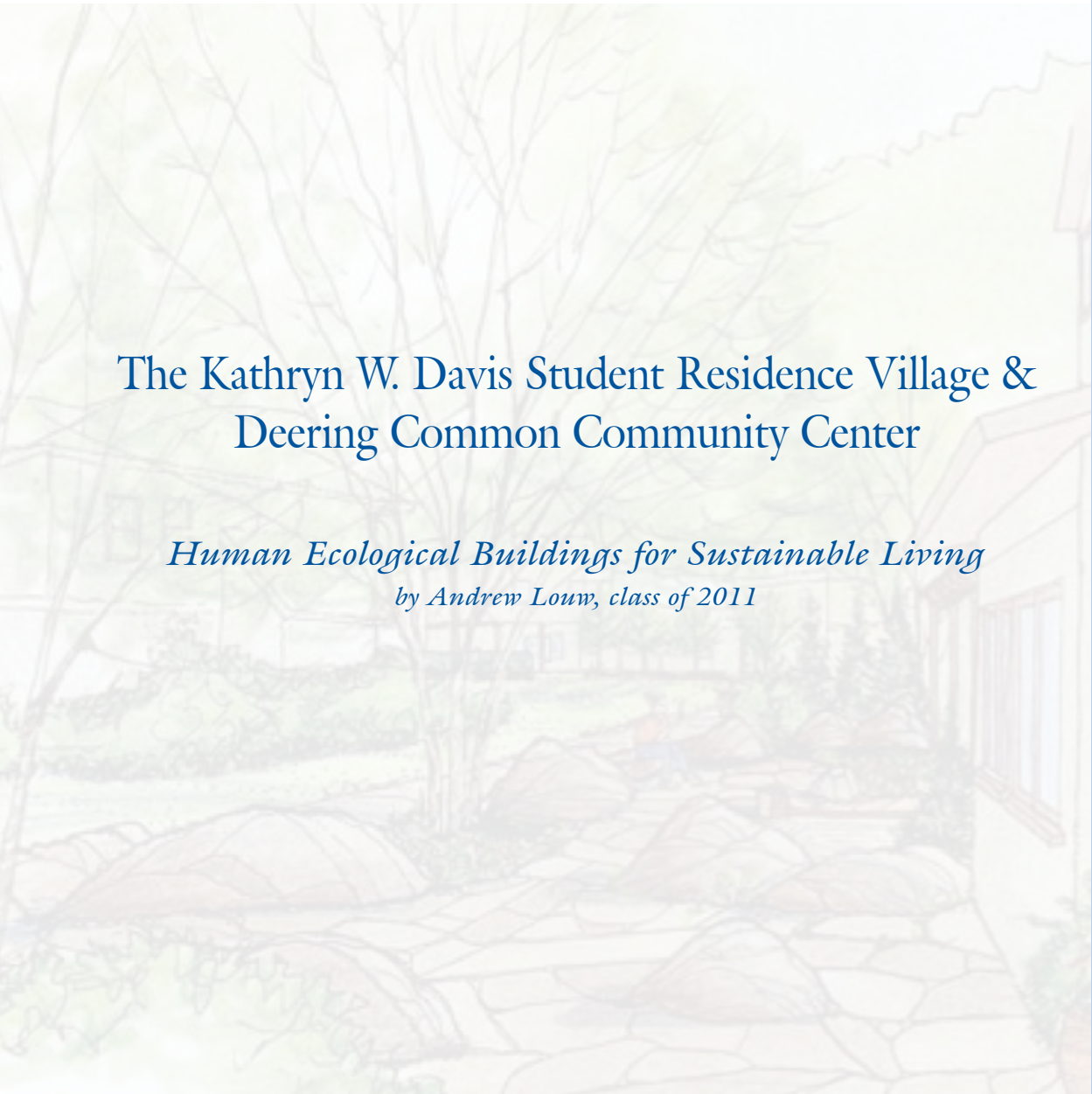


The Kathryn W. Davis Student Residence Village & Deering Common Community Center

Human Ecological Buildings for Sustainable Living

by Andrew Louw, class of 2011

life changing. world changing.

