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Design and design checks will follow a project specific process, the first step in creating and confirming the Project Design checking procedure is to confirm and define this design process. Usually, the checking process will substantially conform to existing standard procedures defined by COMPANY.

If appropriate, the checking process shall be summarized in a table or flowchart to allow easy reference for the project team. If these formats do not allow for an easy and accurate summary of the process, a concise written description will be created.

The basic criteria for a complete check will include four steps:

1. Confirming all inputs to the design are captured and complete; confirmation by reviewing; list of codes, regulations, scope docs, Design Criteria for completeness are sufficient.
2. Self-Check. This is completed by the Designer; this consists of a complete review of inputs, interpretation of design information, calculations, sketches and drawings. Self-checking shall be documented on project checking forms, this documentation shall include a minimum of the Designers initials and date on the check-list items. The Designer will document any non-conforming items identified on the checklist, this documentation will include sketched and notes as required, to verify the non-conformance is allowable for the design. A self-check should include comparisons to existing in-use design wherever possible.
3. Design Check. This is to be performed by the designated Checker; and is similar to the self-check scope. This must be completed by a designer competent in all areas of the design processes. These design checks will be documented in a similar fashion to the Self-Check scope, including name, date and use of the design Check List QMP 6.5, similar to insertion 2 above “Self-Check” the checker will note any non-conforming items on QMP 6.5.
4. Peer Review Check. The scope for Peer Review is similar to the Design Check and must be completed by a Peer competent in all areas of the design processes and this removed from the details of the original design. This step will involve the peer ensuring that the above steps are correct and comply with COMPANY standards.
5. Design review. When a designer is required to check another designer’s/vendor’s design it is necessary that the reviewed drawing be marked/noted in red pen, dated initialed and signed.

The checks shall be documented using forms based on COMPANY templates (see QMP 6.3 summary, QMP 6.4 design inputs, and QMP 6.5 design checking). The templates shall be modified to include project specific information such as project number, design task identification, date, checker etc. If required, project specific design checklists may be developed.

QMP 6.4 “Design Input Checklist” allows for a detailed description of the design that is in review. This form allows the checker of the design to give a detailed description of whether the drawing is compliant, or list valid reasons for not complying. Then subsequently if the drawing is required to comply, a list of the actions required should be listed in detail.

QMP 6.5.1 “Drafting Checklist” (not yet written) will be completed before any drawings are issued for construction. Guidelines for the use of this checklist are included in QMP 5.3.1 Document Control – no collaboration software, line item 5.1.4 – Drawings and documents outgoing; or QMP 5.3.2 Document Control - Procore, line item 5.1.5 – Drawings and documents outgoing.

[Note: As the above Drafting Checklist did not get written, here are those QMP 5.3.1 or QMP 5.3.2 items. Note that the following is very specific to a project and will need to be revised to suit. Never the less, the attention to detail and the topics covered, are very much part of a properly constructed design QMP.]

**Drawings and Documents Outgoing**

1. **Drawings are to be saved to Document Control (Procore)** at any natural break in workflow – for example end of day, change to a drawing, etc. When saving and uploading a new version of a drawings, the person doing the upload is requested to provide a short comment under the “comments” box on the Procore upload screen identifying the changes to the drawing. The comment will be viewable on the Procore Version Log. This process will help us to do a better job of tracking what changes are in each version of the document or drawing. See attachment 7.2 for on-screen visual of this “comment” process.
2. **Drawing numbers** are to follow the ??Owner drawing numbering guideline. See Attachment??? for Owner drawing numbering details.
3. **Drawing issuance policy (Drawing Control):**

**Overall drawing list:** (create and keep up to date)

**Distribution:** Distribute new drawings issued, set up distribution lists.

**Up-to-date drawings – Office & Site paper copies:??**

**Site:**  1 set 24 x 36 – Redline Record (As-built)

 1 set 24 x 36 – General use

 1 set 11 x 17 – General use

**Office:** 1 set 24 x 36 – General use

 1 set 11 x 17 – General use

**Superseded Drawings** – CONTRACTOR will keep one paper copy with all revisions.

**Control of Drawing Numbers issued (Design-Build):**

Drawing numbers are assigned or monitored through the CONTRACTOR designated person – position is called Document Control.

 Blocks of drawing numbers will be pre-issued.

Ensure new drawings are numbered at creation.

Ensure revisions are up to date.

The **“Drawing List”** is an important document tracking all drawing status and is saved on Procore under Project Phase, Drawings, Drawing List. The Drawing List must be kept up to date and must match exactly with drawing numbers and drawing versions or revision numbers that are contained in “submittals”.

The Procore “check-out procedure” is to be utilized whenever revising the “Drawing List” so as to prevent two people trying to upload new versions of the Drawing List at the same time.

1. **Drawing Checkout Policy:** Procore Documents tab, click the Drawing in question. Procore screen pops up when a document is selected and “Check Out” is an option. (“Check out” drawings if you are going to be making revisions to the drawing and want others who may also want the drawing to be notified that revision is underway.) Procore will download a copy to your desktop. Save it locally. When you are finished, or at a natural break in workflow, click the “Upload” button to save and upload the drawing back to Procore.
2. **??X-Refs (Autocad) Policy:** See Designer Drafting Coordination (Project CONTRACTOR Drawing Control Procedure) for details.
3. **??X-Refs Bound to the Drawing:**

The purpose of binding x-ref's to IFC drawings is to remove a potential area where information may be lost during the construction process (ie. the circumstance on site with a sub and had printed copies of drawings lacking x-ref's to work with).

The protocol is as follows: When a drawing is completed and issued for Construction (IFC), the X-refs shall be bound to the drawing prior to uploading to Procore by the draughtsperson at that time.

1. **??Plot Stamping regarding printed drawings:**

To eliminate confusion regarding printed drawings and ensure, the most recent submitted drawings are being used, a Plot Stamp will be applied to each printed drawing.
This Plot Stamp will consist of the printed date and the file path of said drawing, please note that the file name in the path is the vital information as the path can vary depending on where it is opened from due to X-Refs requirements.

Drawing numbering: Revised QMP 5.3.2 (or QMP 5.3.1) to include “Document Control” for Design Calculations. Each design calculation will be given a document number, revision number, project number, dated, name the author of the document and project number.

Interface considerations with other designers, especially structural: this should be captured in the inputs checklist.

A summary list of all checks required for the project will be created using the standard COMPANY template. This summary checklist will include a record of approval for each check to be performed. This document will be the base document for tracking design and checking progress (See QMP 6.3).

All checks shall be completed by project staff that are qualified, have the appropriate experience and Professional Designation.

**END OF QMP 6.2 – Overview of Design Checking & QA/QC Actions**