

BIMOBLE RESILIENT



AIA
Baltimore

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B|MORE Resilient: Project Summary

AIA Baltimore partnered with the Baltimore City Office of Sustainability and the Baltimore City Department of Housing and Community Development to develop the B|More Resilient Rowhouse Design Competition to address overlapping urban issues of climate change and resiliency in our communities while envisioning opportunities to revitalize Baltimore's vacant rowhouses, estimated to number over 30,000 properties. In addition to vacant housing, design solutions addressed a holistic approach to community resiliency and sustainability, including social equity and public health, along with urban heat island effect and stormwater management. The competition exemplified goals of the New Urban Agenda, notably its commitment to implementing the "2030 Agenda for Sustainable Development in an integrated manner, and to the achievement of the Sustainable Development Goals and targets, including Goal 11 of making cities and human settlements inclusive, safe, resilient and sustainable."

Design teams were required to have at least one architecture student and one professional architect on the team. A total of 15 teams entered the competition, representing 7 architecture schools. Judging was done by representatives from the Baltimore Department of Housing's Vacants to Value Program, the Baltimore City Office of Sustainability, and AIA Baltimore's Committee on the Environment/Resiliency. The end result was a diverse offering of practical solutions that took a proactive approach to raising public awareness about the need for social and environmental resilience in urban historic neighborhoods and communities. Projects were displayed in a traveling exhibition, including Baltimore City Hall, with team presentations for the Mayor's Office, City Council, City agencies, and the real estate development community; and as part of a national conference on vacant housing held in Baltimore, and networking events to introduce architects to developers to realize projects, and adopt resilient design ideas.

Design teams were challenged to create proposals for a more resilient rowhouse that can be replicated throughout the city and withstand the shocks and stresses of climate change. The competition launched shortly after the death of Freddie Gray. While formed before the uprising, the competition sought to address some of the inequalities brought to light, using a city block in the historic majority African-American neighborhood of Broadway East as the site.

Residents in Broadway East lack the resources that the New Urban Agenda seeks to promote equal access to such as food security and nutrition, health, and mobility. The area is plagued with vacant houses and neglected infrastructure. Lack of trees and quality green space makes it particularly susceptible to the heat island affect. The site also includes high visibility to Amtrak rail without access to it. Despite these challenges, its potential to be a vibrant community with a historic rowhouse fabric, and access to the newly-revitalizing Johns Hopkins/East Baltimore Development neighborhood made it ideal to explore innovative solutions that address the social function of the land. Focus was placed on rehabbing and "retrofitting all risky housing stock to make it more resilient" through the collaborative process with students, architects, and residents – an integrated approach that also sought to avoid "spatial and socioeconomic segregation and gentrification" while improving the health and well-being of existing residents.

The competition model can be replicated by other AIA chapters to showcase architects' solutions to issues of resilient, sustainable urban housing at a variety of scales. The competition offers an excellent model for collaboration and dialogue with city agencies, schools of architecture, allied organizations, and the development community.

