09 00 00 FINISHES

09 01 00 Maintenance of Finishes
09 01 20 Maintenance of Plaster and Gypsum Board
09 01 20.91 Plaster Restoration
09 01 30 Maintenance of Tiling
09 01 30.91 Tile Restoration
09 01 50 Maintenance of Ceilings
09 01 60 Maintenance of Flooring
09 01 60.91 Flooring Restoration
09 01 70 Maintenance of Wall Finishes
09 01 70.91 Wall Finish Restoration
09 01 80 Maintenance of Acoustic Treatment
09 01 90 Maintenance of Painting and Coating
09 01 90.51 Paint Cleaning
09 01 90.52 Maintenance Repainting
09 01 90.53 Maintenance of Coatings
09 01 90.61 Repainting
09 01 90.91 Paint Restoration
09 01 90.93 Paint Preservation

09 05 00 Common Work Results for Finishes
09 05 13 Common Finishes
SECTION 09 06 00
SCHEDULES FOR FINISHES

CONSULTANT DESIGN GUIDE

In the design development phase, submit finish and material selections to Facilities Management Planning Group for review.

END SECTION

09 06 00.13 Room Finish Schedule
09 06 20 Schedules for Plaster and Gypsum Board
09 06 30 Schedules for Tiling
09 06 50 Schedules for Ceilings
09 06 70 Schedules for Wall Finishes
09 06 80 Schedules for Acoustical Treatment
09 06 90 Schedules for Painting and Coating
09 06 90.13 Paint Schedule

09 08 00 Commissioning of Finishes

09 20 00 PLASTER AND GYPSUM BOARD
09 21 00 Plaster and Gypsum Board Assemblies

09 21 13 Plaster Assemblies
09 21 16 Gypsum Board Assemblies
09 21 16.23 Gypsum Board Shaft Wall Assemblies

INCLUDE IN CONSTRUCTION DOCUMENTS

SUBMITTALS

LEED Submittals:

1. Product Data for Credit EQ 4.1: For adhesives and sealants, including printed statement of VOC content.
2. Product Data for Credit MR 4.1 and Credit MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
    a. Include statement indicating costs for each product having recycled content.

09 21 16.33 Gypsum Board Area Separation Wall Assemblies

09 22 00 Supports for Plaster and Gypsum Board
09 22 13 Metal Furring
09 22 13.13 Metal Channel Furring
09 22 13.33 Resilient Channel Furring
09 22 16 Non-Structural Metal Framing

INCLUDE IN CONSTRUCTION DOCUMENTS

SUBMITTALS

LEED Submittals:

1. Product Data for Credit MR 4.1 and Credit MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
    b. Include statement indicating costs for each product having recycled content.

09 22 16.13 Non-Structural Metal Stud Framing
09 22 26 Suspension Systems
09 22 26.23 Metal Suspension Systems
09 22 26.33 Plastic Suspension Systems
09 22 36 Lath
09 22 36.13 Gypsum Lath
09 22 36.23 Metal Lath
09 22 39 Veneer Plaster Base

09 23 00 Gypsum Plastering
09 23 13 Acoustical Gypsum Plastering
09 23 82 Fireproof Gypsum Plastering

09 24 00 Portland Cement Plastering
09 24 13 Adobe Finish
09 24 23 Portland Cement Stucco
09 24 33 Portland Cement Parging

09 25 00 Other Plastering
09 25 13 Acrylic Plastering
09 25 13.13 Acrylic Plaster Finish
09 25 23 Lime Based Plastering

09 26 00 Veneer Plastering
09 26 13 Gypsum Veneer Plastering

09 27 00 Plaster Fabrications
09 27 13 Glass-Fiber-Reinforced Plaster Fabrications
09 27 23 Simulated Plaster Fabrications

09 28 00 Backing Boards and Underlayments
09 28 13 Cementitious Backing Boards
09 28 16 Glass-Mat Faced Gypsum Backing Boards
09 28 19 Fibered Gypsum Backing Boards

09 29 00 Gypsum Board

INCLUDE IN CONSTRUCTION DOCUMENTS

SUBMITTALS

LEED Submittals:

1. Product Data for Credit MR 4.1 and Credit MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
    a. Include statement indicating costs for each product having recycled content.
2. Product Certificates for Credit MR 5.1 and Credit MR 5.2: For products and materials required to comply with requirements for regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.
3. Product Data for Credit EQ 4.1: For adhesives used to laminate gypsum board panels to substrates, including printed statement of VOC content.

