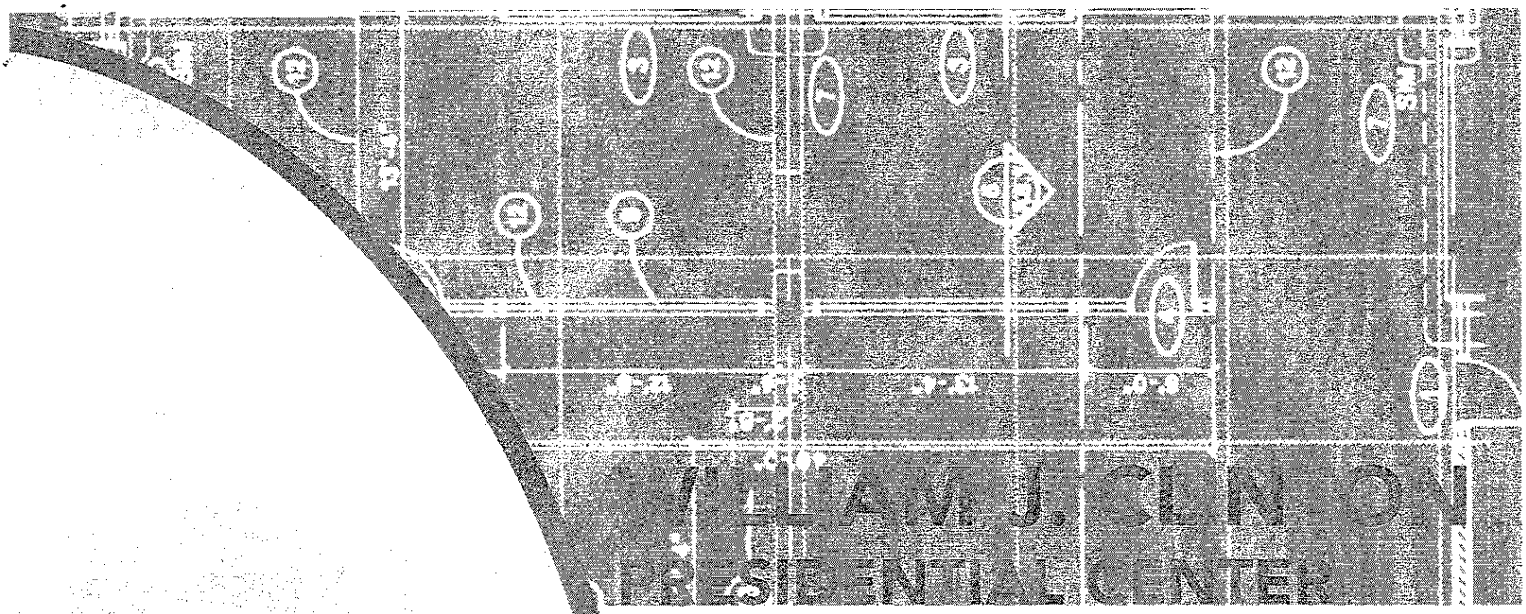
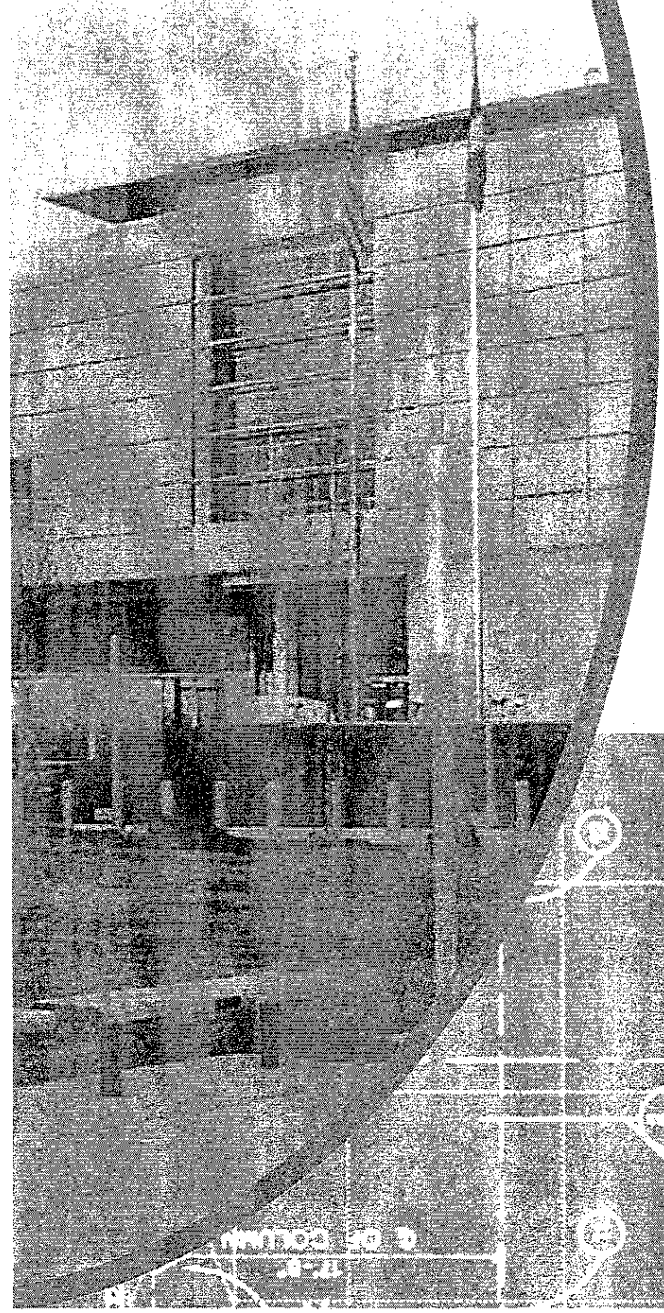


