CONTROLLED ENVIRONMENT AGRICULTURE BUILDING

Soli Organic
San Antonio, Tx

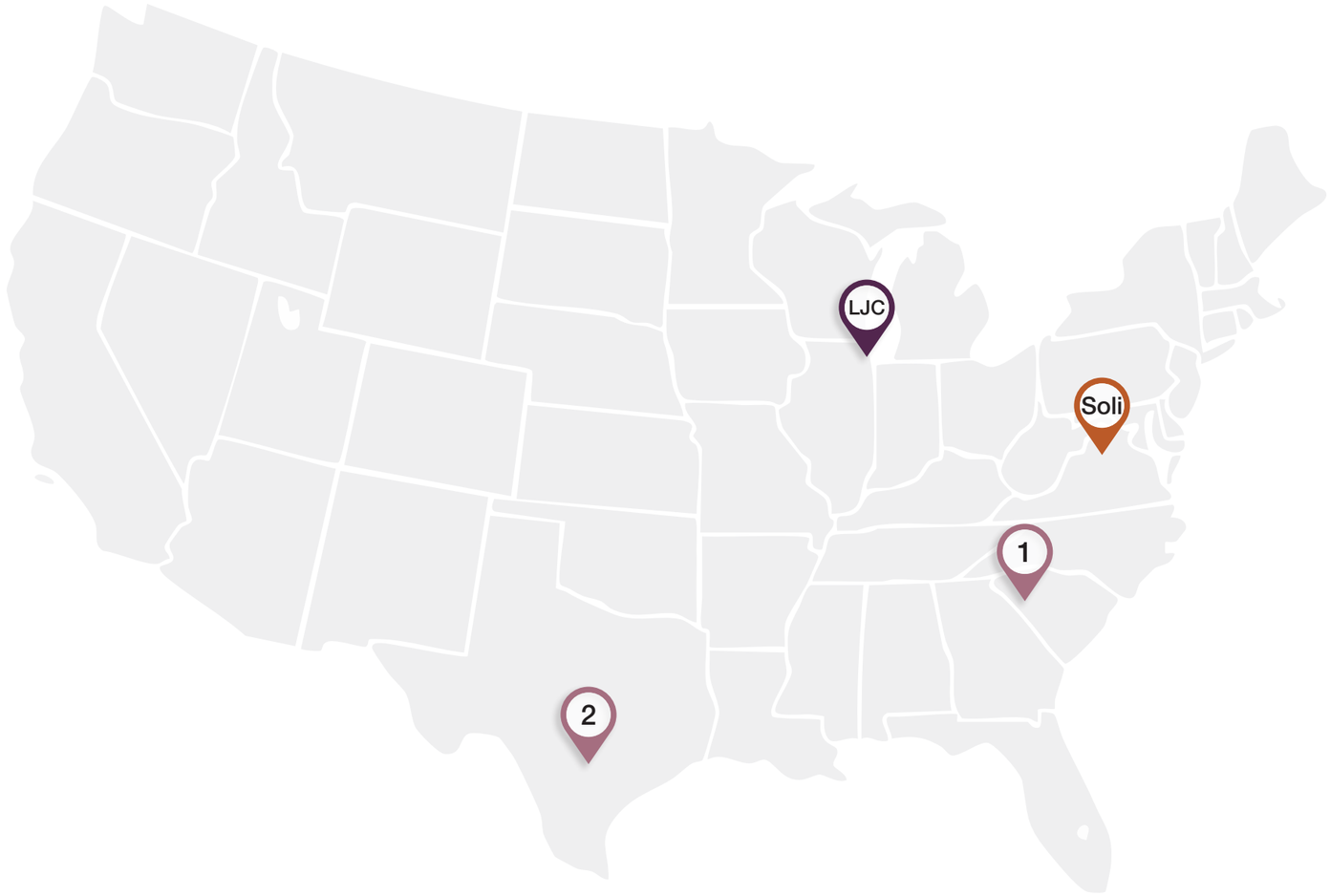
Client Partnership

DRAFT

Shenandoah Valley, VA

1989: Founded as Shenandoah Growers
Decades before changing their name to Soli Organic, the company began with USDA-certified organic field farming in Virginia.

2010: Shift to Controlled Environment Agriculture (CEA)
Driven by a passion for sustainability and desire to become more resilient to climate change and other variables, Shenandoah Growers was one of the first agriculture leaders to begin to shifting their production from outdoors to indoors.



Lamar Johnson Collaborative

1 - Anderson, SC

2021: First facility in CEA Expansion
LJC's relationship with Soli Organic began when they hired Clayco and LJC to build their eighth CEA facility. This new 100,000 sf facility was the first step towards expanding across the United States to make affordable, organic produce locally available to more consumers.

2 - San Antonio, TX

2024: Second Facility Breaks Production Records
Building upon the success on the first facility, LJC completed construction on a second CEA facility for Soli Organic. A "Lessons Learned" Process, completed after the South Carolina facility, informed adjustments in design and layout that contributed to Soli breaking their production records and this new facility becoming the "world's largest indoor organic farm" according to Soli CEO Matt Ryan.

Project Location & Site

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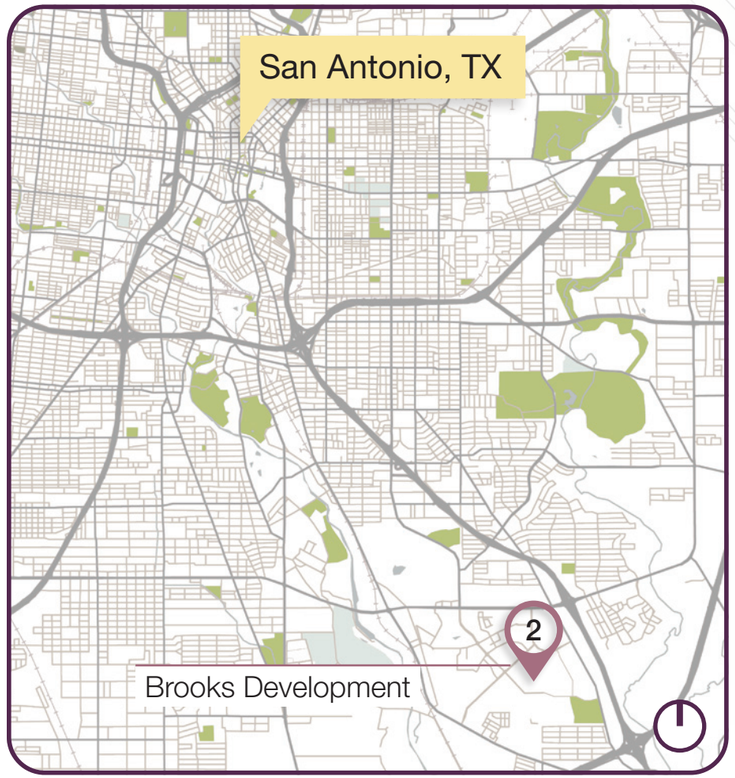
Located about twenty minutes south of downtown San Antonio, this new Controlled Environment Agriculture facility is located within the mixed-use Brooks Development. Its proximity to the metropolitan area positions Soli Organic's newest indoor vertical farm to supply fresh produce to San Antonio's largest grocery store chain, H-E-B.

