



HERON

LAKKE

City of Auburn - Planned Unit Development

Score Card Companion

**Guidance & Definitions
for the
Improvement Review Process**

Proforma

Adopted: December 31, 2017

Heron Lake Planned Unit Development

Score Card Companion - Guidance & Definitions for the Improvement Review Process

Purpose

Information support for making score card decisions and in working with your Architect and Contractor in planning your home. This document will take each item listed on the score card and explain why it is important, how it is incorporated, and examples of material/system.

Why?

General:

This year it is estimated that 40-48 percent of new nonresidential construction will be green. [USGBC Green Building Facts]

Energy:

- » According to the USGBC Buildings account for 40% of the worldwide energy use, and 70% of electricity use.
- » Energy used during its lifetime causes as much as 90% of environmental impacts from buildings according to Journal of Green Buildings.
- » Buildings are one of the heaviest consumers of natural resources and account for a significant portion of the greenhouse gas emissions that affect climate change. In the U.S., buildings account for:
 - » 38 percent of all CO2 emissions
 - » 73 percent of electricity consumption[USGBC Green Building Facts]

Construction Waste:

From report prepared by U.S. EPA in 1998

- » An estimated 136 million tons of building-related C&D debris were generated in 1996
- » The estimated per capita generation rate in 1996 was 2.8 pounds per person per day.
- » Forty-three percent of the waste (58 million tons per year) is generated from residential sources and 57 percent (78 million tons per year) is from nonresidential sources.
- » Building demolitions account for 48 percent of the waste stream, or 65 million tons per year; renovations account for 44 percent, or 60 million tons per year; and 8 percent, or 11 million tons per year, is generated at construction sites.

Water:

Buildings use 13.6 percent of all potable water, or 15 trillion gallons per year. [USGBC Green Building Facts]

Retrofitting 1 out of 100 American homes with water-efficient fixtures could avoid approximately 80,000 tons of greenhouse gas emissions, the equivalent of removing 15,000 cars from the road for one year. [USGBC Green Building Facts]



Materials:

Buildings use 40 percent of raw materials globally (3 billion tons annually). [USGBC Green Building Facts]

The bottom line is:

- » **Incorporating green systems recommended can reduce monthly utility bills by 25% or more!**
- » **Will make your home healthier and more comfortable.**
- » **Will add value to your home.**

General Guidance

Building/Design Considerations: Many factors go into the Design of your Home, it important to start with the right mindset and understanding. Following are a few important points:

Recyclable Materials: As choices of building materials and finishes are being made, an understanding of how will the materials be disposed of at the end of its usefulness. EX: brick can be salvaged for reuse or ground for landscaping material. Vinyl siding is not recyclable and negatively impacts the landfill.

Durability: How long will the material or system last in comparison to the expense (life cycle cost). The longer an item lasts with reduced maintenance the greater the life cycle cost and the greater value to you.

Reuse/Salvaged materials: Reusing materials replaces the need to use new materials which would have to be harvested. Look at items being incorporated that could have a salvage value for when its current use is complete.

Renewable materials: Use items that the source materials can be replaced in a short period of time. There are many attractive and durable materials being manufactured based upon this mythology today.

Local availability: Materials that are produced close to the construction site supports local business, and reduces transportation impact and cost.

Resource system efficiency: Look to systems that minimize laying of materials and simplify the product. As you are designing and constructing reduce redundancy of materials and minimize cut off waste. EX: use polished concrete as the finished floor, as opposed to concrete with mastic and carpet.

Non Toxic Materials: Many building materials off gas harmful vapors in the construction process and continue after the facility is completed. Be aware of these materials and try to avoid/minimize as possible. Use Low/No VOC adhesives and paint, and Formaldehyde-free materials.



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Appendix:

- ACC Guidelines**
- General Definitions**

Schedule of Exhibits:

- Samples:**
Available at ACC Office
- Design Guidance:**
Score Card Companion



Companion Narratives for:

A - Building Ordinances:

Contact the City of Auburn for all supplemental information.