09 29 82 Gypsum Board Fireproofing

09 30 00 TILING
09 30 13 Ceramic Tiling
09 30 16 Quarry Tiling
09 30 19 Paver Tiling
09 30 23 Glass Mosaic Tiling
09 30 26 Plastic Tiling
09 30 29 Metal Tiling
09 30 33 Stone Tiling

09 31 00 Thin-Set Tiling
09 31 13 Thin-Set Ceramic Tiling
09 31 16 Thin-Set Quarry Tiling
09 31 19 Thin-Set Paver Tiling
09 31 23 Thin-Set Glass Mosaic Tiling
09 31 26 Thin-Set Plastic Tiling
09 31 29 Thin-Set Metal Tiling
09 31 33 Thin-Set Stone Tiling

09 32 00 Mortar-Bed Tiling
09 32 13 Mortar-Bed Ceramic Tiling
09 32 16 Mortar-Bed Quarry Tiling
09 32 19 Mortar-Bed Paver Tiling
09 32 23 Mortar-Bed Glass Mosaic Tiling
09 32 26 Mortar-Bed Plastic Tiling
09 32 29 Mortar-Bed Metal Tiling
09 32 33 Mortar-Bed Stone Tiling

09 33 00 Conductive Tiling
09 33 13 Conductive Ceramic Tiling
09 33 16 Conductive Quarry Tiling
09 33 19 Conductive Paver Tiling
09 33 23 Conductive Glass Mosaic Tiling
09 33 26 Conductive Plastic Tiling
09 33 29 Conductive Metal Tiling
09 33 33 Conductive Stone Tiling

09 34 00 Waterproofing-Membrane Tiling
09 34 13 Waterproofing-Membrane Ceramic Tiling
09 34 16 Waterproofing-Membrane Quarry Tiling
09 34 19 Waterproofing-Membrane Paver Tiling
09 34 23 Waterproofing-Membrane Glass Mosaic Tiling
09 34 26 Waterproofing-Membrane Plastic Tiling
09 34 29 Waterproofing-Membrane Metal Tiling
09 34 33 Waterproofing-Membrane Stone Tiling

09 35 00 Chemical –Resistant Tiling

09 35 16 Chemical-Resistant Quarry Tiling
09 35 19 Chemical-Resistant Paver Tiling
09 35 23 Chemical-Resistant Glass Mosaic Tiling
09 35 26 Chemical-Resistant Plastic Tiling
09 35 29 Chemical-Resistant Metal Tiling
09 35 33 Chemical-Resistant Stone Tiling

09 50 00 CEILINGS
09 51 00 Acoustical Ceilings
09 51 13 Acoustical Panel Ceilings

INCLUDE IN CONSTRUCTION DOCUMENTS

SUBMITTALS

LEED Submittals:

1. Product Data for Credit MR 4.1 and Credit MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
    c. Include statement indicating costs for each product having recycled content.

EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical Ceiling Panels: Full-size panels equal to 2.0 percent of quantity installed.
2. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of quantity installed.

SECTION 09 51 23
ACOUSTICAL TILE CEILINGS

CONSULTANT DESIGN GUIDELINE

In the design development phase, submit finish and material selections to Facilities Management for review.

Include columns in finish schedules for room areas, area surfaces, and load limits for each room.

Include reflected ceiling plans in the drawings for all grid type ceilings separate from the electrical lighting plans

Do not permit concealed spline ceilings.

