**Quality Assurance / Quality Control**

**Short Elliott Hendrickson, Inc**



Contact Information:

Short Elliott Hendrickson, Inc

Chris Blum, PE

6808 Odana Road, Suite 200

Madison, WI 53719

608.826.6460

cblum@sehinc.com

**Introduction**

Short Elliott Hendrickson, Inc (SEH) is committed to providing high quality service and products to our clients and their stakeholders. This document provides an outline of the general requirements of a quality program that a Project Manager should integrate into each project.

Implementation of a comprehensive quality program will aid in accomplishing the following goals:

* Achievement of client and stakeholder expectations;
* Loss prevention and risk reduction;
* Continuous improvement via feedback loops; and
* Maintaining SEH’s good reputation and profitability.

Several components of a quality program are discussed in further detail below:

* Planning
* Standards
* Review/Checking
* Documentation
* Feedback
* Resources

The Project Manager has the responsibility to ensure that each of these components is integrated into all phases of the project (development, contracting, execution, and closeout). The method of project specific implementation will be dependent upon several variables including: project scope and complexity, client requirements, SEH standards, and service area procedures.

**Planning**

At the earliest point feasible in the project, the Project Manager should develop and communicate the project specific quality plan to the project team. At minimum, the quality plan should address:

* Client expectations and requirements;
* Standards to be utilized on the project;
* Known risks or sensitive issues;
* Project staffing and responsibilities;
* Project communications;
* Proposed review/checking milestones;
* Reviewer identification, qualifications, and expectations;
* Budget issues for review/checking components;
* Documentation requirements; and
* Feedback loops to be utilized.

Dependent upon the scope of the project, client requirements, and/or service area procedures, the project specific quality plan may or may not be a formal document. One option is to document the plan in the project kickoff meeting minutes. If a formal quality plan document is produced, it should be stored in the project file.

**Standards**

The Project Manager is responsible for identifying and understanding which standards will be utilized on the project. Standards are very important as they facilitate wide understanding, minimize risk, increase efficiency, and establish an SEH brand image. In the rare case where a project goes awry, the court may call upon outside experts to clarify what the “professional standard of practice” is and to provide comparative opinions.

Standards exist at several levels including:

* Government Regulations (Federal, State, County, Municipal);
* Professional Licensing Boards;
* Industry (AIA, EJCDC, CSI, NEC, NFP, ASTM, AASHTO, etc)
* Client (DOT, USCOE, Municipal, Xcel Energy, etc)
* SEH corporate (Contracts, Master Specifications, Document Standards, PM Handbook , etc)
* Practice Area (Production Manual, SOPs, CADD standards, Filing system, etc)

**Review / Checking**

Methods utilized to provide review/checking of project documents will vary dependent upon project scope and complexity, client requirements, SEH standards, and service area procedures. The Project Manager is responsible to ensure that all project documents receive the adequate amount of review/checking to:

* Meet Client expectations (no surprises!);
* Fulfill ethical and regulatory requirements;
* Minimize risk; and
* Comply with SEH and Practice Center requirements.

It is recommended that the review process be executed as early in the project as possible. Complex projects may require phased reviews (60%, 90%, and Final) to minimize catastrophic disruptions due to errors caught at projects end. It is equally important that the reviewer has the technical expertise to provide a comprehensive review. It should also be remembered that a good review process will only catch 80% of the errors at best, so other quality assurance methods should be utilized.

The review phase should be built into the project budget. Reviews add significant value to the project and should not be viewed as an extra or overhead expense.

Several of our clients require specific review/checking and documentation process. The Project Manager should consult with the Client Service Manager (CSM) to identify if such requirements exist.

SEH has formal requirements for review/checking of several project components including, but not limited to: project proposals, budgets, contracts, project data sheets, and plan sheets. The Project Manager is responsible to ensure that the proper forms, checklists, and “checked by or “reviewed by” boxes are complete.

Each Market Center and/or Practice Center should have developed standard procedures for checking project documents based upon their industry and client needs. For example, Wisconsin Transportation Area has developed a Production Manual that outlines several standards and formal checklists. Some environmental services require that all documents be reviewed and initialed by the reviewers, and utilizes formal review checking forms for complex documents.

The Project Manager is responsible to identify which Market Center and/or Practice Center specific requirements apply, especially in the case of projects where multiple service areas are involved.

**Documentation**

The Project Manager is responsible to ensure the quality documentation is collected and stored for future retrieval. Documentation of the project specific quality program is important to facilitate project communications and to provide a historical record of the quality processes utilized. Documentation may include:

* Reviewer initials,
* Meeting minutes,
* Completed checklists and forms, and
* Draft comments.

Formal quality documents should be stored in the SEH project file.

**Feedback Loops**

The Project Manager is responsible to ensure that feedback loops are being utilized on the project and to disseminate the “lessons learned” to the rest of the Practice Center. Feedback loops are useful mechanisms to understand performance on the project and to identify areas for improvement.

The client feedback process is currently the only formal feedback loop required by SEH. Client feedback surveys may be implemented on a project specific basis, or alternately via annual client surveys for repeat clients. The Client Service Manager shall identify which method is best.

Other potential feedback loops include construction changes tracking, and contractor surveys. To date these processes have not been fully developed or implemented.

**For More Information**

The Project Manager should contact a representative of their Practice Center Quality Team to find more information on specific requirements. Information regarding this team is available on the Teams database in Lotus Notes.

**Resources**

A comprehensive checklist (QA/QC Checklist Worksheet) is attached as an example which to assist the Project Manager in evaluating several of the components discussed above.
Further resources available to the Project Manager to identify quality components include:

* Project Quality Program Guidelines (SEH, March 1996);
* Total Quality Management for the A/E Team (NSPE);
* Guidelines for Development of A/E Quality Control Manual (NSPE);
* Guidelines of Practice – Quality Assurance for Consulting Engineers (ACEC); and
* Quality in the Constructed Project –Manual and Reports of Practice #73 (ASCE)

To review any of the above documents, please contact Alva Rankin, Director of Corporate Quality, SEH.