The Kathryn W. Davis Student Residence Village and Deering Common Community Center

College of the Atlantic's educational mission of environmental and social responsibility was once seen as best fitting within the realm of idealists. Now, after three decades of guiding students to apply their knowledge, skills and experience to the task of creating a better world, College of the Atlantic stands as a shining example of the power of idealism in action.

The College's new complex of buildings, the Kathryn W. Davis Student Residence Village and its creative re-use of the historic Sea Urchins into Deering Common Community Center, fully express the College's commitment to sustainability and community, heritage and beauty. Designed for a responsible and fervent community life, these buildings are a physical manifestation of human ecology.

Building a Community



Artist's impression of the Kathryn Davis Village: Looking south from the porch of Shorey House

Created around the idea of a meandering pedestrian street, the Kathryn W. Davis Student Residence Village features a series of landscaped courtyards interconnected by a primary campus walkway. The site plan integrates the Davis Village, composed of three new exceptionally sustainable student houses, with two historic shorefront cottages: Seafox (used as student housing) and the new campus center at Sea Urchins, now known as Deering Common Community Center.

The village atmosphere created by the community common transforms this space into a new hub on the COA campus. To welcome the whole community into this human ecological landscape, each of the three new residences also harbor common spaces: a media center, group-study area and games room open to all students.

The Kathryn W. Davis Student Residence Village

Living Responsibly

College of the Atlantic is committed to the principles of green design: creating buildings that maximize energy efficiency while minimizing adverse environmental impacts according to current sustainable practices and technologies. Beyond this, the College has pledged to use only renewable resources for heating by 2015. The construction of the Kathryn W. Davis Student Residence Village is an important step toward this ambitious goal.

The resource consciousness of these buildings is evident in every detail. The super-insulated design, with a foot of insulation and frequent thermal breaks, leads to an exceptional level of thermal integrity and thus a minimum of heat loss.

The primary heat source is a wood pellet boiler — pellets being local and renewable — via hydronic, in-floor radiant heating on the ground and hydronic wall-mounted heaters on upper floors. A heat recovery ventilation unit preheats incoming fresh air.

> I am deeply honored to have this excellent building named for me. To have such an environmentally advanced building be part of an academic institution means that each of the green advances will be amplified by COA's students — those who live within the village and those who share meals and friendships with their occupants.
>
> ~Kathryn W. Davis

To limit the energy used in heating water, warm gray water tempers incoming cold water. To drastically reduce water use, the buildings are fitted with composting toilets. Ultimately, the waste from these toilets will feed the surrounding landscape.

All windows are situated to maximize natural light. Recycled material is used when appropriate, including the non-emitting cellulose insulation made from shredded newspapers. These and other green design features serve as important educational



Artist's impression of the Kathryn Davis Village: Looking north from Seafox Courtyard

tools for members of the immediate community and the world at large.

The cost of the student village, estimated at $6.4 million, was met by a challenge grant of $2.5 million from the Shelby Cullom Davis Foundation in honor of Kathryn W. Davis.

Community-Centered Design

The Kathryn W. Davis Student Residence Village houses support COA's residential life program by creating an intimate atmosphere fostering a family-like environment — a place where students can learn by living and studying together. The simple house plan incorporates a ground floor that is entirely ADA-compliant. Ground-floor common spaces further create a sense of home and family-like community.

All six new student residences have ocean views and are oriented for optimum solar harvesting.

Walls, Floor and Insulation Materials

Double-stud walls create frequent thermal breaks to reduce heat loss. A foot of recycled cellulose was installed by Evergreen Home Performance LLC, owned by alumna Samantha Reigel Burbank '00 and her husband Richard Reigel Burbank. Stained, sealed floors on the first level combine cement and fly-ash (a cement by-product) and contain radiant in-floor heating. Upper floors are of prefinished Maine-grown birch and heated by hydronic forced air. Ceiling panels are made of recycled materials.

