



The First Optimum Performance Home®

breaking ground plus courtyard experience part XIII

Gary Reber

synopsis

“Green” sustainable building projects are quite different than traditional construction projects with new materials, processes, unique costs, and much more time and resources utilized in the planning process.

At the outset of the design of the first Optimum Performance Home, due consideration was given to incorporating building materials, systems, and assemblies used in the exterior and interior design and construction of the home that would mitigate fire risk, and as it turns out, the Optimum Performance Home will be in full compliance with the new California building codes, and in fact, exceed those provisions with attention to fire-risk mitigation in the interior of the home.

In this issue, the focus will be on the design of the courtyard in terms of the outdoor “room” experience contributed by the Dimension One Spas® Amoré Bay spa, the Finnleo® Finish Sauna, the Rais & Wittus Firebird Outdoor Fireplace/Grille, the Kohler® BodySpa Ten-Jet Tower Shower, the Runco Outdoor Weatherproof High-Definition LCD Display, and the KitchenAid® Outdoor Kitchen.

Introduction

After five years of design and plan development work, the first Optimum Performance Home® is now under construction.

This is the thirteenth article in the series documenting the design and construction of the first Optimum Performance Home. The project has been selected by the U.S. Green Building Council (USGBC) for inclusion in the national Leadership In Energy & Environmental Design (LEED®) for Homes pilot program, their new green build certification initiative, and the goal is Platinum certification.

The home is being built at The Sea Ranch, located in Sonoma County, along the Northern California coastline of the Pacific Ocean, approximately 110 miles north of San Francisco.

The showcase project is exemplary of the “Ultimate Home Design®” concept, which integrates age-friendly universal design with the best sustainable building practices, while exerting minimal impact on the natural environment. Universal design is the inclusive, non-discriminatory design of products, buildings, environments, and urban infrastructure; as well as information technologies that are accessible to and useable by (almost) all. With respect to home design, the idea is to design and build homes that have no physical barriers, thus sustaining people of all ages and all capabilities in a functional, comfortable, and aesthetic lifestyle.

A building-science systems approach to home building is the cornerstone of the project, with emphasis on the relationship between the home’s components and the envelope they

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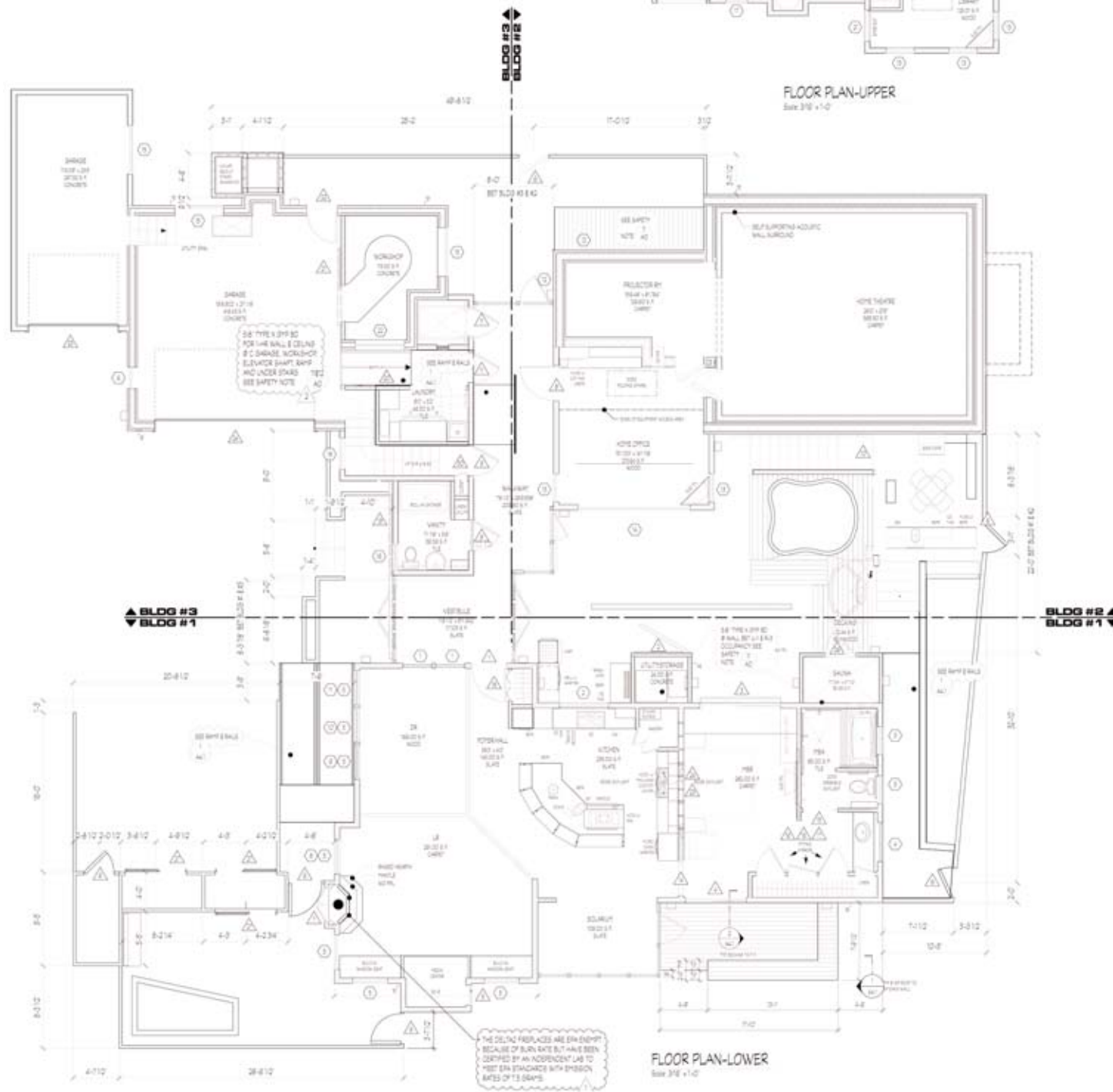


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The First Optimum Performance Home® At The Sea Ranch



FastTrack Schedule 9.2

create. Also paramount is good stewardship—proper regard and respect for the rights of neighboring homeowners and the surrounding natural setting, and resource efficiency. The goal is to optimize occupant health, comfort, and safety; maximize energy efficiency and structural durability; and minimize environmental impact. In addition, the aim is toward providing a nurturing home environment to support independent living and sustainable lifestyles.

Part I of this case study series appeared in Issue 1, January/February 2006. The introductory article covered the project scope. Thereafter, each issue has contained a part of the continuing series by working through site planning and preparation; Low-Impact Development (LID); further refinements to the site plan and drainage design; The Sea Ranch Design Committee-approved architectural/structural and grading/drainage submittals with conditions that translated to clarifications on certain building components and material finishes; particular aspects of the home's mechanical plan; structural aspects of foundations, structural walls incorporating Insulating Concrete Forms (ICFs) and Structural Insulated Panels (SIPs), as well as roofing; the acoustical design of the dedicated Optimum Performance Home Theatre™ and rear-projection room; interior design approaches and materials; kitchen, bath, and home fixtures; universal design architecture; fire risk mitigation; and energy generation.

A Final Approval letter for The Sea Ranch Association Construction Performance Permit was issued on October 11, 2006, which is required by Sonoma County prior to obtaining a county building permit. The Sea Ranch "Approved For Construction" permit was issued on October 11, 2007 following the approval of final construction plans by the Sonoma County Building Department. Six permits have been issued: site plan, landscape plan, septic system, geothermal boreholes, grading, and building. Commencement of construction with initial site grading, foundation, and mechanical infrastructure is now

