

high performance buildings in Virginia



JRGBC

JAMES RIVER GREEN BUILDING COUNCIL

The US Green Building Council

➤ The nation's foremost coalition of leaders from across the building industry working together to promote buildings that are:

- Affordable and profitable
- Environmentally responsible
- Healthy places to live and work

➤ Member organizations include:

- Architects & Engineers
- Developers & Contractors
- Building Owners & Facility Managers
- Manufacturers
- Governmental Agencies

➤ We represent the local chapter of the USGBC

WHO ARE WE?



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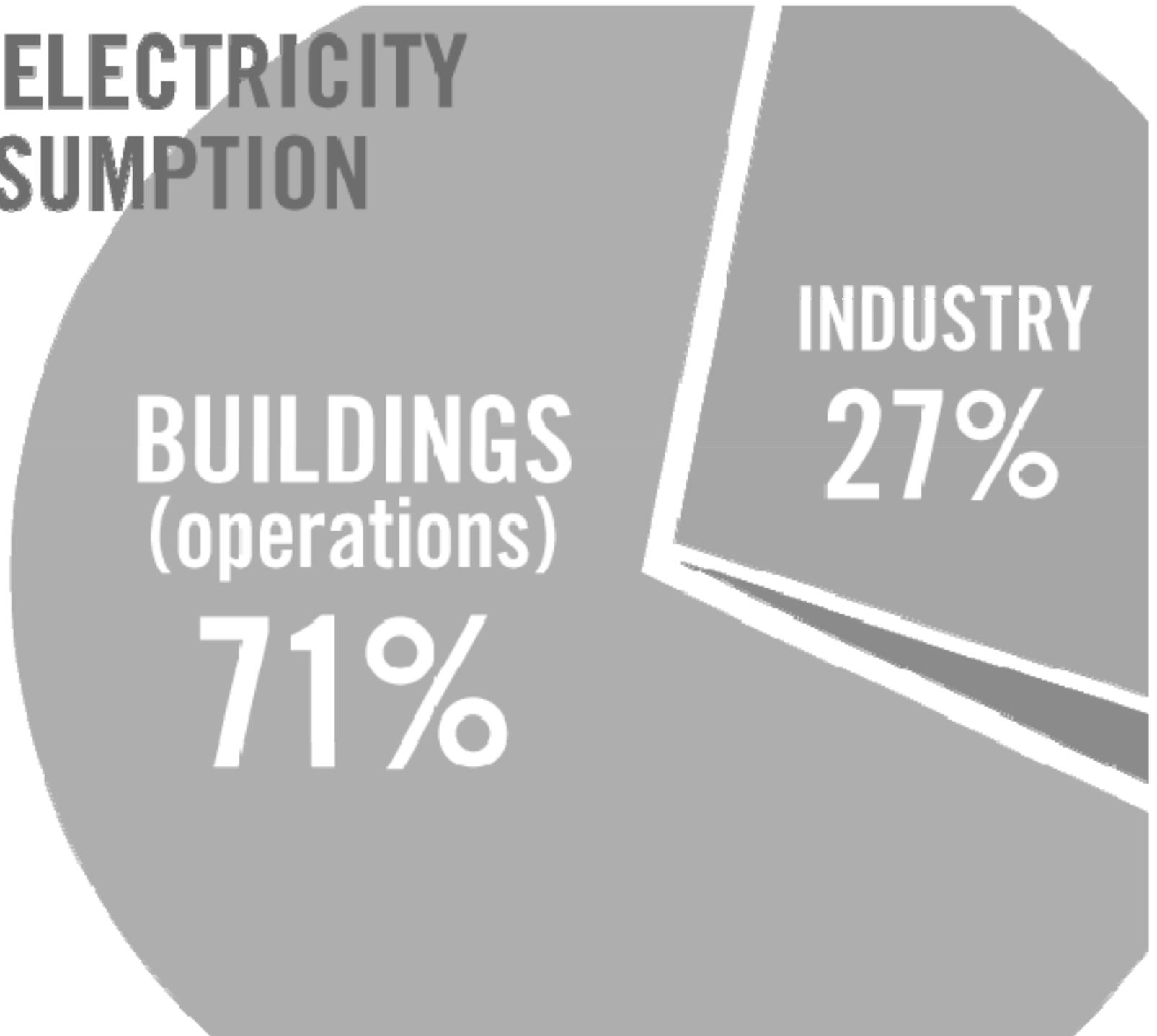
U.S. ELECTRICITY CONSUMPTION

