



lbcc 2015: deanwood market

21 may 2015

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moody landscape architecture

ryan moody, rla
jason reibold

district homes

chris french, leed ap bd+c

strategy narrative

place

Limits to Growth

01 The project sponsors have identified in Deanwood a community that has been largely left out of the walkability boom enjoyed by much of DC over the past several years. But this is beginning to change, with the improvements to the Marvin Gaye park and Watts Branch that have begun to bridge the neighborhood to the surrounding city. We have designed the site to not just mend an existing gap in the urban fabric but to create a new destination within the neighborhood and to better connect the community to the park. Our site plan includes livework residences that front on Dix street, and a dynamic social space that functions as market (for the sale of produce from the on-site garden plots, and for goods and services offered by others in the surrounding neighborhood) and has the ability to expand into the adjacent streets for pedestrian-only special events. All of these features combine to create a new urban node to support the growth of walkability in the neighborhood.

Urban Agriculture

02 Through a combination of on-grade agricultural space and private rooftop gardens in intensive 12" soil medium, we've exceeded the urban agriculture requirements by over 60%. Further, we intend to work with Deanwood neighbors to identify other available locations for agricultural production. This outreach, along with the availability of neighborhood plots on site, will complement and further enliven the social space.

Habitat Exchange

03 At 32,319 SF, the site is below the 0.4 hectare minimum offset required under this Imperative. Our team is will work with the site owners to satisfy the minimum 0.4 hectare offset requirement, ideally through banks in our region that strengthen the local ecology.

Car Free Living

04 Secure bicycle parking is provided in the rear of the ground floor of the livework units, and at the lowest level at the rear of the stair towers in the villas. Public bicycle parking is provided in selected areas around the site. We opted

Site Area Dedicated to Agricultural Production

Building areas:

Livework Rowhouses	24,000 SF
Villas	11,200 SF
Total enclosed space	35,200 SF

Site Area 32,319 SF

FAR 1.09

Agriculture coverage requirement	15%
Required area for agriculture	4,848 SF
On-grade agricultural area provided	4,958 SF
Rooftop agricultural area provided ¹	3,120 SF
Total agricultural area provided	8,078 SF
Total coverage provided	25%

¹Intensive vegetated roof system, min. 12" soil medium.

for mobile electric car charging units, which can be attached to fixed bases at each parking space. This strategy effectively makes all of the parking spaces on the lot electric charging stations, rather than dedicate one specific electric car space.

water

Net Positive Water

05 Collect-Clean-Celebrate. In the spirit of regenerative design our project collects rainwater from on-site and surrounding impervious surfaces. An inlet along 58th Street brings rainwater into the project where it is combined with gray water from site occupants, surface water from site, and overflow from the building cisterns. The collected water travels through a series of bio-filtration ponds that follow the existing topography and clean the water. After final purification the water is celebrated at a public water feature in the SW corner of the site. Clean water overflow is directed to the Watts Branch tributary.

energy

Net Positive Energy

06 In the District, the average home electricity consumption is 721 kWh/month¹. For this project, we have implemented aggressive conservation strategies, which combine to reduce the average demand for our homes by over 30%, to less than 550 kWh/month.

Energy Conservation Strategies

Exterior envelope	We have sourced an exterior envelope manufactured by Bensonwood Homes to our specifications, providing one of the lowest infiltration rates available and far exceeding the tolerances possible in site-built construction. ¹
Passive heating and cooling	The homes have been designed for through-ventilation to every space. In the larger livework units, an interior courtyard has been introduced at the living floors to enhance natural ventilation. Rooftop evaporative cooling ponds reduce heat gain, capture rainwater, provide irrigation for roof gardens, and are an attractive feature at the terraces. Intensive (12") vegetated roofs provide additional insulation in warmer months.
HVAC	Our design utilizes ground source heat pumps serving each individual unit. Alternatively, we propose working with DC Water to identify an appropriate nearby sewer or combined sewer main to create a site utility to pre-temper HVAC coolants using a waste water heat recovery system, similar to the one they are currently piloting for Van Ness Elementary School. These result in a higher pre-treated water temperature at a reduced cost, by replacing the numerous ground source wells with a heat recovery vault and pump.
Vampire loads	To counter vampire loads, which typically amount to about 15% of home energy use, we have provided dedicate switched outlets conveniently located to likely A/V, home office, and charging station locations. This makes it convenient for occupants to shut down those circuits completely when not in use, eliminating the vampire power drain.
Water conservation	Water use reduction strategies reduce energy demand by approximately 3%.
Appliances	All appliances are Energy Star compliant or better.

¹Source: <http://bensonwood.com/what-we-build/wall-and-roof-systems/>

Solar panels are sized to exceed the annual demand. Elevated above the roof to provide shade for occupied roof terraces, the solar panels allow for cooling breezes over the roof and eliminate pockets of trapped heated air at the roof surface. 30% of the solar panel canopy is free of panels, allowing sunlight to filter through to the vegetated roof surface below.