Produce is grown 365 days a year in this facility and, without having to be shipped around the world, it will cost less to local consumers and stay fresher longer in their pantries.



What are “CEA” Buildings?

Open Farmland
Typical size: 460 Acres

***C**ontrolled **E**nvironment **A**griculture Buildings*

Greenhouses
Typical size: 10-60 Acres

Indoor Vertical Growing
Typical size: 100k-200k square feet

This Facility

How are plants grown in CEA Buildings?

This Facility

Most similar to conventional farming, soil based indoor farming delivers nutrients via irrigation water and the soil itself.

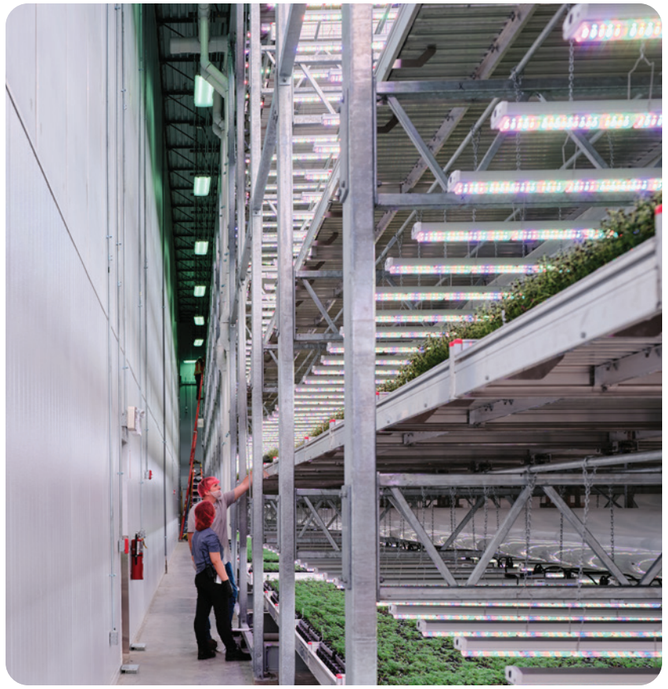
Hydroponic farming is a method of growing plants in a soilless environment using a nutrient-rich water solution.

Aquaponics rely on the symbiotic relationship between plants and fish, where the fish provide the nutrients, and the plants filter and purify the water.

Aeroponics is a method of growing plants without soil. Instead, roots are suspended in the air and irrigated with a nutrient-dense mist.

PROCESS

This building is shaped by Soli's CEA processes. Typical industrial building programs were carefully coordinated with incredibly specialized areas focused on plant growth and harvesting.



PEOPLE

This facility's success hinges on the happiness and productivity of its staff. Regardless of the harvest season, this building provides exceptional convenience to employees and visitors alike.

SUSTAINABILITY

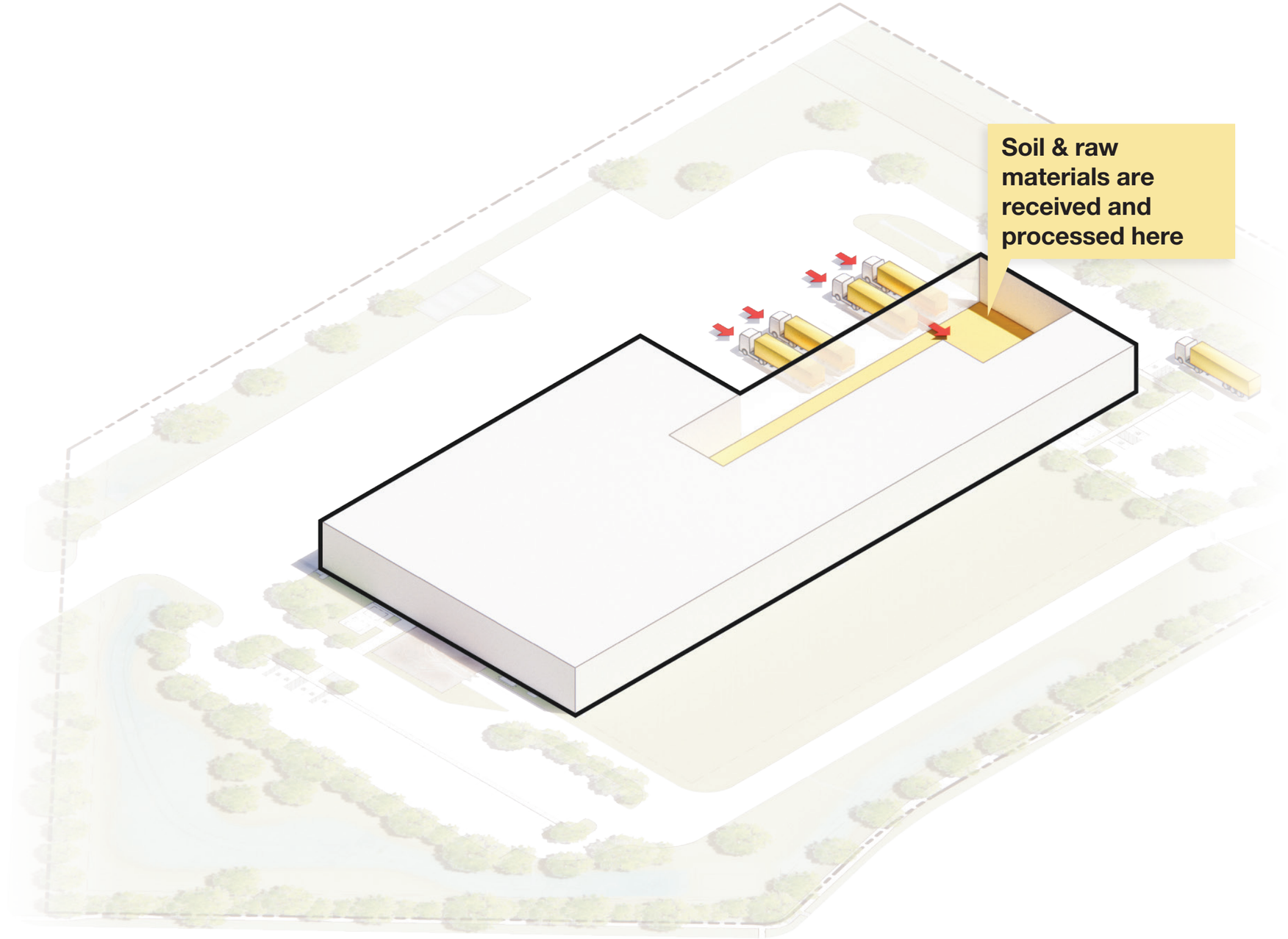
Water used in every stage of the growing process is collected and treated for reuse, resulting in 90% less water usage than an open-field farm with similar production levels.

