



Inver Glen Senior Living, Inver Grove Heights, MN:
USGBC's LEED Guidelines

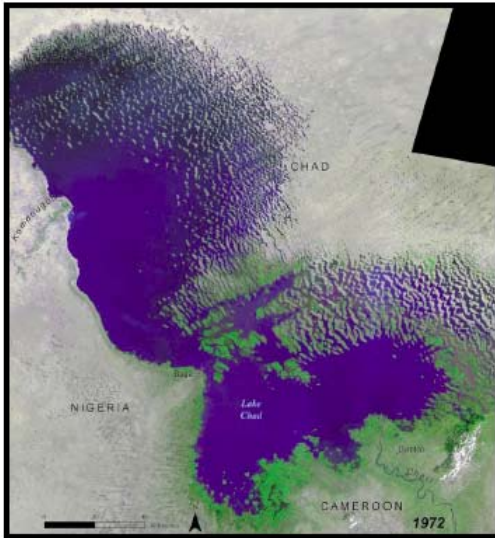


Global Warming: Myth or Reality

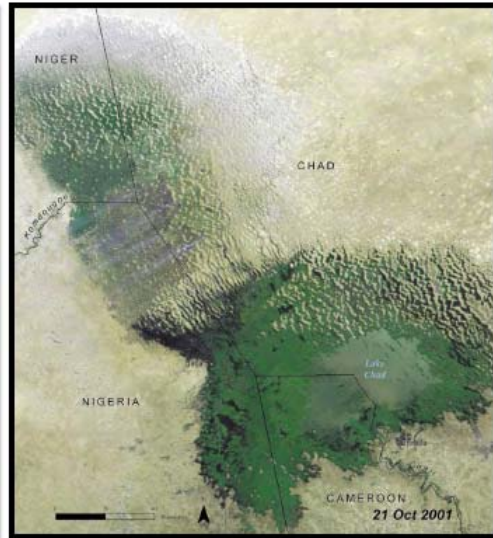
Architects don't know.



Lake Chad is disappearing



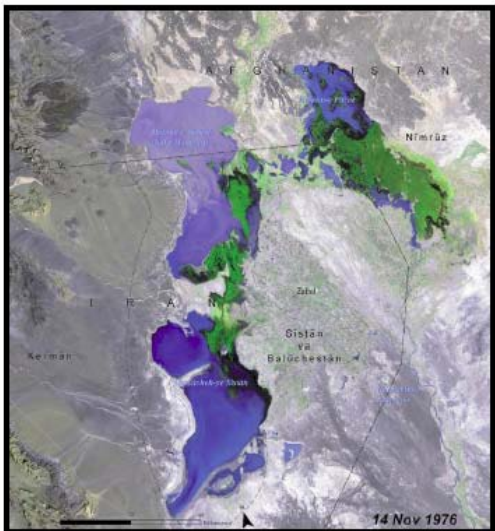
Lake Chad, Afrika, 1972



Lake Chad, Afrika, 2001

Source: UNEP, 2005

Lake Hamoun has disappeared



Lake Hamoun, Iran, 1976



Lake Hamoun, Iran, 2001

Source: UNEP, 2005

Aral Sea is disappearing as well



Aral Sea, Kazakhstan, 1973



Aral Sea, Kazakhstan, 2004

Source: UNEP, 2005

Universität Karlsruhe (TH)



SUSTAINABLE MANAGEMENT OF HOUSING & REAL ESTATE



WORLDWIDE, BUILDINGS ACCOUNT FOR...

17% fresh water withdrawals

25% wood harvest

33% CO₂ emissions

40% material and energy use
45% in china



We cannot guarantee performance.



**PERCEIVED
ADVANTAGES OF
BUILDING GREEN**

8-9% decrease in operating costs

7.5% increase in building values

6.6% improvement in roi

3.5% increase in occupancy

3% rent increase



OVERVIEW RATIONALE

Increased Productivity.