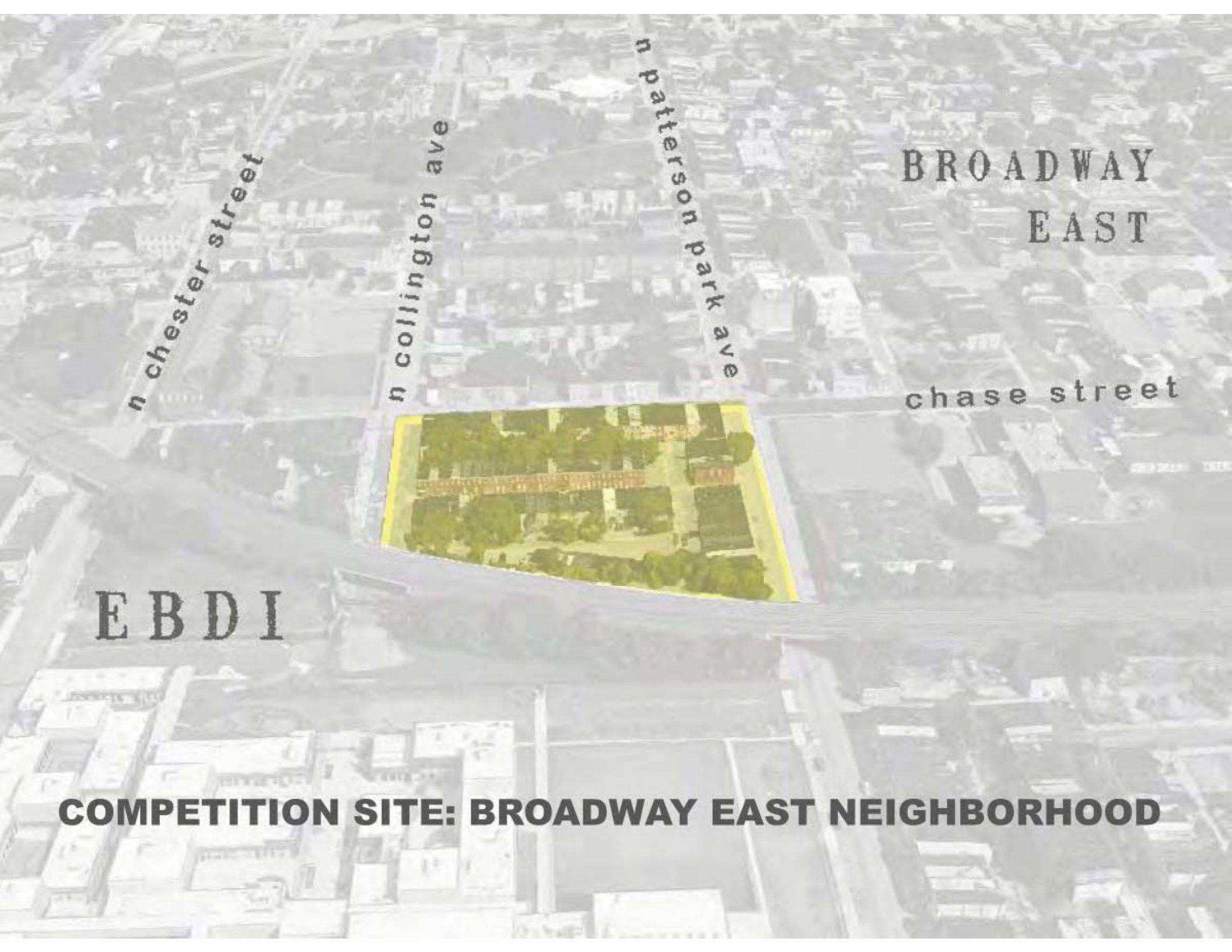
“The New Urban Agenda reaffirms our global commitment to sustainable urban development as a critical step for realizing sustainable development in an integrated and coordinated manner at the global, regional, national, subnational and local levels, with the participation of all relevant actors. The implementation of the New Urban Agenda contributes to the implementation and localization of the 2030 Agenda for Sustainable Development in an integrated manner, and to the achievement of the Sustainable Development Goals and targets, including Goal 11 of making cities and human settlements inclusive, safe, resilient and sustainable.”

–New Urban Agenda, United Nations

THE EXISTING FABRIC HAS A
HISTORIC BEAUTY THAT IS WORTH
PRESERVING...



...AND A COMMUNITY THAT DESERVES MORE.



n chester street

n collington ave

n patterson park ave

BROADWAY
EAST

chase street

EBDI

COMPETITION SITE: BROADWAY EAST NEIGHBORHOOD

Summary of Outcomes

15 teams entered the competition, representing 7 schools across the country. 7 awards were given, including honorable mention in categories including “most resilient”, “most feasible”, and “most innovative” design. Judging was done by representatives from the Baltimore Department of Housing’s Vacants to Value Program, the Baltimore City Office of Sustainability, and AIA Baltimore.