PROCESS

*"This building turns **soil** into pantry-ready fresh & organic produce"*

The receiving docks and the Soil room are the backbone of the building. Here raw materials are received, processed and routed to all parts of the building.

In the Soil room, organic soil is loaded into proprietary planting trays. Robotic arms seed each tray twenty-five times faster than conventional manual methods and with an accuracy that ensures optimal spacing for future stages of root and foliage growth. The newly seeded trays are then loaded onto racked carts and sent to a room dedicated to the next stage of plant development.



PROCESS

*"This building turns **soil** into pantry-ready fresh & organic produce"*

The next stage of plant development takes place within the Nursery & Germination rooms.

The Nursery provides sauna-like conditions with near-constant darkness and a dewy 99% humidity to facilitate juvenile root establishment and plant growth. Tray-laden carts are carefully monitored for a predetermined amount of time before matriculating to the next room and stage of development.

Carts are then rolled into the Germination room and parked in stalls equipped with Soli Organic's irrigation and lighting systems. Seeded trays are intermittently submerged in nutrient-laden water to encourage deeper root growth. Meanwhile, the accelerated cadence of the system's light cycle speeds up plant growth.

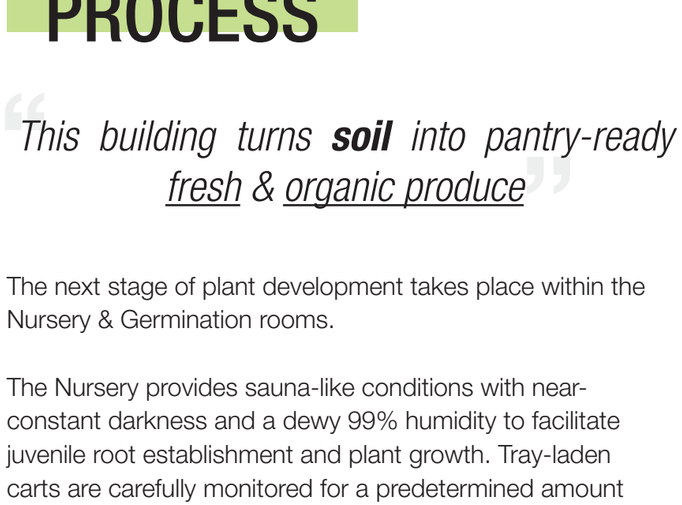
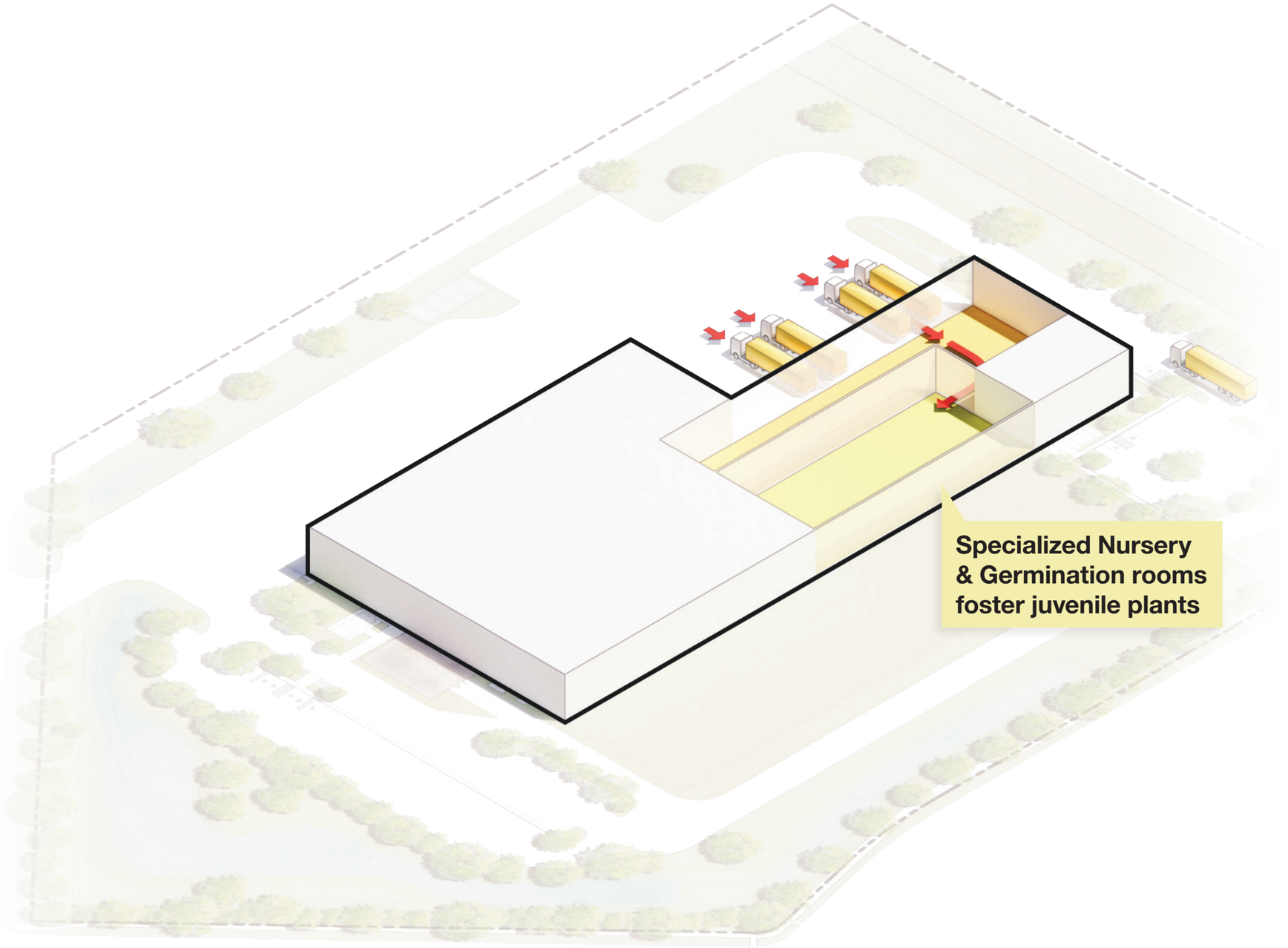