BUILDINGS
(operations)

71%

INDUSTRY

27%



U.S. BUILDINGS IMPACTS ON RESOURCES

39% of total energy consumption
(2006 US DOE Buildings Energy Databook)

71% of electricity consumption
(2006 US DOE Buildings Energy Databook)

39% CO₂ emissions
(EIA, Emissions of Greenhouse Gases in the U.S.)

36% of all greenhouse gas emissions
(EIA, Emissions of Greenhouse Gases in the U.S.)

A High Performance Building:

- Exceeds MINIMUM energy code* standards and
 - Is cost effective to construct
 - Has lower operation and maintenance costs
 - Provides a lifecycle payback in 6-8 years (+/-)
- Yields a higher capitalization rate for the building
- Provides healthier indoor environments to building occupants over the long term
- Supports higher worker/student efficiency (productivity)
- Expect initial added cost of 0-3% (national average)

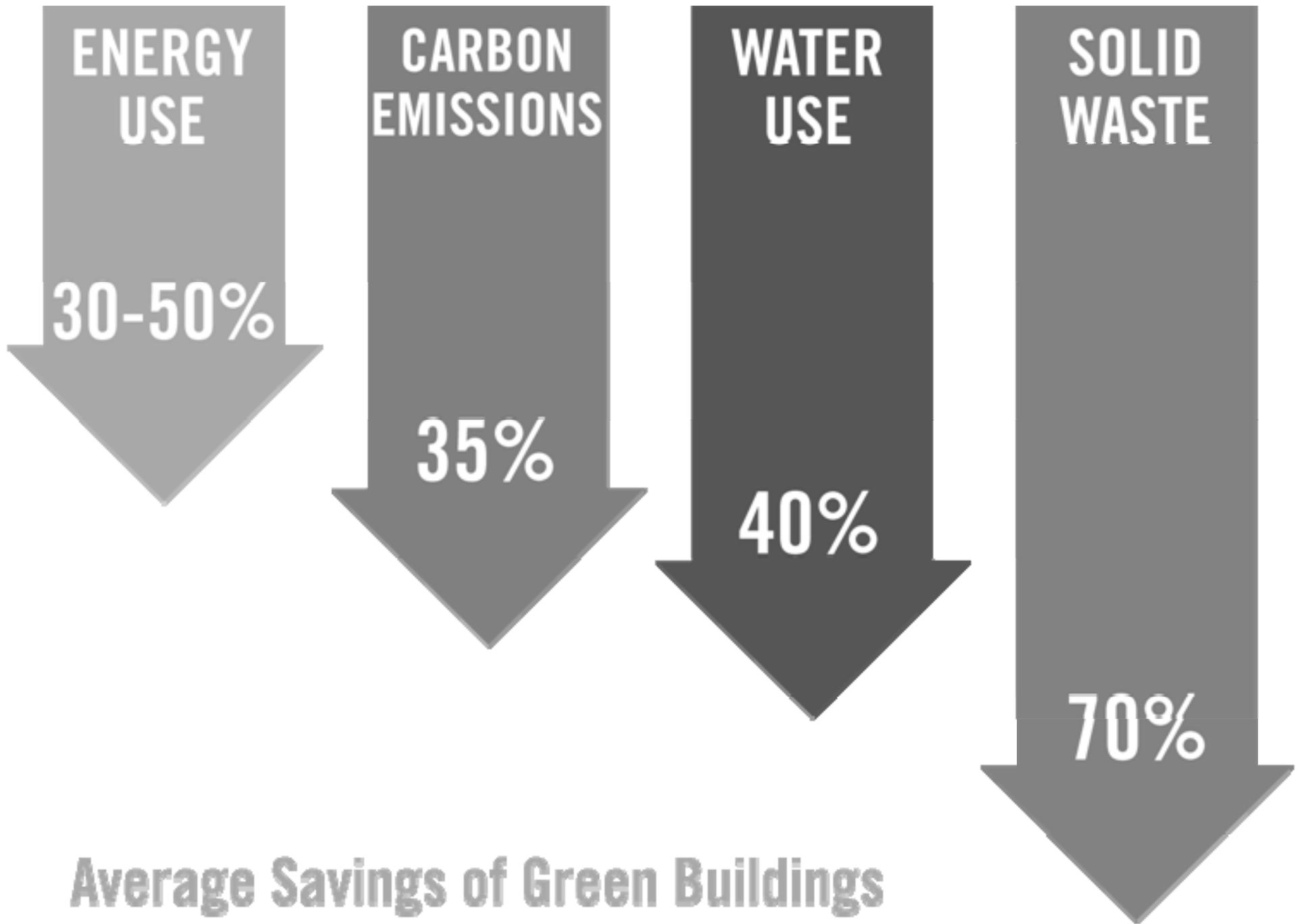
WHAT IS A HIGH PERFORMANCE BUILDING ?

