

AFFORDABLE Housing
Design ADVISOR

WHAT WHY HOW TOOLS

Gallery Steps Checklist Update

Welcome to the Affordable Housing Design Advisor

If you're part of the solution to America's critical affordable housing challenge, this site is for you. The Affordable Housing Design Advisor is a resource for ideas and resources from successful affordable housing projects all over the country. The Affordable Housing Design Advisor is here to help you at every step.

Good design can make a world of difference for the people who will live in the affordable housing you help build, and for the people who will live nearby. The Affordable Housing Design Advisor is here to help you at every step.

• Quick Guide to Using This Site
• Green Housing - It's Here!
• Green Projects to Use
• Green Materials

A tool, resource, idea bank and step-by-step guide to Design in affordable housing.

Design is the key to affordable housing that works - for the people who live there and the people who live nearby.



What's New

- Green Housing - It's Here!
- AIA Affordable Green Guidelines
- Green Projects to Use
- Green Materials
- Green Design Awards Call for Entries

DESIGN CHECKLIST

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Building Green

The new Green Housing Projects Gallery was provided by American Institute of Architects (AIA) through the AIA Housing Committee and the AIA Center for Communities by Design. The AIA, as a partner in the Enterprise Foundation's Green Communities Initiative, assembled and juried a selection of high quality designs from across the country that demonstrate how green design in affordable housing can be achieved. Jurors for the program were Lance J. Brown, FAIA; Gita Den, FAIA; Deanne Evans, FAIA; Stephen Gottschalk; Rick Schreder, AIA; LEED AP; and Walker Weis.

Jury Selections

• Chestnut Court
• East Kelly Avenue Housing
• El Centro de la Raza
• FallonCore Apartments
• The Habitat
• Merrick Landing Phases I & 2
• Waterfront Housing

Projects of Merit

- Anne Mitchell Homes
- Burlington Residential
- City of Lakewood Healthy Homes
- Jackson Habitat House
- Maywood Center
- Merrick Apartments
- NewGen Homes
- Sanctuary Place

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Project Name	Site Design		Green Building Design Strategies		Energy Efficiency		Water Conservation and Management		Green Materials		Other	
	Site Assessment	Landscaping	Green Building	Sustainable	Energy	Efficiency	Water	Conservation	Management	Green	Materials	Other
East Kelly	*	*	*	*	*	*	*	*	*	*	*	*
El Centro de la Raza	*	*	*	*	*	*	*	*	*	*	*	*
FallonCore	*	*	*	*	*	*	*	*	*	*	*	*
Maywood	*	*	*	*	*	*	*	*	*	*	*	*
McKinley	*	*	*	*	*	*	*	*	*	*	*	*
Merrick	*	*	*	*	*	*	*	*	*	*	*	*
Northgate	*	*	*	*	*	*	*	*	*	*	*	*
Southgate	*	*	*	*	*	*	*	*	*	*	*	*
Waterfront	*	*	*	*	*	*	*	*	*	*	*	*
Westgate	*	*	*	*	*	*	*	*	*	*	*	*
Westside	*	*	*	*	*	*	*	*	*	*	*	*
Westwood	*	*	*	*	*	*	*	*	*	*	*	*
Winton	*	*	*	*	*	*	*	*	*	*	*	*
Zion	*	*	*	*	*	*	*	*	*	*	*	*

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Green Building Projects

East Kelly Avenue - Jackson, Wyo.

Green Features

Project Summary: East Kelly Avenue Housing

OWNER/DEVELOPER: Jackson Hole Community Foundation, Inc.

ARCHITECT: Haskins Design

LANDSCAPE ARCHITECT: Haskins Design, Jackson Hole Services, with Design Northwest

CONTRACTORS: Laramie Valley Builders

POLICY MANAGEMENT: Jackson Hole Community Foundation, Inc.

FUNDERS: Jackson Hole Community Foundation, Inc., First Interstate Bank

TYPE: Private donations, Grants, Loan, Construction Loan

DEVELOPMENT TYPE: New construction for low-income single-family homes with 30 year land

As in numerous communities, housing costs in Jackson Hole, Wyoming are beyond the reach of many of the area's residents. Jackson Hole Community Foundation responded by purchasing the land and developing a deed restricted housing for the families and individuals who contribute to and deserve their populace. The residents served by the Housing Trust would not be able to afford the market rate housing in town or projects such as the East Kelly Avenue Housing which includes 25 affordable units.

The project is built in two nearby sites on East Kelly Avenue in the heart of an established residential neighborhood within the town of Jackson. Its vernacular celebrates the mixed scale neighborhood and development patterns historic Avenues Housing which borders 25 affordable units.

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Residential Density in the Town of Jackson, Wyo.

Project Profile: Three working class residents, maximum of 120% AMI.

DENSITY: 20 units per acre

Development Profile: Site area 15,000 sq ft, Site price \$500,000 on avg.

Landscaping: Each unit has laundry in the basement. Laundry access is provided at each site. Parking off surface space.

Construction Type: Modular units with 100% financing, 2nd story and open wood roof.

Development Costs: Land cost \$125,000, Site prep \$12,000, Other costs \$120,000, Total cost \$257,000. **Per Unit Costs:** Foundation \$12,000, Modular unit \$25,000, Landscaping \$1,500, Total cost \$38,500. **Completion Date:** Spring 2006.