SCHOOLS
20% BETTER TEST PERFORMANCE

HOSPITALS
2 1/2 DAY EARLIER DISCHARGE


RETAIL
INCREASE IN SALES PER SQUARE FOOT

FACTORIES
INCREASED PRODUCTION

OFFICES
2-16% PRODUCTIVITY INCREASE

THE NEXT GENERATION'S PERSPECTIVE WILL INCREASE GREEN BUILDING

- 89%** choose brands aligned with social cause
- 74%** listen to brands aligned with social cause
- 69%** shop for brands aligned with social cause
- 66%** recommend brands aligned with social cause



LEED address the complete lifecycle of buildings:



There are many performance standards for sustainability.





The Crossings at Valley View, Bloomington, MN

Green Communities
Criteria:

- Adjacency to local schools, shops, and city library
- Adjacency to a transit line
- Stormwater retention
- Drought-resistant plantings
- Lower energy use



Minnesota Veterans Home Adult Daycare Remodel, Minneapolis, MN

Minnesota State B3
Guidelines:

- Drought-resistant plantings
- Water re-use
- Energy recovery unit
- Building re-use vs. tear down
- Insulation values

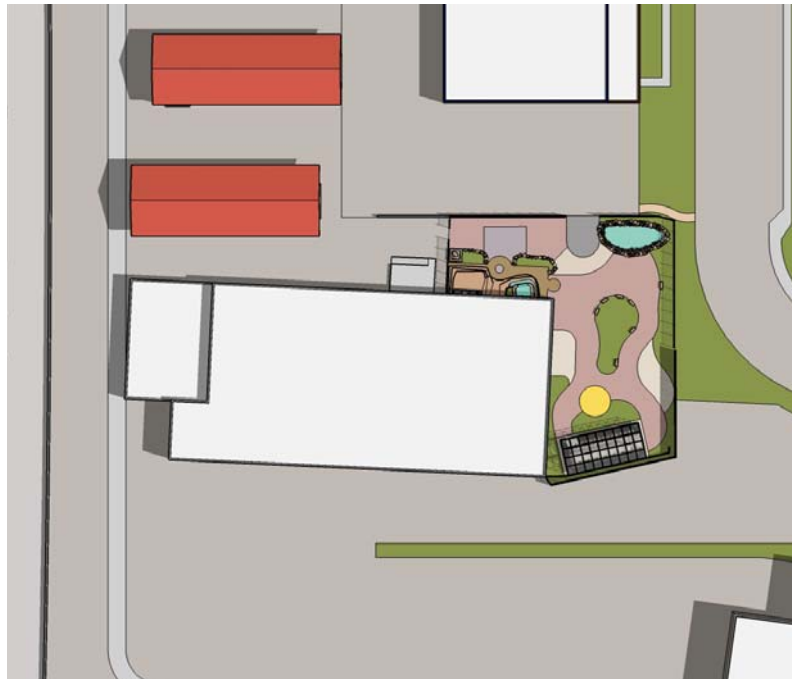




Minneapolis Farmers Market, Minneapolis, MN

Minneapolis Resident and Owner Initiative:

- Transformation of an existing parking lot into a usable garden and sales space
- Stormwater credits
- Increased sales, activity, interaction, and community value