Projects Promoted Resilient Structures

Like much of Baltimore, Broadway East consists of modest rowhouses that were built over a century ago. These homes need to be made more resilient and better suited for the needs of people in 21st century. Winning projects came up with innovative ideas, such as converting narrow vertical rowhouse layouts to horizontal configurations to create more flexible and accessible units. They explored passive house retrofits that reduced energy demands by up to 82% while preserving the structures and reusing materials wherever possible. Green roofs, solar panels, higher efficiency systems and stormwater collectors were common features of winning projects. Vacant properties were adapted for new uses such as residences, small businesses, and community centers.

Projects Promoted Resilient Environments

Winning entries proposed converting neglected, underutilized and impervious alleys to green passageways and courtyards, that both improved quality of life in the community while handling stormwater management. Shady, sturdy trees were planted along pedestrian paths and in some areas street parking was reduced to provide more community space, green space, and BMPs. Entrants proposed community farms on overgrown vacant lots to improve public health, access to food, and foster community. Trapping and reusing stormwater in creative ways was another strong concept among projects.

Projects Promoted Resilient Communities

Fostering community and celebrating culture was a theme carried through entries. Several entries proposed civic centers that connect residents to goods, services, opportunities, shelter and entertainment. The conversion of alleys into green pedestrian paths and courtyards would contribute to the quality of life while fostering a strong sense of community. The rehabilitation of vacant lots and houses transformed public health hazards into community assets. Several projects incorporated workforce development, such as on the job training for the retrofits. Co-ops fostered community while sharing valuable skills among residents

Outreach & Engagement

The awards ceremony and celebration included local community members, public officials, and professional architects, builders and developers. Competition boards were displayed as part of a touring exhibition throughout the city including City Hall. The boards were used as an outreach tool to the public and local officials. Presentations were used as part of the AIA Baltimore CivicLAB civic engagement and leadership program. AIA Baltimore continues to showcase the competition entries and design solutions for outreach to the public, elected officials, and the real estate and affordable housing development community, as well as practitioners.

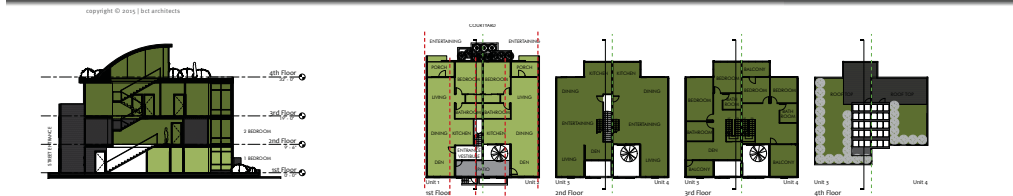
B|MORE Resilient Rowhome Competition Judging Criteria Worksheet

Team # _____

Please rank the competition entry according to the scoring categories below; the higher number should indicate a stronger, better score. 5 = Superior
4 = Excellent 3 = Good 2 = Satisfactory 1 = Fair

PROJECT MINIMUM REQUIREMENTS	NOTES	RANK
Site Plan		/5
Floor Plan		/5
Elevation (Front and Back)		/5
Block Elevation or Perspective		/5
Street Section		/5
TOTAL		/25
PROJECT NARRATIVE	NOTES	RANK
Clarity of thesis and its relevance to resiliency		/5
Addresses how design improves resiliency of the rowhome		/5
Addresses how the site design improves resiliency of the block		/5
Explains the significant materials and systems in the design		/5
Overall presentation of narrative (grammar, etc.)		/5
TOTAL		/25
PROJECT CONTENT	NOTES	RANK
How effectively does the project consider the following:		
Improved building envelope		/5
Reduced heat island effect		/5
Street landscape and lighting		/5
Alternative energy		/5
Defensible Space		/5
Social Sustainability		/5
TOTAL		/30
FEASIBILITY	NOTES	RANK
Technical feasibility (cost and value)		/5
Economic feasibility (cost and value)		/5
Social feasibility (cost and value)		/5
TOTAL		/15
INNOVATION	NOTES	RANK
Project provides a unique technical insight or solution		/5
Project provides a unique economic insight or solution		/5
Project provides a unique social insight or solution		/5
TOTAL		/15
AESTHETICS & PRESENTATION	NOTES	RANK
Rendering quality		/5
Clarity in communicating an idea		/5
TOTAL		/10
TOTAL SCORE		/120

