

Into the 21 Century: Modernizing Owens-Corning's Quality Assurance Library

Introduction

In 2020 I was contracted by Owens-Corning's Insulation Division to modernize and standardize a sizable library of quality control documents used in their insulation manufacturing plants over the course of two years. This project posed a number of compelling challenges.

Project Scope and Challenges

I was the first Technical Writer to be hired by Owens-Corning's Insulation division. While the engineering team to which I was assigned were all kind, generous people, there were a number of communication and project management hurdles to overcome as the result of their lack of experience coordinating content creation with a Technical Writer.

Second, these documents were written by multiple authors across multiple divisions and specialties, the authors were also never in contact with one another and were not writing their documents with an enterprise-wide documentation format in mind. The result was documentation written in multiple, unrelated formats ranging from Microsoft Word, Microsoft Excel, to even scans of typewritten documentation.

Finally, this problematic documentation was being used in real time as I was undertaking this project. This was further complicated by the fact that the owners of these documents were often members of third party organizations who were not subject to the authority of Owens Corning and would therefore need to be persuaded to adopt the new documentation format of their own accord.

Relationship Management

Presented with this project and its complicating factors, I prioritized establishing a working relationship with the engineers on my team. This allowed me to leverage their knowledge and in-organization relationships to gather data on the needs of the documents' end users. What became immediately obvious to me was that Owens Corning's third party factory partners were aware that a new documentation format was in the works and they were not pleased; given the state of the quality assurance documentation upon my arrival, I can understand their initial skepticism.

After I had established the necessary functional relationships with my teammates, I worked with my immediate supervisor, a materials engineer named Bill Stauch, to develop a unified documentation format to present to our factory partners as a proof of concept. The first step to developing this format was to determine *how* these documents were being used in the factories. The engineering team informed me that the documents would be accessed by manufacturing employees electronically through the use of iPads. This opened up an array of possibilities as I was now able to write the documentation with touch screen compatibility in mind.

Creating a Unified Format

Upon reviewing the existing documentation, I made the decision to separate the content in the new format into three distinct sections: Physical Properties, Quality Assurance, and Reference Material. Physical Properties contained a table of information describing how a given insulation product should look. These included factors such as the length, width, and thickness of the product as well as product-specific considerations such as Binder Burn Off and R Value. This table contained acceptable ranges for each of these variables as well as cross references to other documents which explained how to test these variables in detail.

Pictured below is a sample of this format. Please note, the numbers included below are entirely arbitrary and do not reflect any actual Owens Corning data, proprietary or otherwise.

	Target	Minimum Value	Maximum Value	Test Method
Length	6'	6'	6'3"	C-02A
Width	2'	2'	2'4'	C-02A
R Value	15	13	17	H-01Dd

This simple, yet elegant design allowed manufacturing employees to understand their product objectives at a glance, streamlining the manufacturing process and improving job satisfaction for manufacturing employees.

Next, I collaborated with the engineers on my team to determine what sort of quality control issues existed with the insulation products. These items differed from physical properties in that physical properties such as length and width were always a part of the product, while the quality control items were aberrations generally caused by mechanical failure. Additionally, the quality control issues were often referred to by vague colloquialisms (e.g. "Bear Tracks") to such an extent that including images of faulty products became necessary. An example of a quality control page for discolored insulation products is illustrated below.

Discoloration
Discoloration in insulation products is caused by a, b, and c.
-a picture of a discolored product would be included here-
To avoid discolored products, follow these steps:

By ensuring employees could access these documents electronically, we were able to include high quality color images of any Quality Assurance problem without worrying about inordinate printing costs.

The Reference Materials section was a catch-all for any highly technical information for use by in-house laboratory technicians. Ordinarily, I would have published this as a separate document; however, given the highly accessible nature of electronic, cross-reference-rich documentation and the buy-in needed from Owens Corning's manufacturing partners, it was more expedient to condense the two documents, especially since it would not have any negative impact on the documents' overall readability.

Achieving Partner Buy-in

With the format decided, I was able to begin the task of converting the existing documentation into its new form. One unanticipated benefit of the format was its inherent flexibility. Owens Corning's insulation products are separated into different product lines based on their application (e.g. mineral wool, loose fill) with a different engineer overseeing each line. These engineers were in regular contact with Owens Corning's manufacturing partners and as such were able to provide valuable insight into what each manufacturing facility would need in order to accept the new documentation.

These needs varied by plant, but generally consisted of manufacturing partners either requesting a separate document for each insulation product, or a single, unified document for an entire product line. Normally, differences like this would stretch the definition of "unified documentation format" but the format which I developed was flexible enough to handle both of these needs while still maintaining a strong sense of enterprise-wide cohesion.

Conclusions

I began my work at Owens Corning with a single purpose: create a proprietary documentation format flexible enough to handle a diversity of needs while remaining universal enough that a manufacturing

employee could move from one product line to another and already know how to read the instructions for the new product line. Owens Corning's relationship with their manufacturing partners, while frustrating at times, provided a unique opportunity to verify the quality of my work; because no one on my team had authority over our manufacturing partners, they would only adopt my new format if they felt it was the superior product.

I'm happy to say that my new format was accepted enterprise wide. While some of the challenges I faced coming into this project seemed daunting at first, they ended up serving as an invaluable source of feedback better than any yearly review I could have received. I look forward to bringing the lessons I learned working on this project with me into my future work.