Photo of the Germination Room



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PROCESS

*"This building turns **soil** into pantry-ready fresh & organic produce"*

Next, trays of matured plants graduate to the Grow room. Here, six levels of three-hundred-foot conveyors move the trays back-and-forth, exposing plants to varying levels of light, air movement, and other conditions that foster the strongest & healthiest growth.

These optimal conditions help the plants grow much larger, faster than if they were outdoors.

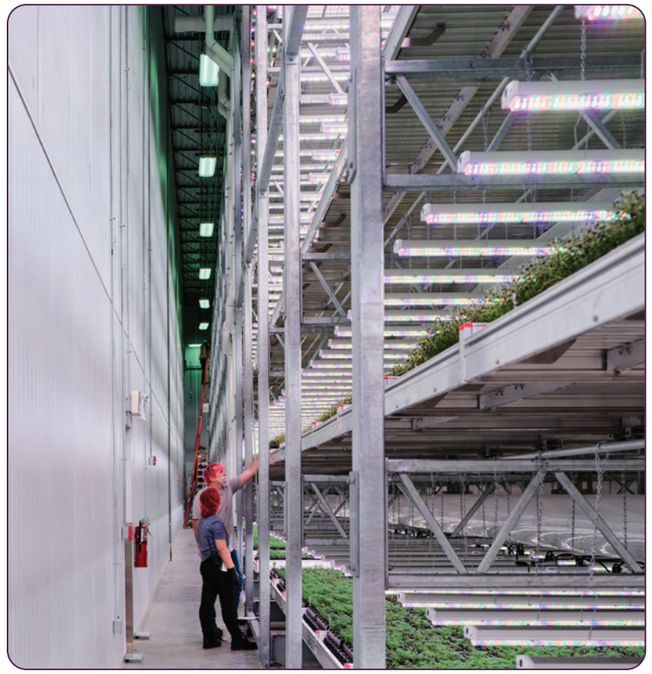
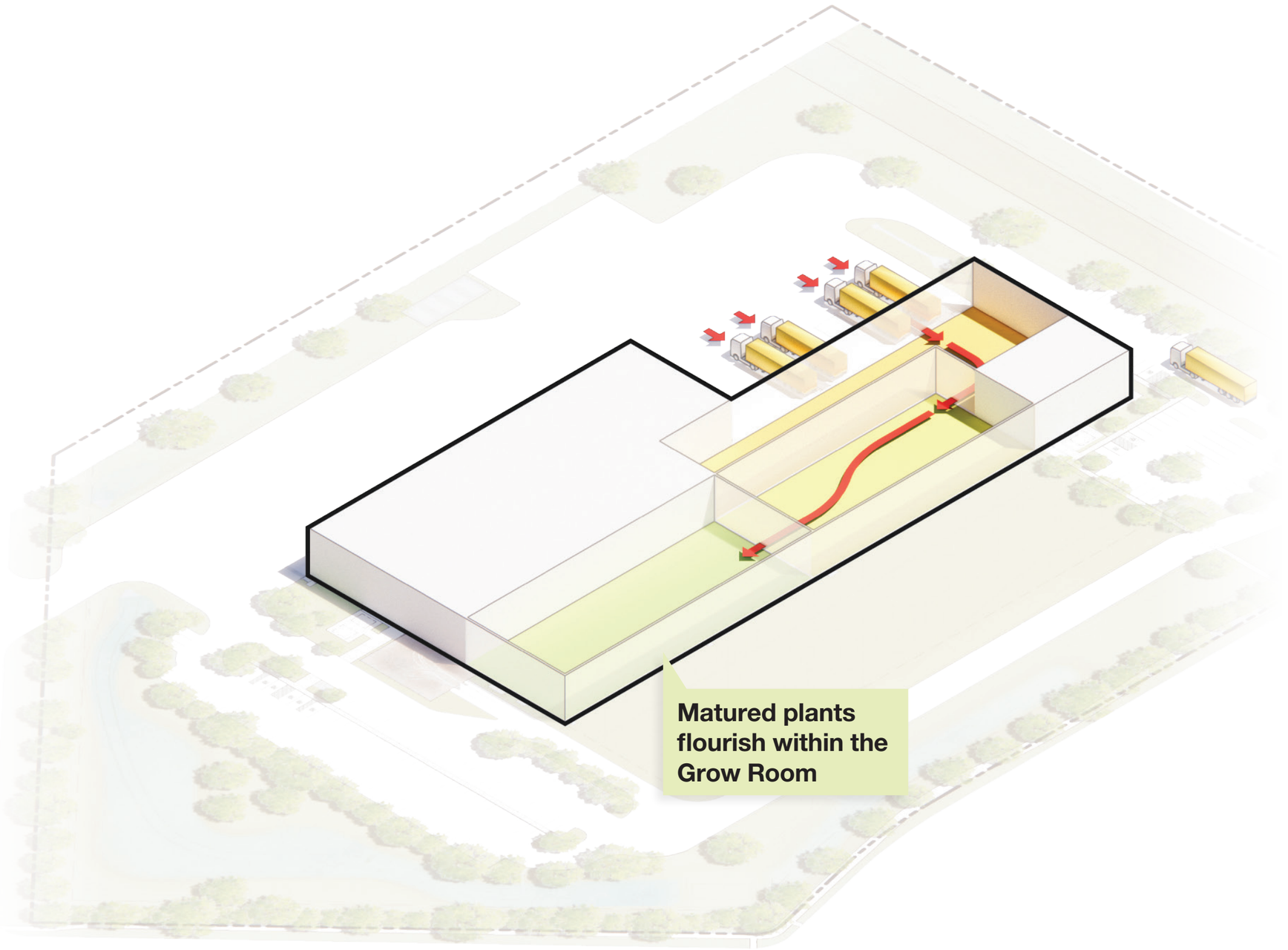


Photo of the Grow Room



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PROCESS

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Not long after seeding, plants enter the Processing room where they are harvested and prepared for packaging.