**ASHRAE 90.1-2004 exceeded by +/-15%*

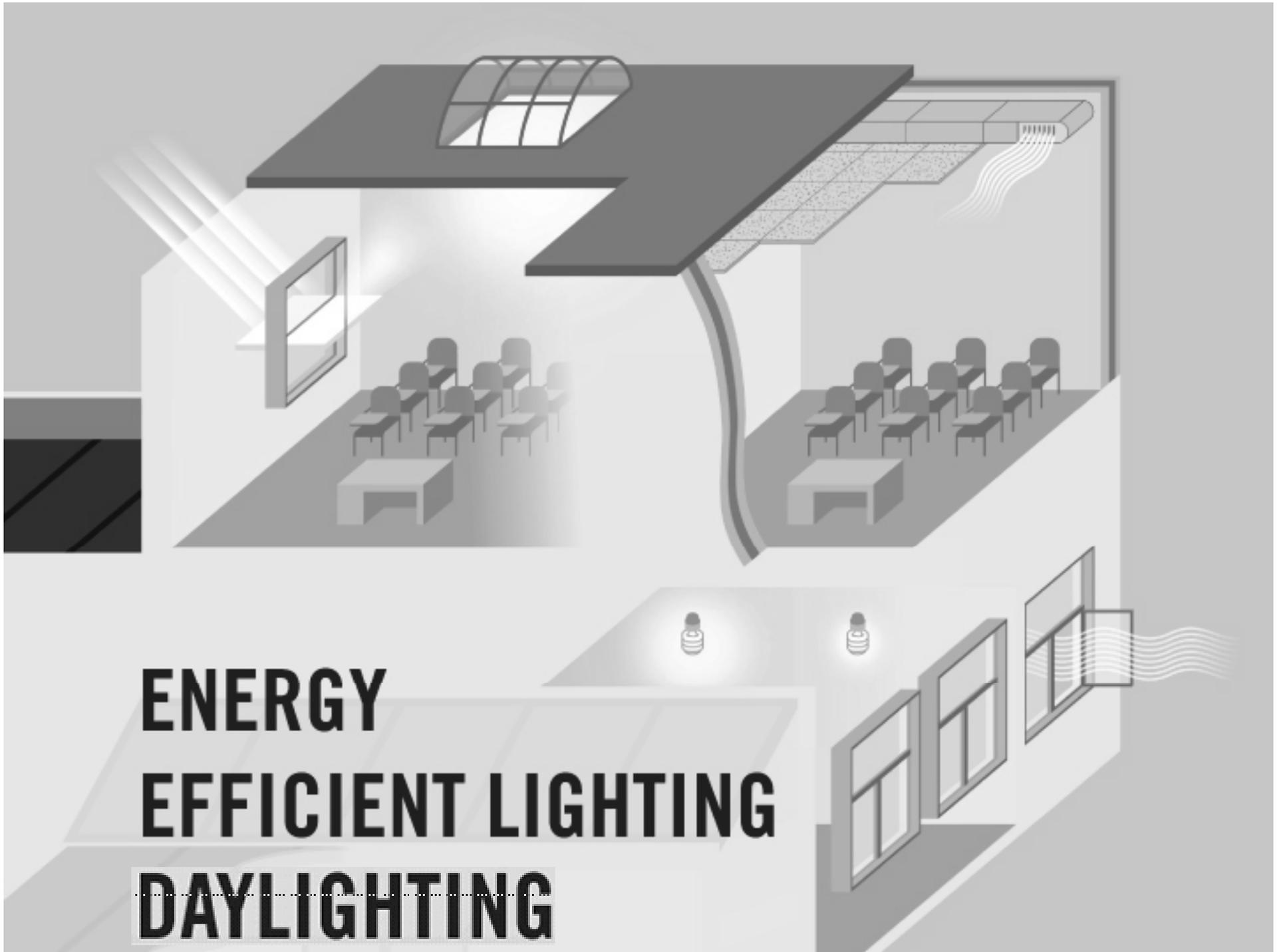


