



Williams Notaro & Associates, Inc.

MECHANICAL, ELECTRICAL, PLUMBING & FIRE PROTECTION CONSULTING ENGINEERS

Ten Practical Suggestions for a Successful Tenant Renovation Project

Part 1: Project Planning & Set-Up

The first five suggestions can be implemented by tenant representatives, facility managers, construction managers, or anyone that manages construction projects to make your next project more predictable, organized, and successful.

1. Evaluate the existing tenant space and base building systems before selecting a space.

Not all buildings and tenants are a good fit. Many buildings do not provide the mechanical and electrical capacities required by all tenants. This can be an issue when a tenant wants a large conference or training room, or a computer room. Will the building system provide adequate cooling and outside air to the conference facilities? Can the electrical system accommodate the data center power requirements? Most likely new duct risers or penetrations through the side of the building will be required for outside air, and new electrical risers, or a service upgrade will be required to meet the power needs. These major upgrades will result in unanticipated costs, require landlord approval, and will prolong the schedule.

Architectural features can also affect the viability of the space. For example, if a tenant wants nine foot ceilings, is it possible? If there is existing mechanical and electrical equipment in the area, what will it cost to relocate or modify these systems? Who will pay for it?

If these issues are determined before signing a lease, the tenant and landlord can work together to manage the associated costs, schedule delays, and adverse impact to the building. The tenant's design team should perform an assessment of each potential facility to identify deficiencies that could affect the project.

2. Prepare the initial project budget using a space plan and engineering considerations.

Often a preliminary budget is prepared based on a cost per square foot for typical projects either with or without an architectural space plan. Then the project is designed and the actual bid cost exceeds the project budget. How does this happen? It happens because the mechanical, electrical, and plumbing (MEP) systems may not have been adequately considered when the budget was prepared.

MEP costs are often higher than all other costs combined, so it is critical to consider input from the design engineers when preparing the budget. This applies to even the smallest projects since they are easily affected by small additions to the MEP work. Ask the engineers for conceptual design information you can use to develop your budget. There are many ways to determine this information including simply relying on the engineer's knowledge of the building or preparing conceptual pricing documents. A good engineering team will work with you to provide the necessary information in the most economical manner.

3. Set a reasonable schedule. If the schedule must be accelerated, make sure everyone understands the implications.

A reasonable schedule allows for proper design, comprehensive pricing, well conceived selection of contractors, lead times for equipment, and all the other processes that are part of a construction project. It allows for projects to be built correctly, delivered on time, and within budget. Usually the expectations for a fast track project are the same as a project with a reasonable schedule. However, when a schedule is accelerated, quality and/or cost are inevitably affected.

For example, in a fast track project, programming may be cut short, designs are rushed, material and equipment selections may be based on lead times, and submittal review is sacrificed. Eliminating or altering

these tasks will lower the quality of the project design and construction.

Costs are also higher with an accelerated schedule. There may be design fee premiums, contractor overtime costs, equipment quick ship charges, and expedited plan review costs.

Being realistic about the affect of a compressed schedule on a project and ensuring coordination between the tenant, design team, contractors, and vendors will relieve some of the quality concerns associated with an accelerated schedule.

4. Select the design team based on qualifications, not the lowest price.

If you start with a poor, error filled design, it will likely result in a difficult construction process. Bad design drawings lead to excessive problems during construction, increased paper work, and disorganized projects; all resulting in increased costs, lower quality, and schedule delays.

All architects and engineers are not created equal. Investigate and select a team that will perform, not a team that just gives you a low fee. Ask prospective design teams about their suggestions for a successful project, their attitude toward change orders, their definition of quality, and their history of repeat clients. Ask them to present a set of drawings from a recent project and explain the critical aspects of that project. Ask to meet the proposed project team members. This exchange will help define their capabilities.

Would you select the least expensive accountant because they promised you the biggest tax refund? Would you hire a doctor or lawyer because they have the lowest fees? Apply the same sensible values to the design professionals you select and you will be more likely to have a successful project.