Solar Power Generation

Residential unit floor areas:

Live/Work Rowhouses	3,000 SF	per unit
Villas	1,400 SF	per unit

Estimated average monthly demand per unit	550 kWh	per month
Estimated average daily demand per unit	18 kWh	per day
AC conversion derate factor per unit	0.80	
Estimated DC solar panel demand per unit	22.9 kWh	per day
Average daily sun, Washington DC	4.5 hrs	
Required power production per unit	5.1 kW	
Power production per panel	250 kW	
Required number of panels per unit	20	
Provided average number of panels per unit	28	
Total power generation per unit	7.0 kW	
Power surplus per unit	1.9 kW	
Total number of units	16	
Total residential power surplus per day	137.3 kWh	per day
Estimated average daily site power demand	54.0 kWh	per day
AC conversion derate factor for site power	0.8	
Estimated DC solar panel site demand	67.5 kWh	per day
Total project power surplus per day	69.8 kWh	per day
Total project power surplus per month	2,095 kWh	per month

health & happiness

Civilized Environment

07 All occupied spaces have access to operable windows. Further, in the livework units, we have provided interior courtyards serving the main living floors that provide intimate, private outdoor space accessible and visible only to occupants of the unit. In the villas, a two-story space in the living area draws natural light deep into the homes.

Healthy Interior Environment

08 Our project meets this Imperative in the following ways:

Healthy Indoor Environment	
ASHRAE 62	Materials have been selected to meet or exceed ASHRAE 62 requirements.
Non-smoking	Smoking is prohibited within the project boundary, and this prohibition extends to the adjacent portions of Dix and 57th Streets occupied on special events days.
Interior VOC's	Interior VOC emissions meet the requirements of the California Department of Public Health's Standard Method v1.1-2010. To provide ongoing reduction indoor VOC's and other pollutants, we have specified ECOS Paints' "Air Pure" Interior Atmosphere Purifying Paint, a DECLARE-labeled Red List compliant product.
Dedicated exhaust	Dedicated exhaust systems are provided for kitchens, bathrooms, and janitorial rooms. Heat from exhausted air is recaptured through the use of whole-house energy recovery ventilators in each unit.
Entry systems	Entry unit systems that reduce indoor particulates are provided for all residences. In the villas, the exterior landing is an open grate to eliminate most particulates before people enter the homes, and an additional entrance grate is provided in the foyer. In the livework units, the residential entries are provided with an entrance grate system at the ground floor entry hall, and recessed walk-off mats are provided at the retail/commerce entries. Shoe cabinets are built in at every unit entry to encourage show removal in residences.
Cleaning protocol	Cleaning products will be limited to those bearing EPA's "Safer Choice Label" certification.

Biophilic Environment

09 We are strong proponents of Biophilic design, and have incorporated into our design all of the 14 patterns of Biophilic design as identified by Terrapin Bright Green in 2014.

Biophilic Environment		Design Strategy													
Biophilic Pattern		Architecturally integrated rain gardens	Boardwalks along rain gardens	Interior courtyards / light wells	Filtered "tree canopy" natural light through elevated solar array	Protected outdoor space on every floor	Views to natural features from every occupied space	Built-in indoor planters	Habitat creation at rain gardens; bird feeders and birdhouses	Roof top evaporative cooling ponds adjacent to terraces	Extensive use of natural indoor materials and finishes	Private yards and/or roof terraces	Natural through-ventilation in every occupied space		
Nature in the space	Visual connection with nature	●	●	●		●	●	●				●			
	Non-visual connection with nature								●					●	
	Non-rhythmic sensory stimuli			●	●		●		●	●				●	
	Thermal & airflow variability				●									●	
	Presence of water	●					●			●					
	Dynamic & diffuse light			●	●		●								
	Connection with natural systems	●		●			●	●	●				●		
Natural analogues	Biomorphic forms & patterns			●	●						●				
	Material connection with nature		●							●					
	Complexity & order	●		●	●			●			●				
Nature of the space	Prospect	●				●	●			●					
	Refuge			●	●	●	●					●			
	Mystery			●	●				●						
	Risk / peril	●	●												

materials

Red List

10 We have made a thorough effort to eliminate Red List materials from the construction of the building. See the Materials List for more information.

Embodied Carbon Footprint

11 Our project will meet the carbon offset requirement for the initial construction of the building, but we go much farther than that. We have adopted a specialized form of Residential Open Building ⁽²⁾ practice, tailored specifically to rowhouses and other urban housing types, that allows us to minimize future carbon commitments for renovations and upgrades to the homes over the life of the buildings. For further information, see our suggestion for a potential new Petal for the Living Building Challenge, "TIME," below.

Responsible Industry

12 Our team reached out to the following product manufacturers regarding the Declare protocol. See the Materials List for additional information.

Living Economy Sourcing

13 See below.

Net Positive Waste

14 Approximately 40% of our vertical construction will take place off-site, at Bensonwood's facility, which has a target of zero construction waste leaving the plant. For the on-site portions of construction, we propose to work with Environmental Alternatives, Inc. to develop and implement a plan that meets or exceeds the requirements of this Imperative.

Living Economy Sourcing

Location of materials sourcing, by percentage of construction budget

First 20% - within 500 km (311 mi)	Concrete, masonry, site pavers, gravel, fill, landscape plantings, and vegetated roof plantings are sourced locally. TruExterior siding and trim are manufactured in North Carolina.
Next 30% - within 1,000 km (622 mi)	Exterior wall, roof and floor/ceiling systems are manufactured at Bensonwood's facility, approximately 700 km from the project site. These total approximately 40% of the vertical construction budget.
Next 25% - within 5,000 km (3,110 mi)	Materials are sourced from the continental United States to the extent possible.
Consultants - within 2,500 km (1,555 mi)	With the exception of expertise provided by Bensonwood's staff (700 km), all consultants are located within Washington, DC.