B - Site & Geometrics:

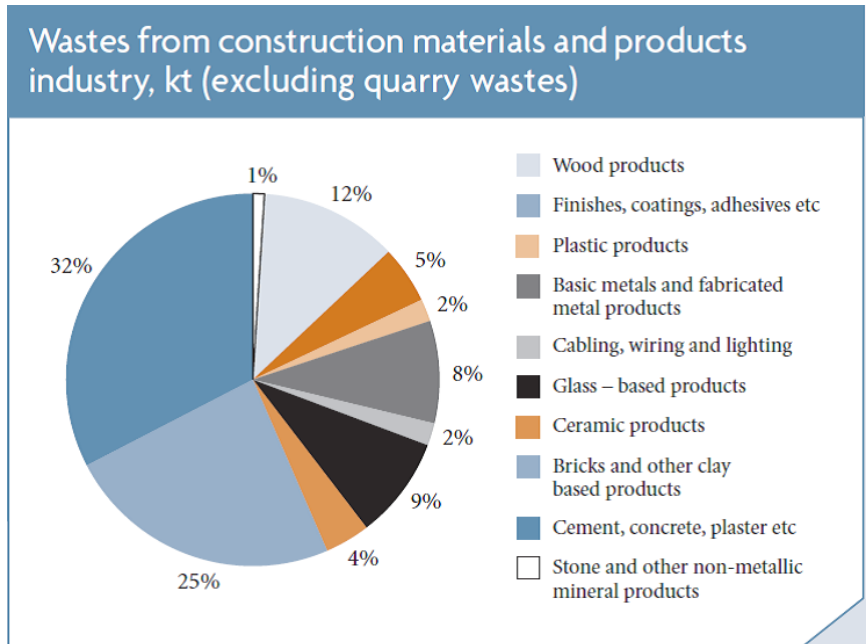
Documentation relating to improvement location, layout, and heights will be presented to the ACC for review and approval/disapproval.

C - Building Components:

1.0 General:

1.1 Construction Waste: The objective is to divert 60% of waste material from the landfill. This can be done by:

- » Better planning of materials such as ordering material as proper length that are not required to be cut.
- » Create cutting station that manages cuts and reutilize the cutoffs.
- » Having suppliers be responsible for recycling/reusing packaging materials.
- » Salvage resources - separate materials that can be reused.
- » Segregate waste materials that can be recycled, such as metals, cardboard, block, etc.
- » Identify various trades that have recycling solutions. As example during the drywall phase waste drywall can be separated and recycled back into new drywall.



Documentation:

1. Design/Pre-Construction provide a Construction Waste management plan identifying objectives and implementation plans for the course of the project.
2. Track the Management Plan thru the construction process documenting/tracking the waste product.

1.2 Local Available Materials: Utilize locally available materials within a 300-mile radius of the site. With our geographic locations will pick up large market municipalities including: Chicago, Detroit, Columbus, Toledo, Cleveland, Cincinnati, Indianapolis, Louisville, and Lexington.

Documentation: Provide list of materials identifying material, local distributor, where manufactured.

2.0 Site/Landscaping:

2.1 Rain Garden: Storm runoff of petroleum base impervious surfaces carry pollutants along with the water.



Rain Gardens collect the runoff allowing the heavy sediment to settle out, along with specialize plantings which filter and clean the water.

Documentation: Provide design drawings showing appropriate sizing for hard surface runoff and planting materials utilized.

2.2 Xeriscape - Native Material Sourcing:

Xeriscape is a landscape designed with native or adapted plant that requires no irrigation after the plants are established. Thus, easy to maintain and does not require irrigation.

Documentation: Provide Site plan with planting plan identifying plantings.

2.3 Smart Irrigation:

Irrigation systems are only allowed with approval. If irrigation is incorporated an irrigation plan should be established to efficiently strategy to utilize the water resources. As planning the system consider rain water collection as a water source, rain water is much more effective then city water.

