action. Engineering & Facilities employees are also informed to let the Occupational Safety and Health Division know if they see areas where asbestos-containing materials may be in a deteriorating state. The Engineering & Facilities has an asbestos Operations and Maintenance team whose function is to remove only small quantities of asbestos (RACM disturbed shall not exceed that which can be contained in one glovebag or one 6-mil polyethylene bag measuring no greater than 60 inches in length and width) in emergency situations such as a broken steam line, ruptures of boiler tanks, a collapsed ceiling, etc. In these situations, the Occupational Safety and Health Division

shall be contacted and one of the licensed Asbestos Supervisors will determine if the situation is an emergency. If the situation is deemed an emergency, the Operations and Maintenance Director will supervise the removal to assure that state-of-the-art procedures are being followed.

The Director of Occupational Safety and Health Division has appointed the Medical University of South Carolina's Environmental Health Manager as program manager to direct all asbestos-related activities. The Environmental Health Manager IV has received extensive training and is licensed by Department of Health and Environmental Control (D.H.E.C.) to perform comprehensive building surveys, and to present options for controlling asbestos-containing materials. The building surveys consist of the following four elements:

1. Review of existing building records for reference to asbestos used in construction.
2. Visual inspection of materials throughout the Medical University of South Carolina buildings to identify those that are suspect in asbestos-containing materials. (Thermal insulation, surfacing materials and miscellaneous.)
3. Collecting and sending bulk samples to an Environmental Protection Agency (EPA) approved laboratory for analysis. When taking bulk samples, the following precautions are taken:
 - A. Half-mask air-purifying respirators with high efficiency particulate air (H.E.P.A.) cartridges are worn.
 - B. The surface to be sampled is wet to prevent fiber release.
 - C. A 10' by 10' poly drop cloth in place below the sample location.
 - D. Areas where samples have been extracted will be patched with a fire-rated caulk, and then encapsulated.
 - E. The 10' by 10' dropcloth will be wet-wiped and folded from the outside, inward, after bulk sampling.
 - F. The laboratory that is used to analyze our bulk samples must be enrolled in the Environmental Protection Agency's quality assurance program.
4. Document the locations of all confirmed asbestos-containing materials. Included in this information is a building-by-building breakdown of what type of asbestos-containing materials, the percentage of asbestos-containing materials, the condition of the asbestos-containing materials, and the location.

The Medical University of South Carolina Notification Plan is designed to meet our obligation to inform employees and students about the potential hazards in buildings and present the issue to the press in a controlled, positive manner. Inquiries from the press should be referred to the Director of Public Relations. The following actions have been taken to facilitate information regarding asbestos in Medical University of South Carolina buildings.

- 1) A hotline has been established which faculty, staff and students can call to get information about the asbestos situation in their buildings (792-3604). The Environmental Health Manager has been nominated to manage the hotline.
- 2) The Board of Trustees has been briefed.
- 3) Senior administrators who are in charge of buildings (deans, department heads, and directors) have been briefed. It was suggested that they designate an individual in each building to serve as a source of information for others in the building.
- 4) A letter was mailed to students notifying them of the asbestos situation in campus buildings.
- 5) A letter to faculty and staff members was distributed telling them of the asbestos abatement plan.
- 6) A news release was furnished to media representatives giving the background of the survey, an explanation of terminology, cost, the priorities and how those priorities were fixed.
- 7) Follow-up activities will provide a summary of the asbestos abatement situation to alumni, new students, and new employees as required.

Due to the location of asbestos-containing materials (pipe chases, above ceiling tiles, boiler rooms), the people most likely to come in direct contact with asbestos-containing materials are Engineering & Facilities personnel. All Engineering & Facilities employees with the exception of clerical workers shall attend an asbestos training program annually. The asbestos training program includes the following subjects:

- 1) Physical characteristics of asbestos, including fiber size, aerodynamic characteristics, and physical appearances.
- 2) Health hazards of asbestos, including the nature of asbestos-related diseases, route of exposure, dose-response relationship, synergism between cigarette smoking and asbestos exposure, latency period for diseases, and health basis for standards.