Once care was taken to provide compact community attributes toward affordable housing increased density and modular construction by drawing on the context of Jackson's older housing stock and also through stringent and responsible design guidelines. The units face and block alleys, creating them as informal greenways in a way towards the future development of Jackson. All units incorporate front porches and public mid block walkways connecting street and alley to encourage walking, cycling and interaction between residents and neighbors. Backyards are generally landscaped and treated as informal courtyards.

The sites were selected primarily because of their "in town" location, close to established businesses, public transportation, and bicycle routes. The 270' project, called Actor Place, replaced a large parking lot and three accessory structures with 12 affordable homes. Each unit is approximately 1,100 square feet and includes two bedrooms, one bathroom, a large kitchen/dining/living room, a mudroom and central washer with 30% affordable income households income based on household size and accessible to a basic modifiable mortgage.

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To make the project financially feasible and provide the community with an example of urban density in excess of the town's current regulations but in line with Jackson's "Town as Heart" initiative, a year long F.A.S. bonus had to be enacted for all 100% deed-restricted housing projects along with a reduction of the parking spaces required. The project serves the community by setting a positive example for future homeowners and developers of just how attractive and comfortable modestly sized units can be, that density concentrations under standard zoning regulations are not only possible, and that modular construction techniques can result in high quality projects selectable from less efficient construction methodologies.

Modular construction was used because of construction costs and staging constraints. This approach, along with the repetitive nature of the site layout, allowed for a high level of quality control and early troubleshooting of problems. These efficiencies allowed the specification of durable low-maintenance finishes and pencil details such as laminate floors, solid core doors, drywall, decked porches, and handrails. Exterior finishes include fiber-cement siding and trim, double light vinyl windows, exposed rafter tails and split faced concrete block lightwell enclosures.

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Lessons Learned from the Architect: Be sure to do your homework if you plan to suggest a technology or material people aren't familiar with. If you come to the table knowing what it will cost, where to get it and how it benefits the project you'll have a much greater chance of success.

Green Features:

Glazing	East Kelly Avenue Housing
Low-E Glazing	The project design is 23 units per acre.
Insulation	Exterior insulation and finish system (EIFS) is used throughout the exterior walls.
Ventilation	Stainless steel and stainless steel are located on party walls, allowing all other spaces to be exterior walls with ample ventilation.
High-Performance Windows	High-performance double glazed vinyl windows.
Energy Star Appliances	All units are equipped with Energy Star Appliances.
Water-Efficient Landscaping	No irrigation is used; instead, a rainwater harvesting system is used to minimize surface evaporation and maintain the landscape.
Site Selection	The site selection for the building components was designed at the fabrication facility for four months prior to delivery, giving construction materials time to acclimate to the local climate.
Low-Impact Materials	Modular construction was used for a high level of efficiency and waste was recycled directly by the modular fabricator.
Other Innovations	Modular construction was used for a high level of efficiency and waste was recycled directly by the modular fabricator.

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Daylighting: Not only is artificial lighting a concern of both first cost and operating cost, but the lighting itself gives off heat which increases the load on the HVAC system and adds additional cost to energy efficiency costs. One way to reduce this cost is to incorporate daylighting into a building. Daylighting includes strategies for increasing the percentage of illumination provided by natural light in your building such as light shelves, top lighting, clerestory windows, optimized building orientation and room layout, and shading among others. Not only is daylighting free, it is a more enjoyable light in which to work, play and live.

www.eere.energy.gov/buildings/design/integrate/daylighting.html

<http://www.daylighting.org/index.htm>

http://www.epa.gov/6030_rsrcsenergy/6030_rsrcsenergy/daylight/daylight.shtml

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Green Roofs: Green roofs have many advantages over traditional roof systems. Not only do they provide benefits for the residents themselves by reducing the heat load on the building and monthly utility costs and by providing additional outdoor space, but they also provide benefits for the surrounding community by controlling the rate of storm runoff during heavy rains and reducing the heat-island effect. Roof gardens can be installed with a wide variety of plants which must be chosen depending on the available soil depth as well as the climate. The desired type of roof garden has to be taken into consideration in the earliest design phases to accommodate the structural implications of the additional weight.

<http://www.greenroofs.org/>

http://www.epa.gov/6030_rsrcsenergy/6030_rsrcsenergy/greenroof/greenroof.html

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Green Housing Projects

The new Green Housing Projects gallery was provided by American Institute of Architects (AIA) through the AIA Housing Committee and the AIA Center for Communities by Design. The AIA, as a partner in the Enterprise Foundation's Green Communities Initiative, assembled and juried a selection of high quality designs for green housing projects. This gallery highlights some of the most innovative and inspiring green design in affordable housing that can be achieved. Jurors for the program were: Lance J. Brown, FAIA; Ulka Dev, FAIA; Deanne Evans, FAIA; Stephen Gottschalk; Rick Schreder, AIA; LEED AP; and Walker Weisbrod, AIA.