The soil that remains after plant-removal is routed out of the building to a holding yard where it is temporarily reused at outdoor grow fields. Someday soon used soil will be recycled on site before being reintroduced to the Soil room. The empty trays are washed, sterilized, then shuttled back to the Soil room to begin the process over again.

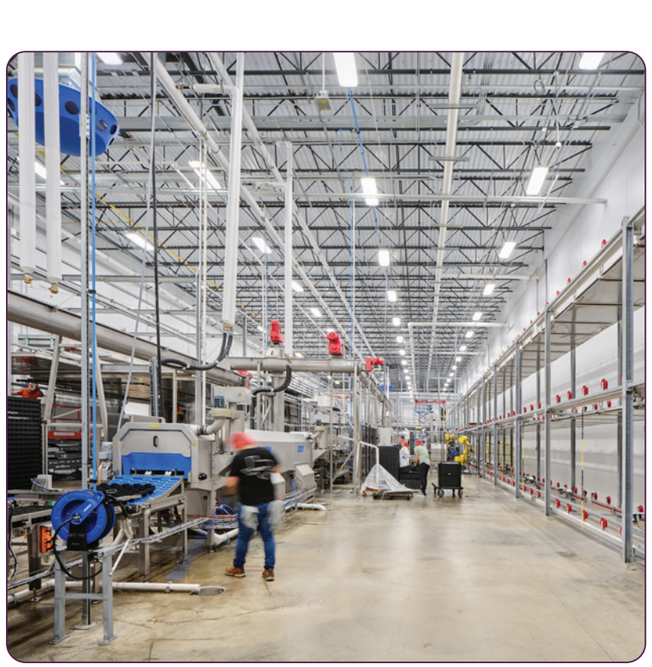
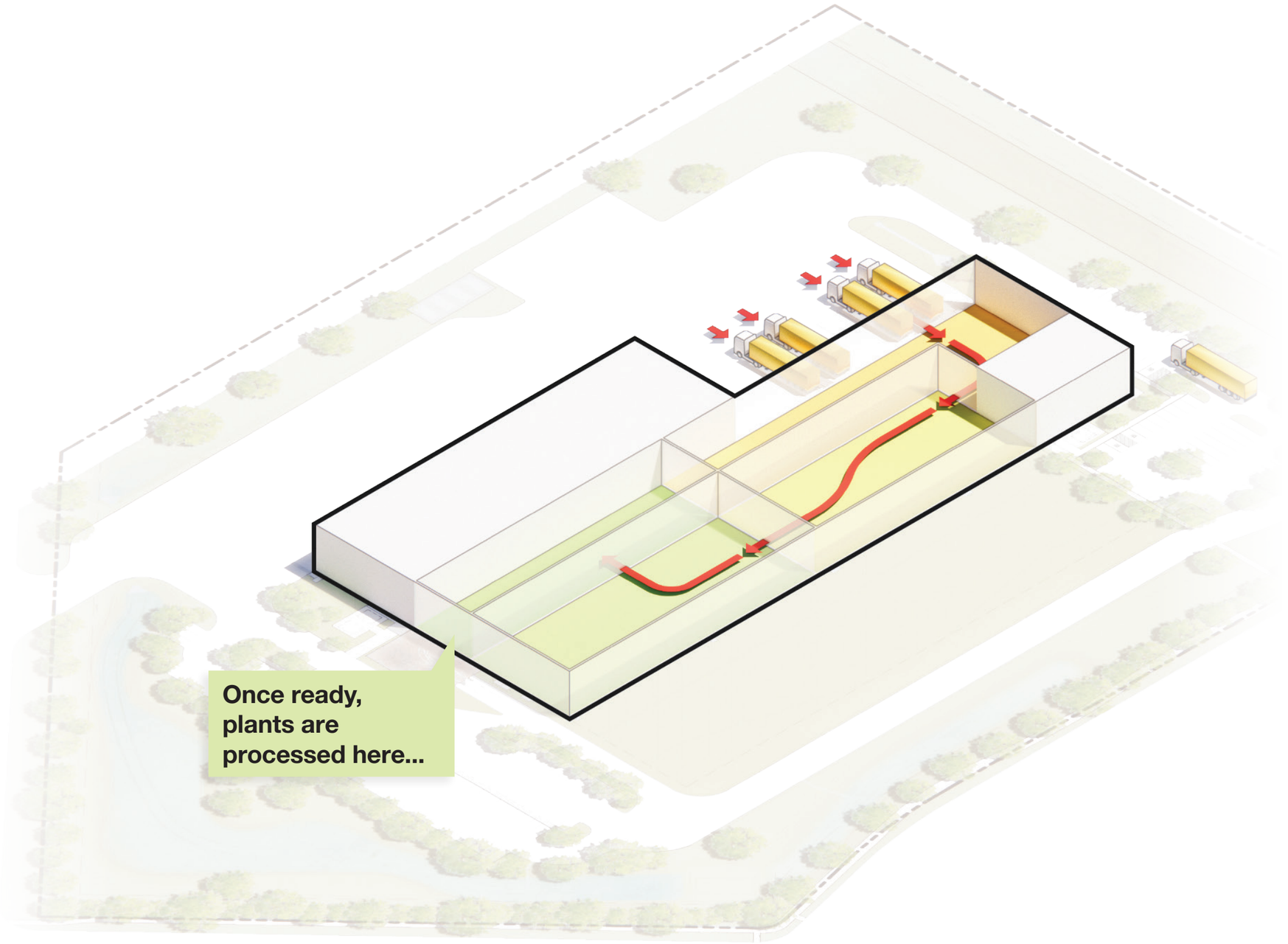