- 3) Air monitoring procedures and requirements specified by the Occupational Safety and Health Administration (O.S.H.A.) 29CFR 1910.1001, including a description of equipment and methods, reasons for air monitoring, types of samples, and current standards for air monitoring.
- 4) Background information, such as, where asbestos originates, types of asbestos used in Medical University of South Carolina buildings, years asbestos was commonly used in building construction (1950-1973), and building materials and products containing asbestos are also discussed.
- 5) State-of-the art work practices including constructing containment barriers and decontamination systems, posting of warning signs, electrical and ventilation lock-out methods, wetting methods using surfactant, negative pressure ventilation units, use of H.E.P.A. vacuums and a detailed demonstration of the glove bag methods.
- 6) Emergency control plans for each building, with a list of step procedures to follow in case of an accidental asbestos contamination.

In addition to the Engineering & Facilities asbestos training, the Engineering & Facilities operation and maintenance team also attends a yearly course, which certifies them to do limited asbestos removal. The Medical University Occupational Safety and Health Division has employees that attend a yearly course in "Supervision of Asbestos Abatement Projects." This course is approved by D.H.E.C. Upon completion of this course, these employees are certified to supervise any asbestos abatement work performed in Medical University of South Carolina buildings.

BUILDING SURVEYS

FAMILY PRACTICE RIVERSIDE

A survey for asbestos-containing building materials (ACBM) in the Riverside Family Practice Building on Calhoun and Halsey Streets in Charleston, South Carolina was initiated on March 15, 1989. Asbestos-containing floor tile was found throughout the building. This material was in good condition and was nonfriable. Asbestos-containing black pipe mastic was found throughout the building. The material was in good condition, nonfriable, and should be included in the O&M program established for the building. Asbestos-containing hard joint pipe insulation was found in Room FP3H. The material was friable but its protective covering was in good condition.

Asbestos-containing transite ceiling tile was found outside in the courtyards. The material was in fair condition, and nonfriable. (For Conditions to Avoid, see Appendix A, 1,7,6,2.)

MUSC COLCOCK HALL

All asbestos containing material was removed from the interior of the building during the summer of 2004. The building was totally renovated in 2005.

MUSC PARKING GARAGE

A survey for asbestos-containing building materials (ACBM) in the Parking Garage on Jonathan Lucas in Charleston, South Carolina was initiated on February 15, 1989. Asbestos-containing floor tile was found in Room 102 and PG220. All floor tiles shall be treated as asbestos containing material. This material was in good condition and was nonfriable. (For Conditions to Avoid, see Appendix A, 1.)

RHETT MIDDLE SCHOOL (Old Charleston High)

All interior asbestos has been removed from this building as part of a major renovation in 2004-2005.

UNIVERSITY SERVICES BUILDING

A survey for asbestos-containing building materials (ACBM) in the University Services Building on President and Doughty Streets in Charleston, South Carolina was initiated on March 1, 1989. Asbestos-containing floor tile was found on the second, third, fourth, fifth, and sixth floors. This material was in good condition and was nonfriable. (For Conditions to Avoid, see Appendix A, 1.)

141 ½ ASHLEY AVENUE

A survey for asbestos-containing building materials (ACBM) in 141 ½ Ashley Avenue located at the Medical University of South Carolina in Charleston, South Carolina was initiated on March 8, 1989. Asbestos-containing floor covering (brown, aqua) was found in Rooms 106 and 206. This material was durable and nonfriable. (For Conditions to Avoid, see Appendix A, 1.)

COLLEGE OF HEALTH PROFESSIONS

A survey for asbestos-containing building materials (ACBM) in the Allied Health Science Building on President and Bee Street in Charleston, South Carolina was initiated on January 18, 1989. Asbestos-containing floor tile was found throughout the first, second, and third floors. The material was in good condition and was nonfriable. Asbestos-containing duct insulation sealant was found above the suspended ceiling throughout the building. The material was nonfriable, in good condition. The above finding was confirmed during an updated survey in July 2005 and the flooring material removed during a major renovation project the same year. (For Conditions to Avoid, see Appendix A, 1,7.)

57 Bee Street

No Asbestos found inside the building. Roof samples were not taken. Samples of roof Material must be taken before renovation or demolition actives can proceed on the roof.

3 Doughty Street

A limited survey for asbestos containing building materials (ACBM) was conducted in 2002. The texture ceiling throughout the building contains asbestos. Any flooring material must be treated as asbestos containing material. Contact Occupational Safety and Health Programs at 792-3604 before any renovation and demolition project. (For condition to avoid see Appendix a, 9).

59 Bee Street

A survey of this building was conducted in 2000. Spray applied texture ceiling material contains asbestos along with all 9X9 floor tiles and mastic. Most of the linoleum flooring throughout the building contains asbestos.