Building Form and Appearance

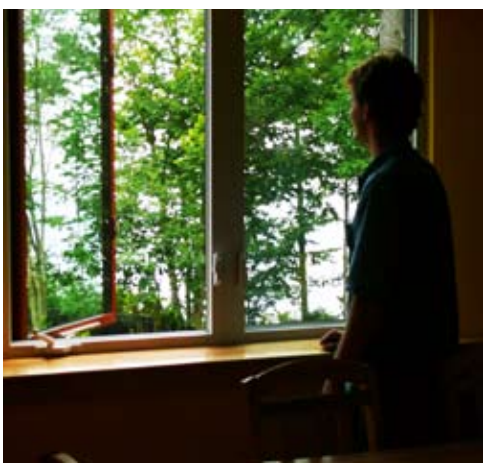
Clearly identifiable three-story houses



Due to the size constraints of the site, together with the desire to create clearly identifiable houses, the Kathryn W. Davis Village consists of three triple-story duplexes. Each house sports four single bedrooms in each of the four corners of the second floor and two larger doubles above. So as to not overwhelm the nearby shoreline with an overly tall profile, the upper level is created as an attic story with a steep (but lower) roof. The steep slope offers a significant area for the eventual plan of collecting and converting solar energy into electricity to power the buildings. The generously overhanging roofs increase the solar collection area of the roof planes and provide a "rain hat" — weather protection to the exterior wall.

Student input leads to significant design changes

Initially, the residences were conceived as three units surrounding a common courtyard. Before the design was accepted, however, students on the Campus Planning and Building Committee were asked to evaluate and mold the plans to the real needs of COA students, leading to a true human ecological complex.



Looking east from the Dority House dining room

Students felt that a single connected building would be too exclusive — reminiscent of a gated community. After much debate and discussion, the students asked that the initial, more confining arrangement be re-

designed into smaller, individual buildings, allowing a more intimate experience among those living there. The re-design also made the first floor spaces more welcoming to the greater COA community by routing the pathway through the housing to create the feeling of walking through a European pedestrian street. The simple modular design contained costs and creates a repetitive, aesthetically pleasing rhythm.



Wood Pellet Boiler and Heat Recovery System

Heat for the Kathryn W. Davis Student Residence Village and Deering Common is be supplied by a wood-pellet boiler burning sustainably harvested wood pellets, an energy source that is both renewable and supports the local economy. A central ventilation unit furthermore recovers heat that has circulated through the building to preheat incoming fresh air. To reduce the energy used to heat water, the buildings have a water heat recovery system which uses the gray water from showers and sinks to temper the incoming water.

Arrangement of Interior Space

Light on two sides in bedrooms

The houses feature four singles, one in each corner on the second floor, each receiving light through two sides. The top stories contain two double rooms.

Bay window alcoves in each bedroom

Each bedroom is enlivened by a bay window sitting alcove providing a measure of enchantment to the spacious bedrooms, as if they were tree houses. Pausing from their studies, students can glimpse vistas of Frenchman Bay or watch the antics of friends in the Seafox Courtyard below. These windows further serve as the bedrooms' daylighting "engines." Throughout the buildings, electric lighting is provided by compact fluorescent bulbs and light-emitting diodes, or LEDs, further reducing energy use.

Highlights for higher ceiling attic bedrooms

Since the double rooms on the third floor have higher ceilings but light only from the gable end, an additional transom allows daylight to penetrate deep into the double bedrooms.