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Principal

Mr. Notaro has over twenty years of experience in engineering design and project management for commercial and institutional facilities. As a founding Principal of Williams Notaro & Associates, Inc., he directs the Electrical Department and provides a high level of Principal involvement by working closely with the clients as Project Manager and Project Engineer on many of the firm's projects. To discuss this article, you can contact Ken at 703.563.0381 x122 or by email knotaro@wnainc.com

Enter Our Blooper Contest

Every season we feature a photo on our web site that illustrates the importance of including Construction Administration in the Engineering scope of work. Even small, seemingly unimportant installation deficiencies can cause poor system performance, increased maintenance, or reduced equipment longevity. By correctly identifying the installation blooper, you are automatically entered to win a \$50 gift card to a local restaurant or store. Last day to enter is June 14, and drawing will be held June 15.



Congratulations to Wayne Wiebe, Vice President of Kenmark Commercial, Inc. in San Jose, California. He correctly identified the Winter Installation Blooper and will enjoy a \$50 Visa gift card. Enter our Spring Contest at www.wnainc.com and you could be our next winner!

Continued...

Ten Practical Suggestions

5. Properly program the space including the needs of all required vendors.

Proper programming is essential for a successful project, and is typically accomplished by the architect and a group of tenant representatives. However, the vendor systems such as telecom, data wiring, audiovisual, and security are often overlooked.

Identify and select vendors early in the programming phase. This will allow the architect and engineer to coordinate directly with them and include any infrastructure required to support the vendor systems before the architectural and engineering design begins. Otherwise, the design team will spend hours coordinating this information during the design phase, the construction documents will lag, or the requirements may not be included in the construction documents.

The Bottom Line:

Will implementing the above suggestions cost you more? Initially it may

seem so, since performing the tasks described above will add cost and time to the *initial phases* of a project. However, these early efforts usually result in a lower total project cost and more timely completion of the project.

Even if you believe these suggestions will increase the cost of the project or are otherwise burdensome, consider that the tenant and landlord will live with the problems resulting from a poorly executed project every day. Any perceived cost savings will long be forgotten. Instead, put the extra effort into the early stages of a project and the benefits will be apparent at the end and long after the project's completion.

Part 2: Design & Construction will present the additional five suggestions for a successful tenant renovation project, and will cover the design, bid and construction phases of a project. Look for it in our Summer 2007 issue, or read the full article at www.wnainc.com/10suggestions.html



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& Associates, Inc.**



What's Wrong With This Installation?

Last season we posted a photo of a poorly installed inlet connection to an exhaust fan.

Properly designing and installing an inlet connection to a fan can save operating costs and minimize fan maintenance because the inlet air ductwork configuration can severely impact the performance of a fan.

Where possible, ductwork should enter the inlet of a fan with a minimum length of straight duct. Having a transition into an elbow at the fan intake (as shown in the photo above) can cause excessive noise, vibration, much lower air flow, more power consumption, and a shorter fan life.

This blooper illustrates the importance of including Construction Administration in the Engineering scope of work.

Did You Know?

Your Heat Exchanger Can Cost You!

Does your building's condenser water system use a plate and frame heat exchanger? Are you keeping it clean? Is it adequately sized? A dirty or undersized heat exchanger consumes more energy by reducing heat transfer and requiring more pumping power.

Plate and frame heat exchangers have a multitude of small water passages, and are prone to clogging and fouling. To keep your heat exchanger functioning efficiently:

- ◆ Check the pressure drop across the heat exchanger. If it is more than specified, it needs cleaning.
- ◆ Schedule cleaning based on pressure drop, not on time in service.
- ◆ Fully disassemble the heat exchanger and scrub each plate with a stiff non-metallic bristled brush.
- ◆ Thoroughly clean the steel front and back plates, and remove any scale.
- ◆ Keep spare gaskets in stock as you may need to replace a gasket or two during re-assembly.
- ◆ Depending on the air quality at the cooling towers, you may need to clean the heat exchanger 2 or 3 times a year.
- ◆ Finally, if the original design specified a 5 degree approach, you should consider increasing the capacity of the heat exchanger to reduce operating costs.

If you'd like to learn more about heat exchangers and how to optimize them, contact Mr. An-ping Hou, PE at 703.563.0381 x119 or by email at aphou@wnainc.com