20 Ehrhardt Street

In the fall of 2000, a survey of 20 Ehrhardt Street was conducted. Linoleum flooring and ceiling texture were found to contain asbestos. These materials were found sporadically throughout the building. Contact OSHP before any renovation or demolition activity

17 Ehrhardt Street

No asbestos found inside the building. The roof must be sampled when or if renovations take place.

Harborview Office Towers (HOT)

A survey for asbestos-containing building materials in HOT was performed in July 1994. Asbestos containing floor tile and floor tile mastic was found in various locations throughout the building. The large majority of asbestos containing floor tiles are located on the 1st floor main lobby area, and front elevator hallways throughout the building. In December of 2002, a floor replacement project removed all asbestos floor tile and mastic in the main elevator hallways on all floors except floors one and two. Pockets of asbestos tile still remain in the building. Floor tiles located on the first floor lobby were tested and found to be free of asbestos containing material. Any floor material replacement work or any other work that could disturb the floor material, must be approved by Occupational Safety and Health Programs to ensure asbestos material is not disturbed. The exterior of the building is constructed of asbestos transite board. This material is covered by a spray applied textured gray color material.

QUADRANGLE BUILDING E, F, AND CHILLERS

A survey for asbestos containing building materials (ACBM) in Quadrangle Buildings E, F, and Chillers located at the Medical University of South Carolina in Charleston, South Carolina was initiated on January 24, 1989. The survey resulted in the discovery of asbestos-containing floor tile, sprayed-on fireproofing, hard pipe joint insulation, ceiling tile, pipe insulation, and general debris in Building E. The floor tile was durable, nonfriable, and in good condition. The sprayed-on fireproofing and ceiling tile were friable and in good condition. The hard pipe joint insulation and pipe insulation on the first, third, and fourth floors were friable and the protective coverings in good condition. All asbestos was removed on the 3rd floor of Building E, 1999.

Also, the survey resulted in the discovery of asbestos-containing floor tile, baseboard, black sealant used on pipe insulation and duct work, pipe insulation, transite board, and hard pipe insulation in Building F and Chillers. All asbestos was removed for the chillers in 1997. The floor tile and baseboard were durable, nonfriable, and in good condition. The sealant was nonfriable and in good condition. The pipe insulation and hard pipe joint insulation were in fair condition. The transite board was durable, nonfriable, and in fair condition. In 2007 a survey

was conducted in the entire 3rd floor of Quadrangle F. Asbestos pipe insulation along with fiberglass insulation was found above the drop ceilings. Contact OSHP at 792-3604 for more details.

Asbestos-containing roofing materials are typically nonfriable and in a well-bonded state.

(For Conditions to Avoid, see Appendix A, 1,5,2,6,3.)

25 EHRHARDT STREET

A survey for asbestos-containing building materials (ACBM) in 25 Ehrhardt Street in Charleston, South Carolina was initiated on February 28, 1989. Asbestos-containing floor tile was found in Room EC100, EC100A, EC200, and EC200A. This material was in good condition and is nonfriable. Asbestos-containing floor covering was found in Rooms EC100D and EC200D. The material was nonfriable and in good condition. Asbestos-containing transite pipe was found in the attic. The pipe ran through the walls of the building and into the attic. The transite pipe was in good condition and nonfriable. (For Conditions to Avoid, see Appendix A, 1,8.)

RAT HOUSE

A survey for asbestos-containing building materials (ACBM) in the Rat House located at the Medical University of South Carolina in James Island, South Carolina was initiated on February 21, 1989. Asbestos-containing red floor tile and floor tile mastic was found in Rooms FB105 and FB106. These materials were durable and nonfriable. Asbestos-containing pipe insulation (1", 2") was found in Rooms FB100, FB102, FB104, FB106, and in the attic area. This material was durable and friable. Asbestos-containing hard joint insulation (2") was found in Rooms FB100 and FB106. This material was also durable and friable. (For Conditions to Avoid, see Appendix A, 1,3.)

HARPER STUDENT CENTER *(Old Alumni House)*

A survey for asbestos-containing building materials was updated in June 2003 as part of the demolition project to make room for the new hospital. Both remaining wings contains wall glue or brown colored mastic located throughout all floors. This material is located on the backside of the sheet rock walls that are against block walls.