This entry should be considered in the following category (pick one): Most Resilient, Most Feasible, or Most Innovative



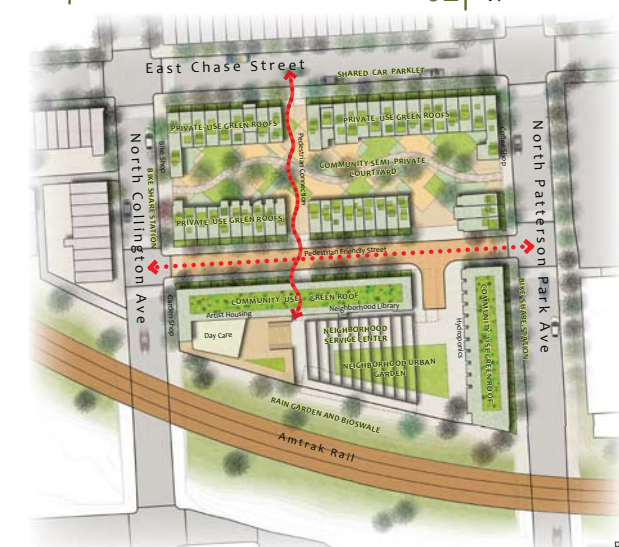
01 | Dwellings

02 | Typical Unit Plans



03 | Front Elevation

04 | Rear Elevation



05 | Neighborhood Plan



06 | Neighborhood Aerial



07 | Street Section

the bMORE resiliency CO*OP

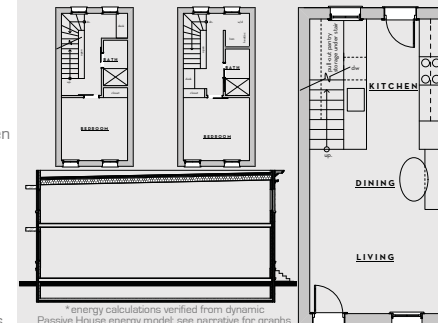
METRICS

bMORE co*op fosters resilient **economics** through employment, facilities + training of trades for coop maintenance including construction, air sealing + insulation, solar, HVAC, agriculture husbandry, childcare, sustainable waste + water management, light industry + cultural creatives.



cooperative intelligence + resource export

bMORE co*op fosters a resilient **environment** through low-toxicity, foam-free, zero-energy ready envelope retrofits, cooperative on-site energy production; stormwater harvesting supplies irrigation for year round greenhouses + urban agriculture, waste management; waste + compost facility harvests methane for fuel cell generation to supplement solar production.



resource efficiency = resource resiliency

bMORE co*op fosters **social equity + resilience** through cooperative ownership of resources + building (including coop vehicles, facilities, market, etc.) management of maintenance services, + democratic governance resulting in community engagement + pride. Linking with the local school in cooperative land use + education opportunities will serve the larger community + promote resilience as a positive ethic for the next generation.



cooperative pride + engagement

economics
environment
social equity

alley wall: stucco, 2" rock wool, exist brick, 2" rock wool, vapor control,
3 1/2" cellulose; slab: vapor control, 4" rock wool, exist slab

street wall: brick to remain, 2" rock wool, vapor control, 4.5" cellulose; roof: 6" rock wool, 11.25" cellulose

cooperative agriculture via community gardens and greenhouses

bMORE cooperative
NO.1
neighborhood goods market

surface water directed to 'blue alley' bioswales

bioswales directed to large biofiltration areas + cisterns which store water for use as irrigation + flushing + treated for emergency potable use

