

A SOLUTION TO FENESTRATION INDUSTRY

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Abstract:

The term Fenestration refers to the openings and spaces in building's façade which mostly involves doors and windows. Fenestration industry is directly related to design, construction and real-estate industry's performance. Fenestration industries depend stiffly on manual processing and are scattered with disconnected systems. These sectors are mostly un-organised as they require processing huge set of rules and variant calculations which is prone to error and is a time consuming process too. The purpose of this paper is to provide a relevant solution to deliver accurate requirements, data and examine calculated errors through FENESTEC.

Keywords: Fenestration, Microsoft Visual Studio 2017, quotation, Fenestec

Introduction:

Fenestration as the name suggest refers to designing, building and appearance of openings. This includes windows, doors, curtain walls, vents, wall panels, storefronts, and slope glazed systems. The fenestration industry has advanced and implemented growth within short period of time through the coming years. This industry is increasing because of outstanding growth in suburban and mercantile real estate sectors. Key companies who focuses on research and development are spending on developing composite materials which is used to protect buildings from disasters whether it is natural or human instigated. All over the world, uPVC (un-plasticized polyvinyl chloride) has dominated over other traditional materials like wood and metal for manufacturing windows and doors because it upgrades quality of life.

Fenestec is a software application that deals with the fenestration industry and tackles real time problems faced by them. Fenestec dispense remarkable characteristics designs to dramatically boost information accessibility and visibility. It generates work orders, invoices, quotations and ships materials on a single click. The software application can decisively control business with genuine key performance indicators. It subscribes groups with relevant and appropriate real time notifications redirected to the subscriber via text message or an email. It automatically upgrades customer detail with predefined events.

Fenestec deals with accuracy in calculation of parameters and establishes a link between all the different departments of the organisation to a single platform. It also enhances the following properties

- Control over the on-going work.
- Real-time updates.
- Track work in progress.
- Reduce document preparation time.

Fenestec also deals with the creation of variant items or products and also define different parties, vendors or suppliers. It generates reports and bill of materials effortlessly which is usually a time consuming task. Fenestec automates and links every aspect of fenestration fabrication operation from its prime sale till the account terminates. It helps eliminate redundancies, gains remarkable competitive advantage and grow margins. Fenestec is built through individual contracts that drive fenestration business and since it is designed for window and door manufacturing. Fenestec is personalized for each user's role. Supporting unique methods and providing relevant information is also fulfilled.

Application:

Fenestec contains different modules that help the Fenestration industry to work on a more effective and purposeful manner. The different modules include:

- Customers and Contacts.
- Products.
- Sales.
- Inventory.
- Accounts.

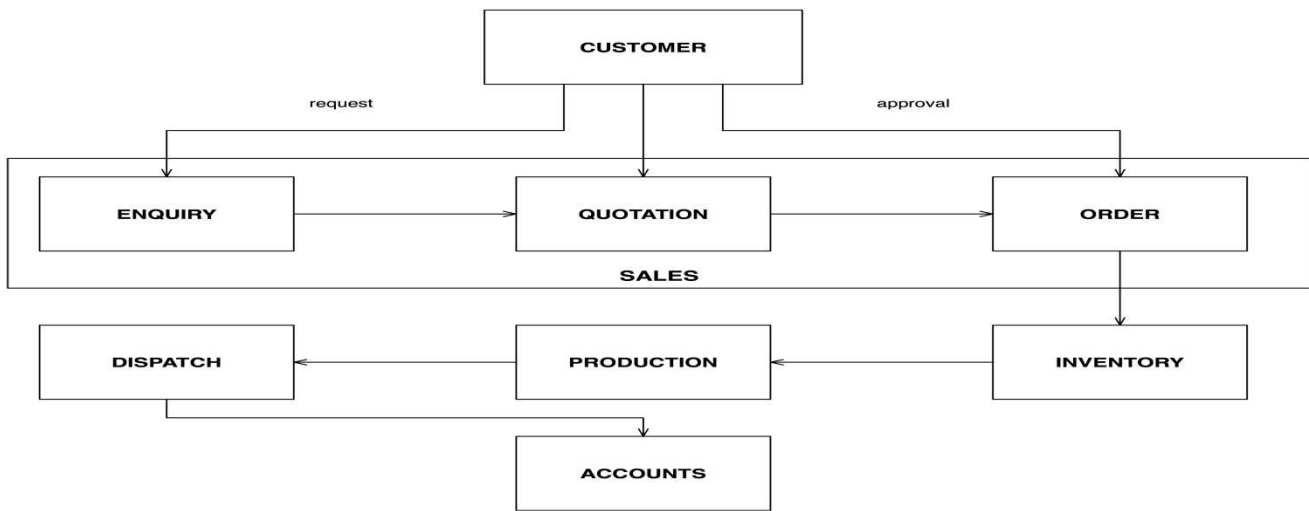


Fig: Workflow Diagram

Customers and Contacts:

The Customers are the actual clients who make request and receive quotations as a result, which is considered as an enquiry. Customers can be a small organisation or a small group of people or a single person. The requirements and the needs are stored in the database with their personal information.

Products:

The products module is the list of Products that are available. One can choose different designs and format which can be developed and manufacture as per the requirements. Industries have their own set of rules to setup items according to their configuration. Fenestec has defined standard parameters for all product type which helps them deal with this situation in an effortless manner. The different types of products available are:

- Profiles – this refers to aluminium extrusion profiles which are used to design and manufacture windows.
- Fittings – selection of hinges, catches and bolts, pivots, enable the window to open in a variety of ways. The way in which a window is fixed in a building is termed as fittings.
- Glazing – the process or act of fitting panels or glass into the window frame refers to glazing.
- Panels – a flat or curved component that is set into the door surface.
- Paints – a coloured material scattered over a surface and left to dry for a thin protective and decorative coating.
- Coating Shades – different types of substances mixed together to provide a coating layer to the material used for manufacturing.
- Fly-Screens – a wire-mesh on a window to prevent insects or other creatures entering the room.
- Curtain walls – it provides an outer covering to a building which is utilized to keep the climate out.
- Frameless – it refers to constructing cabinets using plane panels of engineered wood.
- Railings – it is a fence or a barrier used for making a boundary.

Sales:

The Sales module is one of the most challenging and important module of the software. This module deals with Orders and Quotations which are received from the customers and accordingly handled. The calculations and pricing part of the Orders and Quotations are completed in this module. Previously the calculation part was done manually but through the software a large amount of time and energy is saved. Also previously excel sheets were used and for every new data received the excel sheets had to be filled from the root again making it difficult to update. Through this module a huge amount of work load is lessened.

Inventory:

The Inventory module keeps data of the products that are available in the storage. The inventory module is frequently updated as per the delivery of raw materials at the storage site. Once the request is made the delivery of the goods take place as per the

details provided by the customer.

Accounts:

The accounts module deals with the transactions made and generation and delivering of bills. The accounts module is also responsible for the generation of reports if asked by the customer. Reports are generated through Crystal Reports.

The informative details regarding modules are stored into the database server. Fenestec resides on a database server which can be easily connected via a LAN (Local Area Network) or WAN (Wide Area Network) according to the use.

Methodology:

Problem statement:

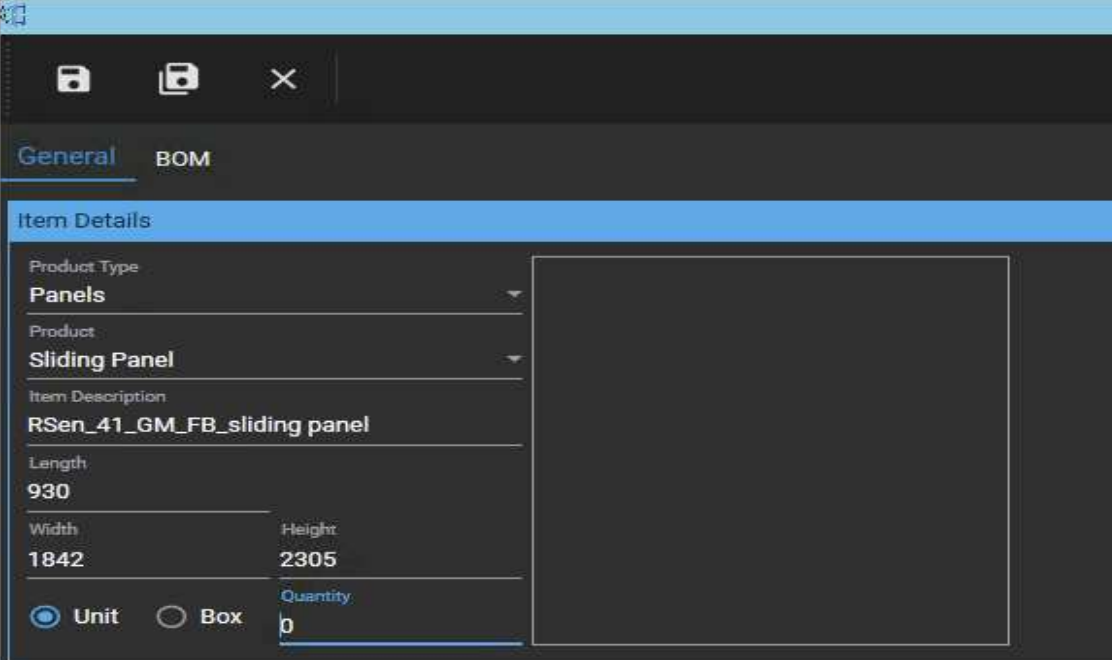
The fenestration industry has always faced problems as they are an unorganised sector. The calculations of the length, width, height and variant other parameters were done manually which were prone to errors. There are software's available which are adequate theoretically but cannot be implemented practically. To overcome the problems faced FENESTEC was produced and developed.