21 EHRHARDT STREET

A survey for asbestos-containing building materials (ACBM) in 21 Ehrhardt Street in Charleston, South Carolina was initiated on February 23, 1989. Asbestos-containing floor tile was found throughout the first floor. The material was in good condition and was nonfriable. Asbestos-containing floor covering was found throughout the building. The material was nonfriable, in good condition. Asbestos-containing transite pipe was found in the attic. The pipe ran through the walls of the building and into the attic. The transite pipe was in good condition and nonfriable. (For Conditions to Avoid, see Appendix A, 1,8.)

MUSC ADMINISTRATION BUILDING

A survey for asbestos-containing materials (ACBM) in the MUSC Administration Building located on Ashley Avenue in Charleston, South Carolina was updated in 2003. Asbestos-containing floor covering (brown, gray, white) was found in the elevators and on the second and fourth floors. Asbestos-containing materials were durable and nonfriable. Asbestos-containing black duct insulation sealant was found in the crawlspace of the building. This black duct sealant was durable and nonfriable. All interior asbestos was removed except for two exceptions. 1) Black non-friable asbestos containing mastic remains on one large HVAC pipe located on the 2nd floor. 2) Friable asbestos containing pipe elbows remains along the outer perimeter of the building.

141 ASHLEY AVENUE

A survey for asbestos-containing building materials (ACBM) in 141 Ashley Avenue located in Charleston, South Carolina was initiated on March 8, 1989. Asbestos-containing floor covering (yellow, white, and tan) was found in Rooms 05, 06, 10, 11, and 14. This material was durable and nonfriable. It should be noted that there were two layers of yellow floor covering in Rooms 05 and 06, and both layers are asbestos containing. There were also two layers of white floor covering in Rooms 10 and 11. The top layer had no asbestos, but the bottom layer was asbestos containing. The tan floor covering in Room 14 was a single layered covering.

(For Conditions to Avoid see Appendix A, 1.)

141.5 ASHLEY AVENUE

A survey of the building was conducted in 2007. Asbestos containing sheet flooring was found in the building along with nonfriable transite pipe.

MUSC RESEARCH BUILDING

A survey for asbestos-containing building materials (ACBM) in the Research Building located at the Medical University of South Carolina in Charleston, South Carolina was initiated on February 7, 1989. Asbestos-containing yellow floor covering was found in Rooms 510 and 513E. This material was durable, nonfriable, and in good condition. Asbestos-containing floor tile (tan, gray, green, and beige) and floor tile mastic were found throughout the building. These materials were durable, nonfriable, and in good condition. Asbestos containing spray-on-ceiling was found on the eighth floor of the building. This material was nonfriable, nonflaking and in good condition. Asbestos-containing hard joint insulation (1", 1 ½", 2", 3", 4", 6"), asbestos-containing pipe insulation (¾", 1", ½", 2"), and end joint plaster were found throughout the building. (The end joint plaster units are included with, and replaced as, hard joint insulation units.) These materials were durable, friable, and had a good outside protective covering. In the past three years, all asbestos materials have been removed from the 4th and 5th floors. All spray applied asbestos ceilings have been removed on the 8th floor. Updated surveys have been conducted over the years prior to renovations. Approximately 90% of the building is free of regulated asbestos. Approximately 90% of the spray applied asbestos ceiling have been removed from the eighth floor as well. (For Conditions to Avoid, see Appendix A, 1,5,6,3.)

23 EHRHARDT STREET

A survey for asbestos-containing materials (ACBM) in 23 Ehrhardt Street in Charleston, South Carolina was initiated on February 23, 1989. Asbestos-containing floor tile was found throughout the first and second floor. The material was in good condition and was nonfriable. Asbestos-containing floor covering was found throughout the second floor. The material was nonfriable, in good condition. Asbestos-containing transite pipe was found in

the attic. The pipe ran through the walls of the building and into the attic. The transite pipe was in good condition and nonfriable.

(For Conditions to Avoid, see Appendix A, 1,8.)

MUSC HOSPITAL

A survey for asbestos-containing building materials (ACBM) in the Medical University of South Carolina (MUSC) Hospital, located on Sabin Street between Barre Street and Ashley Avenue in Charleston, South Carolina was initiated in December of 1988. The survey resulted in the discovery of a plethora of asbestos-containing materials.

During the late 1980's and early 1990's a large percentage of the Main Hospital was renovated and all asbestos removed. When areas of the building are renovated, asbestos surveys are performed prior to the project to ensure regulated material is not disturbed.