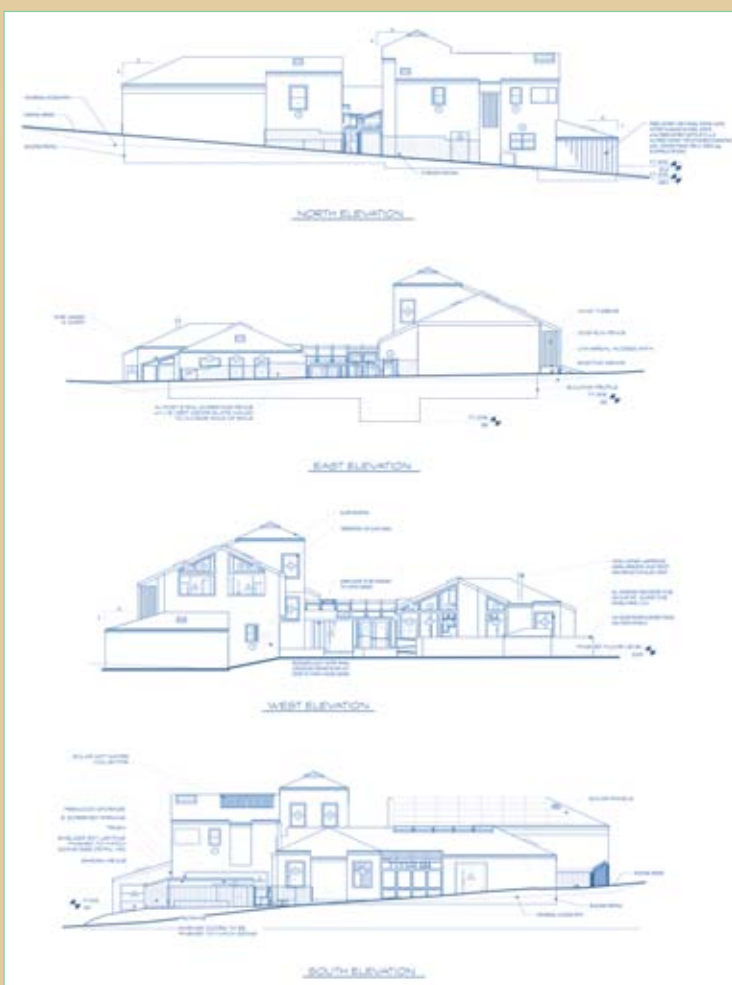
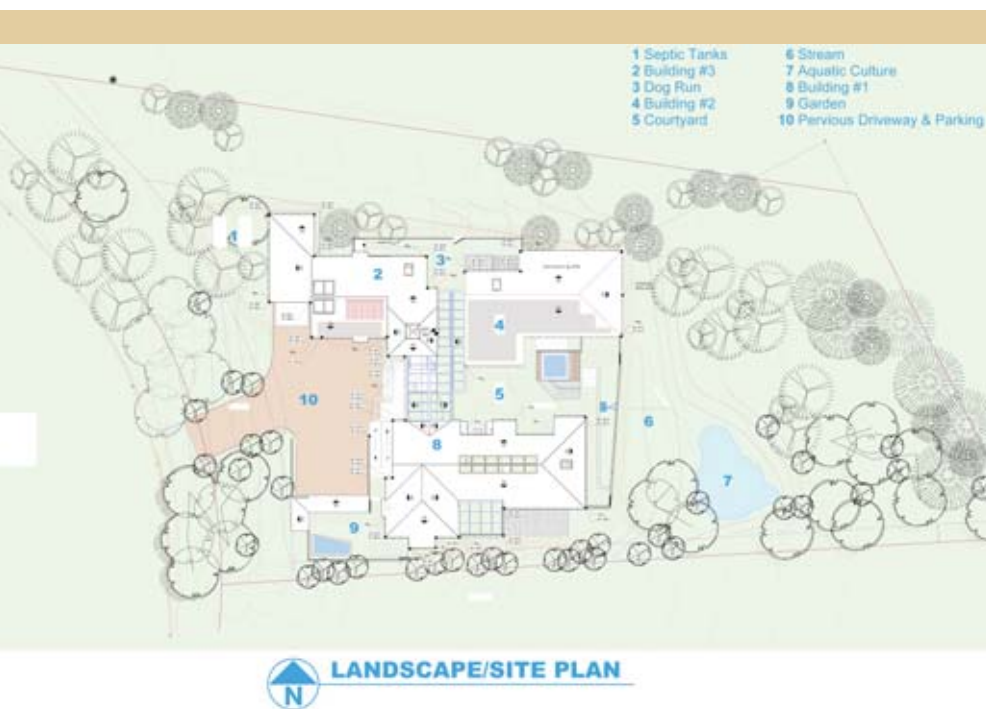
underway. Completion of the home is anticipated for November 2008. It is our intent to stage a full-on presentation at the November 19 to 21, 2008 U.S. Green Building Council's Greenbuild International Conference and Expo in Boston. Our presentation will reveal the step-by-step process for creating our first Optimum Performance Home—expected to be one of the highest rated, if not the highest, LEED for Homes Platinum residential home in the world!

FastTrack Scheduling

An integral part of the planning for the construction timetable is mapping out the construction time period using AEC Software's FastTrack Schedule® 9.2, the company's flagship project management (PM) software for both Microsoft® Windows® and Apple® Mac® OS X (our preferred format) environments, including Microsoft Windows® Vista® and Macintosh OS X v10.4 Tiger platform. FastTrack Schedule 9.2 is an easy-to-use, cross-platform project-management solution that enables builders, developers, architects, and contractors to effectively plan, estimate schedules, track, and communicate project objectives. FastTrack project information fully integrates with Microsoft Project® (.mpp) files.

FastTrack Schedule 9.2 allows our project team to know exactly which suppliers are involved in each stage of the project, and the schedule shows them precisely when the materials will be delivered. Predefined columns track dates, durations, resources, costs, calculations, ID codes, work categories, and more. FastTrack Schedule 9.2 also tracks changes to the timeline for task starts and completions, allowing for site and work flow flexibility planning, and project change orders. Scheduled, revised, and actual dates/durations make it easy to track activity progress. Thus, our project team is able to track and understand the scheduling and cost impacts of the different changes that

"'Green' sustainable building projects are quite different than traditional construction projects with new materials, processes, unique costs, and much more time and resources utilized in the planning process."



The elevations of the Optimum Performance Home at The Sea Ranch

are made throughout the construction project. In this way, we are able to create charts showing the progress of the construction, which helps to stay on schedule. For example, we are able to give a schedule to each subcontractor showing when they are expected to complete their work. This allows subcontractors to understand the “bigger picture” and the importance of staying on schedule and within budget.

This is all accomplished with FastTrack Schedule 9.2 using color, fonts, patterns, outlines, images, and notes to simplify the intricate details of the construction project for our team to understand. The colorful presentation-quality schedules clearly communicate project status and goals to our team. And with support for iCalendar/iCal (.ics) files, scheduling can be published in this standard calendar format for team members to view through a Web browser, as well as the program’s standard Calendar View. FastTrack Schedule 9.2 serves as an important educational tool for both the construction team and myself, as the project leader. The program provides tremendous flexibility to select and format information needed by each member of our team. It provides an intelligent framework for our team to discuss progress and the options and impacts of alternatives that every construction project is faced with. As such, FastTrack Schedule 9.2 is a fantastic tool to enable our team to better plan, present, manage, and complete the first Optimum Performance Home project on time and within budget. Using the program’s schedule-building tools, FastTrack Schedule 9.2 is helping us to more efficiently meet the specific Platinum-certification LEED for Homes requirements. This is an important feature of the program, as “green” sustainable building projects are quite different than traditional construction projects. There are new materials, processes, unique costs, and much more time and

resources utilized in the planning process.

To learn more about FastTrack Schedule 9.2, visit www.FastTrackSchedule.com.

Below is the breakdown of the initial site preparation and grading process and foundation work. This will be discussed in-depth in Part XIV, and an outline will be provided for the next stage of construction consisting of the Amvic ICF (Insulating Concrete Form) and ThermaSAVE SIP (Structural Insulated Panel) walls and roofing.

Pre-Construction Start Meetings

Site Work

- Temporary Electrical Power
- Install iBeam Systems Time-Lapse Pro Construction Camera
- Activate Water Service
- Clear Lot Vegetation
- Lay Out House Pad
- Excavate Optimum Performance Home Theatre, Alcove, Wine Cellar
- Lay Out Footings
- Dig Foundation Footings And Install French Drain
- Set Forms, Tie Rebar Steel, Hold Downs And Anchor Bolts
- Form Underground ICF Home Theatre, Alcove, And Wine Cellar Walls
- Prepare For In-Floor D-Box™ Technologies Custom Motion Platform In Home Theatre
- Verify Foundations' Site Placement/Inspection
- Dig Large Pond, Septic And Cistern Areas
- Place Underground Cistern
- Place Underground Septic Tank
- Drill Geothermal Bore Holes, Place Piping And Grout
- Run Spunstrand HVAC Ducking For Home Theatre

Foundations

- Pour Footings
- Form Foundations With Energy Edge
- Conduit Trenching For Uponor PEX Plumbing
- Run Plumbing Waste
- Install Gravel Around Plumbing
- Run Plumbing Conduit And Supply
- Run Electrical And Low-Voltage Conduit
- Layout Broan Central Vacuum System
- Install Gravel, Vapor Barrier And Sand
- Install Slab Rebar
- Lay Out Uponor Radiant Heat Floor PEX Piping
- Underslab Inspection
- Pour Slab
- Waterproof Home Theatre, Alcove, And Wine Cellar Walls
- Backfill Foundation

The initial site preparation work is being done by Sonoma County Builders, Inc. under the direction of Noble and Loyal Davis. This company, based both in Santa Rosa and Point Arena, California, has had

extensive experience in excavation for both residential and commercial/civic projects for over the past 35 years. They are very supportive of the project and sensitive to the environmental concerns and protections that are in place for the project. Prior to the start of their excavation work, the tall grasses were cut down to dirt by Steve Glaze (Steve Glaze Backhoe). This top layer of roots is being stockpiled and allowed to form a “top soil” compost for later spreading back over the site, just prior to landscaping, with indigenous vegetation and trees. John Feeney, our supervising contractor and his team consisting of Jerry Feeney, Brad Estele, and Aaron Phillips will perform the foundation work. Weeks Drilling & Pump Company, based in Sebastopol, California, will drill the five 310-foot-deep geothermal bore holes under the direction of Chris Thompson, CEO. Don Bartlett will install the WaterFurnace geothermal and Spunstrand underground air-conditioning ducking system. Bill Wilson Environmental Planning and Design, LLC with Dylan Coleman, principal in Mt. Shasta, California-based Wonderwater, are responsible for the on-site water-management systems, including the pond, drains, and rainwater cistern catchment.