Photo of the Processing Room



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PROCESS

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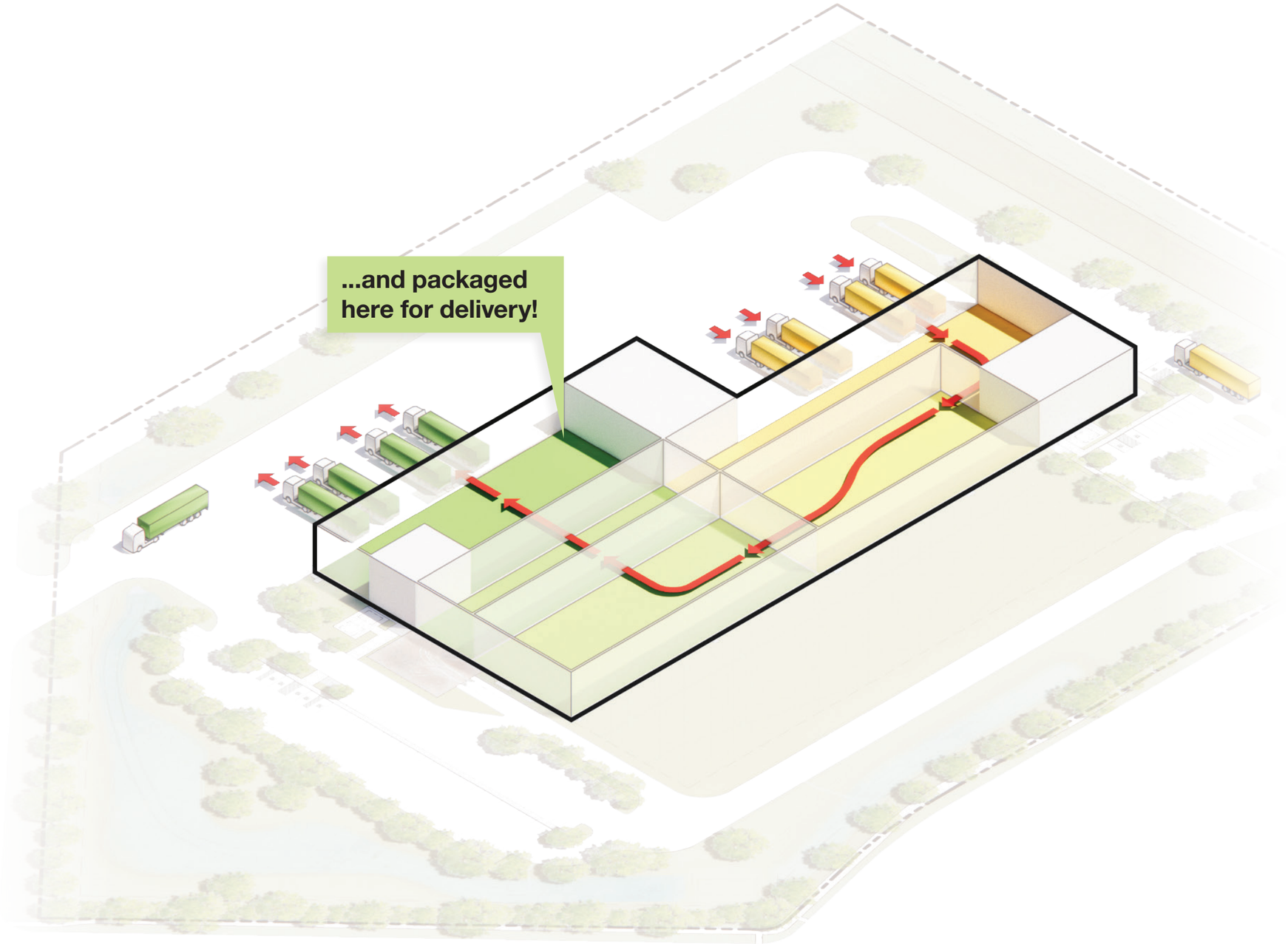
Harvested produce is sent directly into the fresh cut packing room before distribution.

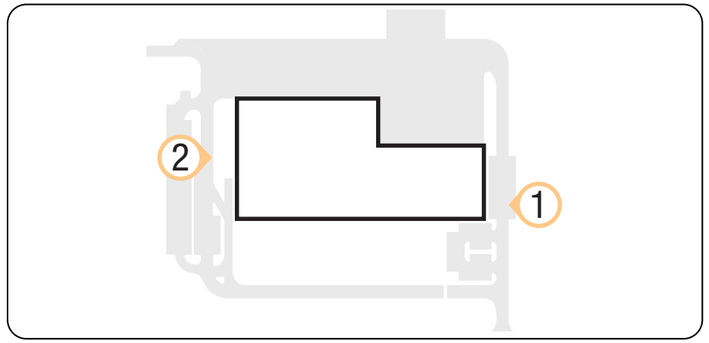
This entire area is temperature controlled down to 35° Fahrenheit so each type of produce can be processed at its optimal temperature. This allows the entire room to function as both a working area for prepping shelf-ready products and storing them before transit. Ultimately, more than ten types of herbs and salad greens leave this room on trucks bound for local retailers.

