Building America
U.S. Department of Energy
Research Toward Zero Energy Homes

BIRA

ConSol

BUILDING INDUSTRY RESEARCH ALLIANCE

| A BRIEF OVERVIEW OF BIRA | THE BUILDING AMERICA TEAM LED BY CONSOL |

SYSTEMS

Builders: Clarum & Pinnacle
Projects: *Borrego Springs & The Vinings*
Location: Borrego Springs & Las Vegas
Units: 2 Single-family Homes
Climate Zone: Hot/Mixed Dry
BIRA is studying the highly-efficient water-cooled condensing units manufactured by Freus in both of these prototype homes to better understand the attributes of water-cooled condensers.

Builder: Alvis Projects
Project: *Affordable Green*
Location: Fresno, CA
Climate Zone: Hot/Mixed Dry
The Concrete Structural Insulated Panels (CSIP) tested in this project have the possibility to be a cost-effective solution to building tight, well insulated, peak shifting homes in cooling climates.

Builder: Schingler Dev. Co.
Project: Custom Home
Location: Stockton, CA
Climate Zone: Hot/Mixed Dry
Utilizing climates with low humidity and a diurnal temperature swing, NightBreeze™ whole house ventilation provides automated cooling with filtered night air using the HVAC system.

PROTOTYPES

Builder: Pinnacle Homes
Project: *The Vinings*
Location: Las Vegas, NV
Units: 2 Single-family Homes
Climate Zone: Hot/Mixed Dry
Serving as a real-life laboratory for innovative research, two identical homes were built side by side: one using conventional methods and one with innovative new technologies.

Builder: Clarum Homes
Project: *Borrego Springs*
Location: Borrego Springs, CA
Units: 4 Single-family Homes
Climate Zone: Hot/Mixed Dry
Four highly-efficient desert homes with the same floor plan and different state-of-the-art wall and cooling systems will provide lessons that will be applied to future housing developments.

COMMUNITIES

Builder: Premier Homes
Project: *Premier Gardens*
Location: Rancho Cordova, CA
Units: 98 Single-family Homes
Climate Zone: Hot/Mixed Dry
Information gathered and analyzed represents an essential case study for designers, builders, and energy analysts interested in building high performance homes with predictable results.

Builder: Clarum Homes
Project: *Vista Montaña*
Location: Watsonville, CA
Units: 257 Single-family Homes
Climate Zone: Marine
With Building America support and without paid advertising, Clarum's first large-scale, Near Zero Energy community (the largest in the country to date) sold three times faster than expected.

Builder: Centex Homes
Project: *Avignon*
Location: Pleasanton, CA
Units: 32 Single-family Homes
Climate Zone: Hot/Mixed Dry
Centex Homes' "Powersave Plus" community blends cost-effective energy efficient features with roof integrated solar electric systems to reduce homeowners' average electric bills by 70%.

Builder: Treasure Homes
Project: *Fallen Leaf*
Location: Natomas, CA
Units: 32 Single-family Homes
Climate Zone: Hot/Mixed Dry
Sacramento area's *Fallen Leaf at Riverbend* answers the universal problem of urban sprawl through the construction of desirable, attractive, energy-efficient, solar homes in an infill area.

Builder: Seastar Communities
Project: *Sonata*
Location: Redding, CA
Units: 84 Single-family Homes
Climate Zone: Hot/Mixed Dry
Seastar Communities opened *Sonata*, the first standard Zero Energy Neighborhood (ZEN) of its kind in the Redding area, designed to save homebuyers up to 50% on utility costs.

Builder Benefits of Working with BIRA

- Benefit from a wide breadth of knowledge on construction practices, code issues, marketability, rebates and cost
- Evaluate energy features and combinations to optimize energy saving investments
- Gain national publicity and support from the U.S. Department of Energy's Building America program and the National Renewable Energy Laboratory
- Enjoy industry recognition and publicity from BIRA presentations, conference papers, and awards
- Learn about the homes you build through in-depth instrumentation and testing to determine efficacy of new building technologies and designs
- Play a role in determining how to get to Net Zero Energy while remaining cost neutral for home buyers

BIRA PARTNERS

Architects
Bassenian/Lagoni Architects
EDI Architecture, Inc.
Environmental Planning & Design, LLC
HLD Landscape Group
Living Systems Architecture
Shimotsu Architecture

Builders
Alvis Projects, Inc.
Centex Homes
Clarum Homes
Cotton Wood Park West
Habitat For Humanity
Holton Homes
KB Homes
Kurowski Development
Martha Rose Construction
MCM Healthy Buildings
Meridian Builders
Meritage Homes
Morrison Homes
New Tradition Homes
Pardee Homes
Pinnacle Homes
Ponderosa Homes
Premier Homes
Pulte Homes
Schingler Development
Seastar Homes
Shea Homes
Standard Pacific Homes
StarTech Homes
Summerhill Homes
TaylorMade Homes, Inc.
Tierra Concrete
Treasure Homes
VJ Construction
William Lyons Companies
Wonderland Hill Development

Energy Consultants
Alliance to Save Energy
Colorado Energy Group
ConSol
Davis Energy Group
Green INQ
Pacific Municipal Consultants
Paragon Consulting
Spectrum Energy Inc.

Energy Offices
California Energy Commission
New Mexico Energy, Minerals & Natural Resources Department
Nevada State Energy Office
Program
Washington State Energy Office
Washington State Extension Energy

Industries
Cardinal Glass
Carrier
Dow Chemical
Freus
Innovative Openings
Shimotsu Distribution Inc. (SDI)
Lennox Industries
Lithonia Lighting
Metlund
Owens Corning
Precast Management
Rinnai

Local Governments
Rancho Cordova
Roseville
Sacramento
San Francisco
San Jose
Watsonville

Mortgages
CTX Mortgage
Fannie Mae

Researchers
Arizona State University
Building Industry Institute
California Lighting Technology Center
California State University Chico
Fluent, Inc.
Lawrence Berkeley National Laboratory
National Renewable Energy Laboratory
Oak Ridge National Laboratory
Thermal Energy Specialists
University of Nevada, Las Vegas

PV: Solar Energy
GE Energy
Old Country Roofing
Open Energy
Sharp

Land Planners
Planning Center
The Hodgson Company

Utilities
Redding Electric
Roseville Electric
Sacramento Municipal Utility District

About the Building America Program and BIRA

The U.S. Department of Energy's Building America program is a public/private partnership that provides energy solutions for production homebuilders through seven teams. The Building Industry Research Alliance (BIRA), led by ConSol, is a diverse coalition of industry partners focused on energy efficiency and renewable energy. The Zero Energy Homes program is a Building America research project aimed at achieving net Zero Energy Homes by 2020 that builders across the country can successfully build and market.

BIRA's main activities include:

- Providing energy analysis and design to reduce a home's energy bills by 40-70%
- Researching promising new and innovative technologies
- Working with cities, jurisdictions, states, utilities, and other stakeholders to mainstream energy efficiency and renewable energy technologies
- Presenting and publishing research findings aimed at educating the building industry
- Creating proven solutions for production homebuilders that make high performance homes both cost-effective and marketable

About ConSol

ConSol has been the leading developer of energy solutions for production builders for over 25 years. Their services include mechanical engineering, energy code compliance, ComfortWise products, and energy and resource consulting. ConSol's residential construction partners have been able to increase their profitability and quality while reducing their risk through services ConSol provides.

CONTACTS

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