California's New Building Codes

I have covered extensively in Part XI, September/October 2007 (Issue 11), the fire mitigation provisions in the design of the Optimum Performance Home at The Sea Ranch. California will implement changes to the state’s building codes effective January 1, 2008. The changes pertain to building materials as part of a two-prong approach for protecting a building from wildfire. This is critically important to homes located at The Sea Ranch, as this development is designated as being located within a Wildland-Urban Interface Fire Area and the particular site in a Very High Fire Hazard Severity Zone.

The law currently requires that homeowners clear 30 feet and do fuel modification to 100 feet around their buildings to create a defensible space for firefighters to protect their homes.

The new building codes are designed to protect homes from being ignited by flying embers, which can travel as much as a mile away from a wildfire. The new codes require non-combustible or fire ignition-resistant standards designed to prevent embers from igniting a structure. This includes provisions

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- The iBeam® Systems Time-Lapse Pro all-weather on-site construction camera provides the means to build a high-resolution photo archive of the entire project, including stunning 1920 x 1080p (progressive) high-definition time-lapse movies each month.



for decks (www.fire.ca.gov/wildland_content/downloads/decks.pdf), eaves (www.fire.ca.gov/wildland_content/downloads/eaves.pdf), roof coverings (www.fire.ca.gov/wildland_content/downloads/roofs.pdf), walls (www.fire.ca.gov/wildland_content/downloads/walls.pdf), exterior windows (www.fire.ca.gov/wildland_content/downloads/windows.pdf), gutters (www.fire.ca.gov/wildland_content/downloads/gutters.pdf), and exterior vents (www.fire.ca.gov/wildland_content/downloads/vents.pdf).

At the outset of the design of the first Optimum Performance Home, due consideration was given to incorporating building materials, systems, and assemblies used in the exterior and interior design and construction of the home that would mitigate fire risk. Thus, as it turns out, the Optimum Performance Home will be in full compliance with the new California building codes, and in fact, exceed those provisions with attention to fire-risk mitigation in the interior of the home. Thus, the home is designed and is being constructed to resist the intrusion of flame or burning embers projected by a vegetation fire.

iBeam® Systems Time-Lapse Pro Construction Camera

As a further means to document the construction of the first Optimum Performance Home, an iBeam® Systems Time-Lapse Pro all-weather on-site construction camera will be installed and operational throughout the construction period. This will allow us to build a high-resolution photo archive of the entire project, including stunning 1920 x 1080p (progressive) high-definition time-lapse movies each month.

Photos will be captured and automatically uploaded to iBeam's secure server every 15 minutes from 6:00 am to 6:00 pm each day and will be viewable through a link from the *Ultimate Home Design* Web site. Furthermore, the images can be easily e-mailed or printed to document jobsite conditions. This will allow our project team and all those interested in this project to view up-to-date progress on the construction of the home. iBeam will allow our team to stay informed about the flow of work and will keep an organized record of the process, using live jobsite images.

The requirements for the iBeam Time-Lapse Pro are power, an Internet connection, and a suitable location to mount the camera. In our case, the camera will be mounted on a 20-foot power pole and interfaced with WildBlue™ Satellite Speed Internet® provided by the DISH® Network. The time-lapse images and streamed monthly movie will be accessible to everyone by visiting www.ultimatehome-design.com/oph and by signing on with Username: OPHSeaRanch and Password: OPHSeaRanch.

At the conclusion of the project, the entire construction photo archive will be featured as a 1080p high-definition time-lapse movie and will become part of a high-definition television program and educational documentary that my production partner, Steve Michelson of Steve Michelson Productions, and I are producing. Steve owns Lobitos Creek Ranch, a full-service production and postproduction studio located in the coastal hills south of San Francisco, California at Half Moon Bay. They offer a wide variety of services for video and digital media production, including development, co-production, editing, animation, HD optical disc, DVD, Web-enabled DVD, and multimedia design and authoring. With 30 years of experience in producing video, Steve's work includes concerts, documentaries for public television, and communications for non-profits and corporations.

iBeam's other construction cameras are the iBeam OnSite and iBeam Handheld. The OnSite monitors construction activity live, while the Handheld provides a cordless Web cam, which allows live interior and detail construction views of a project.

For more information on iBeam's construction cameras, visit www.ibeam-systems.com.

WildBlue Satellite Speed Internet

In order to facilitate capturing the high-resolution images taken on-site by the iBeam Time-Lapse Pro construction camera, we are using the "always on" WildBlue Satellite Speed Internet system developed by WildBlue Communications, Inc. and offered as part of EcoStar's DISH Network satellite services. The offer is provided separately under the EchoStar brand name, and sub-branded as "powered by WildBlue." The new WildBlue Enterprise Solutions™ satellite services system offers business-class broadband

connectivity via state-of-the-art satellite technology.

WildBlue uses a 26-inch satellite mini-dish equipped with both a transmitter and receiver for two-way satellite connectivity to the Internet. WildBlue service does not require cable or phone lines. The service works with both Microsoft Windows, including Windows Vista; and Apple Macintosh OS X, including v10.4 Tiger; and the iBeam Systems' Time-Lapse Pro construction camera. WildBlue's approach is based on next-generation, two-way wireless Ka-band spot beam satellite technology, which lowers the cost of providing high bandwidth access to the Internet. WildBlue uses industry-standard technology in its consumer premise equipment. The resulting low-cost structure enables an affordably priced high-speed Internet service that is available across the country. The highest currently available speed is the Pro Pak level, which offers download speeds up to 1.5 Mbps and upload speeds up to 256 Kbps. The new WildBlue Enterprise Solutions' satellite service will provide even faster speeds.

The WildBlue 26-inch satellite mini-dish will be installed at site level facing due south.

Once the construction of the Optimum Performance Home is complete, a whole-house high-definition EchoStar DISH Network satellite system with WildBlue Enterprise Solutions service will be installed. As well, a LifeSize Communications LifeSize® Room™ high-definition video communications/conferencing system over an ubiquitous IP network at 1280 x 720 pixels at 30-frames-per-second video resolution will facilitate video conferencing with the magazines' (*Widescreen Review*® and *Ultimate Home Design*) production offices located in Southern California.

WildBlue™ Satellite Speed Internet®

- The "always on" WildBlue™ Satellite Speed Internet® system developed by WildBlue Communications, Inc. and offered as part of EcoStar's DISH® Network satellite services offers business-class broadband connectivity via state-of-the-art satellite technology.



New Resource Bank

As covered in Part XII, November/December 2007 (Issue 12), our initial approved construction loan was lost in early August just before funds were to be issued due to the "mortgage meltdown" and a harrowing global credit crunch, which has severely impacted new construction financing.

New Resource Bank, the nation's first "green" commercial bank, which is located in San Francisco, rescued the project issuing a new construction loan. As a bank that is founded by world-class entrepreneurs and green business experts, New Resource Bank is developing its green building program by drawing on leading experts within the "New Resource Community."

The accompanying sidebar, located at the end of this article, is an interview I conducted with bank founder and Vice Chairman, Peter Liu.

This Issue

In this issue, the focus will be on the design of the courtyard in terms of the outdoor "room" experience contributed by the Dimension One Spas® Amoré Bay spa, the Finnleo® Finish Sauna, the Rais & Wittus Firebird Outdoor Fireplace/Grille, the Kohler® BodySpa Ten-Jet Tower Shower, the Runco Outdoor Weatherproof High-Definition LCD Display, and the KitchenAid® Outdoor Kitchen.

Design Concept

As previously noted in this series, the home design integrates all of the concepts advocated in *Ultimate Home Design*. The goal is to demonstrate how modern building products and methods can make life safer, more comfortable, and more enjoyable. The science of optimum performance homes concerns itself with building structures that use less energy, are quieter and more comfortable, have fewer problems with material degradation, provide clean air and water, and do less damage to the environment. As an integrated and holistic design, the house will serve as a permanent residence that allows its occupants to age in place.