Jury Selections

Chestnut Court

- East Kelly Avenue Housing
- Enterprise Foundation's Green Communities Initiative
- FusionCore Apartments
- The Habitat for Humanity Project Apartments
- The Habitat for Humanity Project Apartments
- Waukegan Housing, Phases I & 2
- Waterfront Housing

Projects of Merit

- Annie Mitchell Homes
- Edington Residential
- Enterprise Foundation's Green Communities Initiative
- Jackson Habitat House
- Marin Jewish Center
- Marin Silver
- Marin Homes
- Seashore Plaza

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Prijsleiding Green

Gold Dust Apartments • Missoula, MT

Green Features

Project Summary: Gold Dust Apartments

OWNER/DEVELOPER
Monsour Associates

ARCHITECT
Heschong Mahone & Wells, Architects (HMA)

LANDSCAPE ARCHITECT
Landscape

CONTRACTORS
Soleil City Builders

PROPERTY MANAGEMENT
Penderwood Management Company

FUNDERS

TYPE:	Public Agency
Source:	Land Assembly
Source:	Building
Source:	Public Art
Source:	Enterprise Social Investment
Source:	Private Fund
Source:	Tax Credit Syndicator
Source:	Local Bank
Source:	Partners
Source:	Local Business
Source:	Community Foundation
Source:	Other
Source:	Private Grant

GoldDUST began back development with an intensive design charrette. The Gold Dust design charrette involved over 70 low-income families, neighbors, artists, professionals, and elected officials. Charrette participants volunteered a day and a half to learn about, wrestle with, and propose innovative strategies for developing high quality affordable housing.

Out of this charrette emerged some innovative ideas for affordable housing. In addition to providing 10 affordable rental units for low income families and individuals, the building also includes a community art gallery, a coffee shop, a

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Community Groups for Workshops, Meetings, and Art Events such as a "Carmen cookie exchange". It is also a community art gallery directed by resident artists with new displays each month open during Monsour's gallery night.

The Gold Dust Apartments were designed to fit within the context of the historic neighborhood. The original steel truss frame of the warehouse buildings along the railroad and between the two historic tenements for the first ten blocks in order to match the adjacent building's historic setbacks. They are located in the heart of the Northside neighborhood, a distressed area with extensive blight and disinvestment. In the last 4 years of disinvestment and disinvestment, the neighborhood saw the end of demolition and revitalization. The Gold Dust is recognized as a cornerstone to this revitalization effort and is easily seen by people as they enter Missoula from the highway.

The development has re-introduced life and culture into the neglected neighborhood. Since the completion of the project, the neighboring historic buildings have been renovated, the art gallery within the building has become a popular place for local artists to gather, and the pedestrian bridge will have weekly arts and crafts sales on Saturday during the summer.

DEVELOPMENT PROFILE:
New construction rental apartment.

RESIDENT PROFILE:
Individuals and families making between 30% - 50% AMI.
SNHOI: 40 units per acre

DEVELOPMENT PROFILE	Total	Affordable	Units (F)	Rent
	100	100	100	\$700-\$800
	100	100	100	\$700-\$800
	100	100	100	\$700-\$800
Total:	10			

HOME Funds

Monsour Home Fund	Land Assembly	Landscaping	Energy Efficient	Public Art

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By reducing the area of the site dedicated to surface parking, local WORD negotiators were able to add additional buildings – one laundry and workshop facility and two townhomes. These three buildings also complement the older type buildings in the neighborhood. This helped maintain the visual density of the main buildings on the arterial street and the adjacent residential neighborhood.

The Gold Dust is next to a Department of Transportation road with a steep bank that borders the site. Local WORD negotiated to take control of the land on the bank and the city agreed to widen the site up to the boundary. This control allowed them to develop a more efficient pedestrian connection to the road and provided space for a park and plaza. This has been converted into a low-water, native plant demonstration project. Local WORD reports that the native plants are growing well and require little maintenance. Water care is more than they expected. While the plants are chosen for low-water consumption, care and watering is important the first few years while the plants get established.

Green building goals were established at the beginning of the project and pre-development meetings included a sustainability consultant and an energy consultant to make integrated design choices throughout the project. The result encourages a multi-disciplinary approach to creating sustainable housing. The apartments were designed to be energy efficient and the strategies include cross ventilation, operable windows, shading devices to protect from the summer sun, and solar orientation for solar panels. Exposed concrete floors help absorb solar heat and release it into the living spaces during cold weather through radiant heat in the winter months. All heating equipment is fueled by natural gas.

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care is more than may expect – water your plants are ...
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The Gold Dust has a 120' photovoltaic array which produces about 1/4 to 1/3 of the total power needed for the apartments. There are 80 panels in the system, each measuring 32 x 64 inches. The panels produce DC power, which is converted by inverters in the building basement to AC. The AC power is then fed back to the utility grid and is made available to the Gold Dust apartment. Excess power is sold back to the utility.

Local WORD considers healthy indoor air quality as a priority when making decisions about materials. All paints, adhesives and sealants are non-toxic or low VOC. Formaldehyde free wheatear-cellulose is used throughout the project. In addition the building was designed so that operable windows would provide effective cross ventilation.

The Gold Dust incorporated a number of durable materials in order to make the project a long-term economic asset. The siding for the building is metal and will remain functional for at least 50 years. All floor floors are mixed concrete and include a carbon fiber facing. The standard columns are custom made with additional strength fibers. Compared to laminate columns, which cost has proved

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The wheatgrass planters are custom-made with industrial strength hardware. Compared to laminate cabinetry, wheat-grass has proved to be a very durable material.

homeWORD has a beautiful roof top garden that incorporates permeable landscaping with vegetative roofs. This allows for rainwater to soak into the ground. There are two catch basins on the roof that collect rainwater and direct it to a rainwater harvesting system located in the parking area. There are also two permeable pavers located under the parking. These two pavers are made of perforated material and embedded in organic material. As oils, rain water and other liquids filter out the perforated pipe, the organic壤土 grows over any foreign substances.