END SECTION

09 51 33 Acoustical Metal Pan Ceilings
09 51 33.13 Acoustical Snap-in Metal Pan Ceilings
09 51 53 Direct-Applied Acoustical Ceilings

09 53 00 Acoustical Ceiling Suspension Assemblies
09 53 13 Curved Profile Ceiling Suspension Assemblies
09 53 23 Metal Acoustical Ceiling Suspension Assemblies
09 53 33 Plastic Acoustical Ceiling Suspension Assemblies

09 54 00 Specialty Ceilings
09 54 13 Open Metal Mesh Ceilings
09 54 16 Luminous Ceilings
09 54 19 Mirror Panel Ceilings
09 54 23 Linear Metal Ceilings
09 54 26 Linear Wood Ceilings
09 54 33 Decorative Panel Ceilings
09 54 36 Suspended Decorative Grids
09 54 43 Stretched-Fabric Ceiling Systems

09 60 00 FLOORING
09 61 00 Flooring Treatment
09 61 13 Slip Resistant Flooring Treatment
09 61 36 Static Resistant Flooring Treatment

09 62 00 Specialty Flooring
09 62 13 Asphaltic Plank Flooring
09 62 19 Laminate Flooring

09 62 23 Bamboo Flooring
09 62 26 Leather Flooring
09 62 29 Cork Flooring
09 62 35 Acid Resistant Flooring
09 62 48 Acoustic Flooring

09 63 00 Masonry Flooring
09 63 13 Brick Flooring
    09 63 13.13 Chemical Resistant Brick Flooring
09 63 40 Stone Flooring
09 63 43 Composition Stone Flooring

09 64 00 Wood Flooring
09 64 16 Wood Block Flooring
09 64 19 Wood Composition Flooring
09 64 23 Wood Parquet Flooring
    09 64 23.13 Acrylic Impregnated Wood Parquet Flooring
09 64 29 Wood Strip and Plank Flooring
09 64 33 Laminated Wood Flooring
09 64 53 Resilient Wood Flooring Assemblies
09 64 66 Wood Athletic Flooring

09 65 00 Resilient Flooring
09 65 13 Resilient Base and Accessories
    09 65 13.13 Resilient Base
    09 65 13.23 Resilient Stair Treads and Risers
    09 65 13.26 Resilient Stair Nosings
    09 65 13.33 Resilient Accessories
    09 65 13.36 Resilient Carpet Transitions
09 65 16 Resilient Sheet Flooring
    09 65 16.13 Linoleum Flooring
09 65 19 Resilient Tile Flooring
09 65 33 Conductive Resilient Flooring
09 65 36 Static Control Resilient Flooring
    09 65 36.13 Static Dissipative Resilient Flooring
    09 65 36.16 Static Resistant Resilient Flooring
09 65 66 Resilient Athletic Flooring

09 66 00 Terrazzo Flooring
09 66 13 Portland Cement Terrazzo Flooring
    09 66 13.13 Sand Cushion Terrazzo Flooring
    09 66 13.16 Monolithic Terrazzo Flooring
    09 66 13.19 Bonded Terrazzo Flooring
    09 66 13.23 Palladina Terrazzo Flooring
    09 66 13.26 Rustic Terrazzo Flooring
    09 66 13.33 Structural Terrazzo Flooring
09 66 16 Terrazzo Floor Tile

09 66 16.13 Portland Cement Terrazzo Floor Tile
09 66 16.16 Plastic-Matrix Terrazzo Floor Tile
09 66 23 Resinous Matrix Terrazzo Flooring
09 66 23.13 Polyacrylate Modified Cementitious Terrazzo Flooring
09 66 23.16 Epoxy-Resin Terrazzo Flooring
09 66 23.19 Polyester-Resin Terrazzo Flooring
09 66 33 Conductive Terrazzo Flooring
09 66 33.13 Conductive Epoxy-Resin Terrazzo
09 66 33.16 Conductive Polyester-Resin Terrazzo Flooring
09 66 33.19 Conductive Plastic-Matrix Terrazzo Flooring

09 67 00 Fluid-Applied Flooring
09 67 13 Elastomeric Liquid Flooring
09 67 13.33 Conductive Elastomeric Liquid Flooring
09 67 16 Epoxy-Marble Chip Flooring
09 67 19 Magnesium-Oxychloride Flooring
09 67 23 Resinous Flooring
09 67 26 Quartz Flooring
09 67 66 Fluid-Applied Athletic Flooring

SECTION 09 68 00
CARPETING

CONSULTANT DESIGN GUIDELINE

Solid light or dark colored carpet is not permitted. Carpet shall not extend into entryways or vestibules.