EQUITY

Human Scale + Humane Places

15 Our project meets this Imperative in the following ways:

Human Scale + Humane Places	
Surface Cover	The parking area meets the required maximums for dimensions and areas.
Streets + Intersections	Traffic calming: the social space extends into the adjacent streets for pedestrian-only use during special events, through the use of pedestrian-friendly pervious paving and in-ground sleeves for canopy poles. Block scale: we have re-introduced the abandoned alley immediately to the north of the site and activated it with urban gardens to reduce the perceived size of the block. Sidewalks: Ample sidewalk space and tree cover is provided along all three street fronts.
Signage	No free-standing signs are proposed for the site.
Proportion	Community gathering / connection spaces are provided throughout the site, balanced with the need for privacy for residents. Community spaces include the community gardens at the northeast corner, and a large social space center-south that both draws people into the site and acts as a connection between the project site and Watts Branch.
Human Scale	Small shop fronts and varied elevations of the livework units provide a sense of intimacy and interest for those walking along and entering the site. The social space acts as a pocket park, and benches and other human-scale elements are integrated into the boardwalk that extends from the northeast corner to the southwest corner of the site.

Universal Access to Nature & Place

16 The natural features of our site are universally accessible. The boardwalk navigates a series of ramps through the site from a high point in the northeast corner to the low point at the social space at the southwest corner, connecting all of the public spaces in the site along the way. The ground floor of each of the livework units is at grade, which effectively extends the site to the interiors of those buildings.

Neighbors' access to fresh air, sunlight and water features is preserved; even shadows cast by our elevated solar array allow filtered light to pass through, mimicking the play of light through a tree canopy.



Equitable Investment

17 We commit to working with the project sponsor to identify an appropriate charity as beneficiary.

JUST Organizations

18 We commit that at least one member of our team will procure a JUST Label. We commit that our team will send the JUST information to at least ten project consultants, sub-consultants, or product suppliers.

beauty

Beauty + Spirit

19 Beauty is represented as a route of regeneration. The buildings are a living component of a landscape that is constantly changing. In Spring the bosque of serviceberry trees flowers. A rainstorm reveals a sculptural whale spout fountain. Sunday is market day. The project is designed an evolving stage for the changing scenes of Deanwood. While the majority of exterior building materials are subtly muted tones of gray, color is selectively deployed on primary elements, referencing the vibrant Deanwood community.



Inspiration + Education

20 To be counted as a success, the educational component of the project is paramount. As neighbors (and beyond) experience and learn about the stories and strategies in the project, we believe that many will be inspired to see and join in the rising potential of their neighborhood.

Beyond simply documenting the strategies, our use of Residential Open Building techniques is interactive, allowing residents, visitors, and maintenance personnel to experience and learn from the inner workings of the buildings on an everyday basis. See "TIME" below for more information.

time

Built to Last
Built to Learn and Change
Built to Deconstruct

What makes a Living Building a living building?

21+ After decades of relative stagnation in home building technology, the industry has entered an age of unprecedented advancement in the technology of building materials, systems and best practices that looks to continue at an expanding rate. We simply do not know what innovations or best practices will be available in the future.

To create buildings that can easily accommodate those changes over time, we propose to introduce truly “living” building concepts into the Living Building Challenge, based on “Residential Open Building” concepts pioneered by MIT professor Jan Habraken in the 1960’s and expanded by Stewart Brand in his book *How Buildings Learn* (1995) and further by Tedd Benson of Bensonwood Construction’s “Open Built” construction system.

Our system consists of a bulkhead-and-shaft distribution grid, strategically located as part of an overall building chassis. We use a modular organizational grid for space planning that

"Living" Building System Benefits

Region / Urban

- Ideal for walkable / higher-density housing
- Chassis is adaptable to varying lot widths, depths and orientations
- Supports walkable streets -- flexible system allows for wide variety in massing and facades

Site

- Chassis provides for logical organization of site utilities
- Stormwater management through and around buildings is simplified

Market

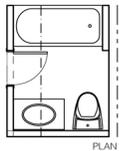
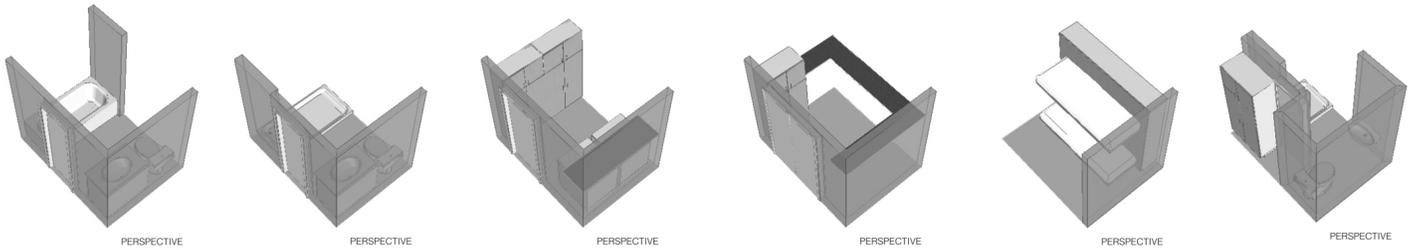
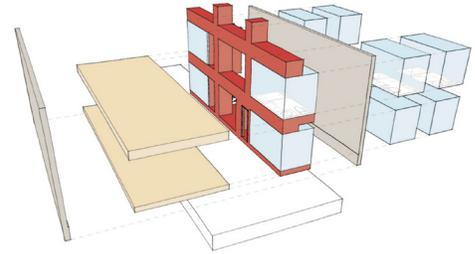
- Market-adaptive: Residential units built with our system have the ability to cost- and resource-effectively change unit sizes, configurations, quantities, etc.
- Adaptable for changing family needs and aging-in place
- Built-in potential for live-work, mixed-use, and other alternative use configurations

Operations / Maintenance

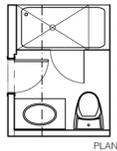
- Access to systems for maintenance is dramatically improved, reducing labor costs and deferred maintenance.
- Construction waste during construction and upgrades is minimized.

allows for multiple options for bathrooms, kitchens, and other high-intensity areas and reduces the cost of future space plan updates.