Green Globes™ Case Study

LOCATION: Little Rock, Arkansas
FLOOR SPACE: 150,122 ft²
BUDGET: $165 M USD
OWNER: William J. Clinton Foundation
ARCHITECT: Polshek Partnership Architects
STRUCTURAL ENGINEER: Leslie E. Robertson Associates
MECHANICAL ENGINEER: Flack + Kurtz Inc.; Cromwell Architects Engineers, Inc.
ELECTRICAL ENGINEER: Flack + Kurtz Inc.; Cromwell Architects Engineers, Inc.



Design Achieved Two Globes

In recognition of leadership in the incorporation of energy and environmental considerations in the planning and construction of this building.

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Portland, OR 97201 • www.thegbi.org

PROJECT NOTES

The William J. Clinton Presidential Center is a 150,000-square-foot building located in Little Rock, Arkansas. The building achieved Two Green Globes for its use of environmentally sensitive systems and low impact materials as well as the reuse of a previously underutilized industrial area.

PROJECT MANAGEMENT

Integrated Design Process (IDP)

- Integrated design was partially implemented
- Team approach used throughout the design process
- Green design facilitation supported integration of energy and environmental considerations throughout the design stages

Environmental Purchasing

- Products meeting green specifications include bamboo and rubber roll flooring
- Energy-saving, high-efficiency equipment

Commissioning Plan

- Best-practice project commissioning plan includes:
  - Engagement of Commissioning Authority
  - Review of *Design Intent* and *Basis of Design* documentation
  - Inclusion of commissioning requirements in construction documentation
  - Development of Commissioning Plan

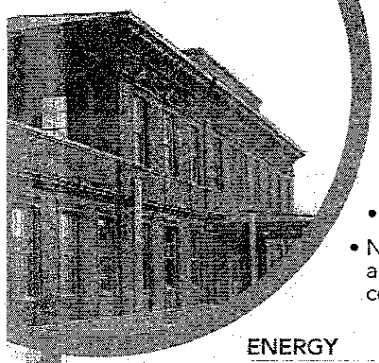
Emergency Response Plan

- Plan to mitigate likelihood of on-site safety and environmental emergencies during preparation and construction
- Emergency Manual for building operation

SITE

Development Area

- Constructed on remediated, previously contaminated land
- Located on land that is neither a wetland nor a wildlife corridor
- Building functions are accommodated while minimizing disturbance to site topography, soils and vegetation



Minimization of Ecological Impact

- Best management practices control site erosion

Enhancement of Site Ecology

- Remediation of brownfield site
- Naturalized landscape using hardy and native trees, shrubs and ground cover, with minimal lawn

