“Transformer” – the transforming role in human experience. We would like to design a building with many high-tech elements to provide a new level of comfort, with an emphasis on human interaction and social connection with the surrounding community. The site is between a northeastern side of UCD medical campus and residential neighborhood on the east.

Social Community: We don’t want to have this building as another residential campus like others around, we want the building stand out as a connector between campus and residential community – a community link. We maintained social interaction space in public building profitable on the edge of the site, to create a community garden for the residents and visitors, also playground for children.

Public space: High-rise buildings usually create high densities and large footprints, which can affect the surrounding area. In this project, we created a large, open, pedestrian-friendly space that connects to the existing building and provides a transition to the public spaces of the city.

Human scale: We broke down the building into smaller spaces in order to avoid having extremely long hallways.

Tight Building: The wall, window, and roof are tightly controlled and sealed with controlled ventilation.

Solar Gain – The building concept is tightly drawn by the sun. The building uses different design elements for four types of uses. A clean, sleek design for commercial use, a more modern design for educational use, an industrial design for residential use, and an earthy design for public use.

SOLAR PV PANELS: 1,000 SF of solar panels mounted on the roof to generate electricity, and it acts as a strategy to help make the building’s energy self-sufficient.

HEAT PUMPS: In addition to solar, heat pumps, heat stores or air source heat pumps are used in the building.

SHADING PANS: Different shading arrangements are used on different sun exposure. The sun and wind orientation is in the same, with different shading arrangements.

HYDROTHERMAL: HydrotHERMAL is used as a heating system in this building by using a solar panel or gas heating.

THERMAL MASS: Walls and floor slabs can be used as thermal mass for passive heat gain.

CROSS VENTILATION: Both the sun-facing windows to increase air flow within the building.

COMMUNITY GARDEN: This building program is most an enclosed side community connector for the students and residents, providing an active outdoor space for residents to socialize.

BIKE STORAGE: 150 indoor bike storage and 150 outdoor bike storage are scattered around the building.

Southeast and northwest corner of the building ground floor opens up for pedestrian passage to create additional social interaction between campus and community.

ARCHITECTURE AT ZERO

TRANSFORMER
A High-Tech Building with Human Spirit