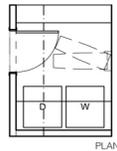
For this project we have provided two distinct configurations of the system, a longitudinal-chassis livework rowhouse and a transverse-chassis villa, to take best advantage of different attributes of the site.



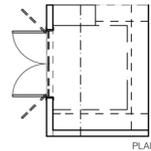
6X8.A
FULL BATH



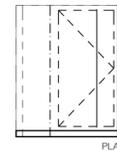
6X8.B
3/4 BATH WITH
ROLL-IN SHOWER WITH BENCH



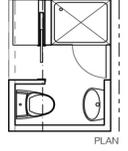
6X8.C
LAUNDRY ROOM WITH
BUILT-IN CABINETS AND
BUILT-IN FOLDING IRONING BOARD



6X8.D
WALK-IN CLOSET WITH
BUILT-IN CABINETS AND
WARDROBE MIRROR ENTRY DOORS



6X8.F
LIBRARY /
GUEST ROOM (BUNKS - TWIN)



6X8.G
BUILT-IN CABINET
3/4 BATH WITH POCKET DOOR
AND ROLL-IN SHOWER

"Living" Building System Benefits

Category	Component	Lifespan	Notes
SITE			
	Site	Eternal	Smart Growth and New Urbanism best practices apply
SHELL			
	Structure	50 - 200 years	Built to last; protected in place by skin
	Skin	30 - 100 years	Disentangled from structure to allow for weathering, future advances in insulation and fenestration, etc.
INFILL			
	Space Plan	20 - 50 years	No interior load-bearing walls; Allows for re-configuration of space plan to accommodate changing life needs
	Systems	5 - 30 years	Installed in access ceilings, bulkheads and vertical chases, accessible for repair or replacement over the life of the home
	Stuff	Constant change	Furnishings, appliances, communications equipment, etc.

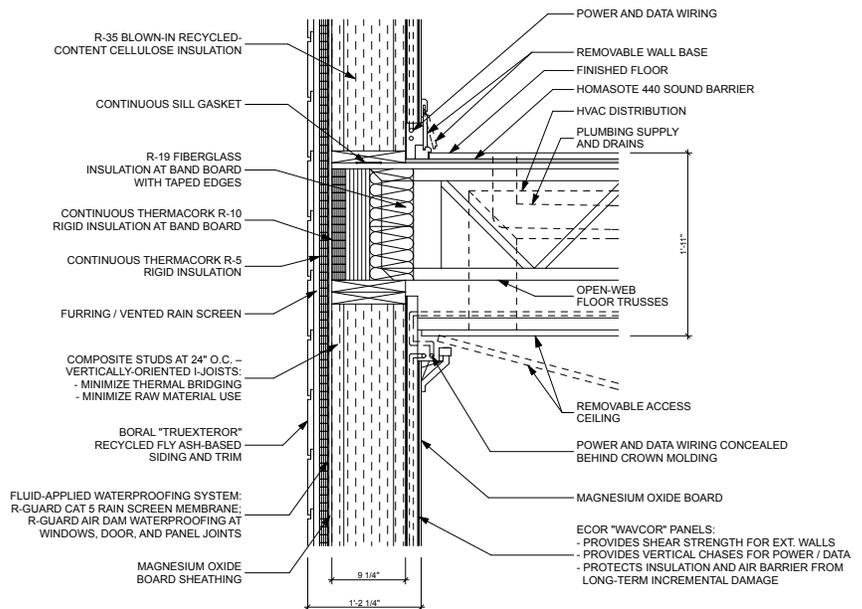
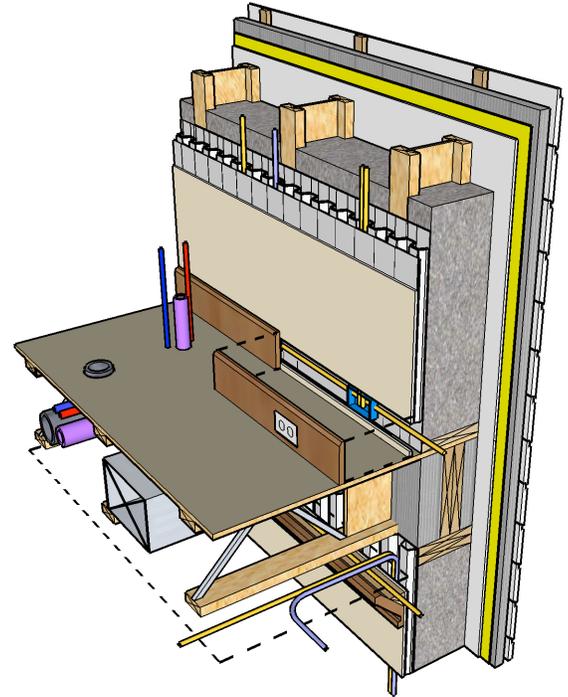
economic feasibility study

A building's ability to live, learn and grow over time is a key component of the Living Building Challenge, and may in a future iteration of LBC be deserving of its own Petal — TIME.

For the construction of the villas and live/work rowhouses, our team has taken a multi-step approach to cost control:

1. We have designed the units to be space-efficient to maximize the functionality of the built square footage. It is our intent to measure the building in function, rather than size. Through the use of built-in multi-function furniture, we have created spaces that are truly dual-function, effectively giving residents an "additional room" without building additional square footage.