Documentation: Provide irrigation use and design plan.

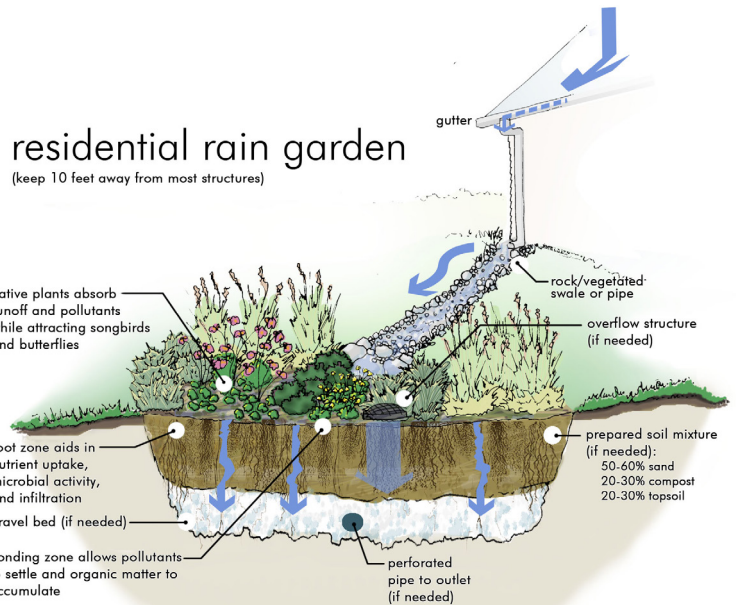
2.4 Plantings: Maximize Landscaping with native planting materials

2.4.1 30% of non-hard surface

2.4.2 50% of non-hard surface

2.5 Creative Uses:

Documentation: Provide construction documents with explanation of significance.



2.6 Driveways: Concrete and masonry applications are encouraged. Typical asphalt surfaces (minimal cross section) will be scored the lowest.

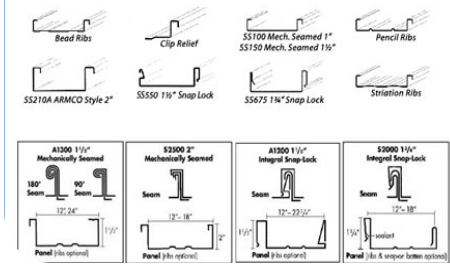
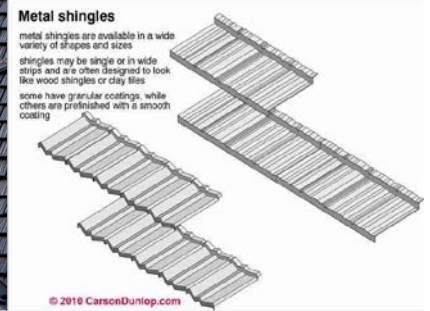
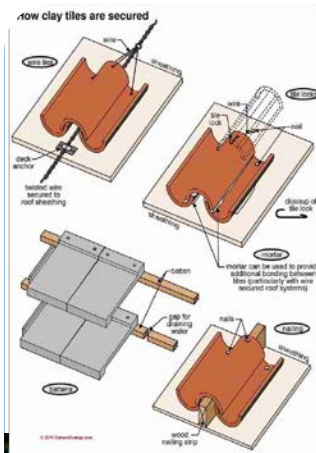
Documentation: Provide construction documents.

3.0 Building Envelope: As with the selection of all materials and systems we need to stress the importance of utilizing materials that minimize the environmental impact.

3.1 Roof: Roofing is a critical component for both structural integrity and longevity of other building components. The roof surface itself can be utilized for energy harvesting and efficiency. Some roofing materials have a larger negative environmental impact that offset the cost savings and other features. Greater longevity roofing with minimal maintenance concerns and better long term cosmetic impact will be scored at a higher level. No 3-Tab shingles shall be allowed.

Documentation: Provide manufacturers specifications regarding longevity and life cycle.