ENERGY

Building Energy Performance

- Building is projected to be 20% more energy-efficient than the energy code reference building

Space Optimization

- Floor area optimized to fulfill functional and special requirements while minimizing space to be heated and cooled

Microclimate and Topography

- Site topography and design measures optimized to provide shelter from wind

Integration of Daylighting

- Daylighting optimized through building orientation and window-to-wall size ratios

Building Envelope

- Window glazing with low U value and treatments that enhance interior thermal comfort
- Measures to prevent groundwater and/or rain penetration
- Best air/vapor barrier practices optimize building integrity

Energy Metering

- Building Management System (BMS) tracks energy use by specific area
- Sub-metering of major energy uses

Energy-efficient Systems

- High-efficiency lighting fixtures, lamps, ballasts, lighting controls, HVAC equipment, boilers, chillers, hot water service systems, building automation systems, variable speed drives, motors and elevators
- Other advanced building technologies include radiant floor system, heat exchangers and photovoltaic solar panels for improved energy-efficiency

Renewable Energy Sources

- Photovoltaic solar panels supply portion of the total energy load

Energy-efficient Transportation

- Easily accessible public transportation
- Preferred carpool parking
- Secure bicycle parking and changing facilities

WATER

Water Performance

- Consumption metered and sub-meters provided for high usage operations/occupancies

Water Conserving Features

- Water-saving showerheads (2.5 gallons/minute) and low-flush toilets (1.6 gallons/minute)
- Cooling towers include features to minimize consumption of make-up water
- Water-efficient irrigation system

RESOURCES, BUILDING MATERIALS AND SOLID WASTE

Materials that Minimize Consumption of Resources

- Materials containing recycled content include cast in-place concrete, pre-cast concrete systems, structural steel, self-adhering sheet waterproofing, hot fluid-applied roofing, gypsum board assemblies, acoustic panel ceiling, resilient floor tile and carpet
- Reused ceiling tiles, light fixtures
- Recycled steel for structure, recycled blast furnace slag in concrete foundation and sidewalks, recycled aluminum in curtain wall system
- Solid lumber and timber panel from sources certified as sustainable
- Materials from renewable sources and/or locally manufactured were specified

Reuse of Existing Buildings

- Design integrated all existing façades from original railway station building
- 50% of the existing major structures (other than the shell) are reused

Building Durability, Adaptability and Disassembly

- Building assemblies and materials specified for durability and low maintenance (e.g. brick, glass, aluminum and steel)
- Design promotes building adaptability (i.e. for community functions)
- Design and selection of materials and fastenings allow easy disassembly

Facilities for Recycling and Composting

- 300 ft² of space designated for the storage of recyclable waste

EMISSIONS AND OTHER IMPACTS

Minimization of Air Emissions

- Low-NOx boilers and furnaces (i.e. heat input of 5,220,000 BTU/hour)

Minimization of Ozone-depletion

- Refrigeration system avoids ozone-depleting substances (ODS) and potent industrial greenhouse gases (PIGG)
- Ozone-depleting potential of refrigerant HFC-134a equal to 0
- Air-conditioning system complies with Safety Code for Mechanical Refrigeration, ASHRAE 15 -1994

Control of Surface Run-off and Prevention of Sewer Contamination

- Measures to intercept and/or treat contaminated water to prevent pollutants (including toxic materials, oils and suspended materials) from entering sewers or waterways