Working:

The extensive working of FENESTEC is executed by the Products and Sales module. When a customer enquires about Products the detailed information is sent to the customer in the form of quotations. Quotation contains the estimated costs and pricing of the particular product that the customer has enquired. It helps in bidding and gives a brief knowledge of the approximate cost. When a customer is satisfied by the quotation an order is placed accordingly. The order option contains the details of the products that are going to be designed and manufactured. Fenestec reduces a large amount of work and conserves time for this section. Every product comprises of different parameters that is needed to be filled for the designing purpose of the products. But through fenestec one only requires the length, height and width of the product and the other parameters are calculated on the basis of these three parameters. To calculate other parameters excel sheets are used. The formulas are already derived in the sheets and only the parameter has to be entered where Fenestec comes into the picture. The calculated values are sent back to Fenestec and the product is designed appropriately.

Previously all the parameters were calculated and entered manually which was prone to error and a time consuming process. In advance to this a huge amount of excel sheets were created and maintained for storing data. Through fenestec this was reduced to maintain one sheet since the data was stored in data base and excel sheets are only used to calculate the parameters.

Normally the parameter calculation and entering details into the sheets was time consuming and every time a sheet was filled it had to be done from the root making it a hectic process.



The screenshot displays the Fenestec software interface. At the top, there are three icons: a save icon, a print icon, and a close icon. Below these icons, there are two tabs: 'General' and 'BOM'. The 'General' tab is currently selected. Under the 'General' tab, there is a section titled 'Item Details'. This section contains several input fields and a large empty box on the right. The fields are: 'Product Type' with the value 'Panels', 'Product' with the value 'Sliding Panel', 'Item Description' with the value 'RSen_41_GM_FB_sliding panel', 'Length' with the value '930', 'Width' with the value '1842', 'Height' with the value '2305', and 'Quantity' with the value '0'. There are also radio buttons for 'Unit' (selected) and 'Box'. The large empty box on the right is likely for a drawing or image of the product.

Fig: Data entered through Fenestec.

	A	B	C	D	E	F	G	H	I	J	K	L
1	ORDER NO-	P-8/15							Date	3/19/2018		
2	Client:								Delivery			
3	Site:-								Mesh Used	Silver		
4	Colour	White										
5	SINGLE PANEL				1 pcs	2 pcs	1 pcs	2 pcs	2 pcs	1 pcs		
6	Sno.	width	height	Panel	Top channel	side channel	bottom	Shutter Top & bottom	shutter side	middel	Remark	
7	1	1842	2305	930	1802	2305	1802	910	2270	776		
8	Subframe 1x1-											
9	Subframe 2x1-											
10												

Fig: Parameters calculated through provided data in excel sheets.

Conclusion:

The fenestration industry always had a great impact in the market but with no quality software's it has always stayed behind. In this paper we saw how Fenestec can help the Fenestration Industry to develop and maintain its reputation in the market. Through Fenestec, time is conserved and it has an enlargement in productivity. The design issues are lowered due to errorless calculation of parameters. It has the ability to quote fast and more sales can be closed. Updating the modules as per the required change can be done fluently. Wastage is reduced and productivity is enhanced.

Acknowledgment:

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