Recommend using modular carpet tile when possible.

END SECTION

09 69 00 Access Flooring
09 69 13 Rigid-Grid Access Flooring
09 69 16 Snap-On Stringer Access Flooring
09 69 19 Stringerless Access Flooring
09 69 53 Access Flooring Accessories
09 69 56 Access Flooring Stairs and Stringers

09 70 00 Wall Finishes
09 72 00 Wall Coverings

CONSULTANT DESIGN GUIDELINE

Wall coverings must be approved by Facilities Management before inclusion in the design. Wall coverings have been found to cause mold in inappropriate applications.

09 72 13 Cork Wall Coverings
09 72 16 Vinyl-Coated Fabric Wall Coverings
    09 72 16.13 Flexible Vinyl Wall Coverings
    09 72 16.16 Rigid-Sheet Vinyl Wall Coverings
09 72 19 Textile Wall Coverings
09 72 23 Wallpapering

09 73 00 Wall Carpeting

09 74 00 Flexible Wood Sheets
09 74 13 Wood Wall Coverings
09 74 16 Flexible Wood Veneers

09 75 00 Stone Facing
09 76 00 Plastic Blocks

09 77 00 Special Wall Surfacing
09 77 13 Stretched-Fabric Wall Systems
09 77 23 Fabric-Wrapped Panels

09 84 00 Acoustic Treatment
09 84 13 Fixed Sound-Absorptive Panels
09 84 16 Fixed Sound-Reflective Panels
09 84 23 Movable Sound-Absorptive Panels
09 84 26 Moveable Sound-Reflective Panels
09 84 33 Sound-Absorbing Wall Units
09 84 36 Sound-Absorbing Ceiling Units

09 90 00 PAINTING AND COATING
09 91 00 Painting
09 91 13 Exterior Painting

SECTION 09 91 23
INTERIOR PAINTING

CONSULTANT DESIGN GUIDELINE

Refer to "Statement of Sustainable Practices" in this folder.

Furnish paint schedule to the Facilities Management Construction Coordinator.

INCLUDE IN CONSTRUCTION DOCUMENTS

The painting contractor shall prepare samples of each proposed paint color. Apply samples to the actual material scheduled to receive the paint. Any painting that occurs prior to written approval is at the painting contractor's own risk. If not approved, contractor will repaint at no cost to the owner.

Schedule the following mechanical room surfaces to be painted: walls, ceilings, exposed ductwork, air handling units, tanks, pumps, air compressors, boilers, all surfaces with sweating or excess moisture conditions, exposed uncovered piping, exposed insulated piping, hangers and supports for piping and all electrical devices and conduit not having prefinished surfaces. .

END SECTION

09 93 00 Staining and Transparent Finishing
09 93 13 Exterior Staining and Finishing
09 93 13.13 Exterior Staining
09 93 13.53 Exterior Finishing

SECTION 09 93 23
INTERIOR STAINING AND FINISHING

CONSULTANT DESIGN GUIDELINE

All stained wood shall have sealer coat and two coats of finish material. This includes wood floors and cabinets.

END SECTION

09 93 23.13 Exterior Staining

09 93 23.53 Interior Finishing

09 94 00 Decorative Finishing
09 94 13 Abrasion-Resistant Coatings
09 94 16 Faux Finishing
09 94 19 Multicolor Interior Finishing

09 96 00 High-Performance Coatings
09 96 13 Abrasion Resistant Coatings
09 96 23 Graffiti-Resistant Coatings
09 96 26 Marine Coatings
09 96 33 High-Temperature-Resistant Coatings
09 96 35 Chemical-Resistant Coatings
09 96 43 Fire-Retardant Coatings
09 96 46 Intumescent Painting
09 96 53 Elastomeric Coatings

SECTION 09 96 56
EPOXY COATINGS

CONSULTANT DESIGN GUIDELINE

Use epoxy paint in labs when specified by Architect.

