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COVER STORY

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Turnkey: What's Not Included

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When most people hear the term "turnkey greenhouse," they think of a controlled environment growing structure with all the systems necessary to produce a commercial crop. Kind of like the term "move-in ready."

For example, that turnkey greenhouse is inclusive of not only the greenhouse structure, but all the systems and equipment that are required to grow within that greenhouse, including supplemental lighting, watering systems, benching, environmental controls, HVAC systems and harvesting equipment, said Chris Block, chief operating officer at Dominion Builders.

Pictured: What's often not included in a turnkey greenhouse project are ancillary activities, including site work, running utilities to the structure, road and parking lot construction, as well as supporting buildings like headhouses and offices.

"However, what is missing from that definition is all the things that are required to deliver a turnkey project," Chris added. "This includes the site work covering the grading of the site. The running of utilities to the site, which would be water supply and sanitary lines, electricity, and natural gas if it's needed. Then there are the roads, parking lot and the ancillary functions like office space or structures for a headhouse.

"It would also cover non-growing utility systems, including plumbing, lighting, HVAC—any of the systems that don't have to do with the growing aspect of the facility. These typically aren't included in a turnkey greenhouse."

Chris said growers unfamiliar with building a turnkey greenhouse may not realize they need to procure other services, including those related to architecture, structural engineering and civil engineering for these other ancillary items, along with the construction and installation of these items.

"It's critical that growers know what is not included in the turnkey greenhouse project and understand what will have to be covered that's not part of the greenhouse package," he said. "With a typical 5- to 10-acre greenhouse, these ancillary items that aren't included might represent half the cost of the total project, which can be substantial."

Avoiding surprises, overlooking details

Greenhouse manufacturers are in the business of selling greenhouses, but it's important to remember there's a lot of pre-construction planning and paperwork required before a greenhouse can be built. Sometimes they can help, but other times it's out of their scope of what they can offer.

"A greenhouse manufacturer may be able to assist in the processing of these pre-construction activities," he said. "Some manufacturers are not set up to do this and may end up contracting with a partner to handle these ancillary issues. Or the greenhouse company may tell the growers it's their responsibility."

Chris noted some growing operations employ an inhouse director of construction.

"The sole responsibility of this person is to focus on capital expansion," he said. "This person is usually someone with a construction background who knows what they're doing in regard to facility expansion. I've only come across a couple of growing companies in the industry who have someone like this on their payroll."

Most experienced growers who've gone through the process of building a greenhouse know what's involved with the planning necessary to ensure the construction of the structure goes smoothly. It can be a different situation for newer growers who have little or no experience of building a greenhouse. James Parris, sales manager at Alchemy Greenhouse Solutions, has seen both.

"For new growers starting a new greenhouse operation, they may want to build a greenhouse to produce 10,000 plants. They say, 'Tell us what we need so they can start growing,'" he said as an example. "We try to slow these people down, not to discourage them, but we want to make sure they are not misled into thinking within 48 hours they can sign a contract and be ready to start growing. We want to make sure they understand timelines so that they are successful and they are not overspending. If they want to start crops on a certain timeline, we want to be sure it is going to be realistic."

James said another reason for potential problems is when growers are trying to fast-track a greenhouse project. For example, when a grower trying to construct a greenhouse quickly may not put together a full budget and lay out the project to where they can clearly see start to finish.

"This may include the handoff between contractors from site work and other things that have to be completed before a structure is even started," James said. "Growers need to know what's the building timeline so far as there is a smooth handoff between electrical and plumbing contractors and the other pieces and how they fit together.

"If a grower is sitting back and thinking the project's general contractor is taking care of all the details, and that is not what's actually in the scope of the project, the grower needs to make sure all the details are covered."

He said the grower needs to be talking with someone who has experience with building greenhouse projects beforehand instead of just walking in and saying, "I want to buy this greenhouse—tell me what I have to do." His advice? Make sure that you've finetuned things to your preferences and needs before going to a contractor.

James added the chances for overlooking critical details in a greenhouse project can occur when a grower has let the project lag or is trying to meet the needs of a new customer who wants to place an order for products the grower doesn't have the space to produce.

Different crops have different needs

Chris said it's less complicated to design a greenhouse for monoculture crops than for a grower who'll be producing multiple crops in the same greenhouse.