As a result, there is much cleaner water being collected.

Construction waste: included products that were recycled during construction. There is a recycling shed for residents that driving and labeling their recyclables and homeWORD pays for recycling pick up. There is also a monthly newsletter for residents that includes recycling facts and reminders for residents to keep up good-recycling practices. A resident is designated to manage the shed in order to keep it in order and user friendly.

Lessons Learned from the developer: homeWORD has this advice for other affordable housing developers considering an environmentally responsible construction: "It would have been good to track in more detail where decisions were made on materials and specifications. We would have had a more organized "goal setting" that would have been tracked throughout our entire process. I would have documented what phases the construction process is in more detail."

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Green Features

Gold Dust Apartments	
Click here to view the AIA checklist	
Public Transportation	The project site is near a major arterial with bus transportation.
Green Development	The project density is 43 units per acre.
Public Health and Safety	The buildings were designed so that operable windows would provide effective cross ventilation and shading devices to protect from summer sun. Passive heating is provided by exposed concrete floors that absorb solar energy and release it slowly into the units.
Biodiversity	Window size and placement allows for daylighting throughout the units.
Green Roofs	A beautiful roof top garden has permanent landscaping and vegetable gardening boxes. Each summer a garden informs residents coordinate the gardening and offers organic gardening workshops to residents who have never gardened before.
Grid Paraffinization Method	Double glazed low-e windows were used.
Passive Efficiency, Health and Lighting	Heat is provided by high efficiency boilers through radiant slabs in the main building and a 90% efficient forced hot air furnace in the three small buildings. All heating equipment is fueled by natural gas.
Green Site, Rehabilitation/Upcycle	All units are equipped with Energy Star rated refrigerators.
Solar Energy	On site, there are 54 solar panels, which supply 10% of the total power needed for the apartments. There are old panels in the exterior, each measuring 32 x 64 inches. Excess power is sold back to the utility.
Renewables	The roof garden absorbs some roof water. Roof and parking run-off drain into two catch basins. Once the water reaches the basins, it goes through two permeable pavers. These two pavers are made of perforated material and embedded in organic material. As oils, rain water and other liquids filter out the perforated pipe, the organic壤土 grows over any foreign substances.
Water Efficient Landscaping	Gold Dust has low-water consumptive landscaping with drip irrigation on the rooftop.

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• East Kelly Avenue Housing	• Elijah Smale
• Five Point Apartments	• Feldenkay Family Homes
• FusionCore Apartments	• Jackson Habitat House
• The Gold Dust Apartments	• May Day Center
• The Hugger	• Merry Street
• Merrick Landing, Phases 1 & 2	• NewGen Homes
• Waterfront Housing	• Sedgwick Plaza

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Gallery Green Building Projects Green Features

Bruce Randolph • Denver, CO

Green Building Projects Green Features

Project Summary: Bruce Randolph Healthy Homes

OWNER/DEVELOPER Northeast Denver Housing Center, Inc.

ARCHITECT PCL Architects, Inc.

CONTRACTORS ABC Contractors, Inc.

PROPERTY MANAGEMENT Northeast Denver Housing Center, Inc.

FUNDERS City and County of Denver TYPE Project grant and other Construction loan

Park Bank

DEVELOPMENT TYPE New construction for low-income families.

RESIDENT PROFILE Families with children, low-income home buyers.

SIZE/TYPE 3 units per acre

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Engineering, a sustainable engineering and materials consultant, collaborated to create the green and energy efficient building specifications used for the Bruce Randolph Healthy Homes project. A design charrette was held with the developer, local architect, the City of Denver Development staff and graduate students and professors from the University of Colorado School of Architecture. The charrette established the sustainable goals for the project and the design team developed the plans and specifications for the community education of the project's progress. The design team goal was for the Bruce Randolph Healthy Homes to be affordable (60-80 percent of Area Median Income (AMI)), efficient, healthy and to have a minimal impact on the environment.

Less than two miles from downtown Denver, this five two- and three-bedroom townhome project has easy access to public transportation, shopping, and dining. The site is in the heart of the Clinton Hill neighborhood at Randolph Avenue and Filbert Street in the Clayton neighborhood. Clayton's residents are primarily African American and Hispanic and its housing stock is a mixture of turn-of-the-century Victorians and some "Urban Renewal" 1970-80 structures. The Bruce Randolph Healthy Homes were designed with traditional front porches, galvanized steel roofs, brick and stone entries to blend well with the older neighborhood houses.

The Bruce Randolph Healthy Homes were rated in the E-Star program at 89 and 90 points, or 5 stars for a model unit and 5-1/2 stars for the units on the market. The E-Star Rating, the lowest not met in the Bruce Randolph Healthy Homes will save the owner \$231 per year and reduce CO2 emissions by 3.5 tons/year compared to the same unit built to state code energy levels. Similarly, the middle units will reduce energy costs by 15% and reduce CO2 emissions by 2.5 tons/year. These improvements come standard with a reinforced, insulated building envelope, passive solar design and energy efficient mechanical systems. The