END SECTION

09 96 59 High-Build Glazed Coatings
09 96 63 Textured Plastic Coatings
09 96 66 Aggregate Wall Coatings

09 97 00 Special Coatings
09 97 13 Steel Coatings
09 97 13.13 Interior Steel Coatings
09 97 13.23 Exterior Steel Coatings
09 97 23 Concrete and Masonry Coatings
09 97 26 Cementitious Coatings
09 97 26.13 Interior Cementitious Coatings
09 97 26.23 Exterior Cementitious Coatings

UNIVERSITY of ARKANSAS

Facilities Management
Statement of Sustainable Practices
November 2006

University of Arkansas Facilities Management (FAMA) is responsible for utility operations and maintenance, design and construction coordination, and building operations and maintenance for 96 structures with 3.5 million gsf of education and general (E&G) space, other campus facilities, and 560 acres of campus grounds (exclusive of agricultural farms). The department has demonstrated responsible compliance with environmental and safety regulations, and applies these considerations to planning decisions that reflect a balance of economic, environmental, and socially responsible values in support of the University's academic mission.

In planning for growth, Facilities Management will help position the University of Arkansas as a competitive and innovative leader in sustainable practices. The department will guide University practices toward sustainability through the management of energy, building design, construction, renovation, landscape, water, waste, procurement, emissions, transportation, human health, and productivity.

To address energy and environmental challenges, Facilities Management has the following goals:

- *Reduce energy and water usage in University buildings;*
- *Reduce energy and water usage in campus landscapes;*
- *Promote green buildings;*
- *Reduce/eliminate volatile organic compounds (VOC's) in new and renovated buildings;*
- *Address climate change;*
- *Develop a comprehensive stormwater management/watershed management plan;*
- *Encourage diversity in energy generation;*
- *Promote use of energy from renewable sources;*
- *Improve University vehicle fleets;*
- *Encourage incentives to improve vehicle fuel efficiency;*
- *Promote transit and a walkable campus;*
- *Employ architects, engineers, commissioning agents, and general contractors with experience and/or knowledge of the principles of sustainable design; and*
- *Share best energy and environmental practices with other institutions in Arkansas and neighboring states.*

Utilities

In fiscal year 2006, the University of Arkansas spent $11.57 million in heat and air conditioning, lights, and other energy-related costs for 50 academic buildings, a figure that does not include athletic and residential system expenditures. Energy costs were so volatile that the University found it necessary to spread $2 million in increased natural gas costs over the campus budgets for the coming two to three years. The campus is aggressively pursuing energy-saving investments, including energy-saving upgrades, a $14.5 million renovation of the central steam plant, and $3.8 million in upgrades to the John D. Tyson Center of Excellence for Poultry Science.

CURRENT AND RECENT EFFORTS INCLUDE:

- An energy audit of selected representative campus buildings, sponsored by a Rebuild Arkansas Special Projects grant (2006)
- A Building Metering and Controls Upgrade (BMCU), which included the installation of building-level utility metering and controls improvements to implement energy conservation measures and energy improvements (2004 - 2006)
- Chilled Water Plant upgrades, including the replacement of inefficient equipment and the conversion to variable flow to reduce energy use (2005 - 2006)
- A cross-connection control program that protects the potable water within campus facilities and the public water system from contamination by backflow, back pressure, or back siphonage (established 2004 - 2006, now ongoing)
- A certification process that provides records of testable backflow assemblies on campus (established 2004 - 2006, now ongoing)
- Numerous deferred maintenance projects, including upgrading inefficient mechanical and electrical systems
- First two Energy Performance Service Contracts (ESPC) in the state (estimated completion 2007 - 2008)
- A compact fluorescent relamping effort, coupled with ballast replacements (ongoing)
- Test sites for waterless urinals at Innovation Center and the first floors of the J. B. Hunt Transport Services, Inc. Center for Academic Excellence and Willard J. Walker Hall (ongoing)