3.2 Efficient Windows: Windows greatly impact the building envelope



efficiency. While the most efficient envelope would have no window, this is not practical obviously for your personal comfort.

As result it is important to balance the amount of window with higher thermal quality of windows. With today's technology, it is easy to tune the windows thermal values to its physical orientation.

West and South orientation get most of the solar impact while the west typically is impacted by



winter winds. A minimum requirement is for thermally glazed systems that are thermally broken. For additional points adjust the thermal qualities of the window based upon orientation, and increase of R-rating.

Documentation: Show on the elevation windows and thermal performance of each style.

3.3 Natural Ventilation: Incorporating a natural ventilation system either actively or passively (with mechanical system or naturally) can minimize the use of utilities and allow for fresh air to flush out pollutants from the living spaces. Ex: introduction of whole house fan that would bring in large column of fresh air at night for cooling and providing air changes venting out stagnate air.

Documentation: Provide design drawings and explanation of how the system functions.

3.4 Metal Framing: Wood framing has been the residential standard although a renewable material it is slowly renewable and we are out pacing its renewability. The alternative is to utilize metal framing members which is recyclable and can reduce the demand upon the timber resources.



Documentation: Provide design documents showing detailing and specifications.

3.5 Siding Material: Stress the use of natural materials that will be required in the Visual Appropriateness along with complementary materials that minimize the environmental impact. Utilize a material that is high in recycled content, has ability to be recycled, and is low maintenance. Ex. James Hardy is a fiber cement material that is durable, has a recycle content, and is easily maintained.



Documentation: Provide drawings indicating location, materials, and material specifications/product sheet.

3.6 Insulation: Minimum wall insulation is 1" of spray foam insulation, with other insulation for total wall value greater then R-25, and minimal roof/ceiling value of R-30.

Documentation: Provide drawings showing conditions and design requirements.



3.7 Salvage/Repurposed materials: The reuse of items or materials salvaged from buildings being abandoned or raised reduces the landfill impact and eliminates the need for new harvesting/manufacturing of the material.

Documentation: Provide listing of materials, quantity and how material/items are utilized.

3.8 House Wrap: Industry standard to reduce air infiltration and a requirement to be installed per manufacture recommendations.

Documentation: Show on building plans with specification.

3.9 Compartmental Design: In the planning process identify spaces that can be reduced heating/cooling reducing the living area that requires higher/cooler temperatures to maintain comfort.

Documentation: Provide with the plan the methodology showing the spaces and the HVAC system operation.

3.10 Infiltration Testing: Reduce the amount of air infiltration will create a more economical and controllable environment. The tighter the house the HVAC system will need to be designed to factor proper air exchanges and possibly incorporate a heat exchanger (5.3).

Documentation: Provide documentation of blower door test ACH50 with a rating of 3 or better.



4.0 Interior Finishes

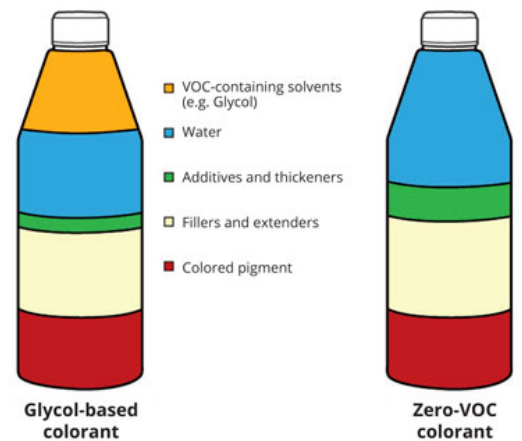
4.1 Low VOC Paint: Most paint releases volatile organic compounds (VOC) and once released react with other pollutants effecting human health. Therefore No-VOC paints should be utilized.

Documentation: Provide receipts and product documentation of selected paint manufacture.