There was some asbestos-containing pipe insulation in sealed pipe chases and plaster walls throughout the hospital. This insulation was in poor condition. However, since it was sealed inside the chase or wall, it should prevent an immediate exposure hazard. Approximately 80% of the asbestos in this building has been removed. Contact Occupational Safety and Health Programs before commencement of any renovation or demolition activities. (For Conditions to Avoid, see Appendix A,1,4,7,6,3,8,2.)

CHILDREN'S HOSPITAL

A survey was conducted in 1989. No asbestos was detected in the building. The building was re-inspected in 2007. Asbestos HVAC caulking (gray in color) was found in the 3rd floor air handler room. Also, beige color fan motor caulking was found in the same area. This material is non-friable and in good condition.

PSYCHIATRIC HOSPITAL

A survey was conducted in 2006. No asbestos material was detected in the building.

CHARLESTON MEMORIAL HOSPITAL

In January 2007 a re-inspection was conducted. Several areas throughout the building contain asbestos. With the exception of asbestos containing floor tiles, all other types or forms of asbestos containing material such as pipe elbows, pipe insulation and black pipe mastic are located in areas above drop ceilings, crawl spaces, etc.

MCLENNAN BANKS

No asbestos was present during the re-inspection conducted in January 2007.

ANDERSON HOUSE

An updated survey was conducted in 2003. All interior asbestos containing materials identified was removed in 2004.

102 DOUGHTY STREET

A survey for asbestos-containing building materials (ACBM) in 102 Doughty Street located at the Medical University of South Carolina in Charleston, South Carolina was initiated on February 9, 1989. Asbestos-containing green floor tile was found throughout the building. This material was durable and nonfriable. (For Conditions to Avoid, see Appendix A, 1.)

EYE INSTITUTE & RESEARCH CENTER

A survey for asbestos-containing building materials (ACBM) in the MUSC Hospital Eye Institute and Research Center located at the Medical University of South Carolina in Charleston, South Carolina was initiated on January 18, 1989. Asbestos-containing floor covering was found in Rooms 534, 535, 536, 537, and 538. This material was durable and nonfriable. Asbestos-containing floor tiles, black and white checked, white, tan, and cream were found throughout all five floors of the building. These floor tiles were durable and nonfriable. Asbestos-containing equipment insulation was found in Rooms 104, 405, and 505. This material was durable and friable. Asbestos-containing pipe insulation (2") was found in Rooms 104, 405, and 505. This material was durable and friable. Asbestos-containing pipe insulation sealant and duct insulation sealant was found above the ceiling throughout all five floors. Both of these materials were durable and nonfriable. An asbestos project in 2002 removed all asbestos materials in the 5th floor. (For Conditions to Avoid, see Appendix A, 1,7,3.)

PRESIDENT'S HOUSE (FORT JOHNSON)

A survey for asbestos-containing building materials (ACBM) in the President's House located at 221 Fort Johnson Road, James Island, South Carolina was initiated on February 24, 1989. Asbestos-containing pipe insulation and hard joint pipe insulation were found throughout the attic. These materials were friable and in good condition. Asbestos-containing floor covering was also found in rooms FA207 and FA208. The floor covering was in fair condition and nonfriable.

(For Conditions to Avoid, see Appendix A, 1,3,7.)

BASIC SCIENCE BUILDING

A survey for asbestos-containing building materials (ACBM) in the Basic Science Building on Ashley Street in Charleston, South Carolina was initiated on February 1, 1989. Asbestos-containing ceiling tile was found in the first floor Auditorium and on the second and fifth floors. The material was in good condition but friable. Asbestos-containing spray-on fireproofing was found on all the columns and beams above the suspended ceiling throughout the building. Approximately 70% of the asbestos containing material in this building has been removed. In June 2006 the building was re-surveyed for asbestos content (For Conditions to Avoid, see Appendix A, 1,2,3,4,5,6,7.) This building is under constant renovations. Any questions concerning asbestos locations should be directed to OSHP at 792-3604.