Buildings

As buildings are a major source of demand for energy and materials, the University of Arkansas encourages the use of sustainable design principles in order to reduce the total cost of long-term ownership and to create buildings designed to reduce dramatically their environmental impact. Facilities Management understands that green design has financial and social benefits beyond utility bill savings, and that green buildings have been shown to have a large positive impact on school attendance and performance, employee productivity, and health gains. FAMA also recognizes that a building's initial construction cost represents only 20-30 percent of the building's entire costs over its life, and is now placing additional emphasis on the "life cycle costs" of building in addition to initial capital costs.

The University has been incorporating sustainable design principles in its projects since 2004 by guiding design teams to follow green building precepts in all new buildings and renovations. Architects and Engineers working on campus are now required to submit a documented design intent, which is validated by the Commissioning Agent throughout the project. (LEED© "Certified" or the Green Globes equivalent rating of "One Globe" was the initial benchmark in 2004, and was increased in 2006 per below.) Facilities Management has also initiated Partnering and Commissioning on all projects to promote cooperation in the process and provide validation of delivery of sustainability in the resulting building. To promote this further, FAMA has adopted the following language in the Design and Construction Guide for Buildings and Landscapes:

SUSTAINABILITY AND CONSTRUCTION

New campus buildings and full-building renovations will observe the following sustainability criteria. All projects with a construction cost greater than $1 million must meet these standards, while projects with a construction cost less than $1 million should incorporate sustainable design principles to the fullest extent possible.

- *Reduce the life-cycle cost of facilities by incorporating sustainable design principles in the planning, programming, design, construction, operation, maintenance, restoration, and renovation of all facilities and infrastructure projects, consistent with budget and University requirements. Strategies may include proper siting, building form, glass properties and location, material selection, and incorporating natural heating, cooling, ventilation, and day-lighting techniques.*
- *Use the US Green Building Council's LEED rating system OR the Green Building Initiative's Green Globes rating system as a tool in applying sustainable design principles, and as a measure of the sustainability achieved through the planning, design, and construction process. A LEED for New Construction and Major Renovations rating of SILVER (33-38 of 69 possible points) or the Green Globes equivalent rating of TWO GLOBES (55-69% of 1000 total points) is the standard to which University projects will be held. [NOTE: At this time, the University is not requiring formal certification of most its projects, though some projects may. However, the design and construction team will be required to submit a checklist and narrative to substantiate the measures taken to achieve the equivalent of the certification levels desired.]*
- *Provide a life-cycle economic analysis of the sustainable strategies and features of the building, as well as an energy cost model that addresses all building system costs, such as building envelope, HVAC, and electrical systems. This analysis must be prepared by the designers of each project and submitted to the University for review of design intent.*

BUILDING COMMISSIONING
A third-party commissioning agent will be hired by the University as part of the project team. This agent will work with the building committee and alongside the design team from schematics through the warranty period, and will certify design, installation, and operation of all mechanical equipment as well as training of the operations and maintenance team. The commissioning agent will also validate delivery of the stated design intent for the project.

GREEN BUILDING PROJECTS AND INITIATIVES:

- The Innovation Center at Arkansas Research and Technology Park was the first LEED certified building in the State of Arkansas (2004). The building was completed $300,000 under budget, and won an Honor Award for design from the Arkansas Chapter of the American Institute of Architects.
- A green roof demonstration project was installed at the Gatehouse at The Gardens (2006). Plant material survival rates, cooling effects, and runoff reduction of the roof will be monitored by faculty and students of landscape architecture and civil engineering.
- Four on-call, commissioning agents were placed under contract for all major construction and renovation projects (2006).
- Language was added to all RFQ's for architects, engineers, and general contractors, listing demonstrated experience with sustainable building systems design and construction as an evaluation selection criteria (2006).
- The University has been a member of the Arkansas and National Chapters of the U.S. Green Building Council (since 2005).

