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DANGERS OF

OVER-ENGINEERING

AND HOW TO AVOID IT

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Design and engineering are important in constructing and building any project. There are instances though when developers or engineers do more than what is originally in the design blueprint. And, this is where the term over-engineering stems from.

Over-engineering is defined as the act of designing products, buildings, or software to be more robust, having more features than necessary. Over-engineering makes things more complex.

Well, there's a notion that more is better, but this is not always the case. In design and engineering, the KISS approach is often better when applied. KISS means less is more.

But, what exactly are the dangers and downsides of over-engineering?

DANGERS

EXTRA COSTS, NEW RISKS

Builders, even the most credible construction firms, don't always have all equipment on hand. In some projects they need to rent or even buy additional tools. In over-engineered projects, this translates to extra cost.

In line with this, these tools might be too complex or at least more difficult to handle. This could lead to accidents and even damage to the site - despite good intentions.



EXTENDED PROJECT DEADLINES

In construction every minute is important. This is because every minute wasted is money lost. In over-engineered projects, the original deadline is extended as more features are added.

Extended deadline in the project also means additional pay for labor and there's also the added cost of materials. In some cases, other projects that are to be handled by the construction firms will also be put off to a later date.



HARMS A FIRM'S PUBLIC IMAGE

Over-engineered buildings or building systems are more wasteful. In almost all states and countries, there are local laws that involve benchmarking both water and energy consumption.

Over-engineered building installations may also yield unfavorable energy grades. Given the current public opinion on the importance of sustainability, people would not appreciate a company that has overlooked such an important factor.

MAY CAUSE HEALTH PROBLEMS

Take for example an over-engineered space heating system. It is intended to make spaces more comfortable during cold times. Due to other features, however, it can create discomfort.

It could end up causing eye and skin irritation and respiratory problems. If there's low humidity, it could cause viruses and dust to easily disperse through the air.

Other materials can likewise cause allergies and other health concerns. This is especially true in some areas where certain materials can have an adverse reaction due to climate and weather changes.

BIGGER CAPITAL EXPENDITURES

Over-engineered projects are obviously more expensive. This is because of the materials, upgrades, and labor needed to complete them.



HOW TO AVOID

HOW TO AVOID OVER-ENGINEERING

At this point, it's clear that over-engineering is a problem - despite the potential opportunities and advantages that excessive upgrades and improvements may bring. Simply put, it causes more harm than good.

So, if ever you're overseeing the construction or redesign of your company's office space, for example, you have to keep a few things in mind to avoid making such a huge a mistake.

1: FOLLOW THE PLAN.

There is always a plan or blueprint before the construction of a project starts. Before it is finalized, everything must be checked and gone over with for any last minute changes.

Once the plan is finalized, stick to it. This is to avoid adding so many features that might become useless in the end.

2: STICK TO THE BUDGET.

A certain budget is set for any project, and staying within its limits is obviously very important. The budget should always be followed. It is also important though, to have a contingency budget. This is for any problems that might arise during construction.

3: PREPARE EVERYTHING.

Gathering all the tools, equipment, and materials, as well as hiring professionals (e.g. plumber, electricians) must be done before construction begins.

Likewise, you have to make sure that you have the necessary budget available before anything starts. This is to avoid adding anything unnecessary during the process, or ending up with expenses that you'll have to worry about funding later.

4: STICK TO THE FEATURES (REQUIREMENTS).

The project's main features or requirements should be the priority. If you're setting up a place meant for sporting events, for example, then you should focus on what it really needs to have. It's okay to think of safety features like for fire emergencies, but that is it.

Don't ponder too much on the "what ifs" or the project might end up becoming over-engineered.

5: RECOGNIZE OVER-ENGINEERED COMPONENTS.

There are common indicators that show whether a project is being carried out just right or if it is already over-engineered. Remember that less is more. Extra capacity for instance, might not really be necessary.

6: SUPERVISE THE PROJECT FROM START TO FINISH.

This is the best way to avoid over engineering. Making sure that everything is according to the plan will keep you focused on what's truly important.

Supervising the project at all times will also save you time and money, as you get to avoid unnecessary changes or expenses.

7: LISTEN TO THOSE WHO'LL BENEFIT FROM THE PROJECT.

It's best to interact with the very people who will benefit from the project's outcome before attempting to flesh out your idea. This will give you a thorough understanding of what's needed as well as preferred.

Make sure not to have any excess components that don't reflect what's expected by these people, as such things will only be forgotten no matter how useful they may be. Also, these extras will just make the project harder to finish.