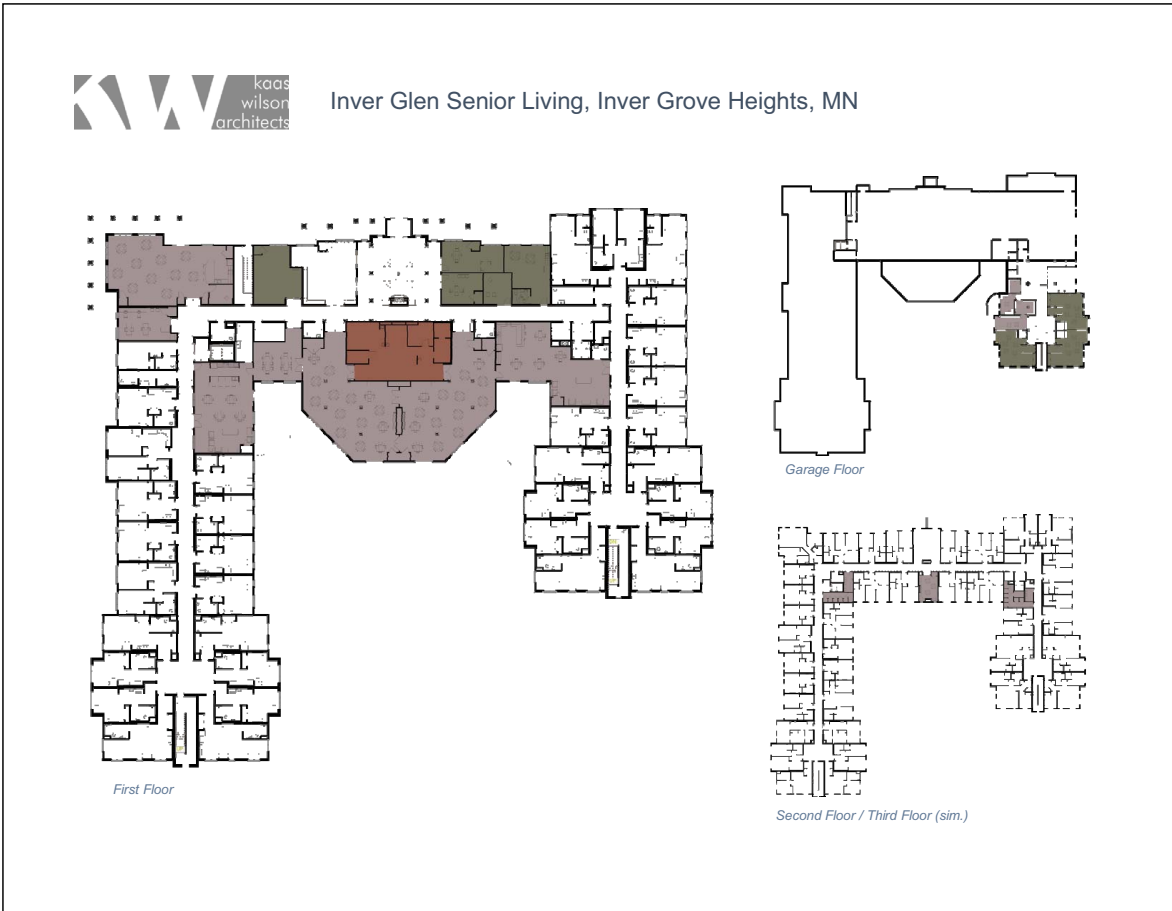


Inver Glen Senior Living, Inver Grove Heights, MN

USGBC's LEED Guidelines (in line to receive a silver rating):

- Sustainable sites
- Water efficiency
- Energy and atmosphere
- Materials
- Indoor environmental quality
- Innovation





What Is Green Building?

1. Think about the big picture
2. Break it down into individual things you can do

Site Planning

Water Management

Energy

Material Use

Indoor Environmental Quality

Consensus-Based Standards

USGBC has four levels of LEED:







Inver Glen Senior Living, Inver Grove Heights, MN

Project Name: Southview Senior Living - Inver Grove Heights
 Project Address: 7260 South Robert Trail, Inver Grove Heights, MN 55077

