

Review and Check Activities Required to Avoid Representation Errors in Documents and Drawings



by Ir. Gan Chün Cher

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In managing the quality of technical documents and drawings as well as to ensure that clients will accept them, a series of review and check activities are required. In producing engineering documents or drawings, accuracy and details are required to ensure the documents contain sufficient technical information and drawings have sufficient technical graphics so that those reading these documents or drawings will understand what is required by the client, project or discipline.

This article highlights some key points to note when preparing the documents or drawings, based on my past experiences in purchasing technical equipment and preparing technical drawings. These points are highlighted to avoid a wrong representation in the documents or in the drawings. If the technical information or graphic is represented wrongly, suppliers will deliver the wrong products or services. Similarly, the system will be configured wrongly as well.

SERIES OF REVIEW AND CHECK ACTIVITIES (CHECK POINTS)

Ideally, documents or drawings should be in the proper order to avoid the recipient giving a wrong quotation or delivering wrong products or services to the client. Review and check activities are required to ensure that the products or services are correct at the point of purchase. It is advisable to have a series of review and check activities. Below is an example of review and check activities Figure 1.

There are a few stages to completing technical documents or drawings. In the process

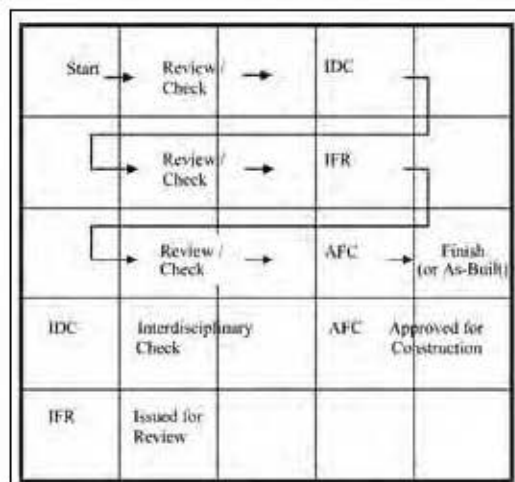


Figure 1: Series of review and check activities

of producing these documents or drawings, the stages in practice, from start to finish, are described below.

1. IDC (Interdisciplinary Check): This is when preliminary documents or drawings are prepared. At this stage, resources are planned to meet the schedule and individuals are allocated responsibilities to prepare the preliminary documents or drawings based on the conceptual idea. The documents or drawings are then sent to other disciplines for review and comments on interface requirements.
2. IFR (Issued for Review): The documents or drawings, with comments from other disciplines included, are sent to the client for review.
3. AFC (Approved for Construction): Comments or additional requirements from the client are included in the drawings or documents and delivered to the suppliers.
4. Finish (or As-built): Where site changes or other inputs or design corrections are included.

The series of review and check activities are point checks throughout the preparation of technical documents or drawings to ensure that these are complete as well as customer satisfaction at a later stage (near the end) of the project.

Figure 2 shows the check points at various stages of the project in order to prepare documents or drawings that are acceptable to the client. Where performance rating is a key indicator in the project, the review and check activities will work to avoid errors.

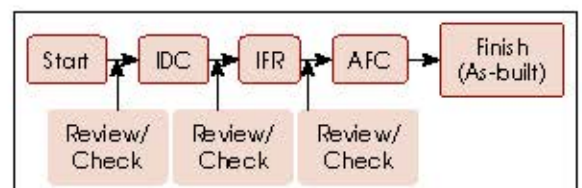


Figure 2: Check points at various stages in preparing the documents or drawings

ADVICE FOR AVOIDING ERRORS (IN PREPARING DOCUMENTS AND DRAWINGS)

When preparing the technical documents, ensure that the general requirements are stated in the documents as required and can be met by a few suppliers. Technical consistency in the documents needs to be standardised at beginning when preparing the main document. This will ensure repeated technical requirements will appear the same in other documents. These are requirements that will not change unless otherwise instructed. At a later stage, non-standard requirements can be added. This will allow you to manage the technical information in the documents throughout the different stages. New requirements can be added on each time the documents are revised while the existing requirements remain unchanged from the start.

When preparing the technical drawings, make sure the general graphical representations are shown correctly as required and that they are understood by the suppliers. Technical details that suppliers need to know must be specified in the drawings.

For example, in generating the fire and gas cause and effect matrix for an addressable system, the "effect" must be identified properly. Otherwise, the supplier will not be able to programme the system to activate a particular device. For another example, when preparing the fire and gas layout drawings for buildings on an offshore platform, ensure the governing standards are stated on the drawings. The type of detectors to be used must be properly shown and their locations must be indicated specifically.

At different review stages, the comments have to be incorporated, based on the marked input. It is then considered complete at design stage.

FAILURE IN PREPARING THE DOCUMENTS AND DRAWINGS

When documents or drawings are rejected, this means failure in delivering the intended purpose and the consequences may be substantial. In my opinion, the technical documents and drawings need to be checked by experienced engineers in the field. A series of review and check activities are required to ensure that documents and drawings requirements are checked at various stages to prevent rejection at late stages.

CONCLUSION

At various stages of a project, the documents and drawings generated need to be reviewed and checked to ensure that the requirements are properly captured. This way, suppliers will be able to deliver the products or services as intended and systems will function properly. ■