8: DON'T BE AFRAID TO SURVEY EXISTING ISSUES.

Before constructing or planning the project, do an ocular of the site. This will give you an idea of the space you are working with. This will also let you see any existing problems that need to be addressed immediately.

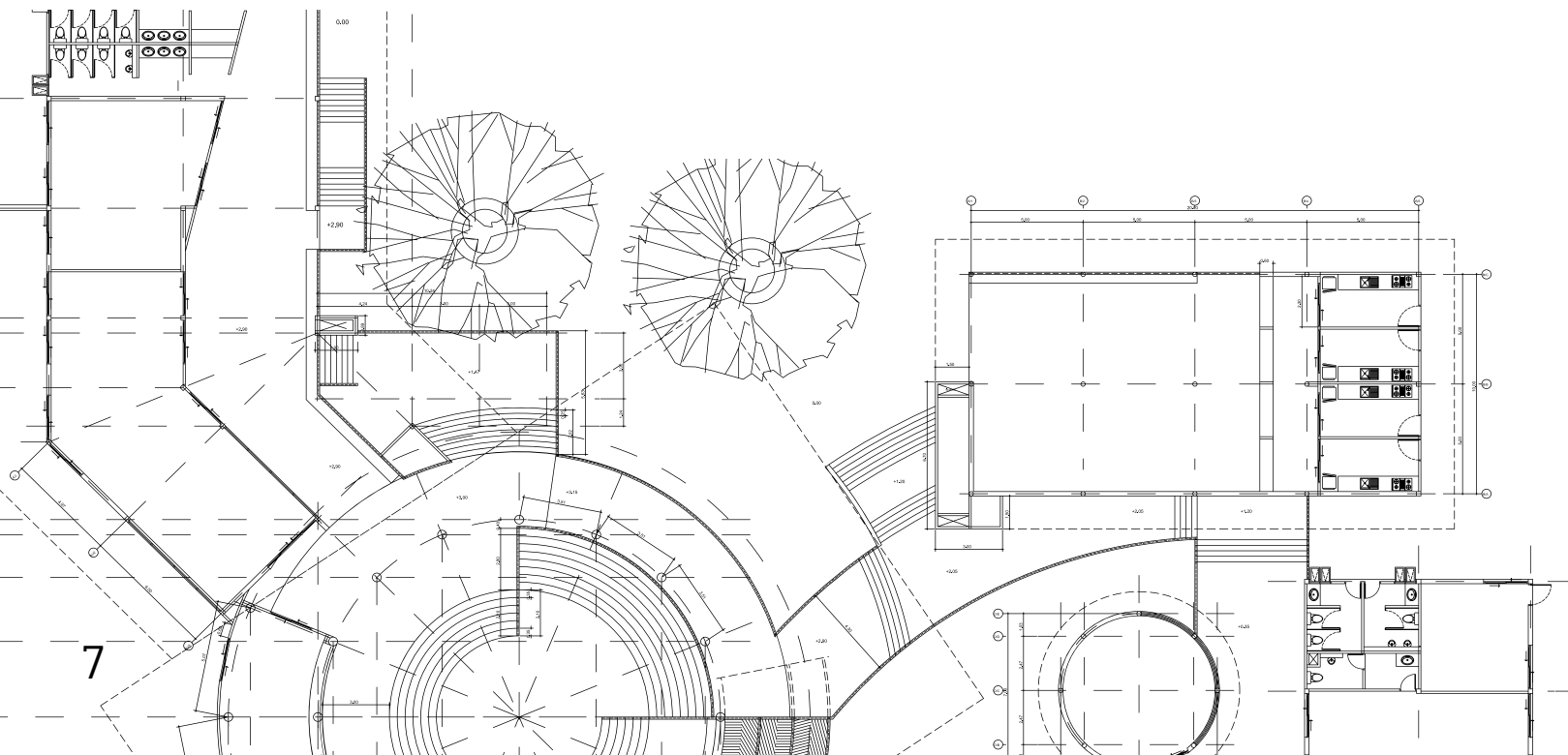
Acknowledging any problems, mistakes, or errors beforehand will give you a guide to make a thoroughly detailed plan. Knowing everything about the project will also save you time, energy, and money.

9: READ ON COMMONLY OVERSIZED/OVER-ENGINEERED PARTS.

If you know which components of a project are commonly over-engineered, you would be more capable of avoiding them. This will give you information that could help you make a better guideline for your project.

10: WIDEN YOUR CONNECTIONS IN THE FIELD.