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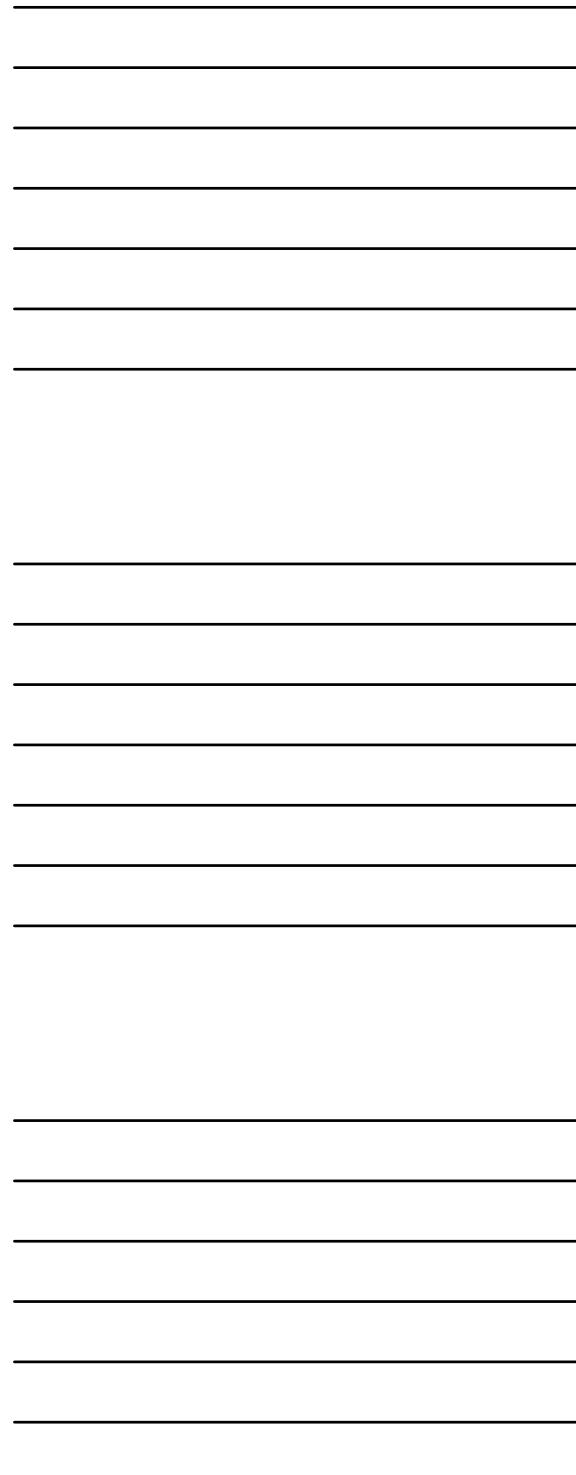
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bamboo was used instead of concrete forms (GCF) achieving an R-19, above grade exterior walls are 2x6 with R-21 insulation, and the cellulose insulated ceiling is R-38. The windows are double-glazed, low-e, argon filled with vinyl frames. Extensive air sealing was done to ensure a tight building envelope.

The townhomes are oriented so that each unit has southern exposure. The amount of south-facing glass and windows were designed to allow for natural solar gain during winter months without causing overheating in the summer. Although no active solar heating system is not included, in anticipation of a future system the back roofs of the townhouses are oriented due south, sloped at 40 degrees and prepared for PV (electrical conduit runs from the roof to the basement electrical panel).

The townhouse end units are heated with 92.0 AFUE furnaces, and middle units are 80.0 AFUE. All units have central cooling space and are sealed with mastic. The units have a 6.5 EER. Other features for the HVAC system include a Trane ductless mini-split system, compact fluorescent light fixtures and bulbs provided through waste, and a Tamark HV-1000 super-quiet energy efficient whole house fan with advanced dampers.

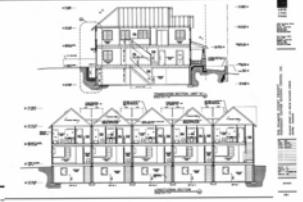
The deconstruction of two single family homes on site provided the opportunity for training of single family homeowners in Avenir's project. A weekend orientation was provided on site by the Mc Casa Resource Center in West Denver. The deconstruction helped on site with duct installation, duct sealing, and air sealing. The deconstruction resulted in the re-use of lumber, brick, doors and cabinets, diverting over 214 cubic yards of material from the landfill.



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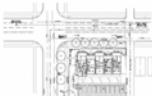
House|Resource|Links and Resources



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House|Resource|Links and Resources



Bruce Randolph Healthy Homes uses many green and/or durable materials that reduce long-term maintenance costs. The roof shingles will last for 40 years – twice as long as standard asphalt shingles. The windows are energy efficient and made from recycled and recyclable, carry made from recycled plastic bottles, metal powder coated steel railings which are more durable than wood and will not need repairing, ceramic tile, brick and masonry low maintenance exterior, fiber cement siding and FSC® Forest Stewardship Council certified framing lumber.

The homes have no VOC's and the floor finish sealers are water based no VOC's. For homes for residential insulation the EPA rates Denver as a Zone 1 radon area, meaning that 1/3 to 1/2 of homes have above the EPA hazard level for radon. As such, Bruce Randolph Healthy Homes has a radon detection system consisting of perforated PVC pipe embedded 6 in. 4' of ground under the slab. During a test, the PVC pipe carries any radon collected under the slab to the outside.

Low-flow toilets, showerheads, and other fixtures (kitchen and bath sink fixtures) were installed to reduce water use and save money. To reduce exterior water use, the houses have zoned irrigation and Xeriscaping designed with manual turf grass.