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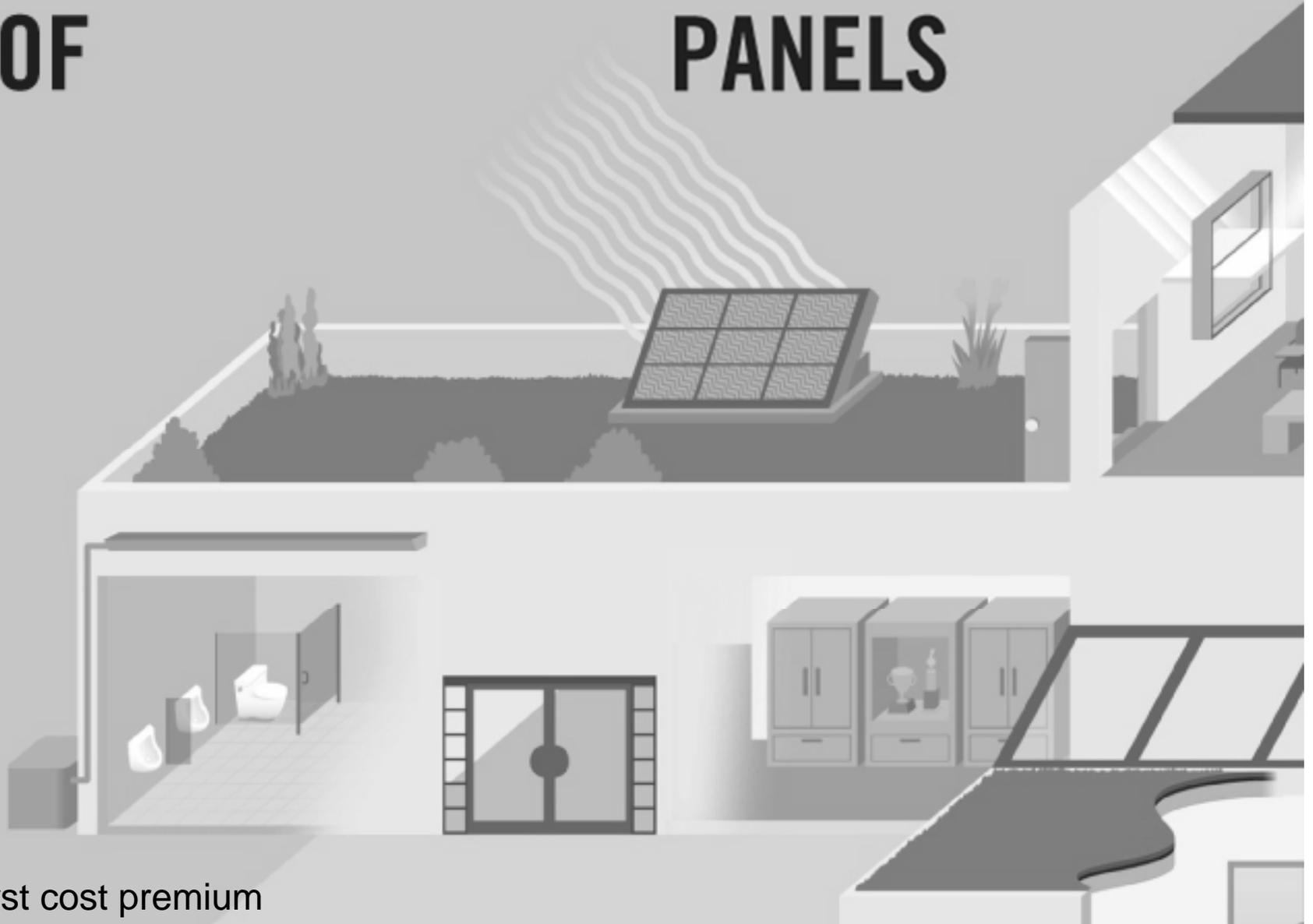
Average Savings of Green Buildings



