

EXHIBIT C.1

Sustainable Design Features – GW Residence Hall

The George Washington University is committed to incorporating sustainable design principles into new campus developments and as such will design the new residence hall in an environmentally sensitive manner.

The following provides an outline of specific environmental features which are to be incorporated into the design and construction of the new residence hall as well as those features which are still being explored and considered for implementation.

SUSTAINABLE SITES

Features to be incorporated into the design:

- Erosion and sediment control during construction
- Development on a non-greenfield, dense urban site
- Convenient to Metro and both public and campus bus lines
- Bicycle storage for 5% of building occupants (25 spaces)
- Stormwater management through the use of a sand filtration structure
- Reduction of light pollution from the building interior and site through the use of low level, shielded, or cut-off fixtures

Additional features still being explored:

- Reduction of heat island effect by using high albedo Energy Star roof

WATER EFFICIENCY

Features to be incorporated into the design:

- Use of high-efficiency irrigation technology
- Use of high-efficiency, low-flow fixtures

ENERGY AND ATMOSPHERE

Features to be incorporated into the design:

- Fundamental building systems commissioning by independent commissioning agent
- Energy efficient building systems designed to comply with DC Energy Conservation Code
- Eliminate use of HCFCs in major HVAC equipment

Additional features still being explored:

- Use of Energy Star ventless washer / dryer units to conserve energy and water

MATERIALS AND RESOURCES

Features to be incorporated into the design:

- Provide designated areas on each floor (and at the service bay) for the collection, separation, and storage of recycled paper, cardboard, glass, plastic, and aluminum
- Use of locally manufactured building materials where possible

MATERIALS AND RESOURCES (CTD)

Additional features still being explored:

- Use of certified wood for doors and millwork
- Use of rapidly renewable materials for flooring and millwork

INDOOR ENVIRONMENT QUALITY

Features to be incorporated into the design:

- Prohibit smoking inside of building as well as at building entries
- Reduce the quantity of indoor air contaminants by specifying low-emitting adhesives, sealants, paints, carpet, and composite wood
- Minimize pollutants by providing permanent entryway grated walk-off mats.
- Provide one operable window and one lighting control for each regularly occupied space
- Provide daylight and views for all regularly occupied spaces.
- Provide LED exit lights and energy efficient light fixtures (T-8 or T-5 florescent tubes)
- Provide occupancy sensors to control lighting in public spaces
- Provide localized temperature controls within each apartment unit

EXHIBIT C.2

Sustainable Design Features – School Without Walls

The overall goal of the design of the School Without Walls renovation and modernization is to create a sustainable, high performance learning environment that conserves energy and natural resources and minimizes its impact on our urban eco-systems. The sustainable design approach that supports this goal is multi-faceted and draws upon the inherent attributes of the building, its site, and its relationship to the University and the District of Columbia.

For example, the renovation and reuse of the historic Grant School building, the school's dense urban context, the convenient location of Metro and the joint-use of facilities by the school and the University provide a fundamentally, sustainable foundation for the design. In concert with a design that emphasizes natural light, appropriate acoustics, use of recycled materials, indoor air quality and energy conservation, these elements combine to create an exciting, urban learning environment that can become a model of sustainable design.

The following briefly describes specific design elements and attributes that are being explored in the design process. As the design process is on-going, these options continue to be evaluated by the design team and DCPS to confirm their appropriateness, operational implications and associated costs/benefits.

SUSTAINABLE SITES

As noted above, the urban site of the school Without Walls has many attributes that foster a sustainable design ranging from its connection to the surrounding, mixed-use academic district and its access to alternative modes of transportation including Metro.

Strategies being explored include:

- Dense, urban site & connected to community
- Convenient to Metro
- Energy Star (high albedo) roofing
- Erosion & sedimentation control during construction
- Convenient bicycle racks

WATER EFFICIENCY

Several options are being explored to reduce the potable water required for the operation of the school.

Strategies being explored include:

Subject to DCPS approval, these strategies might include the specification of water-less or "low flow" fixtures for installation in the restrooms, including:

- Water-less urinals
- Sensor- controlled, low-flow faucets
- Low flow/dual flush toilets

ENERGY & ATMOSPHERE

Energy efficiency options being explored in the design of the Grant School address the new and historic building shells, windows and HVAC and lighting systems. Considering the landmark status of the building, building shell interventions need to respect the historic fabric and finishes of the Grant School including the single-paned, wood windows while increasing the overall performance of the building.

The new design will provide all new utilities infrastructure for the Grant School replacing inefficient and obsolete heating, cooling and lighting systems. New systems will increase the energy performance of the building and enhance user control and comfort.

Systems being explored to enhance energy performance include:

- DDC automatic temperature control & energy management/surveillance system
- Occupancy sensors/time clock/photo cells control lighting system
- Roof top heat recovery ventilation units
- Interior “storm windows” installed in historic building
- Low e-glazing in new addition

MATERIAL & RESOURCES

Materials and resources affect both the natural resources required to provide, deliver and install materials and they also affect indoor air quality addressed in the following section. The reuse of the historic Grant School building is the single most effective sustainable approach within this category.

Material specifications being explored include:

- Reuse of historic building
- Recycled content in replacement roofing
- Masonry & curtain wall systems from regional sources (final assembly within 500 miles)
- Rapidly renewable material and/or certified wood for doors & casework

INDOOR ENVIRONMENT QUALITY

Design elements are being explored that enhance thermal comfort, user control, indoor air quality and reduction of visual fatigue. Thermal comfort and user control are addressed by allowing user input in the HVAC system. Indoor air quality is critical to the provision of a high performance learning environment. Strategies to safeguard and enhance indoor air quality involve eliminating and controlling the sources of contamination and providing adequate ventilation. Considering the visual nature of much of the work being performed in schools designing to reduce visual fatigue by providing appropriate natural and electric lighting and views is a primary concern. Likewise appropriate acoustics reduce fatigue and enhance learning.

Indoor environmental quality strategies being explored include:

- Temperature control in each primary program space
- Operable windows
- CO2 monitoring
- Low-emitting paints, adhesive, sealants & flooring (Green Seal)
- Low emitting furniture being explored
- Walk-off mats, exhaust in labs and copy rooms control indoor pollutants
- Natural light & views throughout the building
- Appropriate acoustics

INNOVATION & DESIGN PROCESS

Finally, the innovative nature of the School Without Walls provides an opportunity to foster the innovative joint-use of facilities already begun by the GWU/SWW partnership. For example, because of their access to GWU facilities, the School Without Walls does not need to provide conventional food service or physical education facilities which reduces the overall amount of space that DCPS must build on-site to house the program.