
# Harmony Home Proposal for BIPV

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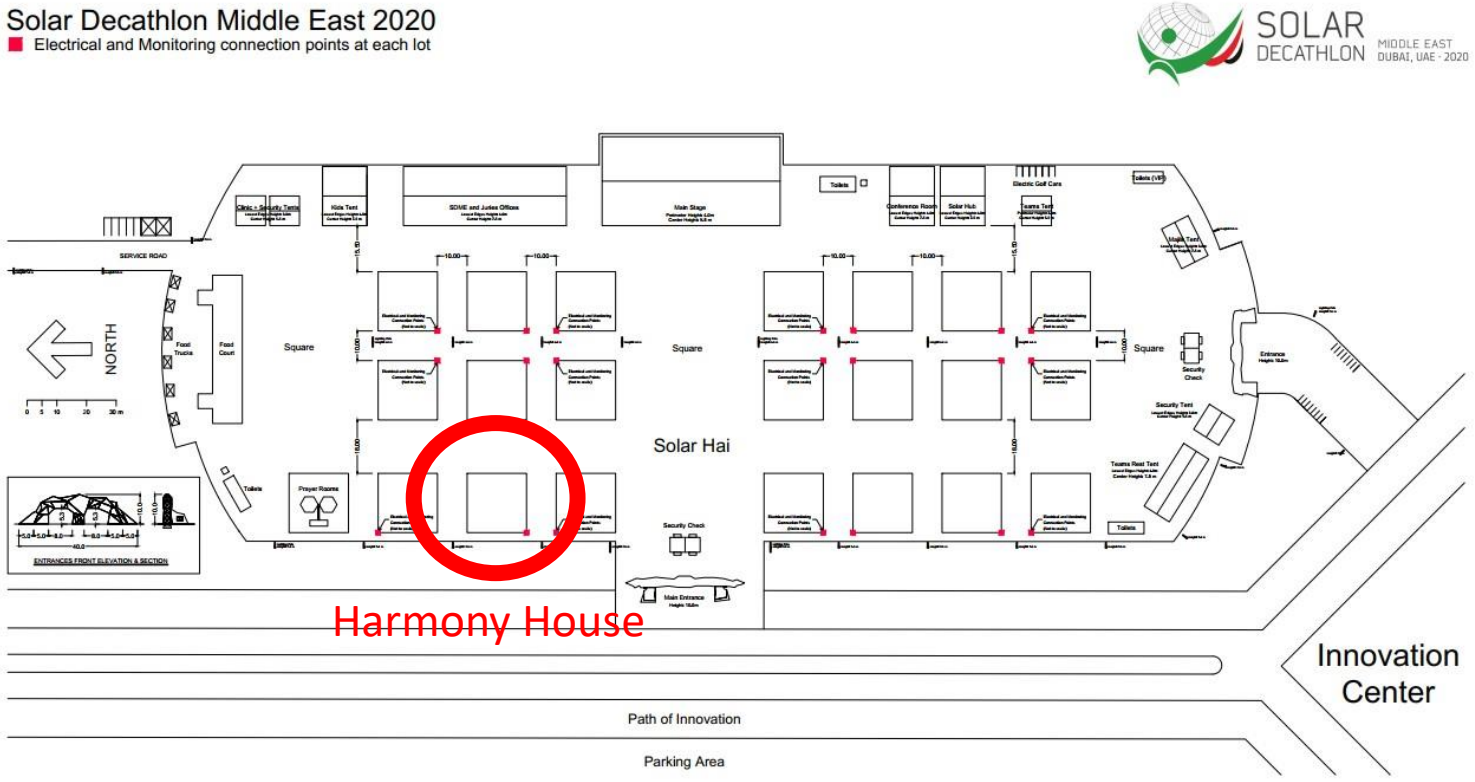
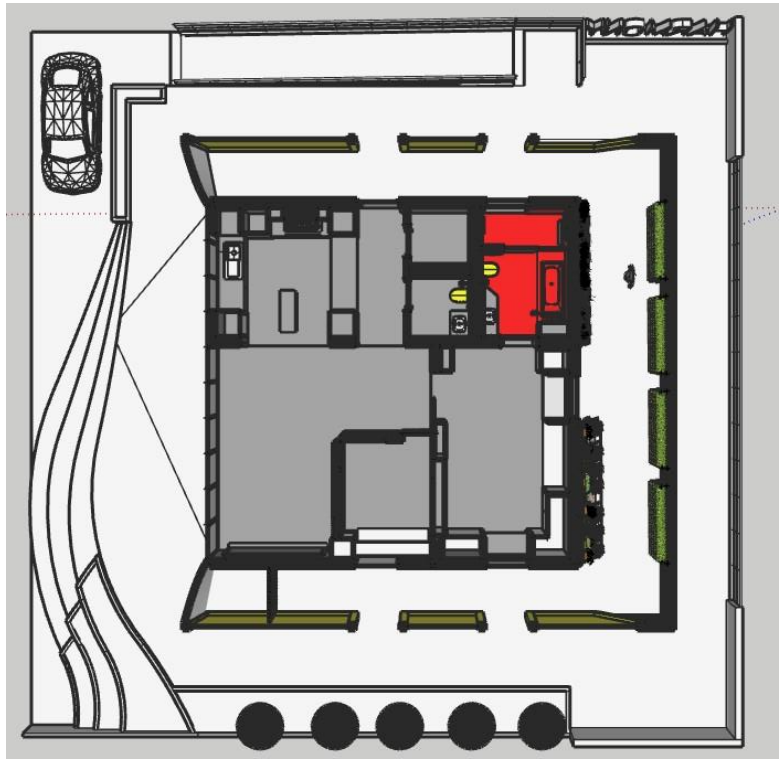
# Solar Decathlon ME Location