Bruce Randolph Healthy Homes Phase I was completed January 2001. All the homes were sold to families at or below 80 percent of the AMI. Qualifying as "Build Green" by Colorado's green builder program. The Bruce Randolph Healthy Homes demonstrate that new housing can be beautiful, durable, healthy, energy efficient and affordable.

Lessons Learned from the Project: The energy efficiency features at Bruce Randolph Healthy Homes are saving the families even more money than expected. The Northern Denver Housing Center researched the performance of the turbines and found that actual savings well exceeded expectations.

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Code Compliant Projection	E-Star Projection	Actual Eds
Gas (Annual Ed)	\$308.53	\$277.11
Electric (Annual Ed)	\$356.03	\$356.44

Green Features	
Grid-Tied Solar PV System Installed	Bruce Randolph Healthy Homes
Public Transportation	Less than two miles from downtown Denver, this project has easy access to public transportation.
Solar Irrigation Systems/Controls	The irrigation systems are oriented so that each unit has southern exposure. The amount of south-facing glass and the exterior overhangs were designed to allow maximum solar gain during winter without causing overheating in the summer.
Windows	The glass that serves the projects passive solar design also provides daylighting.
Insulation	All units are double-glazed, low-e, argon-filled.
Heat Recovery Ventilation	Wind units are heated with 82.0 AFUE. Meltarts, L. Meltarts units are 80.0 AFUE. All ducts are within conditioned space and are sealed w/ mastic.
Water Efficiency/Harvesting	The homes have zoned irrigation and Xeriscaping designed with minimal turf grass.
Recycled Content Materials	The demolition of two existing homes on the site resulted in the re-use of lumber, brick, doors and cabinets, drywall, and insulation.
Low-VOC Paint	All interior paint used in this project has no VOC's and the floor finish sealers are water based no VOC's formulated for residential hardwood floors.

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Green Housing Projects

The new Green Housing Projects gallery was provided by American Institute of Architects (AIA) through the AIA Housing Committee and the AIA Center for Communities by Design. The AIA, as a partner in the Enterprise Foundation's Green Communities Initiative, assembled and juried a selection of high quality designs for green housing projects. This gallery highlights some of the most innovative and inspiring ways that green design in affordable housing can be achieved. Jurors for the program were Lance J. Brown, FAIA; Uta Oen, FAIA; Deanne Evans, FAIA; Stephen Goldsmith; Rick Schreder, AIA; LEED AP; and Walker Weisbrod, AIA.

Jury Selections

• Chestnut Court
 • East Kelly Avenue Housing
 • Emerald Apartments
 • FallonCore Apartments
 • The Haven
 • Merrick Lending Phases 1 & 2
 • Waterfront Housing

Projects of Merit

- Anne Mitchell Homes
- Copley Residential
- East Kelly Avenue Homes
- Jackson Habitat House
- Maywood Center
- Maywood Homes
- NewGen Homes
- Sanctuary Place

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Green Housing Projects

Sanctuary Place - Chicago, IL

Send a Developer

- National
- Midwest
- Northeast
- Southwest
- California
- Philadelphia
- Seattle/Tacoma/Los Angeles

Green Features

Project Summary: Sanctuary Place

OWNER/DEVELOPER: Interfaith Housing Development Corporation of Chicago

ARCHITECT: Van Essack Architecture/Habitat Preservation

LANDSCAPE ARCHITECT: Michael Van Esack

CONTRACTORS: Michael Van Esack

PROPERTY MANAGEMENT: Interfaith Housing Development Corporation of Chicago

FUNDERS:

• Chicago Land Investment	TOTAL
• Community Development Fund	Grant
• Authority's Trust Fund	Grant
• Neighborhood Fund for Fair Housing	Grant
• Department of Commerce and Economic Opportunity	Grant
• Chicago Department of Environment	Grant
• Illinois Clean Energy Foundation	Grant

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Green Housing Projects

Sanctuary Place provides permanent housing and a healthy, dignified environment for women who are homeless, often formerly incarcerated, and who have a history of domestic abuse, substance abuse, HIV/AIDS, or mental illness. Sanctuary Place includes six 3-bedroom townhouses and a 63-unit apartment building. The apartment building includes a social service office, laundry facility, and a large meeting room or "living room" that offers a private, comfortable space for mothers to meet with their families as they strive toward reentry.

DEVELOPMENT PROFILE:

Sanctuary Place accommodates single room occupancy and up to three-bedroom households.

RESIDENT PROFILE:

Sanctuary Place accommodates income women with a chronic substance abuse history, income women with a chronic mental health history, and income women with a history of domestic abuse.

DENSITY: 69 units per acre

DEVELOPMENT COSTS:

• Land: \$28,400	• Site Prep: \$10,000	• Total: \$38,400
• Construction costs: \$1,200,320	• Other costs: \$100,000	• Total Construction costs: \$1,300,320
• Total Development costs: \$1,338,720	• Total Construction costs: \$1,300,320	

CONSTRUCTION TYPE: Masonry.

DEVELOPMENT COSTS:

• Land: \$28,400	• Site Prep: \$10,000	• Total: \$38,400
• Construction costs: \$1,200,320	• Other costs: \$100,000	• Total Construction costs: \$1,300,320
• Total Development costs: \$1,338,720	• Total Construction costs: \$1,300,320	

Before Sanctuary Place's design and construction began, the developer, Interfaith Housing Development Corporation of Chicago, sought out the AIA's Affordable Housing Design Advisor to receive technical assistance from the AIA's Green Communities by Design program to help them create a green design for the project.