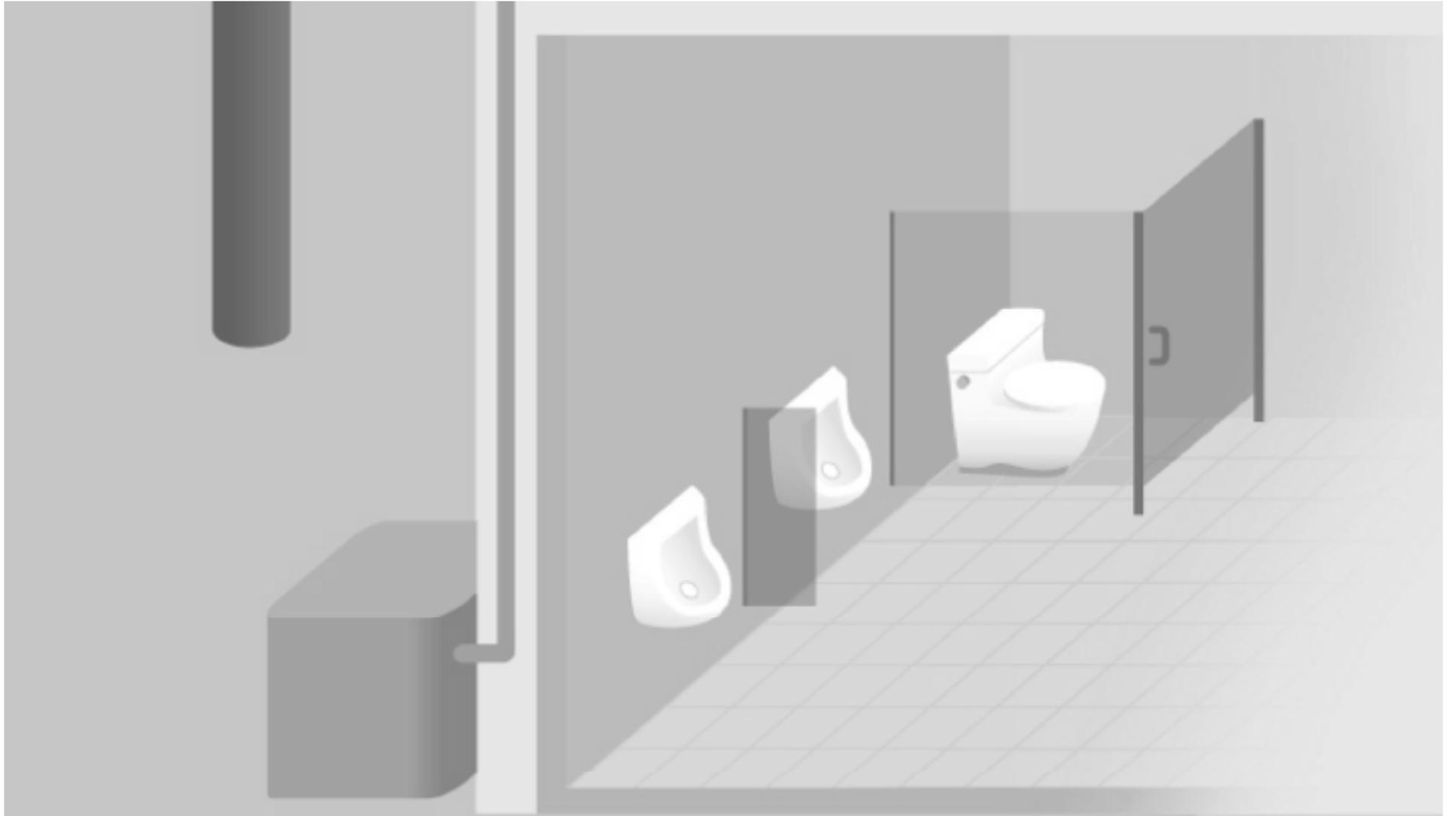
**ENERGY
EFFICIENT LIGHTING
DAYLIGHTING**