Sheikh Mohammed Bin Rashid Solar Park

# Harmony House Architectural Concept

The outside shell is a lightweight steel structure façade elevated 175 cm from construction roof slab; this gap will form a wind tunnel and provide shade for the HVAC components which will be fully installed on the roof.
The façade is spaced away from both west and east elevation creating a shaded pathway to all surrounding landscape and other house features, which also shade the envelope from direct sunlight all day long.
At the south side, the façade structure forms a smart farm utilized for domestic agriculture.
The steel structure will carry the solar panels on the top sloped layer as shown in Figure (1), in addition to the BIPV on the eastern and western elevation.

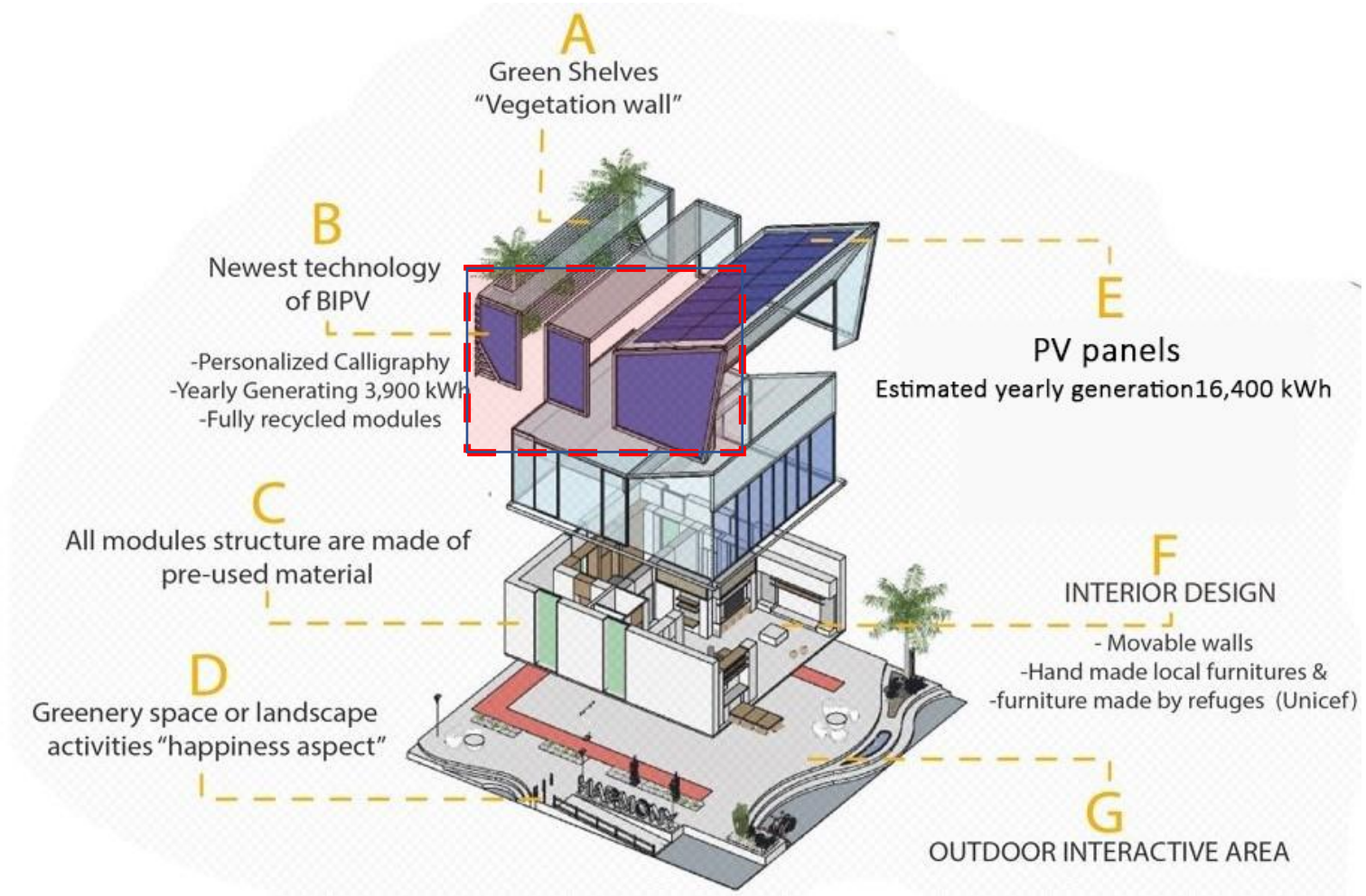



Figure (1) Harmony House- Isometric View

# Harmony House Architectural Concept

Our concept is to install the BIPV on the eastern and western elevation. The BIPV will be customized to add calligraphic artwork of an Emirati Artist to enhance the community engagement and bring media exposure.

The artwork will reflect the cultural values in an innovative way; it will show that generating green energy can be visually appealing.

Figure (2) Harmony House- Eastern elevation

# First Assembly Site: DuBox Factory

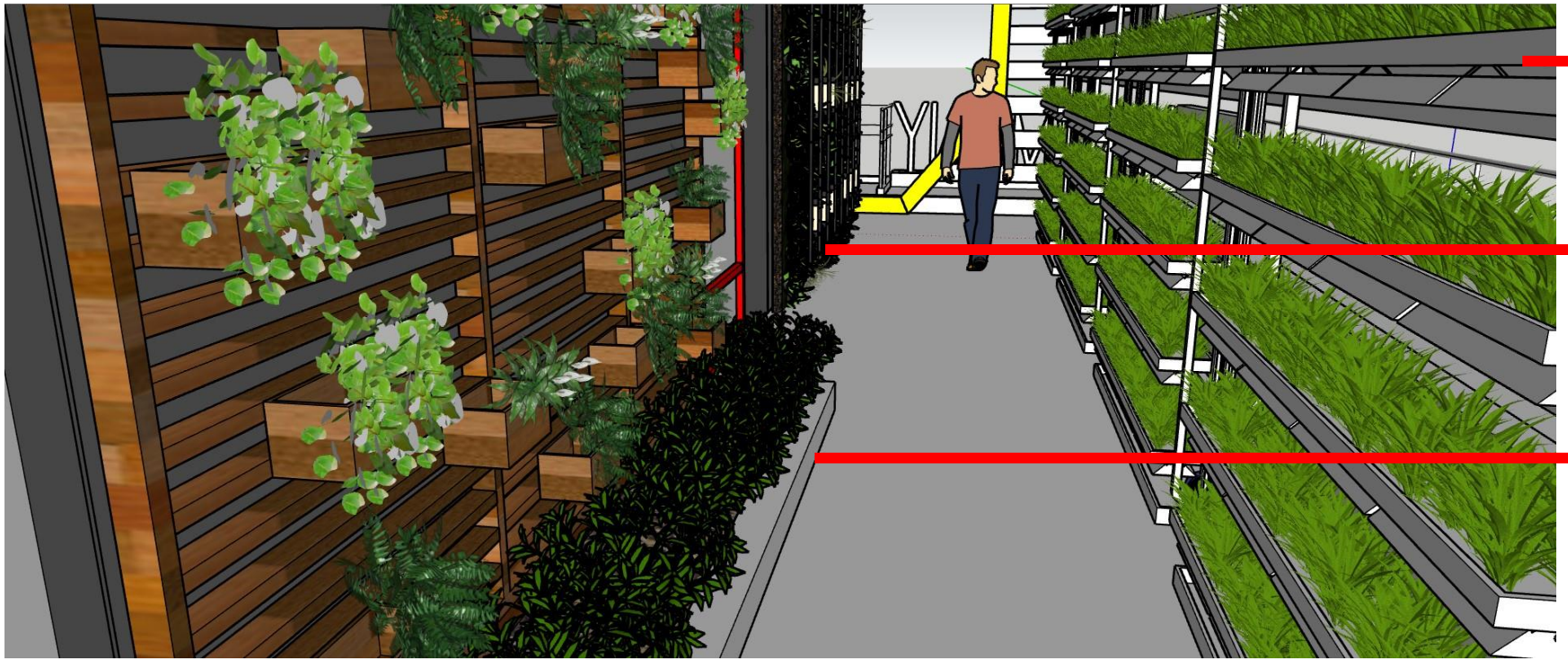
Figure (3)

