



GEOHERMAL HVAC

Two Communities,
One Groundbreaking
Approach

Whether rooted in farmland
or shaped by sea breeze,
residential developments
benefit from high-performance
geothermal heating and cooling.

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Tim Portzen, vice president,
Diligent Development



TWO VERY DIFFERENT COMMUNITIES ARE PROVING that ground source heat pumps can deliver comfort, efficiency, and environmental harmony in any climate. Middlebrook Farms and Seaside Retreat are separated by more than 1,000 miles and vastly different terrains, but both developments share a common goal: to build communities that are healthier, more connected, and resilient for the long term.

By tapping into the consistent temperature below the earth’s surface, both developments are experiencing energy- and cost-savings from a high-efficiency, low-impact technology: geothermal heating and cooling.

Together, these communities reflect a growing trend: developments that deliver exceptional energy-efficient comfort, helping preserve beauty, livability and market appeal.

Comfort from the Ground Up: Inside Iowa's Middlebrook Farms

In the heart of Iowa, where development often brushes up against farmland, Middlebrook Farms reimagines the past while charting a more mindful path forward. As an “agrihood,” this community is anchored by a working farm and blends walkable urban design and architectural character.

Middlebrook is inspired by Iowa's turn-of-the-century county seats—walkable small towns centered around Main Streets and mixed-use buildings. “We’re trying to bring back the spirit

of those historic towns,” says Tim Portzen, vice president of Diligent Development. “They were the original walkable communities that offered services, community, and character. Middlebrook is a modern reflection of that.”

That ethos extends to the land itself. With a community garden, on-site farm stand, and a 70-acre commercial orchard growing apples, berries, and cut flowers, Middlebrook invites residents to connect with where their food comes from. “Health and sustainability are at the forefront,” says sales and marketing lead Kalen Ludwig.

“Whether it’s picking produce or walking to the local market, it’s about engaging with nature.”

Architecturally, the community favors historically inspired styles like Craftsman, farmhouse and Tudor. Here, the front porch invites neighborly conversation. “The goal is to foster connection—houses that face the street, where people interact,” says Ludwig.

The adoption of geothermal HVAC further underscores the community’s agrarian lifestyle. In a place that emphasizes locally grown food, it makes sense to source your heating

NATURALLY ALIGNED: Middlebrook and Geothermal

- **Taps Local Resources:** Just as Middlebrook emphasizes locally grown food, geothermal draws on a consistent, renewable energy source right beneath the ground for warmth
- **Preserves Aesthetics:** Without the need for bulky, noisy outdoor condenser units, geothermal systems support Middlebrook’s architectural guidelines and enhance its quiet, community-focused streetscapes.
- **Supports Long-Term Affordability:** By partnering with a geothermal utility provider, homeowners can access high-efficiency systems with little to no upfront cost while dramatically lowering their energy bills and consumption. Combined with incentives, geothermal systems may even be more affordable than conventional HVAC units in some scenarios.
- **Performs in Iowa’s Climate:** With cold winters and hot summers, Iowa demands versatile HVAC systems. Geothermal delivers reliable comfort year-round, regardless of extreme outdoor temperatures.





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Dave Curtis, co-managing partner, LNWA.

and cooling from the ground, as well. Ground-source heat pumps are standard in mixed-use buildings such as a lively café, bar and general store housed in a historic one-room schoolhouse. Likewise, townhomes are equipped with geothermal technology while a growing number of custom homes are opting for it, too.

Orca, a geothermal utility provider, absorbs the initial infrastructure outlay for the 300-foot wells and recovers it through utility billing—making geothermal more accessible to homeowners.

“We’re not doing this to chase certifications,” says Portzen. “It just aligns with our values. Geothermal is quiet, efficient, and avoids unsightly outdoor condenser units, which also helps with aesthetics and community feel.”

Planned for 1,500 homes with 50 built, Middlebrook is already attracting national interest. “We’re seeing a lot of out-of-state buyers,” Ludwig notes. “People are drawn to the nostalgia and authenticity.”

In an age of sprawling suburbs and generic subdivisions, Middlebrook Farms is proving that development can be both forward-thinking and deeply rooted in place.

Seaside Retreat: Designing a Net-Zero-Ready Community on Georgia’s Coast

On Jekyll Island, Georgia’s unique state-owned barrier island, Seaside Retreat is a 25-home community carefully crafted to be net-zero-ready and in harmony with its natural surroundings.

Set on the site of a former beachside motel, Seaside Retreat, developed by Leon N. Weiner & Associates (LNWA), reflects the developer’s deep engagement with the island going back decades. “This is the last developable oceanfront site here, and we wanted to do something special,” says Dave Curtis, co-managing partner at LNWA. That meant building high-performance homes that minimize environmental impact while offering luxury and comfort.

To achieve this, LNWA brought on SEA Studio, a Delaware-based architecture firm led by principal architect Scott Edmonston. “We designed each home to respond to the specific lot’s sun exposure, prevailing breezes, and surrounding live oaks,” says Edmonston. The team drew inspiration from coastal vernacular architecture in the Carolinas and Georgia, combining it with passive solar and ventilation strategies used before modern HVAC.

While the homes exude timeless, Southern charm, what's under the surface is thoroughly modern. Every house is equipped with a vertical closed-loop geothermal heating and cooling system, eliminating the need for noisy outdoor condenser units and preserving the island's tranquil character. By keeping critical components underground and indoors, geothermal ensures long-term durability and consistent performance. In harsh seaside conditions that corrode ordinary HVAC equipment, ground source heat pumps keep on ticking. "It's quiet, efficient, and especially suited to the coastal climate," says

Edmonston. Wells were drilled to a depth of 300 feet—completed in advance for all homes.

Educating sales teams and buyers on geothermal benefits was key. "Most buyers didn't come in asking for it," Curtis says, "but once we explained the comfort, quiet, and long-term savings, they were all in."

Beyond the home, geothermal helps ease the burden on the local power grid by reducing peak energy demand during the hottest and coldest months. This not only supports long-term energy resilience but also aligns with the island's goal of maintaining

low-impact infrastructure.

The homes are built around strict environmental standards. In addition to preserving mature live oak trees, the design meets coastal lighting ordinances to protect sea turtles and incorporates native vegetation to stabilize dunes. Smaller homes face the ocean to reduce their impact, while taller ones behind them ensure everyone enjoys a view.

With 16 of the 25 homes already under contract, Seaside Retreat is proving that thoughtful, environmentally attuned development doesn't just make good ecological sense—it's good business too.



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COASTAL COMFORT:

Seaside Retreat's Geothermal Solution

- **Salt-Air Resistant:** With no outdoor condenser units exposed to corrosive salt air, geothermal systems last longer and require less maintenance—ideal for a coastal climate.
- **Quiet Comfort:** Moving HVAC components indoors eliminates the constant hum of outdoor units, preserving the peaceful, natural atmosphere of the island.
- **All-Season Efficiency:** Geothermal systems draw from the earth's stable underground temperature, delivering reliable heating and cooling regardless of humidity, heat waves, or cold snaps.
- **Supports Net-Zero Goals:** As part of a net-zero-ready design, geothermal dramatically reduces energy consumption, making it easier for homeowners to add solar and achieve full energy independence.



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