Energy Conservation: Local Economies and LED Lighting

The building materials are mostly local, limiting transportation emissions while supporting Maine's economy. In addition to being oriented for maximum sunlight, reducing need for electric lighting, LED (light-emitting diodes) fittings are used where feasible. Lights in stairwells, landings and closets have motion-sensors to turn lights on when someone is there and off when he or she leaves. All classic fixtures are fitted with compact fluorescent bulbs. All appliances are US EPA Energy-Star® compliant and selected for energy efficiency. Each of the buildings has an electric meter that clearly displays energy consumption, educating occupants as to their consumption and challenging them to use less.



Interior Health

The energy recovery ventilation systems ensure circulation of fresh air. Interior finishing materials are local and sustainably harvested where possible, reducing transportation emissions. All paint (inside and out) is low- or no-VOC (volatile organic compounds). Durable wood furniture was selected from a regional manufacturer that uses only sustainably harvested wood. Other furnishings were chosen for their use of recycled and/or local materials that neither off-gas nor require harmful solvents for cleaning.



Deering Common Community Center

Moving Forward with Care for the Past



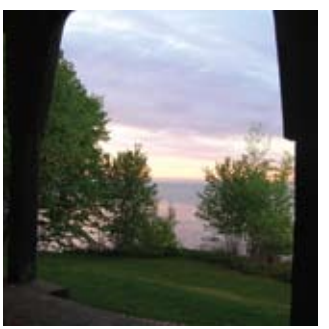
Sea Urchins as a summer cottage

Prior to the construction of the new housing, two units of student housing existed on the south end of the college campus: Seafox and Sea Urchins. These buildings were originally constructed as "cottages" during Bar Harbor's gilded age, when Mount Desert Island was a popular summer haven for wealthy northeastern urbanites. Yet most of Sea Urchins was unusable, and the price for the extensive renovations necessary to ensure its safety far exceeded the cost of new construction. Based on the architect's recommendations, along with the work of the Campus Planning and Building Committee and discussions at several campus-wide meetings, the College reluctantly decided to remove Sea Urchins. In its place would be one new housing unit.

Fast forward three years to the very week before the College was scheduled to bring the Kathryn W. Davis Student Residence Village to the Bar Harbor Planning Board. Late one night, Millard Dority, COA's director of buildings and grounds,







Images of Sea Urchins, known to a generation of students as "Ryles."

was looking at the building plans in his home office. He noticed that by removing and relocating just one wing of Sea Urchins, a number of the hazards would disappear and the building could become safe and accessible. Dority met with David Hales, president of the College, and Sarah Luke, COA's dean of student life. Soon plans were underway to move the third housing unit away from the shore and transform Sea Urchins into a much longed-for campus center. In it would be a café, a student lounge, dedicated offices for counselors and student life staff, music practice rooms and senior project space. The Deering family, who had already made a generous contribution to a brand-new campus center scheduled far into the future, was delighted to dedicate its money to preserving a historic building while also delivering a charming campus center to the College.

Unstinting Green Standards

Built in 1885 for Constance and Burton Harrison and named after one of the stakes marking the site revealed a cache of sea urchin shells, Sea Urchins has a storied history. The three-story, shingled cottage, designed by the Boston firm Rotch and Tilden, had only two other owners before being deeded to the College by Robert and Nancy Ryle in 1976.

Although students were glad to see an historic building preserved, they asked that the renovated building be subject to the same green standards of the Kathryn W. Davis Student Residence Village. The students were heard.

Water Conservation and Composting Toilets

To minimize water use — and maximize recycling — the buildings are fitted with waterless composting toilets. Ultimately, the waste from these Phoenix Composting toilets will be used to fertilize the surrounding landscape. Alumnus Abe Noe-Hays '00 of Full-Circle Compost Consulting installed the toilets with Ben Goldberg '90 representing the firm. In the Davis residences, ground-floor bathrooms are fitted with low-flow toilets, since composting toilets were not feasible.






