



“VIEW AND DO” MANUFACTURING The next level in fenestration automation

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The complete integration of your manufacturing facility *or* ...

Fentegration from estimate to invoice (and beyond)

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What do music and window and door making have in common? In both businesses, harmony outsells discord by big margins. In fenestration, harmonizing your business comes through integrating the flow of information and materials through your business from estimate to delivered product to invoicing. That harmony enables you to manage your company to fulfill your vision of how you want to serve your customers.

Today, in practically all industries including fenestration, even the smallest company can realize many of the long-promised benefits of integrating manufacturing businesses. Yet typically only a minority of companies in a given industry have embraced today's more affordable, easier-to-use and more effective technologies and systems.

There are reasons for that, not the least of which are some of the automation horror stories company owners and managers remember and retell. Nonetheless, a growing number of companies have moved forward with today's more proven systems and are enjoying their many benefits.

Fortunately for them, the window and door making industry is large enough to attract providers who either have developed fenestration-specific systems from the ground up or have adapted make-to-order software for this market. Companies looking to install or upgrade their operations can find applications that already closely match their needs.

Integrating your operations is certainly no walk in the park. But thanks to the pioneers who've bled along the trail before them, window and door makers with modern integrated operations are clearly outpacing their less efficient, less flexible and less harmonious competitors. That makes living in the past increasingly risky.

Getting going

So how do you determine where you are, what you need, what's possible and how to proceed to getting everyone from your customers to your controller singing from the same music?

First, we need a good definition of fentegration and a quick review of the history of automation. Next comes the 10 reasons to fentegrate: proven benefits and possibilities for window and door makers. After that, you can use the fentegration meter to assess your company's current situation. In the final section, we discuss how to proceed from need to harmony.

Let's get started.

What does integration look like?

Integration has always been one of those words that are difficult to visualize. Even if you can see the physical connection of wires running between the front office and factory floor or between work cells, grasping the mechanics of the actual communication is beyond most of us.

One approach is to think of it as connecting the arms and legs, which do the work, with the brain, which decides what work should be done and how to do it. When you see your entire business as one body, rather than separate parts, it's easy to understand why all the moving parts can go farther and faster when their motions are coordinated. Integration looks like a body walking smoothly. Non-integration looks like stumbling into objects (and objectives!).

*We define manufacturing integration as connecting, automating and coordinating processes that can be done more efficiently and accurately with acceptable payback. To signify the advanced level and integration now available specifically for window and door makers as we know it, we combined "fenestration" and "integration" to create the term **fentegration**.*

The definition is in the box. The key ingredients are coordination, automation and flexibility, the desired result is harmony.

Flexibility, short and long-term, is critical. The right system lets you pick the music to sing: the combination of price, features, speed and quality that make beautiful music in your markets. Some like country, some classical, some top 40. A good system lets you choose your music but change it as conditions change.

The evolution of integration

Still not seeing this fentegration thing? Are the legs still kicking the head? It helps to quickly review the evolution of making things, from craftsmanship to manual automation to islands of automation to integration.

Craftsmanship is individual, not systematic, with a product or assembly typically made start to finish by an experienced master. Time honored and still revered in many artistic fields, craftsmanship sometimes produces great works, sometimes not. Besides varying quality, impatient capitalists also take issue with its slow production cycles, high unit costs and dependence on highly temperamental and perishable means of production.

Manual automation systematically breaks a job down into parts in an attempt to improve speed, consistency and unit costs. While manual automation is faster than craftsmanship, it is not fast. Everything is still done by people by hand, resulting in high labor costs without entirely eliminating all the issues with craftsmanship.

Machines and computers have made possible the automation of many individual tasks, greatly improving efficiency, quality and unit costs. This task-at-a-time approach results in the **islands of automation** found in many of today's factories. In these situations, data must be re-entered at each station, increasing the possibility of errors, uncoordinated work flow result in inventory bloat and lower efficiency and paperwork and support increase for each operation.

Machine automation did help put production knowledge traditionally controlled by a few individuals into a system. The body got bigger, but sometimes lurched around like a drunken sailor, doing more damage

fen·te·gra·tion (fen·ti gr!·esh·n)

n.

- fenestration integration:** combining operations of a window and door-making business into a **coordinated** and harmonious whole, from estimate to invoicing.
- automating** window and door making processes that can be done more efficiently and accurately with acceptable payback.
- behavior of a window and door-making organization that is in harmony with the changing needs of its customers. See **flexibility** and adaptability.

faster. Clearly there was and is a need to bring those islands of automation together into a single connected being.

Integration is all about gaining choices

If you're afraid of toppling the drunken sailor or inciting him into a rage, you're going to be very careful about what you ask him to do. What the power industry calls an unplanned shutdown can be very costly even in a small operation. Yet more damaging than a shutdown can be chronic production inflexibilities and insufficiencies that limit your options, quality and ability to serve customers the way you'd like.