Integrated Pest Management

- Measures taken to avoid infestation by pests

Storage and Control of Hazardous Materials

- Secure, ventilated storage areas for hazardous and flammable materials

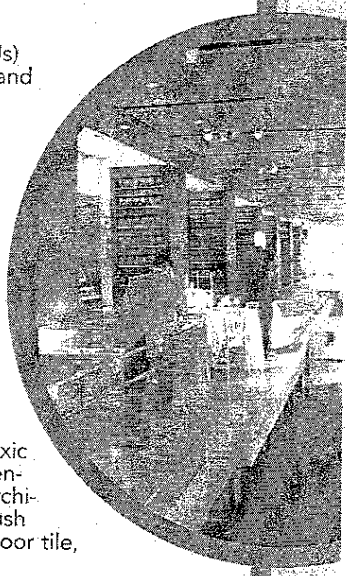
INDOOR ENVIRONMENT

Effective Ventilation System

- Air intakes and outlets positioned at least 30 ft. apart; inlets upwind of outlets
- Air intakes located more than 60 ft. from major sources of pollution and at least minimum recommended distances from lesser sources of pollution
- Vent openings suitably protected
- Systems and components avoid release of pollution and fibers into ventilation air path
- Sufficient ventilation to obtain acceptable IAQ, in accordance with ANSI/ASHRAE 62.1-2004
- Mechanical systems provide effective air exchange (computer modeled)
- Electronic airflow indoor air quality monitoring
- Capacity for mechanical ventilation system to flush the building with 100% outside air at ambient temperatures above 32°F
- Personal control over ventilation including controls for archives
- Filters have minimum efficiency of 65% arrestance, or 40% atmospheric dust-spot efficiency for air distributed to occupied spaces

Source Control of Indoor Pollutants

- Measures to minimize moisture and prevent the growth of fungus, mold, and bacteria
- Easy access to air-handling units (AHUs) facilitates maintenance and drainage and avoids accumulation of debris
- Humidifiers avoid growth of microorganisms
- Measures to avoid pollution at-source (i.e. no VOC finishes and no smoking within the building)
- Wet cooling towers designed and located to prevent Legionella; tower uses triple-bypass drift eliminators, which limit drift losses to no more than 0.005% of the design GPM flow rate
- Domestic hot water system designed to prevent Legionella
- Interior materials are low-VOC, non-toxic and chemically inert (e.g. rough carpentry, exterior finish carpentry, interior architectural woodwork, wood paneling, flush wood doors, wood flooring, resilient floor tile, carpet and paint)



Daylighting

- Direct ambient daylight to 80% of primary spaces
- Ambient natural lighting provides daylight factor of 0.2 for work places and or living/dining areas requiring moderate daylighting, and 0.5 for well day-lit work areas
- Views to the building exterior or atria from all primary interior spaces
- Solar shading devices enable occupants to control brightness and glare from direct daylighting

Lighting Design

- Lighting levels meet those recommended in *IESNA Lighting Handbook, 2000*
- Measures to ensure that spaces are free of excessive direct or reflected glare
- Local lighting controls related to room occupancy, circulation space, daylighting and number of workstations