4.2 Low VOC and Formaldehyde-free Floor: Most flooring and adhesives releases volatile organic compounds (VOC) and once released react with other pollutants effecting human health. Therefore No-VOC and Formaldehyde-free flooring and adhesives should be utilized.

Documentation: Provide receipts and product documentation of selected flooring and adhesive manufacture.

4.3 Building Material Efficiency: As selections of finishes consider minimizing layering of materials. Ex. Using polished concrete floors in lieu of placing concrete, with leveling, adhesive and floor finish. Another

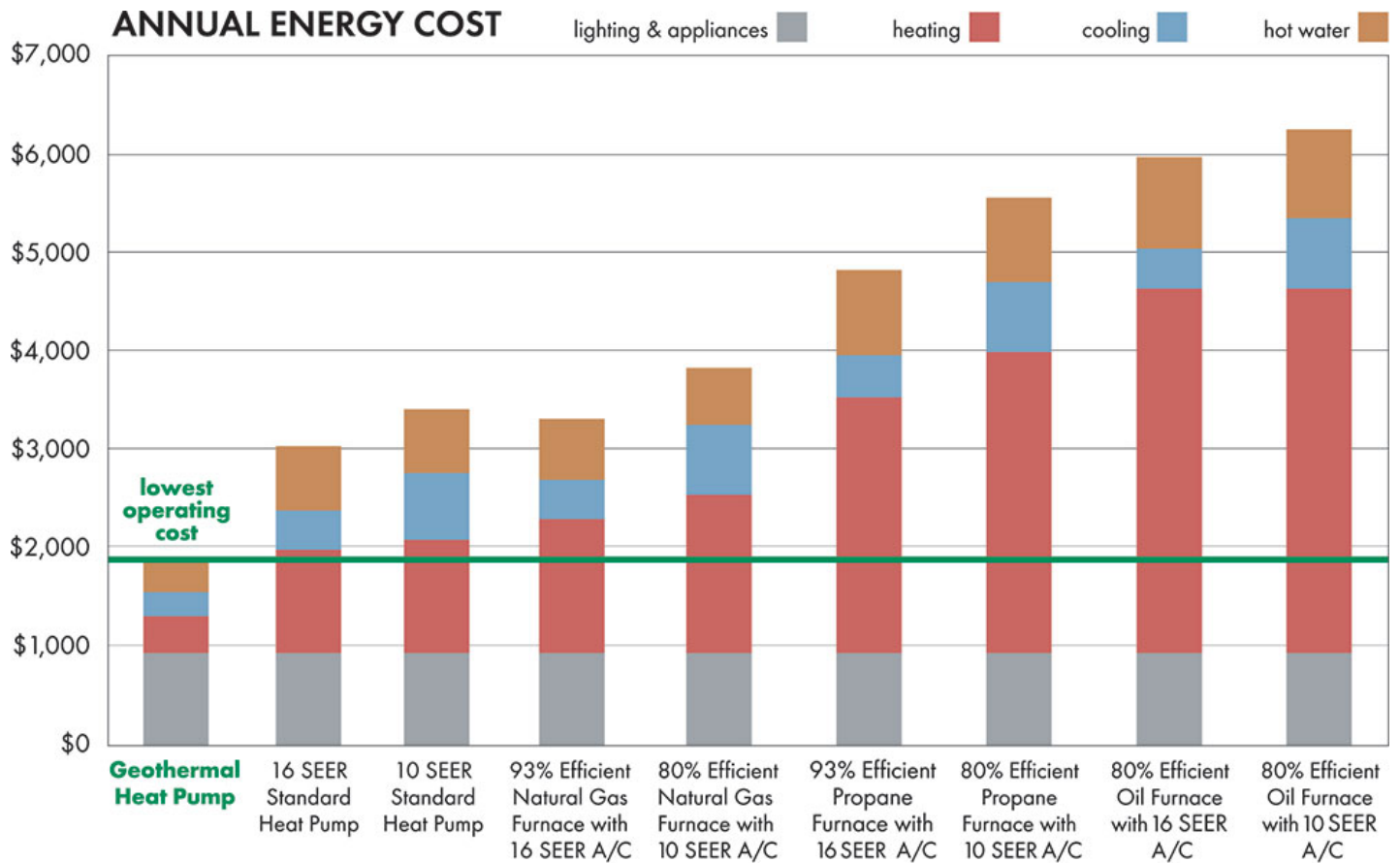


example - concrete block painted in lieu of wood framing, structure, drywall, finishing, painting.