private native lawns no mow | no h2o

existing residential energy demand: 3,618 megawatts/yr

post-retrofit residential energy demand: 659 megawatts/yr
82% energy reduction

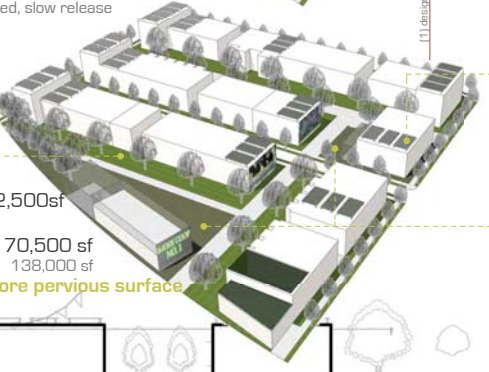
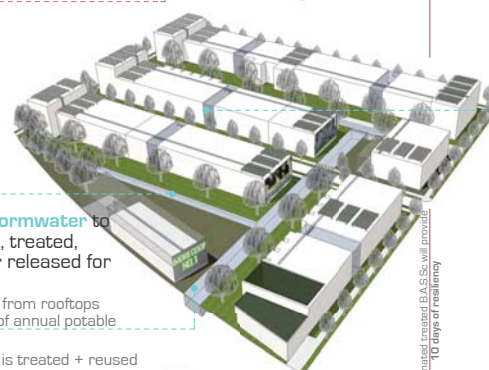
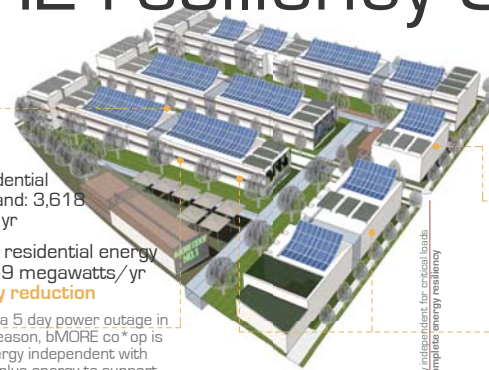
In the event of a 5 day power outage in peak cooling season, bMORE co*op is completely energy independent with 4000kWh surplus energy to support emergency cooling + communication centers for surrounding neighborhoods.

proposed food production:

bMORE co*op NO. 1 has 1.7 acres of on-site community food production
100% increase

100% of stormwater to be captured, treated, infiltrated or released for use on site
treated run-off from rooftops supplies 28% of annual potable water
44% of run-off is treated + reused
56% is infiltrated, slow release

existing pervious: 2,500sf
proposed pervious: 70,500 sf
total site area: 138,000 sf
over 25x more pervious surface area



PV curve for optimal year round production - 5.6 kW per house, 65% of total roof area

shading devices: overhangs on south, shutters + blinds on east + west, trees + planting reduce heat island = reduced cooling demand

private garden boxes (shade devices) + front gardens

cooperative goat + chicken + beehive barn

B.A.S.(S)isterns are located in vacated shells mid-block, roof-top water drains to cistern where it is treated + stored for reuse on-site

the green cloak is a planted, roof-top trellis that helps cool roofs + slow down stormwater runoff

pervious pavers in public spaces

energy independent for critical loads complete energy resiliency

local food production 5 days of resiliency

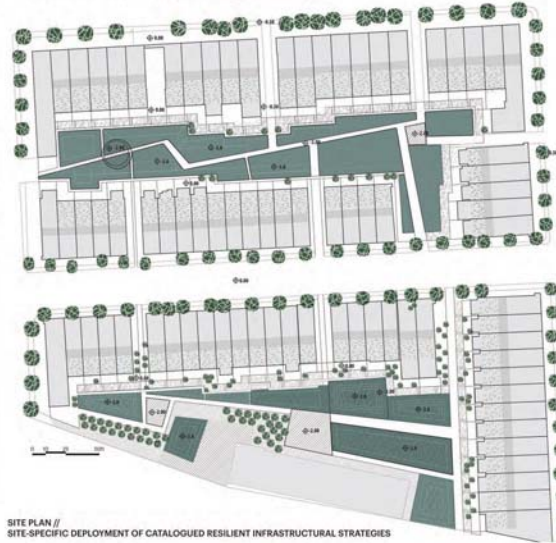
(1) designated treated B.A.S.(S) will provide 10 days of resiliency