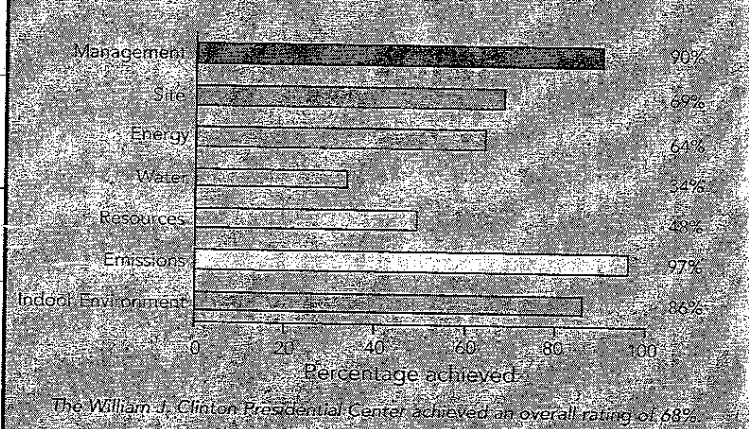
Thermal Comfort

- Design conforms to ASHRAE 55-2004 for thermal comfort

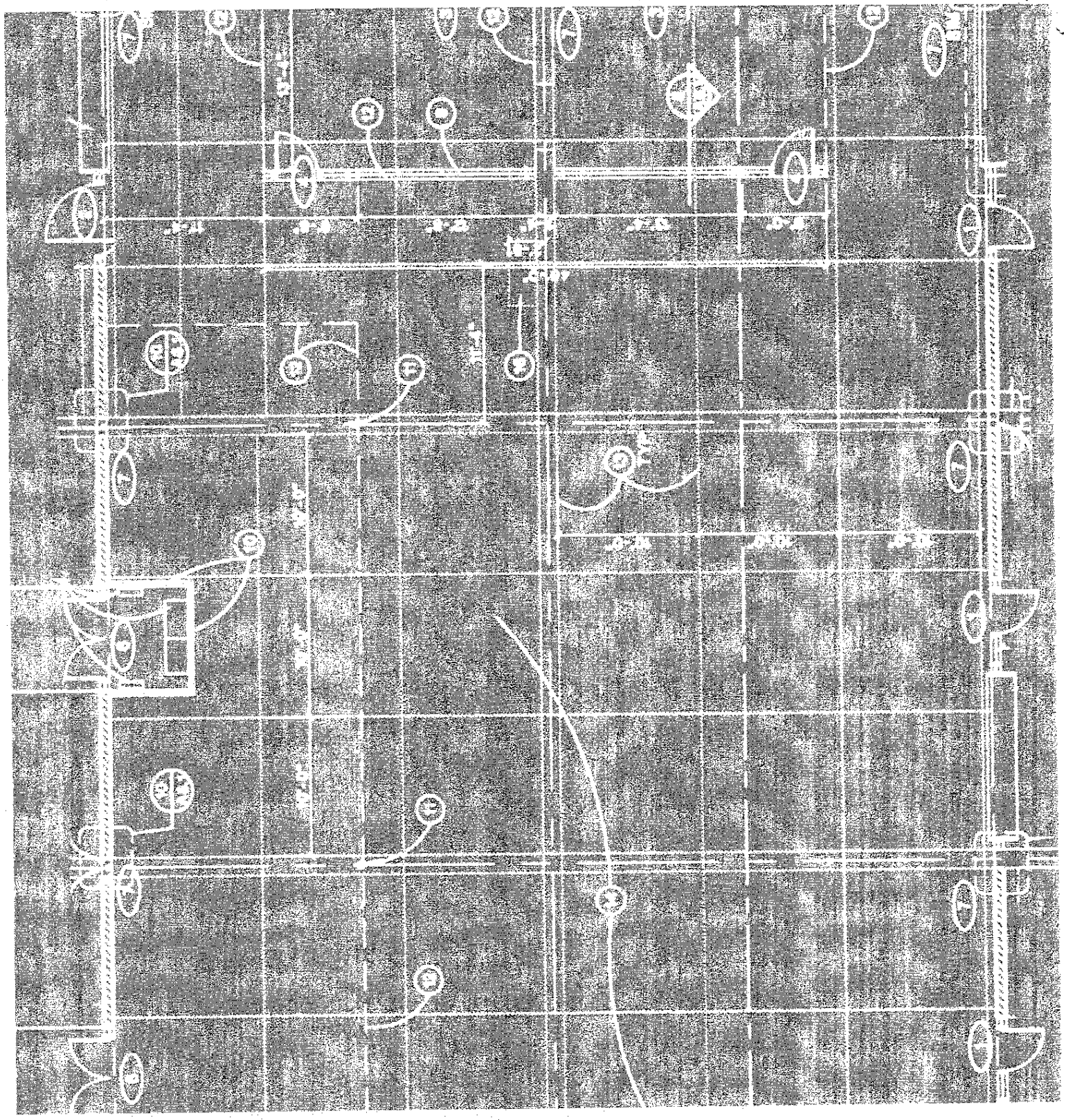
Acoustic Comfort

- Building is sited and spaced within the building zone to provide optimum protection from undesirable outside noise, and fall within acceptable noise criteria (NC) ranges
- Noise attenuation of structural systems and measures to insulate primary spaces from impact noise
- Measures to meet speech intelligibility requirements
- Measures to mitigate acoustic problems associated with mechanical equipment noise and vibration, and plumbing

85–100%		Reserved for select building designs which serve as national or world leaders in energy and environmental performance. The project introduces design practices that can be adopted and implemented by others.
70–84%		Demonstrates leadership in energy and environmental design practices and a commitment to continuous improvement and industry leadership.
55–69%		Demonstrates excellent progress in achieving eco-efficiency results through current best practices in energy and environmental design.
35–54%		Demonstrates movement beyond awareness and commitment to sound energy and environmental design practices by demonstrating good progress in reducing environmental impacts.



The William J. Clinton Presidential Center achieved an overall rating of 68%



GREEN GLOBES

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