When others can, and you can't, you've got issues.

By automating, connecting and coordinating your operations, integration gives you the ability to be who you want to be, the flexibility to change quickly and the capability to learn and improve. Good technology won't make you a leader. You still need some idea of where you want to go. But it will enable your vision and leadership to be realized.

What can you choose? Integration gives you possibilities. How about fast delivery, low price, high quality, more features, wow service, profit, growth, and survival—sometimes just one, sometimes more than one. Whatever it is, it can be your choice.

What can be fentegrated?

Hate filling out the same information over and over? So why would you make your staff do it every day? A primary goal of fentegration is to enable companies to enter information once, then use it everywhere needed. Data captured at estimate flows through your entire operations all the way to invoicing. Information might be added or modified, but the same data should never be re-entered.

Typical tasks included in a fentegration system:

- Estimating
- Order entry
- Scheduling
- Machine operations
- Inventory/JIT
- Shipping
- Costing/invoicing

10 fentegration benefits

Aside from eliminating multiple data re-entry and the high labor and error costs that come with it, fentegration also allows window and door makers to:

- Achieve instant change implementation and control
- Schedule fast and flexibly even just before a shift
- Reduce paperwork
- Route and process efficiently
- Reduce WIP and finished goods
- Reduce errors
- Remake efficiently
- Answer questions in real time
- Determine their own destiny

If you sum up the possible improvements from all these, the gains can seem staggering, almost unbelievable. But this isn't future talk. Window and door makers are doing this right now. The

Life with fentegration

- Fewer brains can do more
- You can realize your vision and values
- Faster
- More efficient
- Lower cost
- Flexibility and variety
- Improved insight into business
- Coordination
- Proven

Life without fentegration

- Data déjà vu all over again
- Slower
- Less flexible
- Sneaker net
- Paper, paper, paper
- More mistakes and waste
- Harder to improve and to add value
- More bottlenecks and less productive assets
- Operating in the dark
- Knowledge quits or otherwise escapes

basic ingredients are a manufacturing engine with or integrated with order entry, inventory and accounting systems. A key element is the system provider's capability to automate and integrate all the desired processes, equipment and locations in your business.

Where and what are you?

Some companies have a good idea of how they compare to the state-of-the art for their industry. Some think they know while others know they don't. A few think it doesn't matter—they plan to keep on keeping on the same way forever.

The world has never changed more rapidly than it does today. It's not standing still and neither can you. Smart companies look to adapt before falling sales, profits and budgets increase the pressure and challenges. Given this environment, window and door makers need an accurate appraisal of where you stand.

For this reason, we developed the Fentegration Meter, based on our experience implementing advanced fentegration systems in dozens of window and door companies, combined with the broad experience of RoviSys, the company from which my company emerged. One of the leading process automation companies in North America, RoviSys has completed more than 2,000 automation projects in nearly 300 companies.

The Fentegration Meter will help you determine whether your company is a fenestration Caveman or a FeneMan. The humor in some of the choices should neither fool nor offend you. Every company is likely to have some weaknesses, and yours might be readily correctable or insignificant in your business model. But if your score is low and you see other indicators of trouble, the Fentegration Meter should serve as another motivator to take steps to get back on track.

How to get it done

Whether you're looking to step it up a notch or need to change to survive, it's best to go deliberately through the process of integrating your window and door making business. You need to know how you're doing on important measures of performance, where you'd like to improve and whether the changes you intend to put in place will make that possible. The steps are to:

- Develop a performance baseline
- Find out what you have
- Set goals
- Create action plans, priorities and phases
- Agree on what you need

Along the way, you'll want to be open-minded. You'll learn new things along the way. Be prepared to take advantage of these opportunities as well as discard requirements that would provide too little benefit for the cost.

Be sure to select advisors and providers who add to your knowledge. But do your homework: check references. You should also set standards and milestones and walk before you run. You want to trust your team, but reinforce that trust by making it clear you will reevaluate frequently to make sure the result is good for your business

What it takes

Becoming an integrated manufacturing takes backbone, investment, partnership and will.

Do:

- Push for what you want
- Go for the big benefits
- Understand what's possible and likely
- Shun the unproven
- Partner for the future

- Give yourself the capability to improve

Don't:

- Underestimate flexibility
- Create what's already proven
- Nano-engineer
- Buy what's good for someone else
- Skimp on training
- Devalue support

Summary

The motivation to fenestrate starts and ends with your customer. Whether you're hanging from a cliff or safely at the summit, you need to understand where they are going and how you want to meet them there. Reaching that objective takes self determination and knowledge.

Done right, integrating your business can give you almost joystick like control. You'll be able to see what's actually going on and where your orders are, all right from your computer. And you'll be able to implement short and long term changes in how you do business. Most of all, it enables you to come closer to serving your customers how you believe they should be served.

What tune will every one be singing in your future? That's up to you.

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