The high-performance building systems to be employed are designed to exceed California building code requirements and resist natural disasters more effectively than a code-minimum house, even with the new California code requirements that require use of non-combustible or fire ignition-resistant building materials. Built with stronger building materials and superior techniques, the home will be safer, allowing homeowners greater peace of mind. The Optimum Performance Home qualifies for the Fortified...For Safer Living® program of the Institute for Business & Home Safety (www.ibhs.org/business_protection). This program specifies construction, design, and landscaping guidelines to increase a new home's resistance to natural disaster.

In addition, the home will meet the guidelines and qualifications for the U.S. Department of Environmental Protection's ENERGY STAR®, the EPA's (Environmental Protection Agency) WaterSense™, and the American Lung Association® Health House® programs. It also will meet the requirements of the National Association of Home Builders' (NAHB) Model Green Home Building Guidelines, the Sustainable Buildings Industry Council (SBIC) Green Building Guidelines, and the "Green Points" program. Sonoma County and The Sea Ranch Association are now considering this program for adoption.

Furthermore, the home's design was the subject of a case study analysis presentation before the Custom Residential Architects Network (CRAN), Full Spectrum Practice Convention of the American Institute of Architects on October 20, 2007 in Chicago, Illinois.

The home is also a case study of the California Energy Commission in terms of energy-efficiency applications and an advanced water-saving plumbing plan.

Finally, the home is a national showcase for CEDIA (Custom Electronic Design and Installation Association), and is the subject of a series of articles on the design and installation of the electronic lifestyle components in the home. These articles are featured in CEDIA's *Electronic Lifestyles*® quarterly magazine.

The Setting

The Sea Ranch is an internationally renowned 5,000-acre environmentally protective residential development situated within a pastoral and forested coastal enclave and nature preserve approximately 110 miles north of San Francisco, California. This stunning development, now celebrating its 43rd anniversary, straddles a ten-mile stretch of Highway 1 along a stretch of uniquely beautiful rugged coastline, ending at the northern tip of Sonoma County and the south bank of the Gualala River.

The Sea Ranch is widely regarded as a unique and remarkable residential development. During

the 1960s and 1970s, The Sea Ranch was at the forefront of environmentally responsible development. It was conceived and designed by architects and landscape architects who wanted to provide a harmonious mixture of custom homes and pristine natural Northern California landscape in oceanfront, meadow, and forest environments. In fact, The Sea Ranch concept and its architecture are recognized in schools of architecture around the world, and it is frequently used for case studies in environmental and architectural design. The first condominium complex to be built on the southern coastal bluffs of The Sea Ranch is now a registered national architectural site.

Single-family development occupies approximately 2,500 acres without borderline fences or other visible delineation of property lines. The remaining acres are permanent green-scape commons with 45

miles of nature trails for walkers, bicyclists, and equestrians. Each home is custom designed by an architect/architectural designer following site-specific design guidelines and is situated off a private road network without curbs, sidewalks, or streetlights. The Sea Ranch is a very unique residential development woven into a tapestry

of buildings and nature and committed to environmental preservation. The development includes 2,288 lots for single-family custom homes, with 534 remaining to be developed (1,754 already developed and 29 under construction).

The Sea Ranch is managed by The Sea Ranch Association, a Common Interest Development (CID) with an elected volunteer Board of Directors, and supported by numerous volunteer committees. All

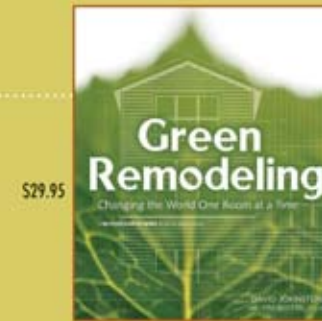
development on The Sea Ranch is subject to design review and the approval of a Board-appointed autonomous Design Committee. The Design Committee is presently comprised of architects and landscape architects, though it does not include anyone with experience in vegetation management or "green" sustainable building design. A legal set of Covenants, Conditions, and Restrictions (CC&Rs) govern the development and are designed to protect The Sea Ranch concept.



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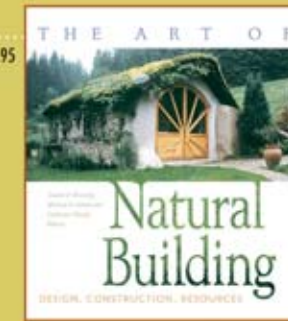
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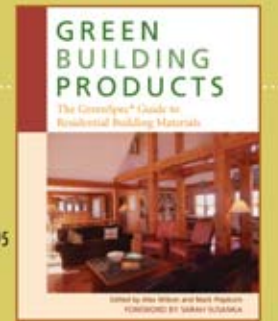
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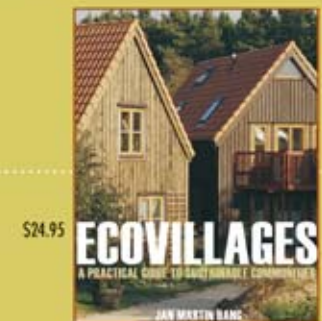
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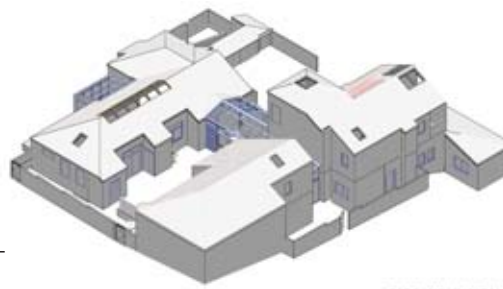


The Home

The Sea Ranch Design Committee imposes upon designers architectural building blocks derived from the original rural structures found on the northern California coast. Designers are expected to apply their creativity to render various arrangements and deviations to arrive at a custom solution that specifically responds to the site. Successful proposals submitted to the Design Committee address the issues of passive solar positioning, wind, glazing (window) layout, privacy between neighbors, vegetation protection, view preservation, topography and grade changes, roof slopes, appropriate exterior materials and finishes, and other exterior design considerations—all within the building and site design.

A focus of the Optimum Performance Home's design is to stand as a showcase for the "green" movement and demonstrate means of reducing a home's impact on the planet through the use of Low-Impact Development (LID) and environmentally responsible and sustainable building materials. It is hoped that the home will become a case study for a "Green Points Program" suited to the scale of The Sea Ranch.

The home's 3,272-square-foot living space (4,441-square-foot total building "footprint," including garages, covered walkways, courtyard, and decks) will be arranged in a three-building compound using a well-sealed, well-insulated, super-tight building envelope that reduces temperature fluctuations and enhances overall energy efficiency. This arrangement provides for an alcove courtyard protected from the prevailing wind from the northwest. The home is designed with differing spatial experiences throughout to encourage exploration. The home will display innovative interior design and be furnished in a contemporary Frank Lloyd Wright style appropriate to its dimensions. The home design connects the indoors and



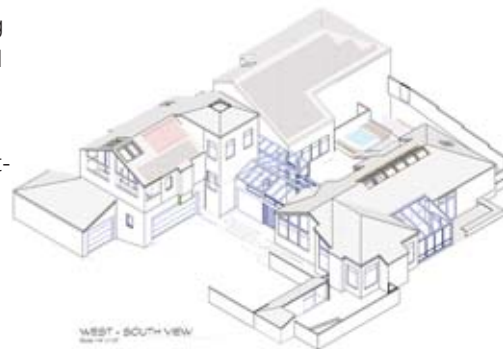
EAST-NORTH VIEW



SOUTH-EAST VIEW



NORTH-WEST VIEW



WEST-SOUTH VIEW

Four perspective views of the Optimum Performance Home at The Sea Ranch

the outdoors with covered walkways, a courtyard, decks, and a garden to expand livable space, without requiring heating or air conditioning. The home is designed in accordance with biophilic design principles with abundant and excellent use of natural light and natural indigenous landscaping planned. (For an in-depth analysis of the biophilic attributes of the home, please read "Biophilic Design," "Biophilic Design Attributes," and "The Interior Design Process, Part I: Synthesizing Sustainability, Universal Design, And Technology" authored by Julie Stewart-Pollack in Issue 3 (May/June 2006), Issue 4 (July/August 2006), and Issue 10 (July/August 2007), respectively.

The main-floor living area is designed to accommodate the capabilities of all occupants without any challenging physical barriers, even for the elderly and disabled. The home design features a ground-level open plan for the living room, dining room, master bedroom suite, and spacious kitchen with solarium, exhibition cooktops, and home management system.

The second building in the compound is designed to accommodate a large state-of-the-art Optimum Performance Home Theatre™ with integrated rear-screen projection room and a home office.

The third building will include a two-car and boat garage, workshop, main-level guest bathroom, and laundry room. The second level of this building will have two guest bedrooms, a bathroom, and a dedicated library/home theatre/surround music room distinguished by a high-tower feature. To insure universal access to this floor, the design provides for an Otis® Gen2 residential elevator.