GREEN ROOF

SOLAR PANELS



*Expect first cost premium

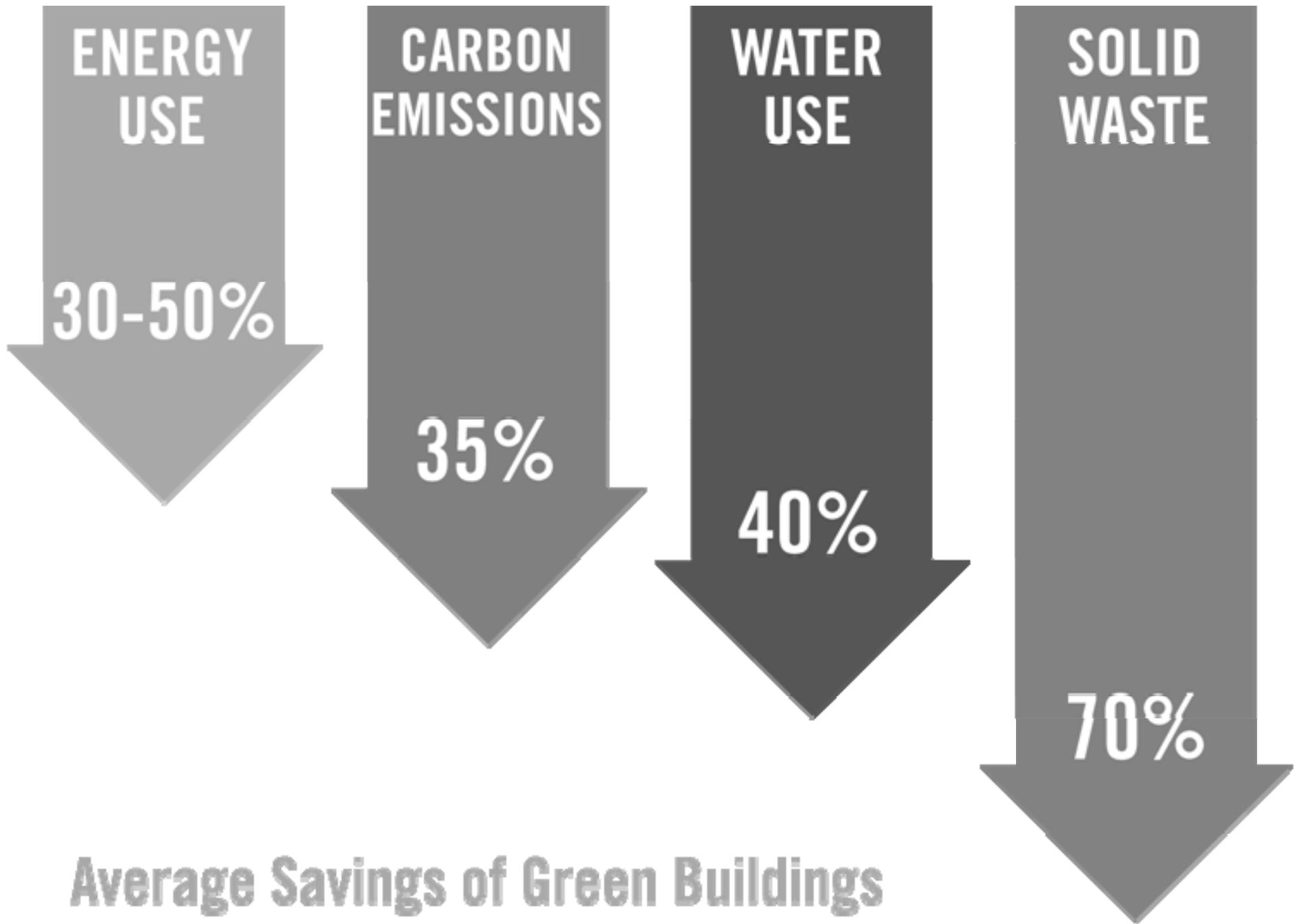


WATER EFFICIENT



LOW-EMITTING MATERIALS





Average Savings of Green Buildings

HOW?



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Performance Metrics:

- Integrated design
 - Improved building envelope
 - Improved daylighting
 - Eliminate over-lighting, hot spots, glare
 - Reduced HVAC system size
 - Flexibility of space

- Life cycle cost analysis
 - Building energy modeling
 - Required financial payback

**HOW TO
ENSURE YOU
GET A HIGH
PERFORMANCE
BUILDING**



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Performance Metrics:

- Building Commissioning
 - Assures owner equipment operates as designed
 - Confirms construction is correct
 - Optimizes energy performance from day 1

- Measurement & Verification
 - Monitor performance
 - Improve performance

- Needs experienced, knowledgeable staff
 - Owner, A/E, Contractor

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PROVE IT!



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DOLLARS AND SENSE IN VIRGINIA

Fixture	Traditional	Design	Annual Savings
Urinals	2,800 gpd	0 gpd	504,000 gpy
Hand Sinks	10,500 gpd	2,100 gpd	1,512,000 gpy
Showers	8,750 gpd	6,300 gpd	441,000 gpy
Cistern	0 gpd	9060 gpd	1,630,720 gpy