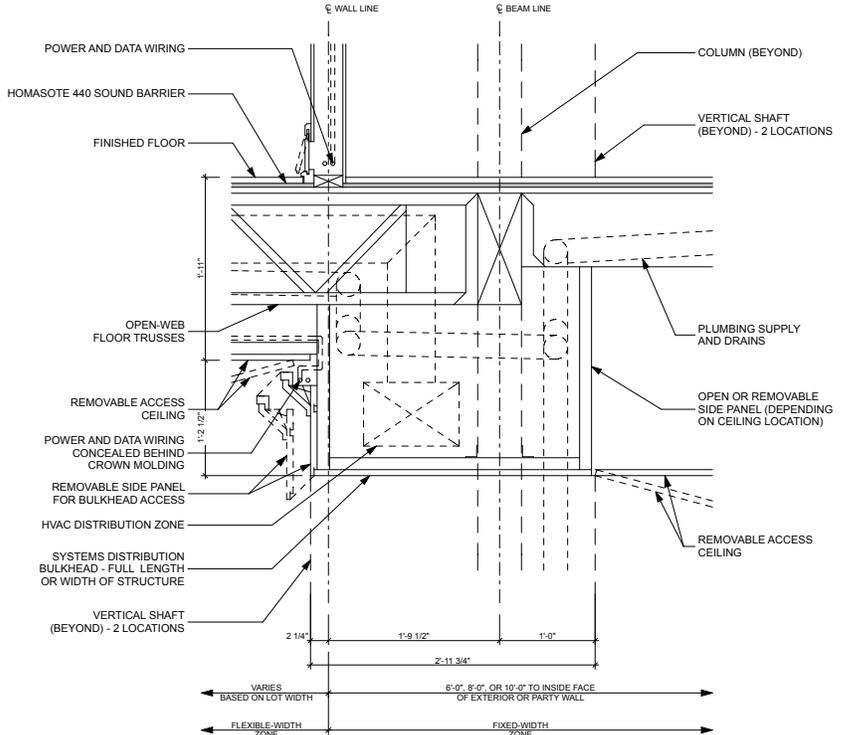
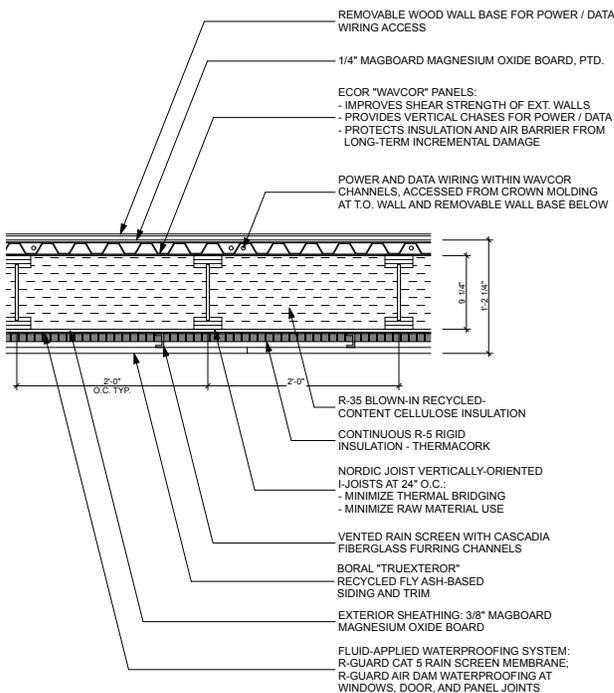
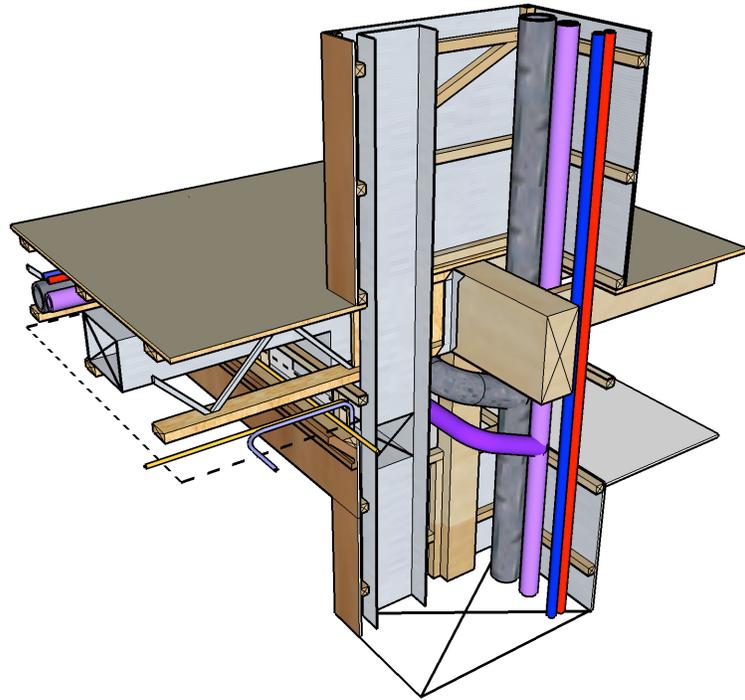
2. We have primarily limited ourselves to the use of off-the-shelf products and systems, using ordinary materials configured in innovative ways to achieve extraordinary performance. Walls are framed with 9 1/2" TJI's at 24" on center. TJI's use far less virgin wood in their manufacture, and the thin webs significantly reduce thermal bridging.