Conversing with other people who've completed similar undertakings lets you gather insights, benefiting from their knowledge and experience. Ask for advice to understand the best solution for certain hurdles.



11: ALWAYS CONSIDER PUBLIC IMAGE.

In construction, the functionality of the project is not the only thing that's considered. The project's image to the public is also important. Check up on applicable laws and be sure to follow them.

Many of these laws actually pertain to waste management, power efficiency, and sustainability as a whole. But, don't go all out on cutting-edge Earth-friendly solutions and components either, especially if there's really no need to do so given the project's parameters.

By simply working within the accepted limits and following every requirement, you ensure that there won't be any public backlash once you're done - especially if working on something big. Environmental awareness is at an all-time high, after all.



CONCLUSION

Keep in mind that in developing or making anything, it is often best to keep things simple but appealing. Adding extra features or components might seem to help in the short term, but might not be appreciated in the long run. There are situations when certain additional components are indeed made necessary, such as in the context of safety precautions (if you happen to overlook some). If that is the case, then do not hesitate to make additions -but nothing in excess.

Over-engineering will not only complicate things, and may actually cause problems that are difficult to resolve. In the end, your attempt to make the project the best it could be in your own view, might end up being the reason for its failure - ultimately wasting time, money, and energy.

It is best to keep everything in order, from the ocular, planning, construction process to the final product or project. This will make things faster and easier. This will likewise help save resources that can be used for future undertakings.

And as mentioned, do not hesitate to learn from others' mistakes and experiences. In case a similar problem happens, you'll have an idea on what to do. Don't dismiss what you've learned firsthand either. Any insights you gain could be useful in your next projects. To avoid going overboard as you complete things, it's necessary to be as thorough as possible in your plans. It is also a must to stick with the final plans - never get sidetracked by "potential improvements".

If it's become too overwhelming at any phase of the project, do not hesitate to get help from seasoned, reputable professionals in construction and design. This is also among the more reliable means of avoiding over-engineering.

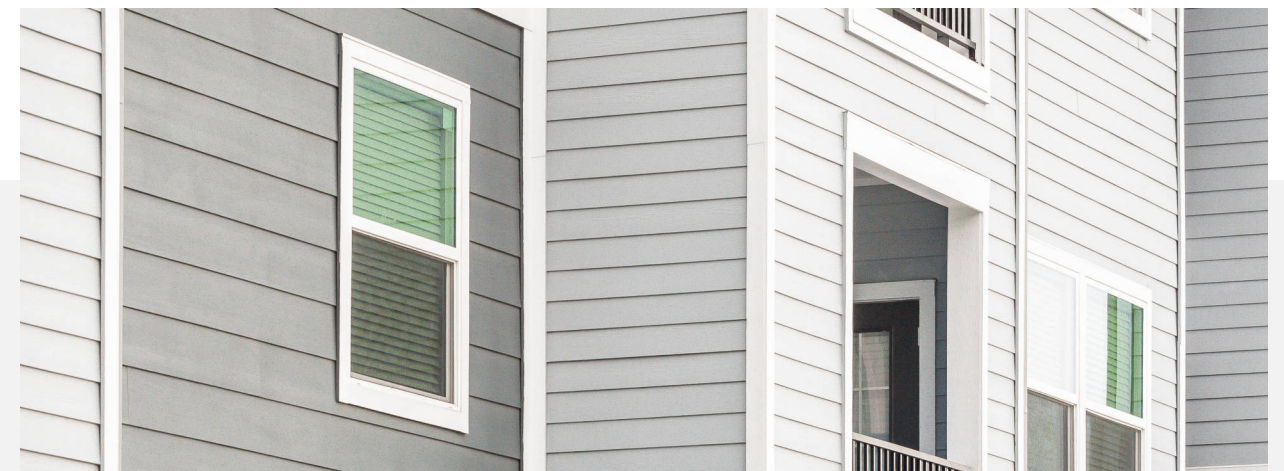
All in all, keeping things simple is usually the key to a successful project. Complicating components and facets can cause issues or conflicts that are might not even get resolved or fixed.

ABOUT CIVE

CIVE is a premier upscale design build firm also specializing in state of the art residential & commercial design, leading edge engineering, high quality construction and elite project management.

Our strengths lie in a rich mix of talent, experience and ingenuity. Our clients can depend on CIVE to anticipate industry change and plan for the future, while providing most practical and cost effective solutions. CIVE devotes customized, individual service to all of its clients, whether large or small.

Specialties: Residential & commercial design, civil engineering, structural engineering, mechanical engineering, electrical engineering, construction management & project management.



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