Documentation: Provide at least two system that represents material efficiency.

4.4 Energy Star Appliances: Some of the largest energy consuming are the appliances that makes our lives more comfortable, but in the process, create an ongoing expense. By utilizing "Energy Star" rated equipment will reduce the use of ongoing utilities and save you dollars. The largest energy consuming appliances are: 1. Water Heater, 2. Clothes Dryer, 3. Refrigerator/freezers, 4. Oven/stove (electric), 5. TV (including accessory components), 6. Dishwasher, 7. Computers.

Documentation: Provide a listing of appliances and other energy consuming equipment with the "energy star" documentation.



Calculations are based upon current utility costs for a typical home in the U.S. Midwest

5.0 HVAC

5.1 High Efficiency System - Defining a High Efficiency System is not limited to just the method of combusting a fuel for heat or the cooling plant. The methods by which that system delivers and exchanges the heat or cooling of the space is also critical to overall efficiency. The ductwork or radiant piping installation along with insulation methods is essential to overall efficiency. See the diagram above for a typical breakdown of common HVAC systems and costing for a typical home in the midwest. A true High Efficiency System can payback the additional initial installation costs in a matter of a few years.

Documentation: Provide evidence of a High Efficiency System installation.

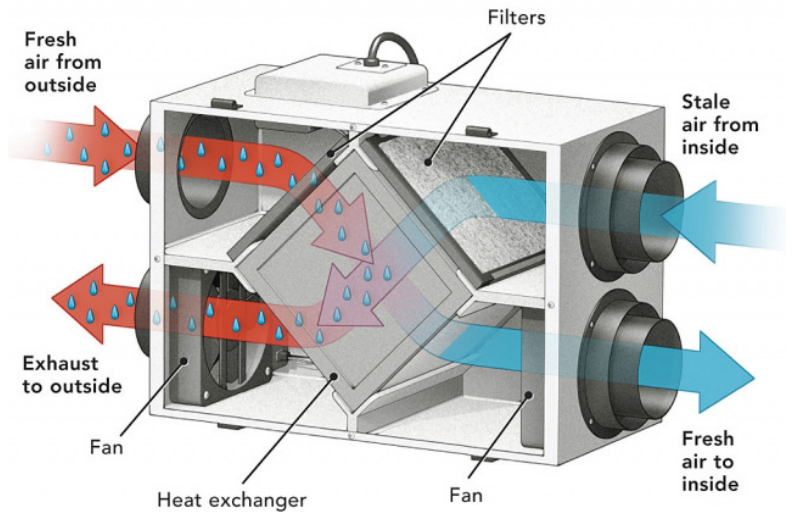


5.2 Geothermal - Geothermal systems can be the most efficient method for providing heating and cooling to a living space. For lakefront lots, the lake may be utilized for geothermal loops. The suggested installation is looping placed underneath dock space.

Documentation: Provide evidence of geothermal system install.