Sites and Landscapes

The University of Arkansas campus is planted with mostly native trees (oak, hickory, and maple), complemented by drought-resistant lawn areas without irrigation systems. Facilities Management has planted over 3,000 trees in 40 varieties since 1991. The Grounds crews work to minimize the use of landscape chemicals, reduce overseeding and off-season mowing, and reduce water consumption.

SITE FURNISHINGS STANDARDS

Facilities Management recently completed a 3-year process, which involved cataloguing existing campus site furnishings and setting new standards for all future purchases. FAMA conducted a lengthy search for furnishings that, while providing a coherent aesthetic for the campus, would also be durable, long lasting, and environmentally responsible. (For example, selecting materials that are naturally durable, such as teak for benches, helps to minimize maintenance costs and eliminate the need for paints or other chemical sealers. Using cast-iron or steel when possible, instead of aluminum, saves energy, considering that aluminum requires twice as much electricity as steel to produce.) Equally important was choosing companies with a commitment to sustainability. Fermob, which manufactures the specified café tables and chairs, produces no emissions at its plant, and only uses wood from sustainably managed forests.

Lighting design, in particular, is a complicated issue, which affects energy consumption, light pollution, and student safety. FAMA worked with lighting engineers to determine, in accordance with IES guidelines, correct spacing for safe lighting conditions, while also reducing energy consumption by using low-wattage and compact fluorescent lamps and eliminating light pollution with cut-off luminaires. In addition, FAMA is exploring use of solar powered emergency telephone kiosks and signage, and LED street lights, security lights, and emergency lighting, etc.

The new site furnishings standards were measured against these goals:

- Any wood specified to be ecologically harvested (identified as a renewable material by the Green Globes rating system)
- All materials recyclable
- Specify products manufactured with recycled materials where possible / post-industrial content where possible
- Specify coatings without heavy metals and low VOC, where possible
- Specify metal fixtures of steel or cast iron, instead of aluminum, where possible
- Specify cut-off lighting fixtures to meet dark-sky standards
- Provide compact fluorescent lamps where possible / reduce metal halide wattage by half
- Design layouts to take advantage of low-wattage lamps while improving overall safety

BROWNFIELD AND CLEANUP INITIATIVES:

- Legacy Waste radiological contract completion (2006 - 2007)
- Harmon Rd LLRW radiological and chemical site cleanup (2006 - 2007) - return to unrestricted use (2007 - 2008)
- Gregg site chemical cleanup completed - first return to unrestricted use site cleanup in Arkansas (2003)
- Continuing efforts to deconstruct SEFOR (Southwest Experimental Fast Oxide Reactor), a deactivated experimental fast breeder reactor located near Strickler, Arkansas. The site is still contaminated with radioactive material, asbestos, and chemical residues. The university is seeking $16 million (as of 2005) in funding for decontamination work. Arkansas Senator Blanche Lincoln began trying to secure funds to clean up the site in 1999. In 2005, she introduced legislation to decommission and decontaminate SEFOR in the Energy Policy Act of 2005. Although the bill authorizing $16 million was approved and signed by President George W. Bush, actual funds for cleaning up the site were never appropriated. A return to unrestricted use is the ultimate goal.

CURRENT AND RECENT PROJECTS AND INITIATIVES:

- Installed Grasspave© pervious parking surface at The Gardens, instead of the 165-space impervious concrete lot proposed / reduced existing impervious area by 1 acre (2006)
- Used compacted gravel walking paths in lieu of concrete at The Gardens (2006)
- Installed first solar-powered, in-pavement crosswalk edge lights (2005)
- Continued work at Arkansas Research and Technology Park, including a site infrastructure plan that incorporates alternative pavements, stormwater management systems, creek restoration projects, etc.
- Completion of Spill Prevention Control Countermeasures (SPCC) Plans for critical campus locations, particularly focused on fuel and hazardous materials storage near watersheds.
- Reduced landscape chemicals to two (2), of which Roundup® is most commonly used. (The herbicide 2,4-D is still used sparingly, though continued use will be studied.)
- Reduced chemical and herbicide treatments by at least 70% since 2003.
- Developed a partnership with local Arkansas Audubon Society and the Environmental Protection Agency on the Mullins Creek interpretive trail and restoration project.
- Beginning work (with Center for Advanced Spatial Technologies and others) on a Stormwater Management and Watershed Management Plan for campus.
- Began recycling sawdust, generated by the carpentry shops, by using it to provide safe walking surfaces during ice and snow events.
- Developing a stencil to be used on every storm drain on campus, warning against polluting the drain because it empties into the river.
- Installing Grasspave© pervious parking surface at Fowler House (Chancellor's Residence), reducing impervious surfaces at overflow and event parking areas (2007).

Transportation Planning

The Campus Transportation Plan, completed in 2005, provides a strategy to address the University's current and future transportation needs. The Plan reflects the University's commitment to sustainable and responsible growth. It focuses on transportation plans and policies that meet the growth challenge while addressing the sustainability goal and enhancing the campus environment. The Campus Transportation Plan presents recommendations for Streets, Transit, Bicycles, Pedestrians, Travel Demand Management (TDM) programs, and parking that balance convenience and safety with environmental quality, such as open space and the University's history and character.

Fleet

Facilities Management committed to reducing the use of petroleum to power its vehicle fleet, currently moving from gas to diesel and from diesel to low-sulphur diesel (2006). There is a pilot purchase underway for electric vehicles for maintenance forces, and we are investigating the use of bio-diesel for various campus equipment and transit vehicles (2007).

Recycling

The University's recycling program has recovered almost 5500 tons of material since 1991 (the estimated total for 2006 is 1055.3 tons.) The program targets white office paper, mixed paper, cardboard, aluminum and steel cans, and glass and plastic bottles, though the campus also recycles cooking oil, automotive oil and oil filters, antifreeze, tires, automotive batteries, scrap metal, pallets, yard waste, toner cartridges, and so on. In addition, the fluorescent lamp recycling program is expanding rapidly. Lamp recycling reduces the amounts of mercury released into the environment.

Starting in January 2006, the University began relabeling existing aluminum can recycling bins to accept both cans and bottles. By collecting commingled cans and bottles (including all types of plastic bottles, glass bottles, aluminum, and steel cans), the University has increased customer convenience and achieved better utilization. The amount of plastic bottles collected has tripled, with fewer containers needed.

Recycling facilities were recently expanded to accommodate additional balers, funded by grant resources. Baling plastic has doubled the amount of revenue generated from plastic bottles, with the added benefit that the recycling broker will now pick up the material from the recycling facility, which saves transportation costs.

Recycling containers now are almost always placed inside buildings. Facilities Management is currently looking to expand its recycling program to encompass exterior areas as well, by placing paired and contrasting-color refuse and recycling containers along campus walks and in plazas and green spaces. We are also collaborating with campus auxiliaries to provide recycling in their facilities and with the athletics departments to provide recycling containers for events.

Custodial
Facilities Management custodial staff has reduced the number of cleaning materials used on campus from 54 to 14 since 2004. In the next year, standard cleaning chemicals will be replaced with effective, green cleaning materials where possible.

Environmental Health and Safety
A Pollution Prevention Study (PPS) was conducted in 2006. This study looked at all areas of campus and suggested means to mitigate the impacts of laboratories, research spaces, labor shops, and other potentially hazardous or polluting areas. The PPS also recommended expanding recycling opportunities (paint cans, sawdust, etc.), better publicizing recycling policies, and looking at purchasing opportunies (such as recyclable carpeting.) FAMA is implementing the suggestions of the study (2006 - 2007).

In addition, Facilities Management will purchase and implement the Environmental Health and Safety Assistant, a computer software program that will help the Office of Environmental Health and Safety track hazardous waste generation and toxic and radiological substance use on the campus, as well as track training and compliance with state and federal regulatory requirements applicable to environmental health and safety.