3. We have prioritized using lower-cost options among possible alternatives. For example, while current wisdom on insulation best practice steers green designers toward spray-in foam and other high-cost materials, we found that it was less expensive and more effective to increase the thickness of exterior walls and use low-cost blow-in recycled cellulose insulation instead.

4. Our "living" system reduces labor and installation cost for mechanical, plumbing and electrical systems, as described in our LBC Narrative under "TIME."

5. Our "living" system provides for cost-effective customization, due to the rational modular grid imposed on areas of highest cost such as kitchens, bathrooms, and laundry rooms.



PLAN DETAIL - EXTERIOR WALL

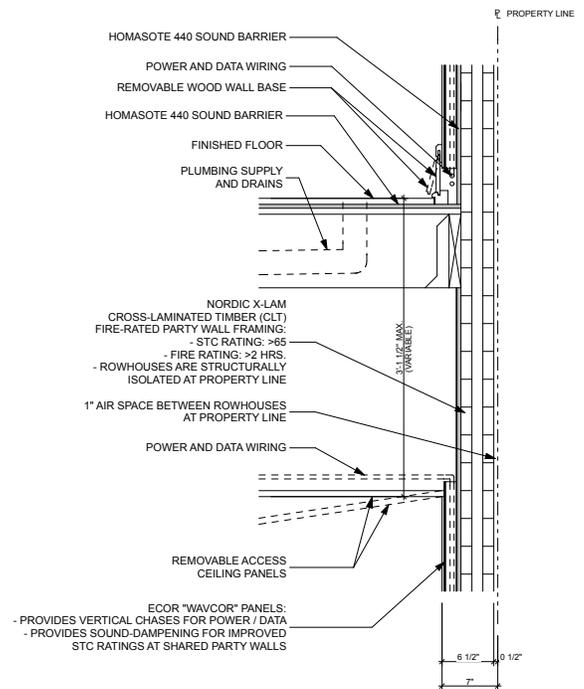
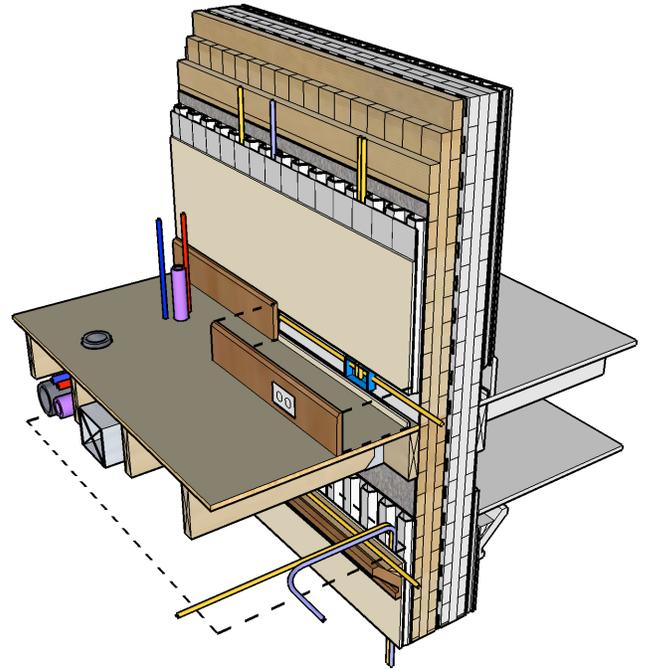


SECTION DETAIL - BULKHEAD SPINE



6. Our “living” system provides the opportunity for deferred implementation of potentially expensive technologies, making it possible to achieve first-cost goals (VE) without compromising the possibility of taking advantage of green technologies in the future as they become more affordable. High-performance technologies such as domestic grey water recycling, solar power, solar thermal, wind, fuel cell, and nuclear fusion can be implemented as needed, as the technologies become available, and as operating budgets allow.

7. We have applied our “living” design concept across the site, and not just within the buildings. Utilities are disentangled from on-site services and amenities, such as the rain gardens and public plaza, and are located in areas where excavation can be done at minimum cost and minimum disturbance to programmed spaces.



SECTION DETAIL - PARTY WALL / FLOOR



materials list

We undertook a robust exercise in identifying appropriate materials for use in this project. We structured our search based on the organization of building systems prescribed by Residential Open Building, in which all building components are first “disentangled” from one another, and then are organized in a hierarchy according to anticipated life expectancy or anticipated frequency of access, as follows:

This provided a hierarchy that allowed us to prioritize materials that would have the greatest impact on the project. Within that hierarchy, we followed the following materials selection process:

First, we designed exterior wall systems, party wall systems, ceiling/floor systems and ceiling/roof systems for maximum performance. Each system needed to meet initial performance goals and the long-term adaptability requirements we set for the residences.

Second, we surveyed the overall construction materials market to identify available products that met our performance criteria, with an eye toward appropriate product lifespan (depending on where each product fell in the hierarchy) and initial and long-term cost control. The result was a matrix that tracked LBC Imperatives as well as future-proofing and other sustainability priorities established by the team. An excerpt of the matrix is below.

Third, we reviewed the Declare database for available Red List-compliant products. Many of the products in the database met our performance requirements, and our final materials list includes approximately 20 products from the Declare database. One example of a material that gave us particular difficulty was the rigid insulation outside the sheathing at exterior walls. We found that the best-performing product to meet our needs was mineral wool, but the presence of phenyl-formaldehyde in that material eliminated it from consideration. In the processing of mineral wool, however, most of the free formaldehyde in the material is driven off, and the finished product has very low formaldehyde emissions, in some cases as low as background formaldehyde levels⁴. In that case we selected ThermaCork, which has a Declare Label as a Red-List compliant product, but has lower insulating performance at a higher material cost.