MUSC BANK BUILDING

A survey for asbestos-containing building materials (ACBM) in the MUSC Outpatient Clinic located at the Medical University of South Carolina in Charleston, South Carolina was initiated on February 15, 1989. Asbestos-containing floor covering (brown, tan) was found on the second and third floors. Asbestos-containing floor tile (beige, brown, gray, green) and floor tile mastic were found throughout the building. These materials were durable and nonfriable. Asbestos-containing transite board was used as wall panels on the second, third, fourth, and fifth floors. and isolation arise in the 1st floor which have been marked with orange color paint. The transit board was

durable and nonfriable. Asbestos-containing 24x24 inch ceiling tile was found on the third, fourth, and fifth floors. Due to the friable nature of the ceiling tile, these tiles should not be disturbed. Asbestos-containing black bituminous duct insulation sealant was found above the ceiling tile throughout the building. This material was durable and nonfriable. Asbestos-containing roof felt and roof flashing were found on the roof of the building. Asbestos-containing roofing materials are typically nonfriable and in a well-bonded state. Several removal projects have been performed over the years. In July 2002, the building was re-surveyed and the 1st floor was totally renovated. Contact OSHP at 2-3604 before performing work in the building which could damage building materials. (For Conditions to Avoid, see Appendix A, 1,2,7.)

COLLEGE OF NURSING

A survey for asbestos-containing building materials (ACBM) in the MUSC College of Nursing was initiated in 1989. Asbestos-containing spray applied material was present through out the corridors in large areas of assembly. Since the original survey, approximately 95% of all spray-applied asbestos material have been removed. Approximately 70% of all 9 x 9 floor tiles have also been abated. All 9 x 9 floor tiles still present contain asbestos. The remaining 9 x 9 floor tiles are predominately located in small office areas throughout the building and under the carpet on the 5th floor. This material is durable and nonfriable. (For Conditions to Avoid, see Appendix A, 15).

APPENDIX A

CONDITIONS TO AVOID

1. Asbestos-containing floor tile - Do not sand, drill, break, or remove without following the procedures in Appendix D.
2. Asbestos-containing ceiling tiles - Do not remove the ceiling tiles, hang objects from them, or in any way damage or disturb the asbestos ceiling tiles.
3. Asbestos-containing pipe insulation - Protective jackets around this type of insulation prevent fiber release. Therefore, no one should damage this canvas protective encapsulation unless complying with procedures described in Appendix D.
4. Asbestos-containing fire doors - Most asbestos fire doors are located in corridors. These doors present no risk to building occupants because the asbestos is encased inside the wooden door. Therefore, no asbestos fire doors will be cut or drilled.
5. Asbestos-containing spray applied insulation - This material is located above the drop ceilings and has a high potential for fiber release. Therefore, no one will go above the drop ceiling unless complying with procedures outlined in Appendix D.
6. Asbestos-containing hard joint pipe insulation - This material is located on pipe connections or bends in pipe. This asbestos-containing material has a protective jacket encapsulating it and poses no hazard unless the protective jacket is disturbed. Therefore, do not disturb these protective jackets unless complying with the procedures described in Appendix D.
7. Asbestos-containing pipe and duct sealant - This material is used as a sealant on HVAC duct and pipe. The asbestos in this material is bonded with glues and poses a very slight potential for fiber release. When replacing materials that have this mastic on them, be sure to dispose of as asbestos-containing materials.

8. Asbestos-containing transite pipe - This material is hard cementitious material that has a very low potential for fiber release. These pipes are commonly used in public service districts to carry water to consumers. Avoid cutting, drilling, or breaking these pipes unless complying with the procedures outlined in Appendix D.
9. Asbestos texture ceiling – This material is normally a spray applied material used as a fire resistant decorative material. Avoid cutting, drilling or contacting the material.

APPENDIX B
Planned News Releases
"Medical University Approves Plan to Rid Buildings of
Asbestos Containing Materials"

An asbestos abatement program to rid the campus of all asbestos-containing material has been approved by Medical University Administration.

The Medical University of South Carolina will begin a long-term effort to remove all asbestos-containing materials as soon as funds are appropriated. The actual asbestos removal work will depend on funding and relocation space availability in a given fiscal year.

A thorough survey of all 57 campus buildings was performed by Occupational Safety and Health personnel and asbestos-containing material was found in 16 facilities. However, the survey did not find any situations that would render a facility immediately unusable.

Asbestos is a naturally occurring, almost indestructible mineral that was widely used as a fire-retardant building material from the early 1940's to about 1973. Its general use as a building material was banned in 1973 after it was identified as a carcinogen.

Asbestos has been associated with several respiratory diseases, including asbestosis. The majority of disease cases are found in workers involved directly in the mining, manufacturing, or installation of asbestos and asbestos products.

Five types of applications of asbestos-containing materials were found in MUSC buildings: surface materials sprayed on structural beams, ceiling plaster and tiles, pipe and boiler insulation, cores of fire doors, and wall paneling.