**Water Use
Reduction**

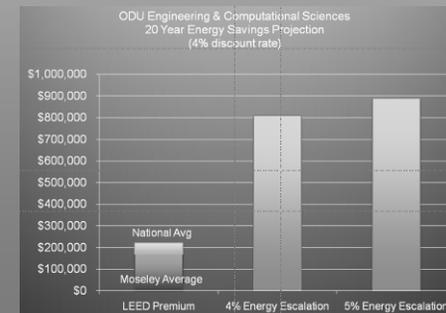
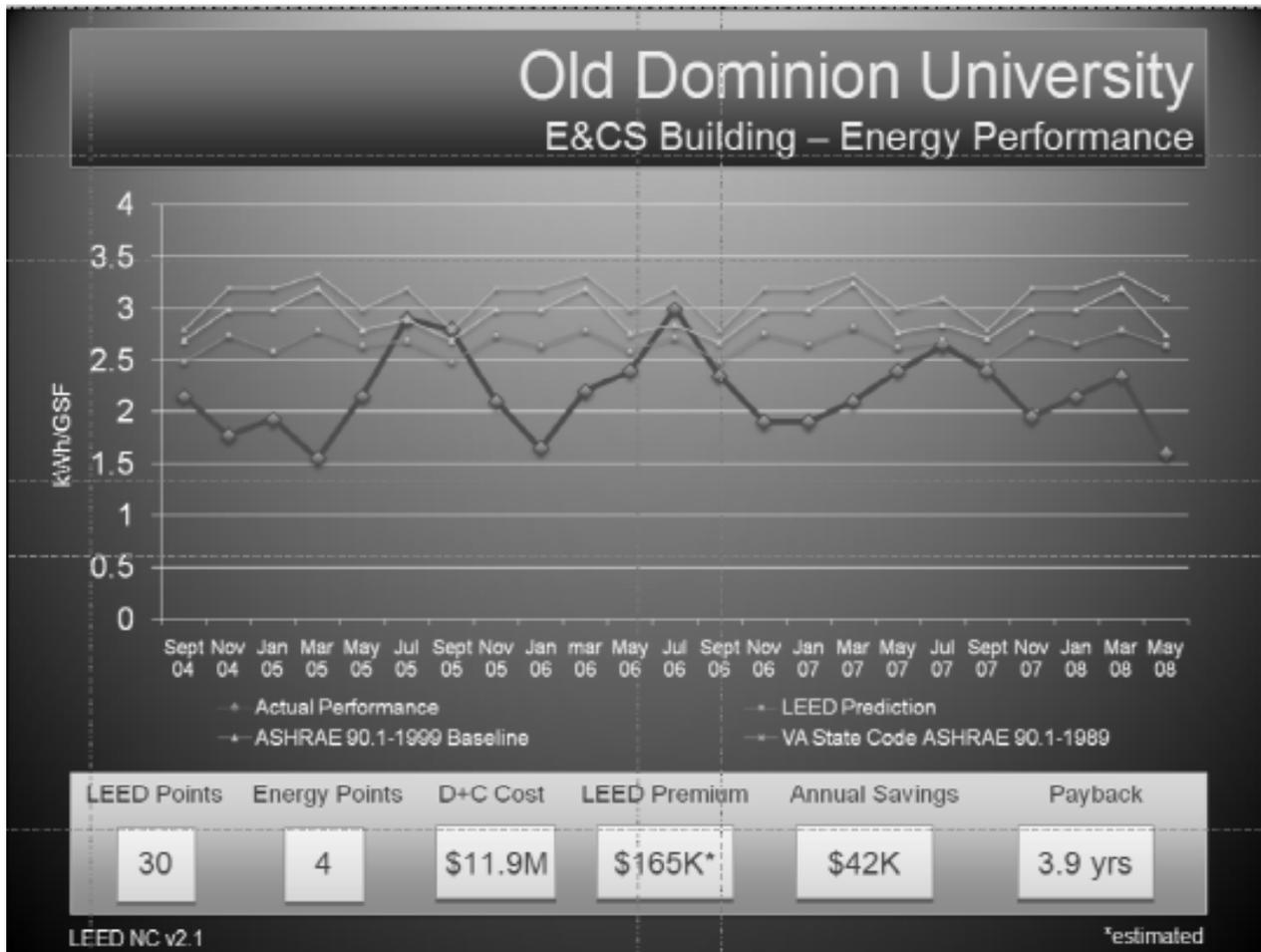
72%



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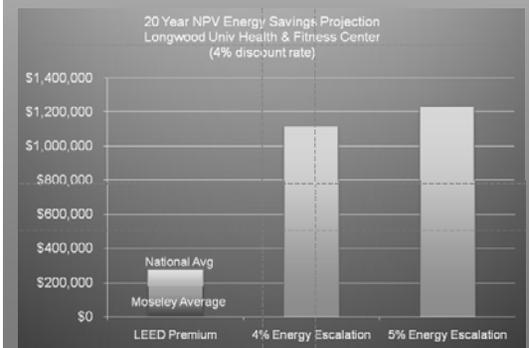
DOLLARS AND SENSE IN VIRGINIA



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