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Before Sanctuary Place's design and construction began, the developer, Interfaith Housing Development Corporation of Chicago (IHDC), conducted numerous community outreach meetings to answer concerns of local residents' and to gather neighborhood input. IHDC also collaborated with the West Highland Park Management Council, a neighborhood advocacy group. These efforts were instrumental in determining the location and the importance of the design of Sanctuary Place to be built.

Appropriate levels of safety, security, and privacy were key goals of the overall project design. IHDC sought a building that looks like "low-income housing." To that end, large Chicago-style windows, extensive masonry patterning, balconies and well landscaped green spaces evoke the look of market rate apartment buildings in the surrounding Chicago neighborhoods.

The high quality design and construction add lasting value to the *curb appeal*. Apartments at Sanctuary Place are spacious one-room units solidly built with traditional materials. Featuring angled walls, ten-foot ceilings, and extensive recessed closets, each 320 square-foot studio feels roomy and airy. Each unit has its own entrance and includes a private balcony. The building's exterior is light-colored, which optimizes daylight and avoids the dark hallway effect of many apartment buildings and reduces electric needs. A sense of community on each floor is encouraged with hallways clustered into "neighborhoods" of four units each, reducing the monotony of long corridor and creating a sense of place.



The project site was selected for its proximity to transit and its potential to act as a redevelopment catalyst in the area. The site was a graphically ugly parcel that had been used for decades as a parking lot for the adjacent Wal-Mart supermarket and its associated material waste. The site layout and building placement create an atmosphere of security and safety allowing for easy observation, "eyes on the street", while maintaining a sense of privacy. On the corner of a major intersection, Sanctuary Place creates a gateway to the historic state registered bypass. At its center, the Sanctuary Place apartment building maximizes what local zoning allows and anticipates

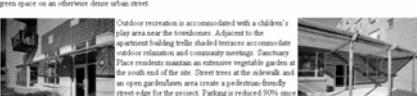
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that a structural masonry wall would have to be. The Sanctuary Place apartment building setback maintains the established street edge while the terraces are set back another 20 feet. Though mainly driven by security and visibility issues, the setback creates a pleasant green space on an otherwise dense urban street.



Children or recreation are accommodated with a children's play area near the playground. Adjacent to the apartment building, trellised terraces accommodate vendor relations and community meetings. Sanctuary Place is located on a hillside, with the building situated on the south end of the site. Street trees at the sidewalk and an open greenlawns area create a pedestrian-friendly edge for the project. Pedestrian access from the site to the street is 1/4 mile from the bus stop and 1/2 mile of elevated road travel. Only 13 parking spaces had to be provided and they are directly adjacent to the entry, allowing very little of the site to be paved.

To minimize water infiltration, the site uses perforated below-grade piping and on-site retention systems. For reduced water use, the project uses low-flow toilets and fixtures. A low-tech approach to roof drainage solves a few problems at Sanctuary Place. Rather than using roof drains in the apartment areas, there are traditional gutters and downspouts. This allows for more time to the year for wastewater infiltration, which is encouraged by the building's design for early detection of floods.

The sustainable material strategy for Sanctuary Place was to create a durable envelope using long-lasting, low-maintenance materials without a specific emphasis on recycled content. Brick is the primary exterior cladding; the windows are aluminum, thermally broken low-e and the roof is modified bitumen. Interiors include metal door frames, two insulon floors in all public corridors and dwelling units, and commercial grade high recycled-content carpet in offices. The public bathrooom doors are recycled glass tile.

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Because efficiency was inherent to the apartment building's success, passive design made perpendicular to the exterior, and concrete plank floors and brick veneer walls wrap the building. For the construction waste that was generated, through recycling was required. Typing fees are high in the Chicago area, especially for mixed-b-waste loads, thus there was a strong incentive to separate and recycle.

Because many Sanctuary Place residents have respiratory issues, superior indoor air quality was a key project goal. Rooms are continuously exhausted, and a heat wheel energy recovery ventilator transfers the heat from the exhaust air to the fresh air for the corners. This ventilation scheme prevents cigarette smoke from contaminating the corner and non-smoking rooms. Masonry floors were intentionally designed to be thicker than standard. This was done to allow for continuous exterior wall construction using Thermac-Evac insulating drainage board before any water penetration and the potential for mold.



At Sanctuary Place the energy-efficient and renewable energy technologies reduce operating costs by at least \$200,000 each year. Solar hot water panels provide 75% of residents' hot water needs and a high efficiency electric "heat-elevators" saves \$8,000-\$15,000 in annual operating costs. For reduced electric loads, light shelves have been placed in the interior to allow multiple lighting levels, helping occupants make use of daylight. The townhouses have high efficiency furnaces and hot water heaters. The apartments are heated and cooled by thermal AC/heating units—the apartment building is all electric, so no central heating. To further reduce energy consumption, the building envelope was made as tight as possible. The building envelope extremely well insulated and air tight for reduced heat gain and loss. As such, the exterior walls are R-25, the roof is R-40 and the windows are double paned with low-emissivity glass and solar shade (high reflectance) to reduce the impact of summer sun on the building. Sanctuary Place exceeds the requirements of the Illinois Department of Commerce and Economic Opportunity for energy efficiency in affordable housing.

