Design for HABITAT
HOMES FOR GREATER MIAMI

SEMINAR 2: Single Family Housing Sustainable Structures & Community Design

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Affordable Housing must be:
- Cost-efficient in terms of operations, materials and construction time.
-**Affordability should be determined by household incomes** from the demographics that represent the area where the site is located. In a few words, the cost of an affordable house should represent between the 32% to 40% of a household's yearly income. Best advise is to take a look at the area of study, know the average income of its inhabitants to figure out what is the price/mortgage the families can afford.

A good example in affordable collective housing are the : Red Road Flats in Scottland, built under the affordable act in 1960's. For more information visit: http://www.redroadflats.org.uk/
A typical program for affordable housing is a 2 bedroom 1 bathroom.

-One of the best tools to come up with a valid and fully integrated design proposal is the **Charette system**. They allow the designers and members of the community to get in touch and discuss openly about their needs and ideas. Through this process architects are able to produce a design that addresses directly what the community expects and needs to further develop.
Charettes are:
-The product of learning by doing.
-Non-threating for the end-users and everybody involved.
-Represent a non-authoritarian process of putting thoughts together.
-Allow reaching a consensus in all the parties involved
-They are an iterative process that allow reflection, revision and are open-ended.
-Help gain a good balance between needs of users, designers and professionals.

Sustainable homes: always maintain a good balance between the social, environmental and economic factors and should represent a mix of active and passive ventilation and heating techniques, based on the land and existing infrastructure.

Net-Zero Housing is the one that manages a balance between energy used and produced by renewable systems.

Most common and sustainable practices are:
-Tight envelopes and short frontages. (Air tight+ insulation) Include a heat recovery system. (The larger a building envelope is, the more is its heat loss)
-Simple and open plans that have few inner partitions to decrease costs.
-Modular and repeatable structures that allow for the building to grow with the family needs and income. (Unfinished and upgradable spaces)
-Standardized construction processes and products.
-Keep in mind to make a local material selection that help reduce transportation costs and helps local and regional economies.
-Use of Solar energy for water heating to improve the energy performance
-Design of high sealing to make use of hot air buoyancy and help re-distribute heat and improve natural ventilation.
-Incorporation of radiant cooling to help lower A/C electric weight to cool air.
-In adjoining lots it is better to locate houses together rather that separate. Therefore one can reduce cost on d=sharing walls and infrastructure.
-It is better to build up (may reduce up to 40% in costs) than to the sides. (Also energy effective)
-Good references on sustainable practices and parameters are LEED (USGBC) and BREEAM from United Kingdom.

In tropical weathers like Miami good practices to avoid over-heating:
-Raise the building from the ground to reduce humidity.
-Use of cross-ventilation.
-Use shading elements on south facing windows to help cool the air and reduce the heat gain.
-Implement recessed windows.
-2.5" for external walls to help the energy efficiency of the building.
-Maximize the use of daylight reducing energy load and heat.
-Create storage for water and heat

THANK YOU FOR BEING PART OF SOMETHING GREAT!!