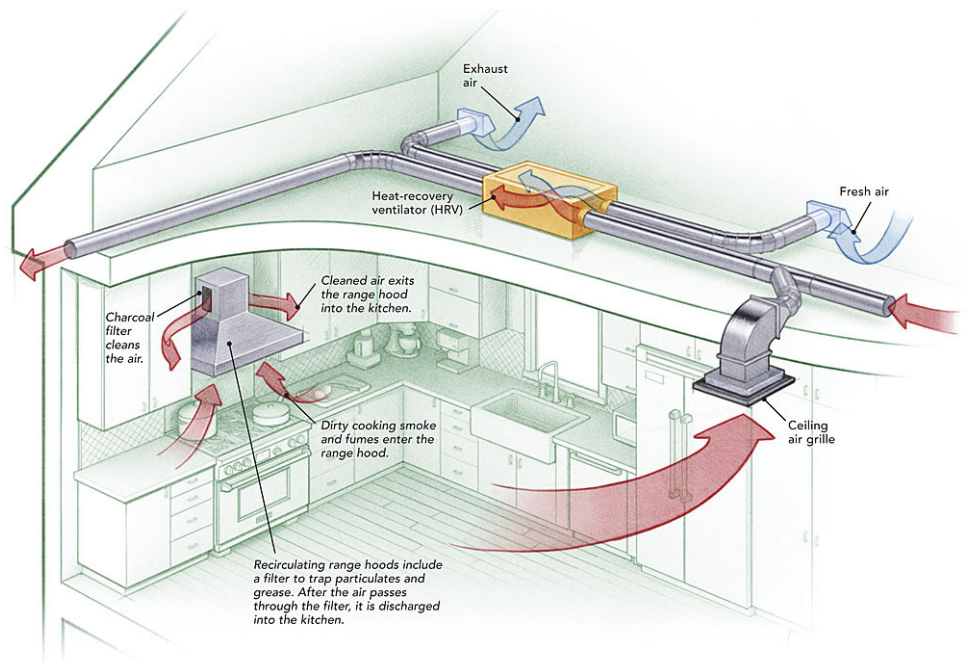
5.3 Heat Exchange/Recovery: This is a system that recovers some of the heat from air being exhausted from the living areas and then is used to warm the fresh air being brought in to accomplish the necessary air changes.

Documentation: Show in design and construction drawings.



5.4 Make Up Air: Most houses used a forced-air distribution system for heating and cooling. This system is not a Make-Up Air system. For new construction with typically tight air seals a make-up air system may be essential to providing clean air for your interior spaces. See diagram, one common application is for range hood exhausts, particularly those in excess of 400 cfm [required by Code M1503.4 IRC]. When coupled with a heat-recovery ventilator (HRV), energy-recovery ventilator (ERV), or similar system, this configuration can also benefit overall system efficiency.

Documentation: Show in design and construction drawings.



5.5 Radon Test: Required at the start of the design process, if test is positive then systems can be incorporated to vent radon gas from the living areas.

Documentation: Provide test and remediation process is necessary.



6.0 Plumbing Systems

6.1 Efficient Fixtures: Required to use low flow fixture that conserve water. This has become standard practice in residential construction.

Documentation: Provide fixture schedule and cut sheets of fixture indicating flow rates for all water fixtures.

6.2 High Efficiency Water Heater or on-demand: Utilize highly insulated water heater as minimum requirement. For added points utilize on demand water system throughout the residence.

Documentation: Provide design drawings with specifications/cut sheets.

6.3 Dual flush Toilets: Means of conserving water is to minimize the use.

Documentation: Provide evidence of installation.

6.4 Solar Hot Water: Renewable energy source for water heating in lieu of utility powered water heater. Systems consists of water solar collectors, piping loop from collector to water storage, water storage with exchange loop.

Documentation: Design/construction drawings.

6.5 Gray Water Collection: Collect rain water at a capacity to utilize for gray water system (non-potable) ie. Use for flushing toilets

Documentation: Provide design drawings.