The following list provides a summary of key materials selected for the project:

Our team reached out to three product manufacturers regarding the Declare protocol: ECOR International for their WavCOR structural cardboard panels, which we have specified for continuous power and data raceways in our exterior and party wall systems; Boral for their TruExterior siding and trim, which we have specified for the exteriors of the villas and livework units; and Homasote for their 440 Sound Barrier, which we have specified in our party wall and floor systems. The Declare program was new to all three companies. All three of these products are Red-List compliant, and all three manufacturers expressed interest in participating. Boral is in the process of refining their formulations in order to increase their fire resistance class, and expressed intent to apply

for Declare once that process is complete. ECOR will complete an internal cost-benefit analysis before deciding whether or not to apply. Homasote has not yet provided a determination.

Source: <http://insideenergy.org/2014/05/22/using-energy-how-much-electricity-do-you-use-each-month/>

Sources: <http://skendall.iweb.bsu.edu/Publications-residential%20open%20building.html> and <http://bensonwood.com/sustainable-design/open-built/>

Our specific system is patent-pending. We are not advocating the use of our specific system for the Living Building Challenge; Rather, we believe that the Living Building Challenge could benefit from the incorporation of many variations of Residential Open Building or similar future-proofing strategies.

Source: <http://www2.buildinggreen.com/blogs/mineral-wool-insulation-entering-mainstream>

"Living" Building System Benefits		
Material	Specified Product	DECLARE Status
SITE		
Site Concrete	Fly ash, locally sourced	Red List compliant
Outdoor fences, benches, boardwalks, trellises, etc.	Accoya acetylated wood	DECLARE, Red List compliant
	Deadwood sinker cypress	Red List compliant
SHELL - Structure / Skin		
Concrete	Fly ash, locally sourced	Red List compliant
Wood columns and beams	Nordic Lam	DECLARE, Red List compliant
Wood trusses	Nordic Joist	DECLARE, Red List compliant
Cross-laminated timber (CLT)	Nordic Xlam	DECLARE, Red List compliant
Blown-in cellulose insulation	GreenFiber	DECLARE, Red List compliant
Rigid insulation	ThermaCork	DECLARE, Red List compliant
Vertical power / data chases:	ECOR WavCOR panels	Red List compliant ¹
Sound attenuation	Homasote 440 Sound Barrier	Red List compliant ¹
Exterior cladding	Boral TruExterior siding & trim	Red List compliant ¹
Exterior waterproofing	R-Guard Cat 5 Rainscreen	DECLARE, Red List compliant
Exterior flashing at openings	R-Guard Air Dam	DECLARE, Red List compliant
Windows	Cascadia fiberglass	DECLARE, Red List compliant
Interior / exterior sheathing	MagBoard magnesium oxide TPO	Red List compliant
Roofing - low slope	Single-ply TPO membrane	Red List compliant
Vegetated roofing	Columbia Green tray system	DECLARE, Red List compliant
INFILL - Space Plan / Systems		
Interior stud framing	FSC-certified lumber	Red List compliant
Interior wall board	MagBoard magnesium oxide TPO	Red List compliant
Kitchen & bath cabinet carcasses	Collins Pine FreeForm	DECLARE, Red List compliant
Kitchen & bath cabinet doors & panels	Plyboo Soybond	DECLARE, Red List compliant
Kitchen & bath countertops	Coldspring Dimensional	DECLARE, Red List compliant
Kitchen & bath backsplashes	EcoGranite recycled granite	DECLARE, Red List compliant
Tub & shower surrounds	EcoGranite recycled limestone	DECLARE, Red List compliant
Hardwood flooring	Imondi Flooring Organic	DECLARE, Red List compliant
Tile flooring	Recycled-content ceramic	Red List compliant
Carpet	Interface FLOR	DECLARE, Red List compliant
Utility flooring	Forbo Marmoleum sheet	DECLARE, Red List compliant
Interior paints	Imperial Paint "Air Pure"	DECLARE, Red List compliant
Piping - distribution	Aquatherm polypropylene	Red List compliant
Piping - waste	Black iron	Red List compliant
Pipe insulation	Knauf Earthwool 1000	DECLARE, Red List compliant
Electrical distribution	Low-Smoke, Zero Halogen (LSZH - PVC-free)	Red List compliant



To: DC Living Building Challenge Collaborative
dc.lbc.collaborative@gmail.com

On behalf of the Teass\Warren Architects / Moody Landscape Architecture / District Homes competition team, I am pleased to provide this summary of our outreach regarding ILFI's "Declare" program.

We identified two product manufacturers that we felt may be candidates for Declare self-certification. ECOR manufactures structural cardboard panels, which we propose to use for structural wall sheathing at the interior face of exterior walls, and also to provide continuous vertical chases for power and data to eliminate degradation of the performance of our exterior wall over time. Boral manufactures "TruExterior" siding and trim, made from fly ash, which we propose to use for the exterior cladding. Both of these products are Cradle-to-Cradle certified.

We sent Declare info letters (see attached) and had several conversations with representatives from both companies. Both companies expressed interest in the certification, and we received the following responses:

ECOR declined to participate for now, stating that while they meet the requirements for the Declare certification, they have a limited budget for certifications and are unable to add more at this time. They will consider certification in the future as their business continues to expand.

Boral expressed interest, and will likely submit for "Declare" self-certification in the near future. However, they are currently "in the middle of reformulating products in order to consistently achieve class A fire rating" and as such do not want to incur the fee twice, once now and again after the reformulated products are complete.