The greatest concern is when the material becomes friable, which means it can be crumbled, pulverized, or reduced to powder through hand pressure. The good news of the survey is that only 10 percent of Medical University buildings have asbestos that is prone to friability. The majority of the buildings have asbestos-containing material in the form of insulation on tanks, ducts, and pipes. These applications are in the "low potential" category,

which means the insulation is encapsulated with a protective jacket to prevent fiber release and is located in inaccessible areas.

The asbestos abatement program was developed by Medical University Administration with input from a variety of departments likely to be affected by, or involved in, the effort. It incorporates information from the campus survey and construction and renovation needs already identified in the Medical University's master plan.

APPENDIX C

Public Information Notification in the Event of Accidental Asbestos Release on Campus

Informing Key Personnel

Upon the discovery of an asbestos hazard on campus and confirmation that the material is hazardous by the Occupational Safety and Health Officer, the following key personnel will be notified as quickly as possible:

- President
- Vice Presidents
- Chief, Campus Safety and Security
- Director of Human Resources
- Director of Engineering and Facilities
- Director of Public Relations
- Department Heads of areas closest to hazard site

Information provided key personnel should include:

- location of hazard
- immediate steps taken to secure the area
- brief information about the nature of the hazard and how exposure is treated
- list of personnel exposed and steps taken regarding their notification; their potential health risks; Were any warnings ignored and were safety procedures being followed to prevent exposure? potential future exposure and who may be at risk?
- plans for eliminating the hazard

Concurrently, those exposed or at risk for exposure will be notified through supervisory channels by the Occupational Safety and Health Officer. If warranted, due to significance of exposure, exposed personnel will be advised about treatment as soon as possible by the Director of Human Resources.

Any written material, if necessary, regarding the hazard, including memoranda, internal or external correspondence and reports, should be copied and provided to all key personnel. Consideration should be given to careful review of written materials prior to distribution to assure brevity, accuracy, and clarity to eliminate unnecessarily inflammatory language. All documents regardless of confidentiality should be viewed as possible public documents.

If officers of the Medical University consider the hazard to be significant, a small group of key personnel will be appointed to discuss the hazard in detail and to formulate recommendations for Medical University officers regarding public information concerning the hazard.

Informing Public

A "public" may be defined as any audience ranging in size from a small group of two or three individuals exposed to a hazard, to sizable groups such as large numbers of employees, increasing in size to include the general public.

Prospective audiences to be informed about a hazard may include the following, depending on the significance and scope of the hazard:

- personnel working in or near the hazard site
- all personnel in a building or area near the site
- all Medical University personnel
- the general public

Consideration regarding a public announcement should be given to:

- Urgency - those exposed must be thoroughly briefed so they will not learn about the problem indirectly; if the hazard is serious, then urgency is extreme; an urgent announcement is necessary if interest by news media in the incident is likely regardless of seriousness of the hazard.
- Methods may vary for reaching the target audience (depending on size of audience): phoning, posters, and direct mail, The Catalyst, news conference.
- Follow-up - periodic announcements may be required if situation is emergent.
- There should be concern for tone, brevity, and clarity to avoid sensationalizing minor incidents.
- There should be confidentiality to protect those exposed.
- A qualified spokesman representing the Medical University may be designated if media reports are anticipated.

Any public statement to any audience large or small, as well as plans regarding distribution of a statement, should be reviewed by the Director of Public Relations and must be approved by the most senior Medical University official available.

Follow-Up

The Director of Public Relations will assess the impact of the public announcement and recommend follow-up announcements if necessary. The Director of Public Relations will coordinate news media coverage of the hazard. All queries regarding the hazard from news reporters are to be referred to the Office of Public Relations before reporters make arrangements for interviews or tours of the hazard site.

All key personnel are asked to monitor the public information process related to a hazard and suggest adjustments or changes in policy and procedures to meet future needs.