The harmony house core structure is reused precast units, Figure (3) shows 2 units from a previous project, we will reuse and retrofit them as shown in Figure (4), the red highlighted areas are the reused units and the (6mX6m) area is a new space built using loose elements .
Three separate boxes are assembled at factory then moved to Shaikh Mohammed bin Rashid Solar Park with all MEP systems in place and ready to be connected all together forming the inner core of the harmony house.
A 10X4 m unit that includes all wet facilities (kitchen, bathrooms) and mechanical room.
A 6 x 4 m and 6 X6 m units forming two bedrooms and living space in a flexible interior layout via moving partitions.



Figure (4)

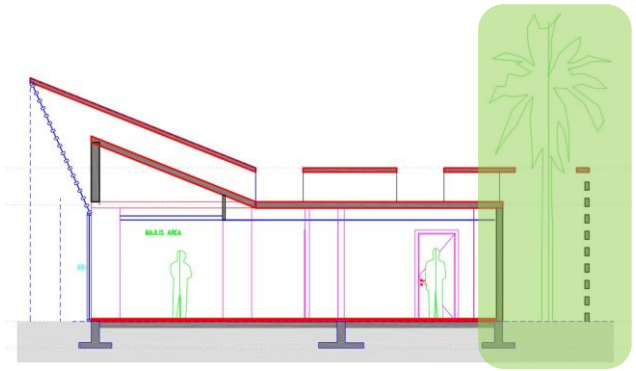
# Smart Farm- Architectural Concept

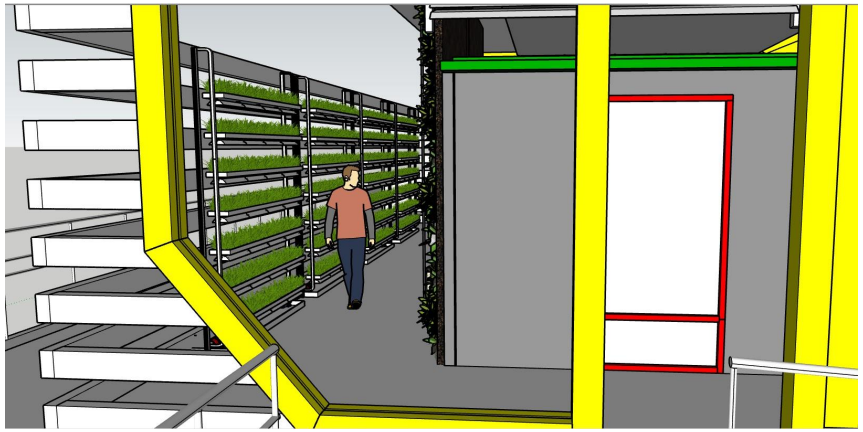


Vertical Farming

Green Wall

Decorative Plants
Harvesting Equipment





At the south, Harmony house will develop a smart garden which will be controlled by a smart system to stimulate the plants growth, the smart farm will use the solar system for the IoT-solar energy powered smart farm irrigation system.

# Smart Farm- Remote Monitoring Systems Using AI and IoT