If any additional information becomes available from either manufacturer, we will pass this on to the DC LBCC team.

Sincerely,

Chris D. French, President
District Homes, LLC

April 13, 2015

RE: Product Content Transparency
(via email: sgleason@homasote.com)

Dear Mr. Gleason:

It was good to talk with you earlier this week. District Homes, LLC is dedicated to making informed decisions regarding the building materials used on our projects. I represent District Homes on a team with Teass\Warren Architects and Moody Landscape Architecture as a participant in the *2015 DC Affordable Living Design Competition*. Through our work on this project, we understand that product selection is a complex process. We must consider factors of performance, cost, life cycle impact, product composition, and emissions. To understand how our decisions affect human health and the environment, we are asking for you to share information about product contents and their associated health impacts.

The International Living Future Institute's (ILFI) transparency tool is **Declare**. Similar to the **Health Product Declaration Standard** (HPD) these are easy-to-reference standard formats that systematize reporting language to enable the consistent disclosure of building product content and associated health information. Both are freely available for your use at the ILFI Declare website <http://declareproducts.com> the HPD Collaborative at www.hpdcollaborative.org. A complete form includes accurate product content and related health hazard information in a consistent way that allows us to make better choices. Both forms are recognized in the marketplace. HPD can be used to fulfill the reporting requirements of the LEED v4 Material Disclosure and Optimization credit and demonstrate compliance with The Living Building Challenge Red List.

Our project team is currently considering the use of Homasote to be included in the design of our competition entry. As a requirement of the competition entry rules, we ask you to complete, and make publicly available either Declare or HPD documentation for this product.

We look forward to working with Homasote to promote transparency in product content and health information so that we can make informed choices in what we specify. As the need for product transparency continues to grow, District Homes and the *DC Living Building Challenge Collaborative* will give preference to manufacturers that provide this information.

Thank you in advance for your assistance.

Sincerely,

Chris D. French
District Homes, LLC

E chrisfrench535@me.com
P 202-577-7511

April 13, 2015

RE: Product Content Transparency
(via email: joestapley@ecorglobal.com)

Dear Mr. Stapley:

District Homes, LLC is dedicated to making informed decisions regarding the building materials used on our projects. I represent District Homes as a participant in the *2015 DC Affordable Living Design Competition*. Through our work on this project, we understand that product selection is a complex process. We must consider factors of performance, cost, life cycle impact, product composition, and emissions. To understand how our decisions affect human health and the environment, we are asking for you to share information about product contents and their associated health impacts.

The International Living Future Institute's (ILFI) transparency tool is **Declare**. Similar to the **Health Product Declaration Standard** (HPD) these are easy-to-reference standard formats that systematize reporting language to enable the consistent disclosure of building product content and associated health information. Both are freely available for your use at the ILFI Declare website <http://declareproducts.com> the HPD Collaborative at www.hpdcollaborative.org. A complete form includes accurate product content and related health hazard information in a consistent way that allows us to make better choices. Both forms are recognized in the marketplace. HPD can be used to fulfill the reporting requirements of the LEED v4 Material Disclosure and Optimization credit and demonstrate compliance with The Living Building Challenge Red List.

Our project team is currently considering the use of ECOR's "WavCOR" to be included in the design of our competition entry. As a requirement of the competition entry rules, we ask you to complete, and make publicly available either Declare or HPD documentation for this product.

We look forward to working with ECOR to promote transparency in product content and health information so that we can make informed choices in what we specify. As the need for product transparency continues to grow, District Homes and the *DC Living Building Challenge Collaborative* will give preference to manufacturers that provide this information.

Thank you in advance for your assistance.

Sincerely,

Chris D. French
District Homes, LLC

E chrisfrench535@me.com
P 202-577-7511

April 13, 2015

Mr. Lane Durand, Boral America (via email: lane.durand@boral.com)

RE: Product Content Transparency

Dear Mr. Durand:

District Homes, LLC is dedicated to making informed decisions regarding the building materials used on our projects. I represent District Homes as a participant in the *2015 DC Affordable Living Design Competition*. Through our work on this project, we understand that product selection is a complex process. We must consider factors of performance, cost, life cycle impact, product composition, and emissions. To understand how our decisions affect human health and the environment, we are asking for you to share information about product contents and their associated health impacts.

The International Living Future Institute's (ILFI) transparency tool is **Declare**. Similar to the **Health Product Declaration Standard** (HPD) these are easy-to-reference standard formats that systematize reporting language to enable the consistent disclosure of building product content and associated health information. Both are freely available for your use at the ILFI Declare website <http://declareproducts.com> the HPD Collaborative at www.hpdcollaborative.org. A complete form includes accurate product content and related health hazard information in a consistent way that allows us to make better choices. Both forms are recognized in the marketplace. HPD can be used to fulfill the reporting requirements of the LEED v4 Material Disclosure and Optimization credit and demonstrate compliance with The Living Building Challenge Red List.

Our project team is currently considering the use of Boral's "TruExterior" siding and trim to be included in the design of our competition entry. As a requirement of the competition entry rules, we ask you to complete, and make publicly available either Declare or HPD documentation for this product.

We look forward to working with Boral to promote transparency in product content and health information so that we can make informed choices in what we specify. As the need for product transparency continues to grow, District Homes and the *DC Living Building Challenge Collaborative* will give preference to manufacturers that provide this information.

Thank you in advance for your assistance.

Sincerely,

Chris D. French
District Homes, LLC

E chrisfrench535@me.com
P 202-577-7511