APPENDIX D

EMERGENCY ASBESTOS REMOVAL PROCEDURES

- A. If doubt exists as to whether a material is or is not asbestos, contact Occupational Safety and Health at 2-3604 for a determination before any work is started.
- B. A certified asbestos supervisor must be present when removing asbestos.
- C. Only certified asbestos workers are permitted to remove asbestos.
- D. If an asbestos emergency occurs after normal working hours.
 - 1. Page the Occupational Safety and Health on-call beeper (17390).
 - 2. If possible, close the valve if the emergency involves a water, steam, or gas line.
 - 3. Leave the area and calmly keep others away until the certified asbestos supervisor arrives.
- E. Work Practices to minimize exposure:
 - 1. Remove asbestos in a wet state to reduce fiber emission.
 - 2. Carefully lower asbestos to floor.
 - 3. Wear National Institute of Occupational Safety and Health (N.I.O.S.H.) approved respirator. Contact Occupational Safety at 2-3604 for respirator.
 - 4. Wear full body protective clothing.
 - 5. Respirator cartridges shall be disposed of after each asbestos job as contaminated equipment.
 - 6. Waste, contaminated clothing, and cartridges shall be placed in sealed impermeable containers before leaving the work area.
 - 7. Contact Occupational Safety and Health at 2-3604 for pick-up and disposal.
- F. Unprotected employees should be directed to vacate the area while work is in progress. Care should be taken not to unduly alarm other employees, staff, or visitors.

APPENDIX E

ASBESTOS-CONTAINING MATERIALS FOUND IN BUILDINGS

Subdivision	Generic Name	Asbestos	Dates of Use	Binder/Sizing
Surface material	sprayed or troweled on	1-95	1935-70	sodium silicate portland cement organic binders
Performed thermal insulating products	batts, blocks, and pipe covering 85% magnesium	15	1926-49	magnesium carbonate
	calcium silicate	6-8	1949-71	calcium silicate
Textiles	cloth		1910-present	none
	blankets (fire)	100	1920-present	cotton/wool
	felts:	90-95	1920-present	cotton
	blue stripe	80	1920-present	cotton
	red stripe	90	1920-present	cotton
	green stripe	95	1920-present	cotton
	sheets	50-95	1920-present	cotton/wool
	cord/rope/yarn	80-100	1920-present	cotton/wool
	tubing	80-85	1920-present	cotton/wool
	tape/strip	90	1920-present	cotton/wool
Cementitious concrete-like	curtains (theatre, welding)	60-65	1945-present	cotton
	extrusion panels:	8	1965-1977	portland cement
	corrugated	20-45	1930-present	portland cement
	flat	40-50	1930-present	portland cement
	flexible	30-40	1930-present	portland cement
	flexible perforated	30-50	1930-present	portland cement
	laminated (outer surface)	35-50	1930-present	portland cement
	roof tiles	20-30	1930-present	portland cement
	clapboards and shingles:			
	clapboard	12-15	1944-1945	portland cement
	siding shingles	12-15	unknown-present	portland cement
	roofing shingles	20-32	unknown-present	portland cement
	pipe	20-15	1935-present	portland cement

Subdivision	Generic Name	Asbestos %	Dates of Use	Binder/Sizing
Paper products	corrugated:			
	high temp	90	1935-present	sodium silicate
	moderate temp.	35-70	1910-present	starch
	indented binder	98	1935-present	cotton & organic
	millboard	80-85	1935-present	starch, lime, clay
Roofing felts	smooth surface	10-15	1910-present	asphalt
	mineral surface	10-15	1910-present	asphalt
	shingles	1	1971-1974	asphalt
	pipelines	10	1920-present	asphalt
Asbestos-containing compounds	caulking putties	30	1935-present	linseed oil
	adhesive (cold applied)	5-25	1945-present	asphalt
	joint compound		1945-1975	asphalt
	roofing asphalt	5	unknown-present	asphalt
	mastics	5-25	1920-present	asphalt
	asphalt tile cement	13-25	1959-present	asphalt
	roof putty	10-25	unknown-present	asphalt
	plaster/stucco	2-10	unknown-present	portland cement
	spackles	3-5	1930-present	starch, casein, synthetic resins
	sealant fire/water	50-55	1935-present	caster oil or polyisobutylene
	cement, insulation	20-1000	1900-1973	clay
cement, finishing	55	1920-1973	clay	
cement, magnesia	15	1926-1950	magnesium carbonate	
Asbestos ebony products		50	1930-present	portland cement
Floor tile and sheet goods	vinyl/asbestos tile	21	1950-present	poly (vinyl) chloride
	asphalt/asbestos	26-33	1920-present	asphalt
	sheet goods/resilient	30	1950-present	dry oils
Wallcovering	vinyl wallpaper	6-8	unknown-present	---
Paints and Coatings	roof coating	4-7	1900-present	asphalt
	air tight	15	1940-present	asphalt