Req. #	Prereq. #	Points	Category	Requirement	Points
2 Sustainable Sites 14 Points					
1		1	Prereq 1	Construction Activity Pollution Prevention	Required
1		1	Credit 1	Site Selection	1
1		1	Credit 2	Development Density & Community Connectivity	1
1		1	Credit 3	Brownfield Redevelopment	1
1		1	Credit 4.1	Alternative Transportation, Public Transportation Access	1
1		1	Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1
1		1	Credit 4.3	Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles	1
1		1	Credit 4.4	Alternative Transportation, Parking Capacity	1
1		1	Credit 5.1	Site Development, Protect or Restore Habitat	1
1		1	Credit 5.2	Site Development, Maximize Open Space	1
1		1	Credit 6.1	Stormwater Design, Quantity Control	1
1		1	Credit 6.2	Stormwater Design, Quality Control	1
1		1	Credit 7.1	Heat Island Effect, Non-Roof	1
1		1	Credit 7.2	Heat Island Effect, Roof	1
1		1	Credit 8	Light Pollution Reduction	1
2 Water Efficiency 5 Points					
1		1	Credit 1.1	Water Efficient Landscaping, Reduce by 50%	1
1		1	Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1
1		1	Credit 2	Innovative Wastewater Technologies	1
1		1	Credit 3.1	Water Use Reduction, 20% Reduction	1
1		1	Credit 3.2	Water Use Reduction, 30% Reduction	1
3 Energy & Atmosphere 17 Points					
1		1	Prereq 1	Fundamental Commissioning of the Building Energy Systems	Required
1		1	Prereq 2	Minimum Energy Performance	Required
1		1	Prereq 3	Fundamental Refrigerant Management	Required
1		1 to 10	Credit 1	Optimize Energy Performance	1 to 10
		1		10.5% New Buildings or 3.5% Existing Building Renovations	1
		2		14% New Buildings or 7% Existing Building Renovations	2
		3		17.5% New Buildings or 10.5% Existing Building Renovations	3
		4		21% New Buildings or 14% Existing Building Renovations	4
		5		24.5% New Buildings or 17.5% Existing Building Renovations	5
		6		28% New Buildings or 21% Existing Building Renovations	6
		7		31.5% New Buildings or 24.5% Existing Building Renovations	7
		8		35% New Buildings or 28% Existing Building Renovations	8
		9		38.5% New Buildings or 31.5% Existing Building Renovations	9
		10		42% New Buildings or 35% Existing Building Renovations	10
1		1 to 3	Credit 2	On-Site Renewable Energy	1 to 3
		1		12.5% Renewable Energy	1
		2		7.5% Renewable Energy	2
		3		12.5% Renewable Energy	3
1		1	Credit 3	Enhanced Commissioning	1
1		1	Credit 4	Enhanced Refrigerant Management	1
1		1	Credit 5	Measurement & Verification	1
1		1	Credit 6	Green Power	1

Req. #	Prereq. #	Points	Category	Requirement	Points
4 Materials & Resources 13 Points					
1		1	Prereq 1	Storage & Collection of Recyclables	Required
1		1	Credit 1.1	Building Reuse, Maintain 75% of Existing Walls, Floors & Roof	1
1		1	Credit 1.2	Building Reuse, Maintain 100% of Existing Walls, Floors & Roof	1
1		1	Credit 1.3	Building Reuse, Maintain 50% of Interior Non-Structural Elements	1
1		1	Credit 2.1	Construction Waste Management, Divert 50% from Disposal	1
1		1	Credit 2.2	Construction Waste Management, Divert 75% from Disposal	1
1		1	Credit 3.1	Materials Reuse, 5%	1
1		1	Credit 3.2	Materials Reuse, 10%	1
1		1	Credit 4.1	Recycled Content, 10% (post-consumer + 1% pre-consumer)	1
1		1	Credit 4.2	Recycled Content, 20% (post-consumer + 1% pre-consumer)	1
1		1	Credit 5.1	Regional Materials, 10% Extracted, Processed & Manufactured Regionally	1
1		1	Credit 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Regionally	1
1		1	Credit 6	Rapidly Renewable Materials	1
1		1	Credit 7	Certified Wood	1
12 Indoor Environmental Quality 15 Points					
1		1	Prereq 1	Minimum IAQ Performance	Required
1		1	Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
1		1	Credit 1	Outdoor Air Delivery Monitoring	1
1		1	Credit 2	Increased Ventilation	1
1		1	Credit 3.1	Construction IAQ Management Plan, During Construction	1
1		1	Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1
1		1	Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1
1		1	Credit 4.2	Low-Emitting Materials, Paints & Coatings	1
1		1	Credit 4.3	Low-Emitting Materials, Carpet Systems	1
1		1	Credit 4.4	Low-Emitting Materials, Composite Wood & Particleboard Products	1
1		1	Credit 5	Indoor Chemical & Pollutant Source Control	1
1		1	Credit 6.1	Controllability of Systems, Lighting	1
1		1	Credit 6.2	Controllability of Systems, Thermal Comfort	1
1		1	Credit 7.1	Thermal Comfort, Design	1
1		1	Credit 7.2	Thermal Comfort, Verification	1
1		1	Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1
1		1	Credit 8.2	Daylight & Views, Views for 90% of Spaces	1
4 Innovation & Design Process 5 Points					
1		1	Credit 1.1	Innovation in Design: Green Cleaning Supplies	1
1		1	Credit 1.2	Innovation in Design: Energy Star Appliances	1
1		1	Credit 1.3	Innovation in Design: Green Education Program	1
1		1	Credit 1.4	Innovation in Design: Provide Specific Title	1
1		1	Credit 2	LEED® Accredited Professional	1