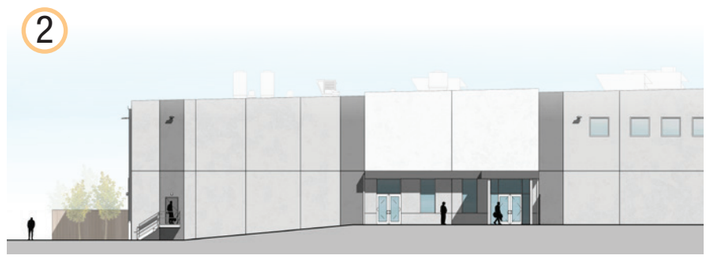


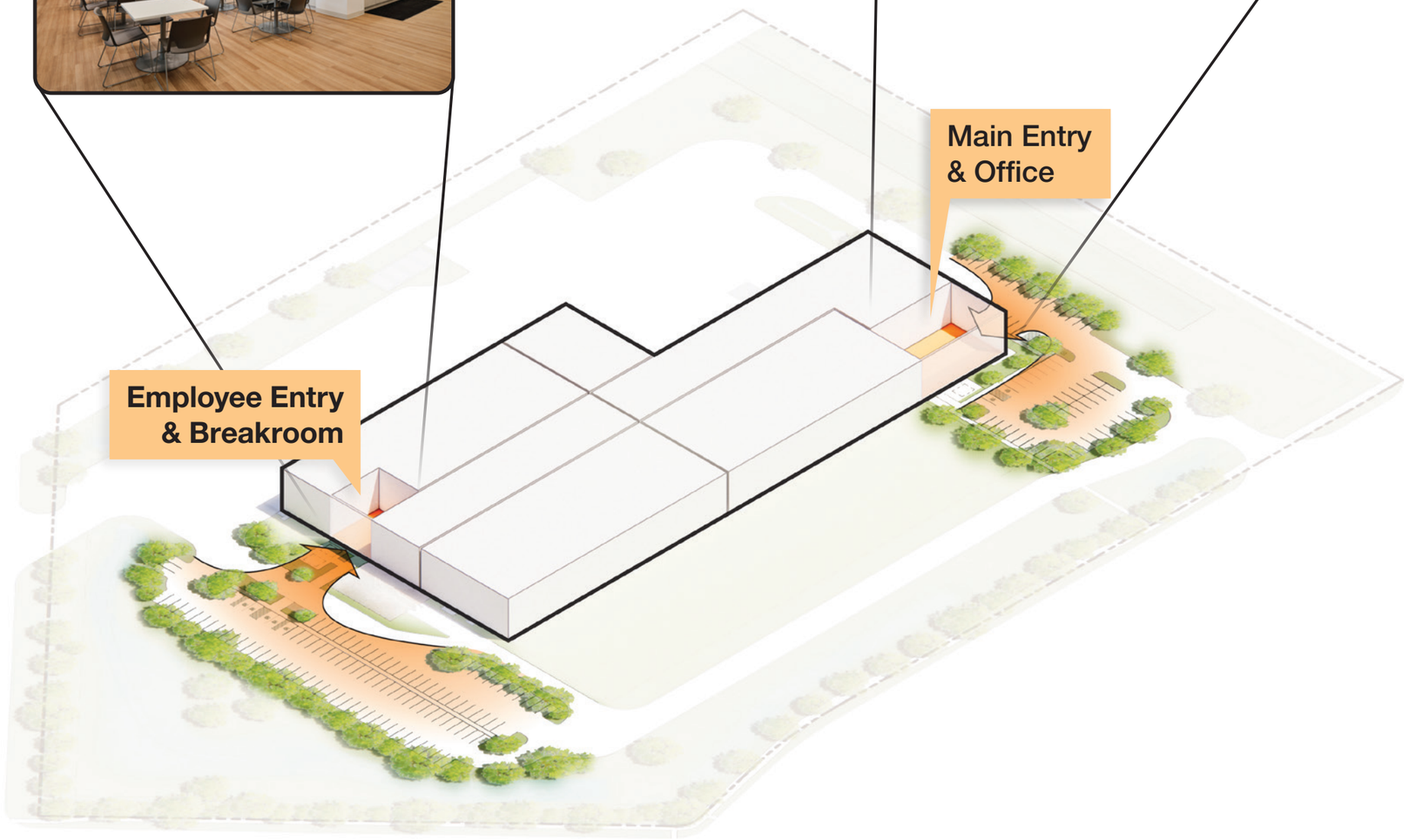
Packaged product from this facility

PEOPLE

This facility's success hinges on the happiness and productivity of its staff. The building's interior and parking are designed to accommodate fluctuating staffing numbers, as this varies depending on the facility's harvest cycle and may go from thirty personnel to almost two hundred. But regardless of the time of year, the offices and break areas are finished well above typical industrial building standards to provide comfort to employees and exceptional hospitality to visitors.







SUSTAINABILITY

*"Over **90% of all the water used** within this building is collected, treated and recirculated for reuse"*

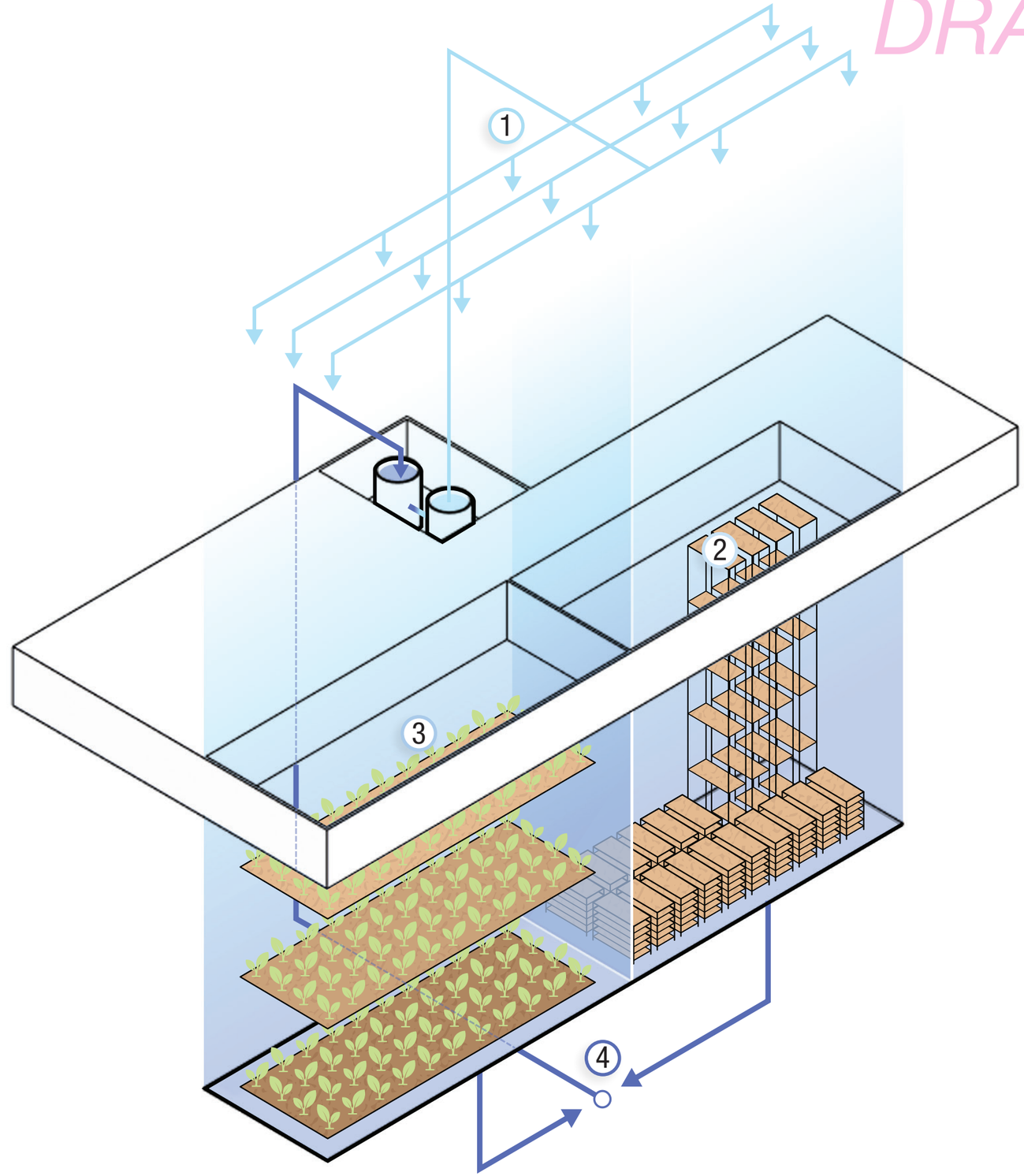
1 The Water room is the heart of the building, pumping micronutrient-rich water throughout the building to fertigate* plants at various stages of growth.