Boiler and Bike Storage
Campus Walk
1
2
3
A
4
5
6
B
To Davis
Sea Fox Courtyard
7
C
8
9
Sea Fox



Kathryn W. Davis Student Residence Village and Deering Common Community Center

1. Eno House
2. The Eliot Study Room
3. Hamill House
4. Milliken House
5. The Robinson Games Room
6. Shorey House
7. Dority House
8. The Cushman Media Center
9. Millard House

Courtyards

A. Contemporary Courtyard
B. Japanese Courtyard
C. Maine Cottage Courtyard
D. Deering Common Courtyard

The Eliot Study Room

Located between the Hamill and Eno houses is the Eliot Study Room, a meeting area for group study sessions and late night homework. The room features tables and seating for up to twenty people. The Eliot Study Room is named in honor of Charles Eliot, a leading American landscape architect and environmentalist, through the generous support of Mr. and Mrs. Daniel Pierce.

The Robinson Games Room

Located between the Milliken and Shorey houses is the Robinson Games Room. This entertainment area is home to table tennis as well as communal washing and drying machines. Here students can come to relax and spend time with friends. The laundry area also features a movable linen folding station and short-term storage space for laundry baskets. The Robinson Games Room was made possible through the generous support of Roxana and Tony Robinson.

The Cushman Media Center

Located between the Millard and Dority houses is the Cushman Media Center, a seminar room for groups watching films and documentaries and for interactive video conferences. The room features stables and seating for up to twenty people. The Cushman Media Center was made possible through the generous support of Rod and Verena Cushman.

These are smart investments — economically and environmentally. More than residences, these spaces represent our fundamental values as an institution. They're designed to meet the full range of human needs — including fun.

~COA President David Hales

Kathryn W. Davis Student Residence Village Sustainability

Heat
- Wood pellet boiler, renewable and local
- Preheated incoming fresh air
- Grey water from showers preheats incoming cold water

Water
- Composting toilets on upper floors
- Low-flow fixtures on ground floor

Walls
- Double-stud walls minimize heat loss

Insulation
- 12” of non-emitting, recycled cellulose

Windows
- Triple-glazed

Air
- Energy recovery ventilation system ensures fresh air

Materials
- Local and sustainably harvested wood when possible
- No off-gassing

Waste
- Built-in recycling containers
- Composting receptacles in every kitchen

Electricity
- From renewable hydropower throughout campus

Education
- Individual building meters reveal specific energy use
- Common areas maximize student discourse — and fun
- Student input into original plans fostered community-oriented design

Deering Common Community Center Sustainability

Heat
- Wood pellet boiler, renewable and local
- Preheated incoming fresh air

Water
- Waterless composting toilets throughout
- Waterless urinals

Walls
- Strapping added to original single-stud walls, reducing heat loss

Insulation
- Minimum of 5” of closed cell spray foam

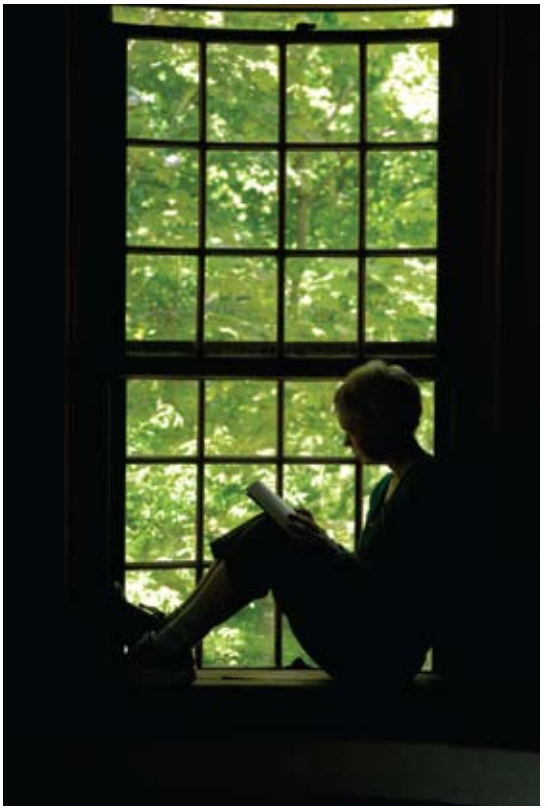
Windows
- New windows are triple-glazed; historic panes have storm window fittings