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Lessons Learned from the architect: "As far as we're concerned, without social equity you cannot have sustainability. Sanctuary Place was designed and built to be at high quality and attractive as any market rate project. Offering the residents a place to live and thrive that is on par with their neighbors was of the utmost importance to our sustainability goals.

Our owner was a green champion because green served the mission of the project. Many residents at Sanctuary Place have respiratory problems, so green in terms of IAQ was really important. Green goals that did not serve air quality were less of a priority. So finding the overlay between your project's needs and how they can be served by going green can align both sets of priorities". Kevin Pierce, Sanctuary Place architect

Green Features	Sanctuary Place
Site & Context	Click here to see the full affiliated Green Guidelines
Site & Context	The site was a gray field infill parcel that had been vacant for many years so no demolition was needed.
Access to Public Transportation	The site is within 1/4 mile of two bus lines and 1/2 mile of elevated rapid transit.
Green Infrastructure	The project density is 69 units per acre.
Public Health, Safety, and Welfare	A high albedo reflectance roof reduces the impact of summer sun on the buildings.
Building	Light shelves harvest daylight. Dual light switching in offices allows multiple lighting levels, helping occupants make use of daylight. Motion sensors and occupancy sensors provide ample daylighting within the units. Credit considers avoid the dark hollow effect of many apartment buildings and reduce electric needs.
Insulation	Exterior walls are R-25, the roofs are R-40.
Windows	Windows are double glazed low-e
Daylight, Ventilation, Windows	

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Access to Public Transportation: The site is within 1/4 mile of two bus lines and 1/2 mile of elevated rapid transit.

Green Infrastructure: The project density is 69 units per acre.

Public Health, Safety, and Welfare: A high albedo reflectance roof reduces the impact of summer sun on the buildings.

Building: Light shelves harvest daylight. Dual light switching in offices allows multiple lighting levels, helping occupants make use of daylight. Motion sensors and occupancy sensors provide ample daylighting within the units. Credit considers avoid the dark hollow effect of many apartment buildings and reduce electric needs.

Insulation: Exterior walls are R-25, the roofs are R-40.

Windows: Windows are double glazed low-e

Daylight, Ventilation, Windows: The apartments have high efficiency furnaces and hot water heaters.

Water Efficiency, Materials, and Safety: Solar hot water panels provide 75% of residents' hot water needs.

Stormwater Management: Rainwater harvesting system is used to collect rainwater for irrigation.

Water Savings Assessments: For reduced water use, the project uses low-flow toilets and faucets.

Land Materials: Concrete, brick, steel studs, rebar/reuse insulation.

Recycled Content Materials: The offices have commercial grade high recycled-content carpet, the public bathroom floors are recycled glass tile.

Low-VOC Materials: Low-VOC paints and sealants were used.

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Welcome to the Affordable Housing Design Advisor

If you're part of the solution to America's critical affordable housing challenge, this site is for you. The Affordable Housing Design Advisor is a one-stop shop for design ideas from successful affordable housing projects all over the country, and the people who made them happen.

Good design can make a world of difference for the people who will live in the affordable housing you help build, and for the people who will benefit from it. The Affordable Housing Design Advisor is here to help you at every step:

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- [Design It for You](#)
- [Costs And Details](#)
- [What's New](#)
- [Green Housing - It's Here!](#)
- [AIA Affordable Green Guidelines](#)
- [AIA 100+ Best Green Projects](#)
- [Compendium Design Awards Call for Entries](#)

DESIGN CHECKLIST

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Affordable Green Guidelines

The following are guidelines designed to help you review Green Building practices for inclusion in your housing design. Not all terms are practical in all circumstances depending on climate and availability of systems or materials. Initial costs vary and often can be made up over time by energy cost savings. These are options the developer and design team should consider at the beginning of the design process.

For help with some of these terms, go to the GREEN GLOSSARY

Table of Contents

- Community Context
- Public Space
- Building Design
- Water Conservation and Management
- Energy Efficient Systems
- Reduced and Sustainable Material Use
- Recycling During and Post Occupancy
- Green Building Rating Systems for Existing Buildings
- Quality Assurance/Commissioning
- Innovative Design Strategies

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Community Context

- Encourage infill and avoid greenfield (undeveloped land) development by buying existing buildings, reusing existing sites or within urban growth boundaries. Try to use one of the following:
 - Infill parcels—surrounded on all sides by development
 - Urban renewal—existing buildings and infrastructure
 - Mixed-use developments—mix of retail, office, commercial, and housing
 - Adaptive reuse—recycle existing buildings for new uses
 - Compact development—higher density than sprawl or attached housing
 - Reclaimed—sites that have been cleared of hazardous contamination to make usable for construction
- Locate projects near public transportation if available or request that it be extended to or near your development.
- Use existing grid system of streets
- Landscaping and Site Preparation:
 - Use plant species that thrive in local climate with minimal irrigation
 - Use efficient irrigation systems such as drip, or a measured moisture level system (e.g., soaker hoses)
 - Mitigate wind and sun with evergreens and deciduous trees
 - Minimize heat island effect at paved areas, i.e., provide a 40 percent reduction in the amount of paved or paved alternative paving such as light color or permeable or grass-covered pavement
 - Save existing mature trees on site

Back to the Tools

Site Design

- Public Open Spaces
 - Where feasible, provide usable areas where the community can meet