The entrance and walkways that connect the three buildings and the solarium will be enclosed with insulated- and solar gain-reduced-tempered glass. There will be a seating area at the vestibule entrance to the home. The main entrance vestibule will serve

as an oversized mudroom. The driveway, area around the garage, guest parking, and entrance to the home—as well as all paths—are designed in accordance with The Sea Ranch guidelines governing exterior hard-surfaced paths. All such surfaces are pervious to virtually eliminate water runoff. The surface will be packed with decorative gravel to enhance the natural appearance of the home's setting. There also will be a dedicated equipment room off the courtyard, which accommodates the Uponor® and WaterFurnace® radiant-heating apparatus, TrendSetter® solar hot water storage tanks, Microtherm's Seisco® on-demand electric tankless water heater, and other equipment. The backup Kohler® generator is housed within a separate weather-resistant tower located off the north wall of the two-car garage and guest bedroom, within the fenced dog run. This tower is designed to optimize the northwest wind performance of the PacWind® Seahawk® vertical-axis Savarrieus™ wind turbine disguised within (see Part 12, November/December, Issue 12).

The home site is nestled on an almost-acre parcel at the edge of a forested area of the southern section overlooking the Pacific Ocean, offering distant water views. Some of the home's features will include a Benissimo® slate-floor outdoor courtyard, two thick solid hardwood Ipé deck areas, in-ground Dimension One Spa® Amoré Bat hot tub, Finnleo® Finnish sauna, and underground wine cellar. The orientation of the home on the site is designed to take advantage of natural lighting and passive solar heating and cooling. Good site and land planning will result in minimal land disturbance and preservation of natural features and environments.

Landscaping will consist of The Sea Ranch-approved indigenous vegetation with low-water requirements and unique water conservation features, including two ponds and a stream supported by rainwater catchment and captured runoff. Site grading has been specifically planned to enhance the project's placement in the watershed, and the design incorporates the principles of Low Impact Development to minimize runoff from impervious surfaces and mimic the natural hydrology in overall effect. The resultant water harvesting will then minimize the use of irrigation, and the increased infiltration and retention will passively support the native landscape. Additionally, a gray water system will be used for undersurface plant irrigation.

Dimplex® Ventura Ceramic Radiant Heater



- Rather than simply heating the air, the Dimplex® Ventura Ceramic Heater produces infrared energy that provides effective warming at any outside temperature. The Ventura features silent operation with no distracting visible light output.

Dimension One Spas® Amoré Bay



- A Dimension One Spas® Amoré Bay spa will be featured in the courtyard area. The D1 Amoré Bay is the ultimate performance and comfort spa that is renown for energy efficiency and reliability.

The Courtyard

The courtyard is a focal point of the Optimum Performance Home's three-building compound design. The courtyard creates a villa outdoor living space experience, and is designed in accordance with biophilic design principles with abundant and excellent use of natural light and complementing amenities that contribute to the overall life-enhancing experience the home will nurture. There are six aspects to the design of the courtyard that facilitate such an experience.

- Dimension One Spas' Amoré Bay hot tub
- Finnleo Finish sauna
- Rais & Wittus Firebird Outdoor Fireplace/Grille
- Kohler BodySpa Ten-Jet Tower Shower
- Runco Outdoor Weatherproof High-Definition LCD Display
- KitchenAid Outdoor Kitchen

An integral design element of the courtyard are Dimplex® outdoor Ventura Ceramic Radiant Heaters. Rather than simply heating the air, the Radiant Heaters produce infrared energy, which actually heats the objects in front of them. It works much like the natural energy of the sun. The durable Ceramic Radiant Heater has powerful 240-volt ceramic heating elements that provide effective warming at any outside temperature. The Ventura features silent operation with no distracting visible light output. An adjustable mounting bracket lets one target the heating zone. Three Ventura Ceramic Radiant Heaters will be employed in the courtyard.

Dimension One Spas' Amoré Bay

The new Dimension One Spas Amoré Bay hot tub will be featured in the courtyard area. The D1 Bay Collection® Amoré Bay is an ultimate performance and comfort spa that employs D1's renown energy efficiency and reliability.

The Vista, California-based company holds in excess of 30 patents that underscore an eco-savvy mentality. D1 was introduced to the Optimum Performance Home project by Michael Galica, owner of the eco-friendly Marin Outdoor Living showroom in Greenbrae, California. Dimension One's Bob Hallm, CEO and co-founder with his wife, Linda, is committed to constantly innovating new sustainability ideas in D1 spas that are environmentally and ergonomically friendly.

In an age when "green" sustainability is deemed paramount, Dimension One Spas leads the environmental crusade in the home hot tub market by creating products that exemplify sustainable luxury.

Dimension One Spas incorporate such body experience features as:

- **Hydronomics:** D1's extensive study of human anatomy, ergonomics, fluid mechanics, aquatic massage, acupressure, and reflexing led them to develop a new field they named "hydronomics"—the study of human energy transfer within an aquatic environment. Using state-of-the-art modeling software, D1 engineers design hot tubs in virtual space, giving them unprecedented control over materials, and thus ensuring the ultimate in comfort.

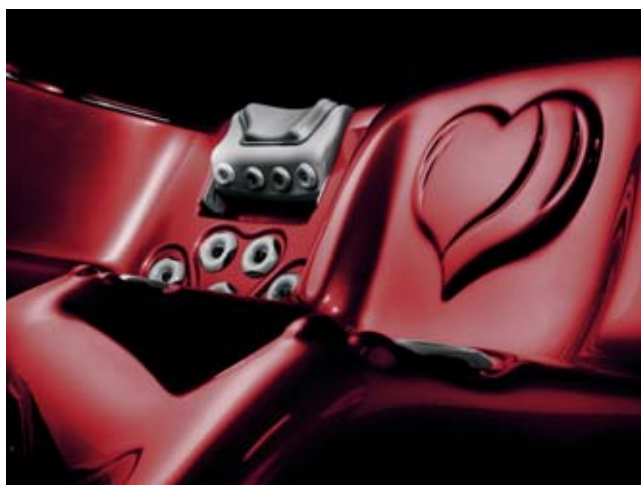
- **Dynamic Massage Sequencer:** Introduced in 1999, DMS was the world's first programmable hydrotherapy massager. The built-in massager focuses on six specific therapy zones and offers pause and speed controls.

- **Ultralounge:** This "spa-within-a-spa" lounge chair-inspired section of the tub features patented BioForm™ seating in a "no-float" angle design to keep occupants solidly in their seats instead of buoyantly drifting about; sculpted leg contours; and acupressure therapy for wrists and hands. These features provide the ultimate in full-body hydrotherapy.

- **Neck Jet Pillow:** The first and only height-adjustable spa neck jet pillow.

Dimension One Spas incorporate such clean energy features as:

- **EnviroTect™:** The Ultralife slip-resistant interior of each hot tub is surrounded by a durable, all-weather exterior made from 100 percent recycled plastic milk containers. EnviroTect is the most environmentally-friendly exterior available for spas today. This 100 percent recycled material is environmentally stable (HDPE); does not give off any harmful fumes; and is highly recommended by the Healthy Building Network, a national organization of green building professionals and environmental



health activists. EnviroTect requires virtually no maintenance and unlike wood, the all-weather EnviroTect requires no staining or painting. EnviroTect is exceptionally resistant to moisture, fading, insects, splintering, warping, and other hazards of environmental exposure.

- **Vision® System Cartridge:** The Vision System provides a natural clean-water alternative to harsh, chemical-based filter systems. The Vision Cartridge uses silver catalyst technology to kill 99.96 percent of bacteria on contact. The cartridge lasts up to six months, significantly reducing chemical maintenance.

- **Water-Management Technology:** D1 water-management technology cuts down the need for chlorine in the spa water from three to five parts per million to 1 ppm, which means no more dry, itchy skin, faded swimwear, irritated eyes, or strong odors from chlorine.

- **UltraPure® Plus™ Water Management System:** D1 Amoré Bay spa features the UltraPure Plus Water Management System, the most sophisticated water-management system in the industry. The five-step filtration system purifies the spa water 24/7 and includes the smart use of an ozonator, an ultraviolet (UV) germicidal light, zinc and silver minerals, chlorine (to totally eliminate surface bacteria), and a filter. D1's patented system provides the cleanest, clearest spa water in the industry. Without this balanced, carefully engineered system

more chemicals and maintenance time would be required, and the water would still not look as clean and clear.

The UltraPure system uses low-power, 98-watt circulation pumps to purify the tub's water. Eighty-four percent of the power that UltraPure uses is returned back to the water as heat.

The water source will be filtered rainwater harvested off the Evergreen slate roofs (see Part VI, November/December 2006, Issue 6).

- **Fast Flo Heater:** D1 spas incorporate the most durable and reliable spa heater on the market. The variable output on this stainless steel heater provides optimal heat recovery and lower energy consumption.

