

1.0 PURPOSE

The purpose of this internal procedure is to describe methods for creating, maintaining, and using Engineering Review Checklists (ERCs) for internal review of designs submitted by consultants. This guideline helps designers track design review progress.

2.0 SCOPE

The ERCs are discipline specific spreadsheets that guide reviewers thru the review process to ensure a consistent minimum level of effort at each design phase (50%, 65%, 90%, 100%). Each ERC lists the criteria topics that, at a minimum, are to be reviewed at each design phase. It lists desired and minimum levels for each criteria, and provides a quick way to track the levels met at each review. Use of the ERC provides uniformity in the design review process and provides a quick and easy paper trail that will allow different reviewers to continue a quality review process in the absence of the prime reviewer. The final ERCs and ERC updates shall be integrated into the QMO database.

3.0 RESPONSIBILITY

3.1 Engineering Technical Support Staff

The ETS staff responsibilities include:

- A. Each design discipline shall create and maintain individual ERCs.
- B. Review submittals using the ERCs in accordance with these procedures.
- C. Engineering team shall work with the QMO staff to ensure that the ERCs support the QMO database efforts.

3.2 Quality Management Staff

The QMO staff responsibilities include:

- A. Maintains and manages QMO program and database.
- B. QMO staff will incorporate the new and updated information provided on the ERCs into the database system.
- C. Monitor and enforce the Quality Plans of outside consultant design teams and verify that proper QA and QC procedures have been followed.

3.3 Document Control Staff

The document control staff responsibilities include:

- A. Maintains and updates library copy and distributes procedure updates to individuals issued copies of the EDG.

3.4 Contracted Consultant Design Team

The contracted consultant design team responsibilities include:

- A. Submit design packages for review by ETS staff.

4.0 REFERENCES

- A. FasTracks Project Controls Procedure Manual - DC- 2 Baseline Document
- B. Quality Management Oversight Procedures – regarding the use of the QMO Database.

5.0 PROCEDURES

5.1 Creating and Maintaining the Engineering Review Checklists

- A. An ERC template spreadsheet has been developed by the ETS staff that provides consistent tracking across all the disciplines. Where applicable, the following data is provided on the ERCs:
 - Criteria ID #
 - Review Priority (High, Medium, Low)
 - Design Criteria Topics– a list of all requirement and criteria issues.
 - Reference(s) – where the requirement or criteria may be found.
 - Desired Criteria (D) – indicating the preferred design criteria limits.
 - Minimum Criteria (M) – indicating the borderline limit for each required criteria.
 - Absolute Minimum Criteria (AM) – requires written RTD approval.
 - Check Off / Level of Criteria Met – shaded boxes indicate which criteria should be checked off at each submittal phase (50%, 65%, 90%, 100%).
 - Notes – providing any special instructions pertaining to each given criteria or to the review status for that submittal.
- B. Each of the following ETS discipline is responsible for developing and maintaining their own list of review criteria that will make up the ERCs for their discipline:
 - Civil (Grading, Roadway, Traffic)
 - Drainage
 - Electrical/Mechanical
 - Environmental
 - Structures
 - Trackwork
 - Utilities
 - Inter Disciplinary Coordination (Constructability)

- C. Non-ETS staff may develop their own check lists if desired, but are not required to do so as part of this procedure. For review of the following disciplines, the ETS staff will go directly to those groups:
 - Architecture
 - Landscape
 - Park-n-Rides
- D. Changes to ERCs are made by each respective discipline and shall be approved by Engineering Technical Service Group Manager, then distributed to the other engineering disciplines so they may adjust coordination efforts if needed. An updated copy shall also be given to the QMO team and to Document Control.
- E. The list of 'Design Criteria TOPICS' can be used by in-house designers and by outside design consultant to guide design efforts. Designers should design to their complete best at all times.

5.2 Using the Engineering Review Checklist

- A. The ERC is meant to guide the reviewer through the review process by:
 - Highlighting which criteria must be checked (at a minimum) during each design phase review.
 - Offers a quick paper reference to track design status by discipline in order to quantify and support QMO database entries.
- B. When performing a review:
 - Fill in the date the design was submitted for review.
 - Beginning with the High (H) priority criteria items, followed by the Medium (M) priority items, and finally the Low (L) priority items: Indicate which criteria have been met with a check mark and indicate those that have not been met with an 'X'. Also indicate, where applicable, to what level (D, M, AM) the criteria has been met. Shaded boxes indicate which submittal phase (50%, 65%, 90%, 100%) each criteria must be reviewed and marked off
 - If extra time allows, review the non-shaded criteria.
 - Fill in the date you complete the review.
 - Fill in your initials.
- C. After the Review is Complete:
 - Save a copy of this ERC to your discipline team file where others can locate it.

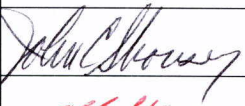

6.0 ATTACHMENTS

ERCs (current checklists can be found in the discipline team file)



EDG – 9 ENGINEERING REVIEW CHECKLISTS
ENGINEERING DESIGN GUIDELINES

7.0 APPROVAL

Revision Level:	Approved By:	Signature	Date
Major Revision	John Shonsey, Senior Manager Engineering		10-16-07
Minor Revision	Henry Stoppolecamp, Engineering Technical Services Manager		10-16-07

8.0 REVISION RECORD

Revision Level	Revision Date	Summary	Approval Date
0	10/12/07	Initial Baseline Issue	