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EMAC P&Z subgroup Comments on Section 6-14 (22) Energy & Renewables Narrative

Energy efficiency and sustainability measures are cited briefly on page 16 of 21, item #3 of the submission (see below.) No further 6-14 (22) narrative is included.

The subgroup applauds that the applicant intends to construct an all-electric building, using sustainable strategies "wherever possible" to achieve net zero energy usage by 2030.

If the project is indeed built to be all-electric and net zero energy, then it will be a model of decarbonization, and we are highly supportive. Based on page 16 of 21, however, there is as of now no clear plan (list of selected features and techniques) to achieve these goals. The subgroup advises Planning & Zoning Commission to encourage and request further information regarding specific energy efficiency and renewables use, for example:

- Which specific energy efficiency design strategies – those alluded to and/or others - will be employed
    - Glazing, floor materials, and orientation to manage passive heat gain/loss
    - Levels of wall, slab and roof R values, and window U values, that result in a tight, efficient thermal envelope
    - Right-sized, split, ductless VRF systems (as identified by the applicant) performance levels (COP)
    - LED interior and exterior lighting
    - Plug load management, e.g., timers, schedules
    - Number, type, and accessibility of EV charging stations
- What resulting overall metrics, does the applicant anticipate
    - EUI level (Energy Use Intensity; energy consumption per gross square footage)
- What is the energy use consequence of installing the green roof?
- How will these choices change the anticipated total cost per square foot to build this project, and the anticipated cost/year savings in operating costs?

While we applaud the choice of an "all-electric" building given the increased energy efficiency that represents, we note the submission states "…design strategies such as…installation of green roofs and/or PV panels where appropriate." In addition, "the plans have been updated to include a green roof." We conclude that the project is not planning to install rooftop solar PV. The subgroup would like to understand why the project design has opted for a green roof, the size of the future green roof in square feet (as well as the total roof surface area), and whether on site solar PV remains a possibility, or why not.

3. **Shall continue to look into energy efficiency and sustainability measures;**

Response: The applicant has agreed to allow Perkins Eastman to design the proposed building as an all-electric building[8], using sustainable strategies throughout the building wherever possible. Since last seeing this project, the plans have been updated to include a green roof and to install variable refrigerant flow (VRF) systems versus a traditional building heating, ventilation, and air-conditioning (HVAC) systems. VRF systems offer a highly flexible and efficient alternative to traditional HVAC systems and are well suited for mid-sized buildings with multiple zones, each with different heating / cooling requirements. The design team has done further research on the proposed VRF units and has been able to significantly reduce the quantity of the proposed units based on this analysis. The reduction in the number of units has enabled the location of the units to be better centered on each wing of the building, which, coupled with the proposed screening, will provide considerable visual screening from nearby residential uses.

In addition, Perkins Eastman is committed to the goals targeting net zero energy usage by 2030 and has developed technical approaches to use within the building envelope and systems to make the building as energy efficient as possible. Accordingly, prior to preparing construction documents for the proposed building, Perkins Eastman will internally analyze, with the help of its in-house technologies, the building for heat gain/loss and how each face of the building will react to the normal movement of the sun through both heating and cooling seasons of the year. Through this iterative design process, the building will be optimized for energy efficiency by applying design strategies such as:

- Enhancing the building's thermal envelope by examining window, wall, and roof performance;
- Use of high-performance air-sealing and energy recovery ventilation systems;
- Use of high efficiency HVAC, lighting, and water systems;
- Installation of green roofs and/or PV panels where appropriate; and
- Installation of EV Charging stations.