

December 20, 2024

Town of Moreau
Planning Board
351 Reynolds Road
Moreau, NY 12828

RE: Shangri-La Real Estate Holdings, LLC – Spier Falls Road
Commercial Greenhouse Mechanical Systems

Members of the Planning Board,

This engineering summary is prepared regarding a proposed greenhouse for the purpose of cultivation, maintenance and protection of plants at the Spier Falls Road site. Steadfast Engineering is working with the team to develop process mechanical system(s) that will support the plan grow process and meet applicable codes and standards. This letter is to identify proposed direction and goals for the proposed systems.

General project Information:

Expected Occupancy Class and Use: Group U / Agricultural Greenhouse -- NYSBC 312.1.1

Probable Scope: Building systems will be designed and used for a building intended for the cultivation, maintenance, or protection of plants. – NYSBC 3112

Approximate process floor area: 3,600 square feet

Ventilation:

The proposed ventilation for occupancy (human) calculated per ASHRAE Standard 62.1-2019 is 271-cfm of fresh outside air during occupied hours. An expected exhaust flow of 243 cfm is expected during occupied hours. Occupied hours are limited to required daily plant care.

Ventilation for the purpose of plant health will be limited and controlled. Systems will be designed to minimize contamination or effects from the local ambient conditions. Ventilation and exhaust will be primarily for the purpose of indoor air quality for human occupancy.

Mechanical Systems:

Process mechanical systems are proposed to optimize the growing conditions of the plants. The proposed grow environment and proposed process systems will be closed to the exterior to the greatest extent possible to control plant health and development. The proposed process mechanical systems will be designed to control indoor temperature, humidity, CO₂ concentration, air quality, and air movement.

Systems will utilize recirculation to the greatest extent possible to minimize outside environmental factors that may have an impact on the process conditions inside the greenhouse. Systems will be optimized to maintain the process conditions for all hours of process (grow) operation.

Internal concentrations of CO2 will be managed and controlled. CO2 generators will be used to produce sufficient carbon dioxide to maximize plant growing potential. This open-type combustion unit will likely consume indoor VOC contamination in the greenhouse environment.

Humidity will be controlled by indoor dehumidification systems. These systems condense indoor moisture and moisture borne odors.

Process systems will be monitored and managed to optimize process conditions and minimize the impacts on the local environment.

Exhaust Systems:

Exhaust systems that would interact with the local ambient air will be limited and controlled. The expected exhaust flow is 243-cfm and is limited to hours of human occupancy. Exhaust systems are expected to utilize dilution to manage exhaust discharges. Where appropriate induced flow exhaust fans will be included.

Exhaust flows will be controlled. Appropriate odor mitigation will be employed, as needed.

Summary:

The interaction between the enclosed grow process inside the proposed greenhouse and the local environment will be controlled and metered by the proposed mechanical systems. The controlled interaction will be limited to manage the indoor plant health and to reduce impacts on the local environment. Exhaust flows are proposed to be managed by mechanical means and odor mitigation strategies will be used to manage objectionable discharges. The proposed systems will be designed considering applicable codes and standards.

Sincerely,



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