WET CORRIDOR //

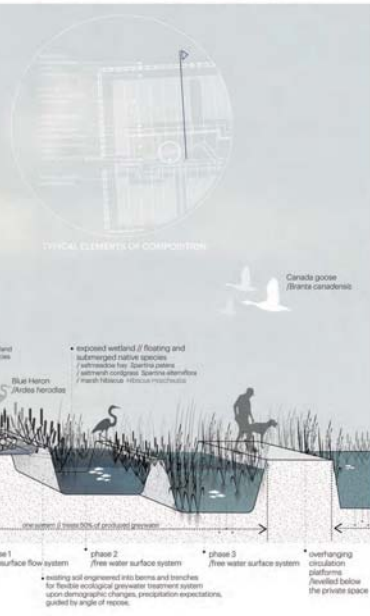
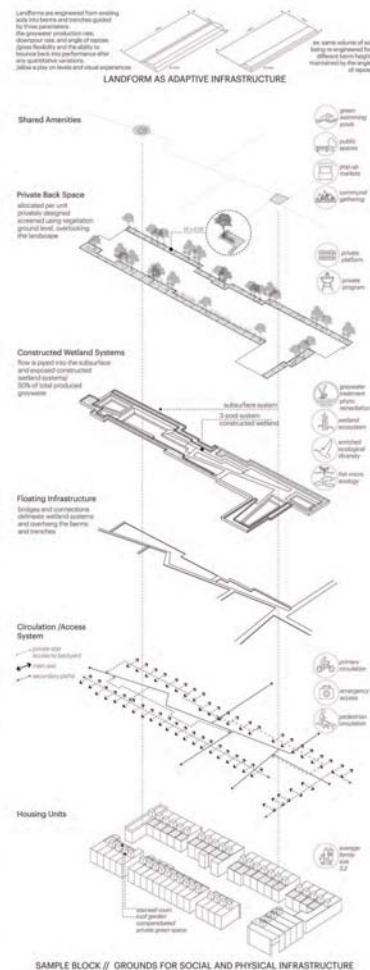
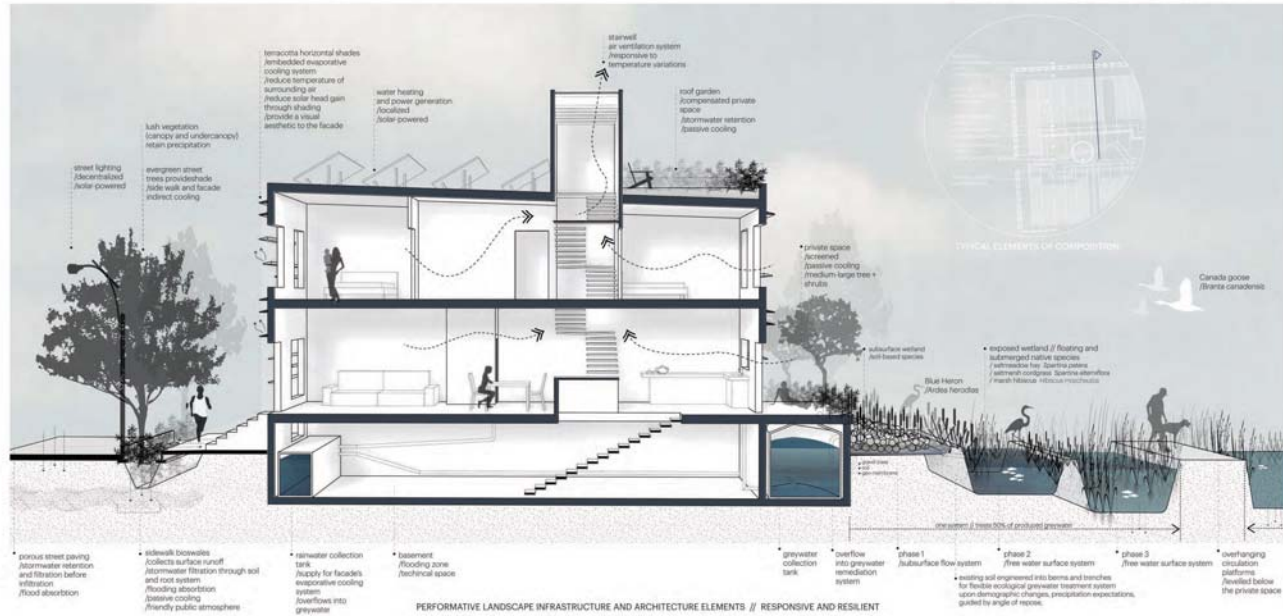
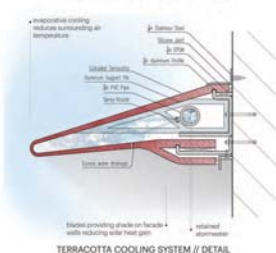
RETHINKING EAST BALTIMORE'S INFRASTRUCTURAL RESILIENCE AS MEANS TO SOCIAL WELFARE