Air
- Energy recovery ventilation system ensures fresh air

Materials
- Local and sustainably harvested wood when possible
- No off-gassing

Waste
- Built-in recycling containers
- Composting receptacles in the kitchen

Preservation Via Creative Re-Use
- Reused flooring where possible
- Entranceway reading nook fully restored
- Lighthouse tower feature kept on each floor
- Restored fireplace
- Multi-paned windows retained in much of ground floor
- Wainscoting, wood panels retained where possible



A student reads inside the lovely Deering Common entranceway reading nook that has been fully restored.

Creative Re-Use

To turn this historic summer cottage into a green campus center that would complement the new housing units of the Kathryn W. Davis Student Residence Village, COA contracted the firm of Stewart Brecher Architects of Bar Harbor. Complete with a 3,000-square-foot addition, the estimated cost of this project was $2.4 million, much reduced from the $10 million estimated for the center originally planned for COA.

Though converting a nineteenth century summer cottage into a sustainable community campus center is a far greater feat than building a new one from scratch, Deering Common takes the concept of re-use to the next level.

Along with the adjacent Seafox, Deering Common is heated by the same wood pellet boiler used to heat the Kathryn W. Davis Student Residence Village. Like the residence village, it also features preheated incoming fresh air, composting toilets, waterless urinals and low-flow bathroom fixtures.

The original single-stud walls have been strapped to reduce heat loss; a minimum of five inches of closed cell spray foam insulation has been installed, giving the building an R-value of 40, far exceeding the standard for adaptive re-use of historic buildings.

Furthermore, all lighting is by high-efficiency florescent tube and compact florescent fittings. Appliances, selected for efficiency, meet US EPA Energy-Star® standards.

All new windows are triple-glazed; all materials that can be recycled have been, and 80 percent of the old building is being used.

Most important, Deering Common is a needed gathering place for students, faculty and staff, complete with a café and lunch counter. Here is where the popular open-mic nights will be held, surrounded by student artwork. Other amenities include student project space, a meditation room and additional student meeting rooms.

Landscape Design

The landscape design for both the Kathryn W. Davis Student Residence Village and Deering Common is the work of Coplon Associates, a firm that has worked extensively with the College, creating the campus circulation plan, a landscape master plan and the design of Newlin Gardens and Blair-Tyson courtyard.

Each building features a courtyard with a unique design, united by native plant materials, the use of Goshen stone and the re-use of historic wall stone. Vegetation was selected based on native or traditional plantings of appropriate scale, year-round interest and ease of maintenance. Lawn areas have been limited to reduce ecological costs.

Deering Common Courtyard

Sometime after the Harrisons built Sea Urchins, they commissioned the celebrated garden designer Beatrix Farrand to plan a garden for their home. As part of the creative re-use of Sea Urchins into Deering Common, the surrounding landscape will be designed to reflect the Farrand tradition, blending new and old. The more formal Deering Common Courtyard is surrounded by sitting walls with such ornamental shrubs as Miss Kim lilacs transforming the courtyard into a bright, vibrant space in spring and summer.



Japanese Courtyard

Moving out of the Seafox courtyard, approaching Deering Common will be the intricately designed Japanese garden, outside the Milliken and Shorey houses. This garden features numerous granite sitting rocks, offering a quiet place to read or talk with friends. The garden itself is made of four sections mimicking the traditional Japanese design style of outside rooms. One room features a small sand garden which students will be able to customize. Traditional plantings include hair-cap and pincushion moss ground covers and such compact species as the mugo pine and dwarf Japanese garden junipers. Other additions to the campus arboretum include the crimson queen Japanese maple with its striking fall colors and a unique weeping katsura.