- **100 Percent Insulated:** D1 was the first company to manufacture a fully insulated spa for inground or aboveground use. The hot tubs are 100 percent foam insulated with closed-cell urethane—used in commercial freezers—not only absorbing equipment noise for the quietest operation possible, but also minimizing heat loss to ensure the lowest energy costs. Additionally, high-density E-Z Lifter foam covers are precision fitted with linear heat seal seams to prevent heat loss. D1 spas use up to 85 percent less energy than traditional in-ground, non-insulated spas.

- **HydraMax® Pumps:** The D1 aquatic massage system is backed by powerful HydraMax aquatic jet pumps. These pumps are expertly engineered and plumbed for 100 percent efficiency—this means a smaller, more efficient, and nearly silent pump that retains the jet power of its larger counterparts.

- **M•Drive:** D1's cutting-edge M•Drive, available exclusively on the company's high-end Bay Collection series hot tubs is a highly intuitive, menu-driven spa controller, which provides effortless control over virtually every aspect of a spa's operations and functions. M•Drive features large buttons; a wide, brightly lit, easy-to-read screen; and an intuitive menu structure that makes the M•Drive an ergonomically friendly spa controller.

The Amoré Bay features the transformative use of lights, sights, sounds, colors, and Liquid FX hot water effects to evoke a transcendent hot tub experience unlike any other. Other features include roomy, barrier-free seating; bar top accent lighting; stylish architectural uplighting; the industry's first and only four-foot water brook; three water fountains; and two UltraLounges.

At the recent Aqua Expo at the Mandalay Bay Resort in Las Vegas, I met with Amoré Bay designer Victor Walker and Michael Mantell, PhD, a successful psychologist and D1 consultant. We discussed Amoré Bay design's eco-friendly concept and the "Shangri-La" features, which include curvaceous soft, smooth lines and edges; 64 strategically placed accent ring jets; a special 8-foot "playground" area; underwater massage lounges with acupressure massage jets; a hand-held massager; cup holder; and mood lighting.

Impressively, the experience is delivered at a heating cost of approximately \$15.00 a month. We also discussed "water" as a desirable biophilic attribute and various health topics such as oxytocin—the

Finnleo® Custom-Cut Finnish Sauna



- A Finnleo® Custom-Cut Sauna with a floor-standing Maxi Soft Heat 6 kW heater has been specified with 70 pounds of Finnish Vulcanite rock. The authentic Finnish sauna features European styling with a striking touch of elegance in a healthy environment that provides traditional soft dry heat.

mammalian hormone known by sex researchers as the "cuddle hormone," and believed, by some researchers, to be a beneficial link between oxytocin and social anxiety, memory control, cardiovascular functions, and thermoregulation in menopausal women. Wow! We also discussed water's power to invigorate the spirit, replenish the soul, refresh the mind, and relax the body, while helping to wash away tension, rekindling relationships, and igniting passions.

Dimension One Spas' Amoré Bay hot tub seats up to seven adults with a water capacity of 415 gallons. The spa will be sunken into an area of the courtyard so that the spa's ledge is at a seating height for easier accessibility. Users simply sit on the spa's wraparound IPE deck seating and slide over into the spa. The spa area design complies with the universal design accessibility standards for the home.

The Valentine 2008 limited edition Amoré Bay spa will be installed. The tub's color is Candy Apple Red with EnviroTect tan architectural trim.

Finnleo Finish Sauna

A Finnleo Custom-Cut Sauna will be a featured experience in the Optimum Performance Home. The authentic Finnish sauna features European styling with a striking touch of elegance in a healthy environment that provides traditional soft dry heat that can be enjoyed wet or dry.

The benefits of traditional Finnish sauna bathing are legendary:

- Relaxes muscles and soothes aches and pains in muscles and joints
- Relieves stress
- Induces a deeper sleep
- Provides recreational and social benefits
- Flushes toxins and cleanses skin
- Improves cardiovascular performance
- Burns calories
- Fights illness
- Relieves congestion
- Feels good

Every Finnleo sauna is handmade using the highest quality sustainable Scandinavian Nordic White Spruce for the tongue-and-groove walls and ceiling, and Abachi for the benches, backrests, headrests, duckboards, and heater guard. The benches are assembled from the

Rais & Wittus Firebird Outdoor Fireplace/Grille

- The Firebird by Rais & Wittus is made of durable Cor-Ten steel, which permanently oxidizes to form a rich reddish brown coating. Built to be maintenance free and to last a lifetime, the Firebird will be used as an outdoor fireplace and barbecue grill and enjoyed as outdoor sculpture.



the evening before bedtime, and wake up to the start of the day with a healthful sauna bathing experience at the perfect temperature.

The sauna measures seven-feet-wide by five-feet-deep and will be fitted with a Douglas fir 36-inch-wide door with a 26- x 65-inch double-pane tempered insulated glass window to meet the energy-saving and universal and biophilic design criteria for the home. The floor will be an extension of the slate flooring in the courtyard, with a no-barrier entry.

Various Finnleo sauna accessories are specified, including a one-gallon copper water bucket, copper ladle, 15-minute sand timer, vapor-proof sauna wall light and lampshade, headrests, beech and aluminum frame thermometer, beech and aluminum frame hygrometer, wooden vent grill and ventilation valve, four-peg clothes hanger, pair of Nordic Pine handles, and Abachi wood sauna sign with a green border.

Rais 7 Wittus Firebird Outdoor Fireplace/Grille

A Firebird outdoor barbecue grill and fireplace, created by award-winning Danish architectural designer Bent Falk, will be featured in the courtyard. The Firebird by Rais & Wittus is made of durable Cor-Ten steel, which permanently oxidizes to form a rich reddish brown coating. Built to be maintenance-free and to last a lifetime, the Firebird will be used as an outdoor fireplace and barbecue grill, and enjoyed as outdoor sculpture. The grill has adjustable grill racks that are made of heavy solid stainless steel 5mm rods. The innovative design features stay-cool handles, a built-in warming and frying surface in back where one can simmer sauces or sauté vegetables, and a neat way to store the grill rack when not in use. The chimney creates a strong draft for faster-built fires and then “funnels” the smoke up and away from the chef—and nearby guests.

Kohler BodySpa Ten-Jet Tower Shower

The outdoor shower assembly will service the D1 spa and the Finnleo Finnish sauna. The shower assembly will be the Kohler BodySpa Ten-Jet Tower (K-1000-H2) with separate Kohler MasterShower® Rite-Temp® valve trim, cylinder handle (K-T9492-7), and Kohler MasterShower Hotel Handshower Kit (K-8520).

Kohler® BodySpa Ten-Jet Tower

- A Kohler® outdoor shower will service the Dimension One Spas® Amoré Bay hot tub and the Finnleo® Finnish sauna. The shower assembly will be the Kohler BodySpa Ten-Jet Tower (K-1000-H2) with separate Kohler MasterShower® Rite-Temp® valve trim with cylinder handle (K-T9492-7) and Kohler MasterShower Hotel Handshower Kit (K-8520).



Runco Climate Portfolio™ WP-42HD LCD Monitor

- The Runco Climate Portfolio™ and its WP-42HD ruggedized weatherproof LCD high-definition display delivers stellar video quality and performance to the outdoors. Advanced LCD technology and glass with special element-proof bonding is used to deliver a high-definition widescreen flat panel monitor ready for the elements.



bottom with stainless steel screws. Abachi is used extensively throughout, as it remains comfortable to the touch even at high temperatures. The clear Abachi wood is an ideal match for a Nordic White Spruce sauna and the premium wood of choice for sauna benches worldwide. The source of this wood is certified as well.

Finnleo's exclusively designed heaters are the heart of the sauna bathing experience. A wall-mount Maxi Soft Heat FSO-60SC 6 kW heater and separate Digi-1 control have been specified with 70 pounds of Finnish Vulcanite rock for a soft, even-temperature heat with a soft steam rising from the rocks. The Maxi Soft Heat series, with its sleek stainless steel symmetrical design, exemplifies the sauna experience.

The wall-mounted Digi-I features include: light switch, ventilation fan switch, clock, set operating time and time remaining, set temperature and actual temperature, and 24-hour programmability. Set the sauna in

K2 Mounts Motorized Flat Panel Mount



- The K2 Mounts remote-controlled motorized flat panel display mount provides telescopic control to 12 inches out from the flush wall mount and can be tilted 7 degrees up and 20 degrees down, and swivel 56 degrees right to left.

Handshower Kit (K-8520). The BodySpa Tower is made from tough anodized aluminum for durability in the outdoors. It features ten-jet system waterfall and chromatherapy lighting, electronic jet selection control, remote control, and variable water flow control. A separate wall-mount Kohler Roman Bath Diverter Spout (K-6881) also will be installed.

The shower walls will be surfaced with Moving Color™ Northern Lights 4 x 4 glass tiles. These innovative waterproof glass tiles are manufactured using the “color infinity,” enabling the glass tiles to change hue dynamically, responding to applied heat. The tiles appear black at room temperature and move through the color spectrum when temperature (warm water, radiant heat, etc.) is applied. The moving color is dynamic to the temperature of the heating agent. The shower's ceiling and sidewalls will be fabricated with the UltraGlas® UltraSea® design.