"If a grower is dealing with a single crop, the grower is going to develop workflows and processes that are geared entirely towards that crop," he said. "Propagation, the production cycle, the harvest cycle—everything is directed towards a single crop.

"If a structure is going to be used to grow multiple crops, that may involve changing all the processes, including workflow, how crops are produced and harvested, and the timing of how production lines are run. With multiple crops there are many more considerations, including environmental requirements, for how the greenhouse is outfitted and how it's put together."

James also noted that ornamental crops offer more flexibility in the structure compared to food crops.

"Growers of food crops have to be aware of food safety," he said. "This includes issues related to the prevention of insect infestation and disease outbreaks. For most food crops, growers typically have to have screened entry portals, and specific production and harvesting procedures. That goes into another layer of safety codes and requirements. Food crops are also going to have more specific requirements than ornamentals in regard to temperature, light and humidity."

Getting started

Chris said the first step for most growers looking to build a turnkey greenhouse is to select a greenhouse provider. When a grower considers multiple providers, one of the challenges is comparing their offerings.

"A grower trying to compare these proposals side-by-side will find they have different exclusions," he said. "The proposals are going to have different scopes that the providers cover and don't cover. This can make it difficult to compare the proposals.

"Whatever scope is missing from the greenhouse providers' proposals has to be covered by someone else. If a grower is not sure where the scope gaps are, it's very hard to source comprehensive pricing on the other pieces. Who does the grower start with—an architect, an engineering firm, a general contractor? They don't necessarily know the right place to start. Whoever they start with, their work is very quickly going to be integrated with the greenhouse provider."

Chris recommended selecting the greenhouse package first to have a better understanding of the whole project, noting it's not necessarily better to have the permits, site work and other aspects finished before asking for proposals.

"Depending on the greenhouse project purchased, it's important to know the parameters of the greenhouse selected, including its size, its underground requirements and its power requirements," he added. "These kinds of questions have to be answered before building out the scope of the project."

Choosing a greenhouse provider

Chris said he's worked with some greenhouse providers that are very good at being able to assist growers obtain the necessary permits and complete the other things needed to be done prior to building the greenhouse.

"For some manufacturers, it's just not what they do," he said. "Some are very transparent about the services

they don’t offer. Others are less so. In general, most of them want to do what they do best, which is deliver greenhouses. Anything that is outside their scope, they generally don’t try to do things they’re not set up to do.”

That’s not to say growers shouldn’t look for value, they should just know if they’re getting a good deal on the greenhouse to have the rest of the project budgeted and covered through a different provider, he added.

Meanwhile, James recommends that growers looking to build a turnkey greenhouse talk with other growers who have experience with these projects who are familiar with what needs to be included.

“Go through this with someone who has experience, whether it is a consulting company or another grower, to make sure that something isn’t being overlooked in regard to the details with the structure and budget,” he said. “Missing something can easily bust a budget really fast if something is forgotten that is critical.

“When growers are sourcing a manufacturer to work with, they should be asking the manufacturer if they have experience with building structures for a specific crop. Growers should ask for references so they can talk with other growers the manufacturer has worked with. These references can provide insight on how different projects were completed. In addition, growers can learn about the process involved with obtaining the necessary permits and utilities, and how the process went. There are also systems like irrigation, fertigation, that can be an issue with the structure manufacturers. That should be a big part of their selling point upfront and be able to provide that information to potential customers.”

Most greenhouse providers have their partners and preferred vendors that they use, and many offer turnkey good, better and best packages, Chris said.

There are pros and cons to going with a turnkey option, too. For example, James noted on the pro side growers can be 99% sure that what they wanted in the project is exactly what they’re going to receive, including the proper layouts and crop flow. On the con side, if changes need to be made, there may be issues that can come up that delay the project.

Chris had his own pros and cons list, too.

“The advantage to purchasing a turnkey greenhouse is growers can purchase and integrate a lot of systems that have complicated interfaces on a single ticket,” he said. “It makes the growers’ life a lot easier. The downside of purchasing a turnkey greenhouse is growers are locked into whatever the offering of that greenhouse provider is, that’s what the growers receive. Growers don’t usually get to choose and customize their own systems.”

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Pictured: A turnkey greenhouse project includes not only the greenhouse structure, but all the systems and equipment required to grow within that greenhouse.