Contemporary Courtyard

This modern courtyard combines linear and curved edges to create a look that is clean and uncluttered, offering strong visual focal points. The Elliot Study Room of the Eno and Hamill houses features a courtyard of year-round interest. In autumn, when the red sunset maple's brilliant red leaves begin to fall, the multi-colored mottled bark of the Japanese stewartia will be revealed, remaining throughout the winter. In spring, the kousa dogwood will blossom — all new additions to the campus arboretum.



New Additions to Campus Arboretum

The Seafox entrance and the courtyards of the Eno, Hamill, Millard and Dority houses encircle an area that will be known as Seafox courtyard. The circulatory path outlining the circumference of the courtyard features stone sitting walls for spontaneous social gatherings. Five European hornbeam trees will provide ample shade once grown.

Other species to be seen for the first time on the COA campus include a weeping willow and vernal witchhazel. A number of white spruce and white pine trees will be planted to replace trees that were removed for construction purposes.



Maine Cottage Courtyard

The Millard and Dority houses with its Cushman Media Center feature a traditional Maine cottage-style garden. Like the Newlin Garden, also designed by Coplon Associates, the Maine Cottage Garden will only feature plants native to Maine. This means that there will be a great deal of year-round interest from both coniferous and deciduous plant species.

Plant species in this garden include cinnamon and hay-scented ferns, heritage river birch, mountain laurel and Cunningham's white rhododendron.

About the Architect of the Kathryn W. Davis Student Residence Village:

Coldham & Hartman Architects (www.coldhamandhartman.com)

Coldham & Hartman Architects currently consists of two registered architects, Bruce Coldham and Thomas Hartman. They are a full-service architectural practice designing residential, commercial and institutional buildings for public, private and non-profit entities.

Coldham and Hartman are committed to elevating green or ecologically intelligent design to a high order of aesthetic refinement. For the architects, a great building is one with a timeless aesthetic delight, demonstrating an elegant and often innovative integration of building systems. It fits the place in which it's located and productively engages the ambient energy and resource flows (sun, wind, rain, etc.) of its site and region. "We want our buildings to be green and graceful," says Coldham, "and we work hard to make them fit our clients' needs."



About the Architect of Deering Common Community Center:

Stewart Brecher Architects (www.sbrecherarchitects.com)

Stewart Brecher Architects is a small architectural firm providing customized design and consulting services on a wide range of project types, from house additions to extensive public facilities, including COA's George B. Dorr Museum of Natural History, constructed from the original office of George Dorr.

About the Contractor:

E.L Shea (www.elshea.com)

For more than eighty years, E. L. Shea has been active in shaping Ellsworth and the surrounding communities. The company works on residential, commercial, industrial, religious and educational construction.

About the Landscape Architect:

Coplon Associates (www.coplonassociates.com)

Coplon Associates is a Maine-based landscape architecture and planning firm offering a range of site design and community planning services. Since its founding in 1987, Coplon Associates has been committed to a participatory design process, engaging clients and user groups in the formulation of responsible and sustainable design solutions with the goal of creating, enhancing and protecting significant and memorable environments. Coplon Associates has provided planning and design assistance to COA since 1988, including master planning, circulation planning and design, and detailed site design for new facilities.



The historic Sea Urchins, with its stone reading nook, has been creatively re-used for College of the Atlantic's new Deering Common Community Center.

College of the Atlantic Mission Statement

College of the Atlantic enriches the liberal arts tradition through a distinctive educational philosophy — human ecology. A human ecological perspective integrates knowledge from all academic disciplines and from personal experience to investigate — and ultimately improve — the relationships between human beings and our social and natural communities. The human ecological perspective guides all aspects of education, research, activism, and interactions among the College's students, faculty, staff, and trustees. The College of the Atlantic community encourages, prepares, and expects students to gain expertise, breadth, values, and practical experience necessary to achieve individual fulfillment and to help solve problems that challenge communities everywhere.

College of the Atlantic

life changing. world changing

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