Runco Outdoor Weatherproof High-Definition LCD Display

High-performance outdoor video will be provided by Planar Systems' Runco custom home theatre brand. The new Runco Climate Portfolio™ and its WP-42HD ruggedized weatherproof LCD high-definition display delivers stellar video quality and performance to the outdoors. The WP-42HD utilizes advanced LCD technology and glass with special element-proof bonding to deliver a high-definition widescreen flat panel monitor ready for the elements. Featuring a 1366 x 768 native resolution, combined with Runco's exclusive Vivix™ internal video processing for outstanding imagery, artifact-free scaling and pristine reproduction of both native film and native video formats (480p, 720p,

KitchenAid® Outdoor Courtyard Kitchen Appliances

- The fully equipped outdoor kitchen features exclusive KitchenAid® stainless steel-constructed appliances.

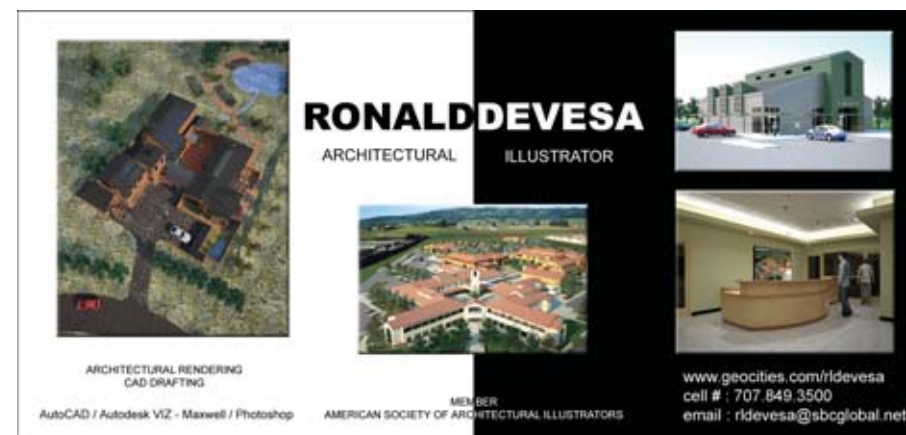


1080i), the WP-42HD delivers exceptional video quality, features, flexibility, and connectivity to achieve the ultimate custom outdoor viewing experience.

Engineered for maximum durability, the WP-42HD's weatherproof enclosure ensures protection from adverse environmental conditions

including temperature, exposure to moisture, dust, oils, and intermittent direct water spray. The custom aluminum cabinet is sealed to ensure protection from the elements and features a specially designed internal ventilation system to provide adequate cooling.

The display has a wide viewing angle (178 degrees) to maximize viewing enjoyment from widely dispersed seating positions, including viewing by those enjoying the Amoré Bay spa. The WP-42HD features a



For more information on this advertiser, circle 09

high-gloss black bezel incorporated into a stylish enclosure design.

A K2 Mounts remote-controlled motorized flat panel display mount will provide telescopic control to 12 inches out from the flush wall mount on the exterior equipment wall door. This will allow the Runco WP-42HD to be tilted 7 degrees up and 20 degrees down, and to swivel 56 degrees right to left, assuring full view of the monitor from just about anywhere in the courtyard.

A custom-designed outdoor high-performance surround audio system will be installed by James Loudspeaker.

KitchenAid Outdoor Kitchen

The fully equipped outdoor courtyard kitchen will feature KitchenAid 304 stainless steel construction appliances. The 36-inch-wide built-in grill (KBNU367TSS) features a 23K BTU infrared sear burner, two 22.5K BTU U-shaped stainless steel main burners, and a 15K BTU infrared rotisserie burner and 36-inch wide rotisserie. Next to the grill will be a 13-inch-wide built-in double side-burner (KBZU122TSS), front to back, with two 15K BTU burners. Under the grill will be a 24-inch-wide built-in warming drawer with slow-cook functionality.

A KitchenAid 30-inch-wide built-in refreshment center (KBFU271TSS) with integrated stainless steel sink and single-control faucet will be featured along with a 24-inch-wide built-in 6.0 cubic foot refrigerator (KRCA06XPSS). There will also be a 15-inch-wide built-in automatic ice maker with a 28-pound storage capacity (KUJO15NNLS).

A KitchenAid 27-inch-wide wheeled serving cart (KFBS170LSS) will be included in the outdoor entertainment package along with a 24-inch-wide built-in double utility drawer unit (KBUU142TSS) and a 14-inch-wide built-in trash drawer (KBTU141TSS).

Next

Now that we have broken ground and commenced site preparation, this continuing series of articles will focus on the design elements as they pertain to each stage of construction, and will include coverage of the technologies and building systems and the materials used and applied to construct the first Optimum Performance Home. **UHD**

The Author

Gary Reber is the President of Ultimate Home Design, Inc. and the founding Editor-In-Chief and Publisher of *Ultimate Home Design*®, The Optimum Performance Design & Build Resource For Environmentally Enhanced Lifestyle Living™. He is also President of WSR Publishing, Inc., which publishes *Widescreen Review*®, The Essential Home Theatre Resource™. His diverse background in several fields includes an undergraduate, graduate, and postgraduate university education in architecture, community planning, and economic development planning. For years he was a consultant on community and economic development planning. For the past 15 years he has been an editor and publisher of magazines in the consumer electronics field. Gary can be reached at 951 676 4914 or gary@ultimate-homedesign.com.

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- Dimension One Spas, 2611 Business Park Drive, Vista, California 92081, 800 345 7727, www.d1spas.com
- Dimplex North America Ltd., 1367 Industrial Road, Cambridge, Ontario, NIR 7GB Canada, 519 650 3630, www1.dimplex.com
- EchoStar DISH Network, 9601 South Meridian Boulevard, Englewood, Colorado 80112, 888 825 2557, www.dishnetwork.com
- Feeney Construction, 14660 McCourtney Road, Grass Valley, California 95945, 530 477 7647, 707 884 9458
- Finnleo/Saunatec, 575 East Cokato Street, Cokato, Minnesota 55321, 320 286 5584, www.finnleo.com
- Healthy Building Network, Institute For Local Self-Reliance, 927 15th Street, NW, 4th Floor, Washington, DC 20005, 202 898 1610, www.healthybuilding.net
- iBeam Systems, Inc., 280 North 8th Street, Suite 30, Boise, Idaho 83702, 800 403 0688, www.ibeamsystems.com
- James Loudspeaker, 30 Harlow Court, Napa, California 94558, 707 449 0880, www.jamesloudspeaker.com
- Kohler Company, 444 Highland Drive, Kohler, Wisconsin 53044, 920 457 4441, www.kohler.com
- K2 Mounts, 14726 Ramona Avenue, Suite 201, Chino, California 91710, 866 526 6868, www.k2mounts.com
- LifeSize Communications, 901 South Mopac, Building 3, Suite 300, Austin, Texas 78746, 512 347 9300, 877LIFESIZE, www.lifesize.com
- Marin Outdoor Living, 2100 Redwood Highway, Greenbrae, California 94939, 415 924 8811, www.marinoutdoorliving.com
- New Resource Bank, 405 Howard Street, Suite 110, San Francisco, California 94105, 415 994 8100, www.newresourcebank.com
- Planar Systems, Inc., 1195 NW Compton Drive, Beaverton, Oregon 97006-1992, 866 475 2627, www.planar.com
- Rais & Wittus, Inc., 40 Westchester Avenue, Pound Ridge, New York 10576, 914 764 5679, www.rais.com / www.wittus.com
- Runco International, 2900 Faber Street, Union City, California 94587, 510 324 7777, www.runco.com
- Sonoma County Builders, Inc. 6280 Old Redwood Highway, Santa Rosa, California 95403, 707 837 2997 / P.O. Box 244, Point Arena, California 95468, 707 684 9144
- Spunstrand Incorporated, 620 North Post Street, Post Falls, Idaho 83854, 208 665 7444, www.spunstrand.com
- Steve Glaze Backhoe, 2766 Parkview Drive, Lakeport, California 95453, 707 263 3055
- Steve Michelson Productions, Lobitos Creek Ranch, 2800 Lobitos Creek Road, Half Moon Bay, California 94019-2547, 650 726 2460, www.lobitoscreekranch.com
- WaterFurnace International, Inc., 9000 Conservation Way, Fort Wayne, Indiana 46809, 800 222 5667, www.waterfurnace.com
- Weeks Drilling & Pump Company, 6100 Highway 12, Sebastopol, California 95472, 707 823 3184, www.weeksdrilling.com
- WildBlue Communications, Inc., Greenwood Corporate Plaza, Building. 1, 5970 Greenwood Plaza Boulevard., Suite 300, Greenwood Village, Colorado 80111, 866 945 3258, www.wildblue.com
- Whirlpool Corporation/KitchenAid, 2000 M63 North, Benton Harbor, Michigan 49022, 269 923 5000, www.kitchenaid.com
- Wonderwater, P.O. Box 1510, Mt. Shasta, California 96067, 530 926 5050, 530 925 2586, www.wonderwater.net

Interview With Peter Liu, Founder And Vice-Chairman New Resource Bank, San Francisco

Gary Reber

Gary Reber, *Ultimate Home Design*: Peter, I want to thank you for supporting the Optimum Performance Home® project. Let's talk about the concept, your concept, behind New Resource Bank.
Peter Liu, New Resource Bank: We're a bank. We are here to serve our

taken for granted. When people think of their bank account, they don't think about how money in that bank can work towards their values. Now with banks like New Resource Bank, they realize they can get great banking and at the same time have their money

way that we make carpets—someone like Ray Anderson of Interface. I first came up with the idea while helping our state treasurer's office to convince our two large state pension funds to invest in "green." After that successful effort, I believed that it was time for a bank to join other capital providers and meet the green-market opportunity head on.

newresourcebank

clients, whether through simple checking accounts or through business and construction lending. When clients bank with us, we can take their deposits and put them into resources that help promote the sustainability of our communities. This means that we often work with clean technology companies or people building "green buildings," or an entrepreneur who's trying to sell a product or service that's greener or healthier or more resource efficient.