Project Totals (pre-certification estimates) 60 Points
 Certified: 26-32 points, Silver: 33-38 points, Gold: 39-51 points, Platinum: 52-69 points

Inver Glen Senior Living, Inver Grove Heights, MN

Sustainable Sites

A. Construction Activity Pollution Prevention

- Erosion control

B. Site Selection

- Raised density from single family home use to mixed family/mixed use

C. Alternative Transportation



- Low emitting & fuel efficient vehicles
- Bicycle storage
- Changing rooms and shower for bikers

D. Site Development

- Protection/restoration of local habitat

E. Stormwater Design

- Quality control
- Rate control

Inver Glen Senior Living, Inver Grove Heights, MN

Sustainable Sites (cont'd)

F. Heat Island Effect

- Non-roof

G. Light Pollution Reduction

- No foot candles over property lines
- No light bleeding out
- Full cut-off for exterior lights

Water Efficiency

H. Water Efficient Landscape

- Irrigation reduced by 50%

I. Water Use Reduction

- Selected fixtures for a 20% reduction



Inver Glen Senior Living, Inver Grove Heights, MN



Energy & Atmosphere

J. Optimize Energy Performance

- 14% reduction of energy consumption over the current energy code (purchase of sustainably generated power through local power company)



Materials & Resources

K. Storage and Collection of Recyclables

L. Construction Waste

- 50% of construction waste diverted from disposal

M. Recycled Content

- 10% (post-consumer and 1/2 pre-consumer)



N. Regional Materials

- 10% extracted, processed, and manufactured regionally



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Indoor Environmental Quality

O. Increased Ventilation

- Exceeding fresh air intake by ASHRAE standards

P. Construction Indoor Air Quality Management Plan

- Sealed ductwork during construction
- Air flushed out prior to occupancy



Q. Low-Emitting Materials

- Adhesives and sealants
- Paints and coatings
- Carpet systems

R. Indoor Chemical Pollutant and Source Control

- Walk-off mats at all doors
- Rooms for chemicals independently ventilated





Inver Glen Senior Living, Inver Grove Heights, MN



Indoor Environmental Quality (cont'd)

S. Controllability of Systems

- *Lighting and motion sensors for full control by residents*
- *Thermal comfort controls in common areas; independent controls for residents*

T. Thermal Comfort

- *Design & verification*

U. Daylight & Views

- *Daylight for 75% of all spaces*



Innovation & Design Process

V. Green Cleaning Supplies

W. Energy Star Appliances

X. Green Education Plans

Y. LEED Accredited Professional