Typical Household Water Usage

Fixture	Use (gallons/person)	% of total water use
Baths	1.5	3%
Clothes Washers	15	25%
Dish Washers	1	2%
Faucets	11	18%
Showers	12	20%
Toilets	19	32%
Total	59.5	100%

7.0 Electrical Systems

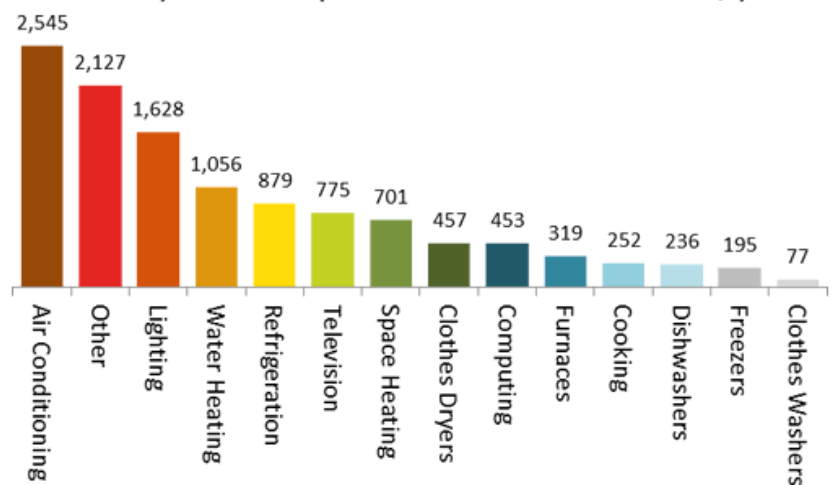
7.1 LED: With today's availability of LED fixtures it is relatively easy and affordable to incorporate LED including much of the decorative style.

Level 1: LED 50% of lighting

Level 2: LED 100% of lighting

Documentation: Provide lighting schedule with quantity and lighting type indicating % of LED

Electricity Consumption in US Homes: kWh/year



Note: figures for average US household in 2010

Source: EIA Annual Energy Outlook 2012



7.2 Daylighting: Incorporate daylight harvesting whereby artificial light is not required or with system that would reduce the artificial lighting when natural light is available.

Documentation: Provide design drawings showing strategy and or systems incorporated.

7.3 Power over Ethernet (PoE): The next generation of the current LED system is PoE lighting where the LED is being powered over a low voltage system such as a computer switch. This is much more efficient and will become common as fixtures are adapted.

Documentation: Provide system installation manuals and material list.



7.4 Photovoltaic System: Renewable energy system today offset grid utilities, but are relatively expensive in how they interface with the utility grid and the reception of the utility provider. The concern with Heron is in the way it would be incorporated esthetically; which will default to the Visual Appropriateness review.

Documentation: Provide elevations/site plan locating panel and the electrical off set. (Must have Visual Appropriateness approval.)



D - Visual Appropriateness

8.0 Improvement Appearance

The visual Appropriateness will be evaluated by the review committee on four basic levels: Adjoiner color contrast, In-site color contrast, Site cohesiveness, and Creative uses. All four of these areas must receive a pass to be able to proceed. The review comments will be pass, revise with areas needing revised, or reject. The ACC will provide examples of desired features upon request.

8.1 Adjoiner color contrast: New construction must be aware of existing structures adjoining the proposed improvement. The adjoining color schemes will have some bearing on the color palettes available for the new construction. The goal is to have a contrast between adjoining structures so rarely will two identical color palettes be approved for adjoining properties.

Documentation: Provide elevations/color sheets of proposed structure, and photos or color samples of adjoining structures to demonstrate contrasting plan.



8.2 In-site color contrast: The ACC encourages variety and contrast in-site for new construction. The in-site color scheme must have some contrast in overall color selections, including material types. Variety and creative uses are encouraged.

Documentation: Provide elevations/color sheets of proposed structure.

8.3 Site Cohesiveness: The ACC wishes that new construction would utilize similar elements and materials in a variety of locations and applications in-site. This adherence to a variety of similar elements without jarring contrast is the goal of cohesiveness. Variety and creative uses are encouraged.

Documentation: Provide site plans, elevations/color sheets of proposed structure and/or landscaping as applicable.

8.4 Creative Uses: New construction should be an expression of the owner and designer. The ACC encourages creative uses and is willing to entertain and provide comment on any creative uses brought forward.

Documentation: Provide site plans, elevations/color sheets of proposed structure and/or landscaping as applicable.