LANDSCAPE CATALOGUE OF RESILIENT INFRASTRUCTURE STRATEGIES

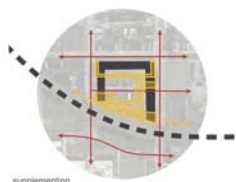


SAMPLE STREET AND FACADE TREATMENT //

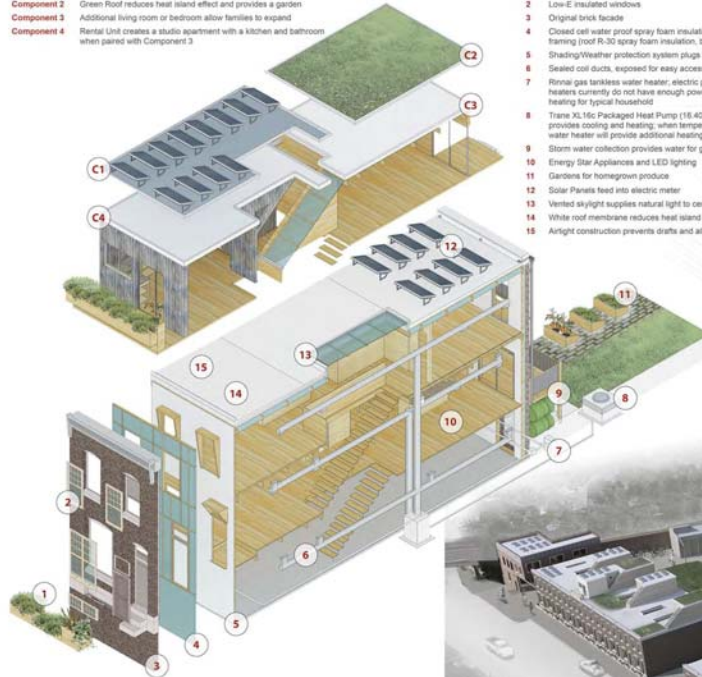


COMMUNITY PATH

enhancing the existing structure and inspiring opportunities



- Component 1** Additional solar panels feed into the electric meter
- Component 2** Green Roof reduces heat island effect and provides a garden
- Component 3** Additional living room or bedroom allow families to expand
- Component 4** Rental Unit creates a studio apartment with a kitchen and bathroom when paired with Component 3



- 1 Planters provide a layer of security and reduce heat island effect
- 2 Low-E insulated windows
- 3 Original brick facade
- 4 Closed cell water proof spray foam insulation R-15 with 2x3 wood framing (roof R-30 spray foam insulation, basement R-10 rigid insulation)
- 5 Shading/Weather protection system plugs into brick wall
- 6 Sealed cool ducts, exposed for easy access
- 7 Rental gas tankless water heater, electric powered tankless water heaters currently do not have enough power to supply hot water and heating for typical household
- 8 Trane 12.1Mc Packaged Heat Pump (16.40 SEER) Energy Star Qualified provides cooling and heating, when temperatures drop too low the water heater will provide additional heating through radiators
- 9 Storm water collection provides water for garden
- 10 Energy Star Appliances and LED lighting
- 11 Gardens for homegrown produce
- 12 Solar Panels feed into electric meter
- 13 Vented skylight supplies natural light to center of house
- 14 White roof membrane reduces heat island effect
- 15 Airtight construction prevents drafts and allergens and saves energy



Outreach & Engagement – City Hall Exhibition and Presentations