UHD Reber: Why the focus on "green?"
Liu: We think it's going to be a major market opportunity. "Green" is changing from a social movement to a market movement. Consumers now want "green," whether through their consumption of organic foods to driving hybrid automobiles. People are increasingly making it a key factor in their consumption choice.

UHD Reber: So, is the position of the bank such that you hope to attract consumers and investors with like-minded goals for "green" and sustainability?
Liu: Yes, I think the number one goal is to deliver world-class banking service. So first of all, the service that they get as a bank is better than where they came from, and second is that their deposit dollars are no longer

work toward something that's more consistent with their values.

UHD Reber: What distinguishes you from other banks or financial institutions that can lend money for green or non-green, or for anything?
Liu: We lend money to "green" and non-"green" businesses as well, but our differentiation is that we have a more value-added approach to "green" businesses and projects. For example, to a "green building" project, we give more money at a lower cost. When people come to us with a building project, they'll get two pricing options. One is for the conventional building; the other is to a client who is looking to build to a "green"-leadership level. If you're doing the latter, we'll actually give a better price.

UHD Reber: Did you come up with this marketing orientation, and if you did, what drove you to...
Liu: Yes, I came up with the idea, but it's been embraced and been helped by many, many other great co-founders and founding investors of the bank. The people who support this bank are among some of the best entrepreneurs this country has seen, people who have changed the way we compute, change the way we use the Internet, even change the

UHD Reber: Is there a connection with the bank and the pension fund?
Liu: No. The idea was inspired by work and conversations that came out of the effort to get the funds to invest in "green." I realized that the green business community really wanted a bank like New Resource.

UHD Reber: How did you come up with the name "New Resource Bank?"
Liu: New Resource Bank stands for what we do. It's really part of our DNA. Number one, we're here to set a "NEW" standard of service. If you just offered the old level of service, you have no reason to be here. Second, "Resource," we are taking our depositors' dollars and funding sustainable "resources" in our community. Lastly, we're a "Bank" that does more with our customers' money. Again, they get great service plus banking their values. So each letter there stands for part of what we're trying to deliver.

UHD Reber: What's the reach of the bank? Is there any territorial restriction?
Liu: Right now we're focused more in the greater San Francisco Bay Area and Northern California. Some of our programs, like our solar-lending program, is statewide. We will expand, but will also take steps prudently.
UHD Reber: How does someone proceed with a "green building"



Peter Liu
Founder And Vice-Chairman
New Resource Bank

enterprise-financing request or a "green building" construction project?

Liu: I think number one is they have to have the right project, a project that makes sense economically. I mean, a green project that doesn't make sense economically is still a bad project. So, what does "make sense economically" mean? It means that they're building it at a level that makes sense for the market in which they're either trying to sell it or rent it or use it for themselves. So you're not going to get into a situation where you're over-leveraged, where you can't pay the debt service. Once the economics are there, there are lots of resources that we can help people access on "green building" options. Whether it's just knowledge, whether it's contractors, or whether it's suppliers, we're well networked in the space and can help people get to the green, if you will.

UHD Reber: In the process of doing our Optimum Performance Home project, I've come across quite a few mortgage people who want to be "green," want to do something "green," do you work with any of those kinds of people?

Liu: Not so much so. We haven't been active in the single-family mortgage space that much because it's something that we haven't figured out a way in which to add value. So much of that is commoditized. What we try to do, is to, again, try to add value for people who are trying to build a building or build a community. So, on the mortgage side, we're not that active.

UHD Reber: Were there any factors in our Optimum Performance Home project that triggered you to support it?

Liu: Firstly, the economic fundamentals are right. We understand The Sea Ranch community, we understand how the supply and demand dynamic there is a very attractive one, so the base project's attractive, and second, we definitely love the fact that it's using "green" principles and aiming for a "green"-leadership level in a community that has a lot of its founding principles in conservation and preservation. So it really fit both the market and the development.

UHD Reber: Let's talk about that solar project, with SunPower Corporation. How did that come about and what are the mechanics of that program?

Liu: We developed that program with SunPower, and since then we've also implemented with other solar providers. So basically, we are providing an option for a homeowner to get solar with no money down. For a \$50,000 or \$60,000 system, a

homeowner may have to choose between liquidating some of their investments or taking money from their retirement funds if they don't have the cash on hand. With our financing, they can just pay a monthly bill. That monthly bill, in fact, through our financing, has been structured to be somewhat equivalent to his or her existing utility bill, which everybody has to pay for anyways. Once you get solar, that utility bill goes down, the new bill comes in roughly at a similar size or lower. So you get green power with no money down while potentially saving money every month.

UHD Reber: Fantastic! And you've expanded that beyond SunPower now.

Liu: Yes, we have.

UHD Reber: Peter, I believe that you know, we're also incorporating wind power in the Optimum Performance Home at The Sea Ranch. That's a first for any home at The Sea Ranch.

Liu: Wind power may be applicable in fewer locations, and there's more of a neighbor's issue, and so forth. But obviously in the right place, wind power has proven to be a good option. Utility-scale wind power is starting to become more economical than some of the conventional fossil-fuel-fired options.

UHD Reber: When did you found New Resource Bank?

Liu: The bank opened in late 2006. I started thinking about the idea maybe two-and-a-half years ago. A bank has to be chartered by federal and state agencies because the bank is a very safe environment for people to put their money; it's guaranteed by the government. The government wants to make sure that your bank is safe and sound in the standard that they require.

UHD Reber: Do you have more than one branch, other than the main office on Howard Street in San Francisco?

Liu: We have a couple of offices but one branch at Howard and Fremont in San Francisco. We have clients from all over the country and even from other parts of the world because a lot of people use the online banking services. They can open an account online and they become depositors because they can use any bank ATM in the world for free, so the convenience is there, and the service is great, and

again, they get to bank their values.

UHD Reber: How do they use ATM machines around the world with no charge?

Liu: They can use any bank ATM. They will accept the fees that the bank accesses them, and then we rebate them.

UHD Reber: That is a real benefit. What major green projects are you financing right now?

Liu: Well, they range from all sectors, so we are working with clean technology companies and solar power companies to finance specific solar systems. We're also working with "green" builders to build both home, as well as commercial real estate projects. We are also working with some of the leading players in the "green" consumer product lines, including some wonderful leading organic industry companies like Straus Family Creamery and Cowgirl Creamery.

UHD Reber: Fantastic. So where do you see New Resource Bank in two years?

Liu: In two years, I think we're going to continue to grow rapidly. One of the number one questions that's asked of us is, "When will New Resource Bank come to our community?" by people from as far as South Carolina, from as near as Palo Alto. When there are a lot of customers that want us to be part of their community, we're going to take that challenge upon us to try to satisfy the demand.

UHD Reber: And you made reference to, when you finance a project, it costs less to finance through you if it's a green project. What are

the incentives?

Liu: Yes, we give them a price break. They get a slight discount. Again, we do so to further incentivize people to build to a "green"-leadership level, but the underwriting still has to be based on traditional risk matrix, which includes leverage, liquidity, location, and experience of the builder. So, we're not here to finance projects that don't make good economic sense.

UHD Reber: Do you have any comments you would like to make that I haven't covered?

Liu: Number one is we are a bank first and foremost, so we always focus on delivering banking in the best possible way. We expect our bank to have that core functionality as its primary focus. Additionally, we are a "green" bank that understands our "green" business customers better so we can roll out innovative programs. Better banking plus that additional element will hopefully make it a no-brainer for some people to say, "Hey, I should bank at New Resource Bank."

UHD Reber: Thank you, Peter, for sharing with our readers the story behind the New Resource Bank. **UHD**

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