*Fertigation: the process of applying liquid or soluble fertilizers & micronutrients to crops

2 Water is dispensed in the Germination room via foggers to maintain a constant 99% humidity. Excess water from irrigation and condensate is collected and diverted to in-ground tanks for reuse.

3 In the Grow room, an irrigation system floods the plant trays to optimize growth. Whatever is not absorbed is diverted to in-ground tanks below the floor slab for collection and reuse.

4 Used fertigation water is returned to the Water room where it is filtered, treated, and re-imbued with micro-nutrients. This is achieved through a series of large tanks and filtration systems, similar to the process in a brewery.



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SUSTAINABILITY

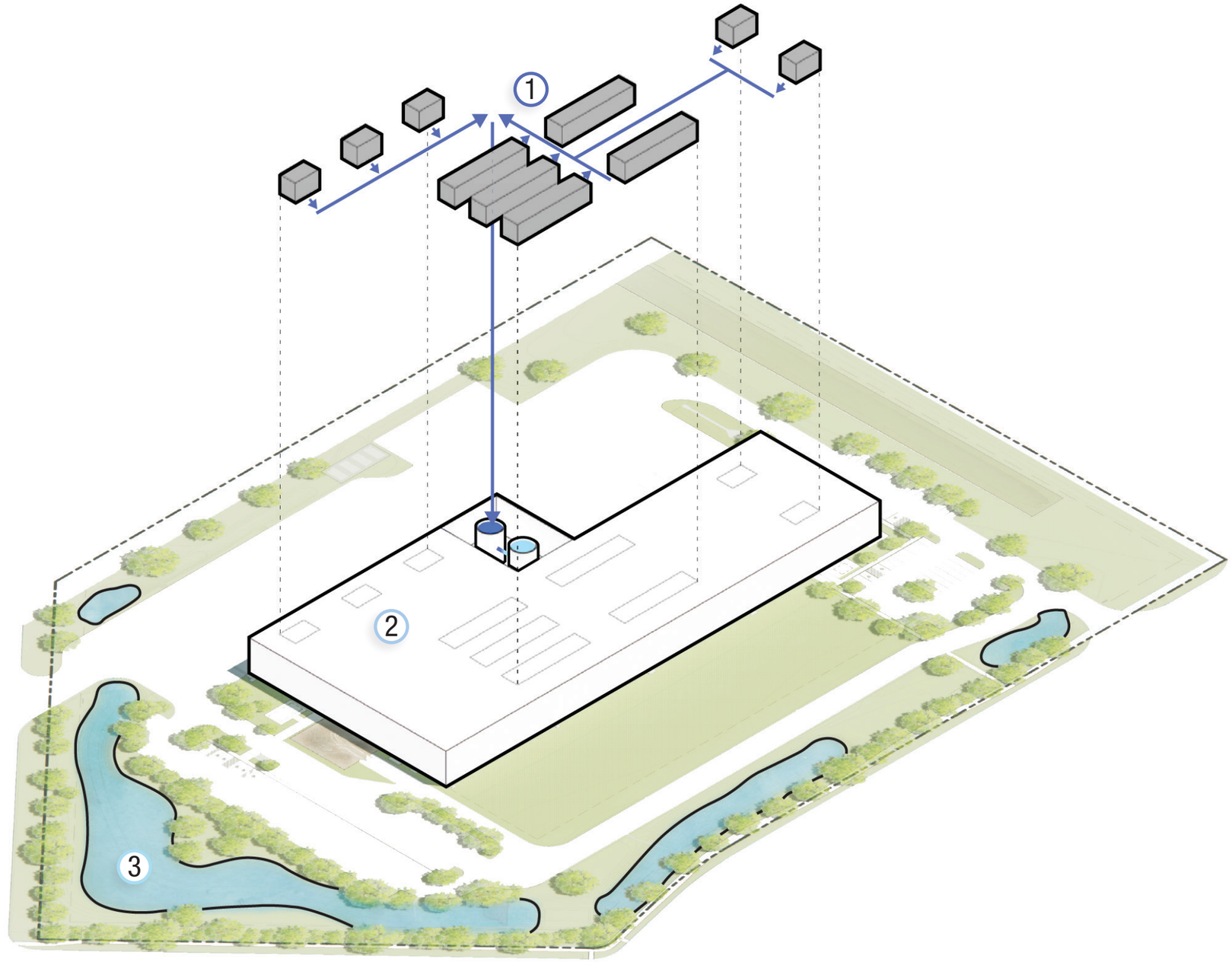
*"Even condensate **water** generated by this building is collected, treated and recirculated for reuse on-site"*

1. Implemented in this second facility, a new condensate collection system directs condensed water from RTUs/ RCUs into the filtration, treatment and distribution system within the building.

2. Over 85% of the water used in the plant growth process within the building is successfully recaptured and reused. Water loss only occurs via plant transpiration*. After initial startup, the RTU/RCU condensate collection system further reduces this building's load on the local municipality.

   *the passage of watery vapor from a living body (as of a plant) through a membrane or pores

3. Designed by LJC Landscape Architects, the site utilizes local flora to reduce maintenance/watering requirements. High efficiency irrigation nozzles use recycled water to water plants, while the large, on-site detention minimizes stormwater load on municipal infrastructure.



PHOTOGRAPHS

Soli Organic CEA Building
San Antonio, Texas

This CEA building is groundbreaking because it successfully delivers fresh, affordable, organic produce to the San Antonio region while serving the community as an excellent place to work and serving the environment through its sustainable water usage.

Every aspect of this building was carefully designed and coordinated based on intimate knowledge of the complicated, layered processes housed within: plant cultivation through various stages of growth, occupant well-being, and collection of water for treatment and on-site reuse.

Onward