Best Practices for Design Reviews
by Jeff Oltmann

Focused Purpose

1. **Detection**: Reviews are used to detect defects, not fix them.

2. **Forward Looking:** Reviews include not only defect detection, but also look forward to verify that technical risk and readiness for the next phase are acceptable.

3. **Learning:** Reviews are used to disseminate knowledge and lessons learned across the organization, as well as to mentor designers.

Structured

4. **Structure:** The review process is formal, structured, and documented.

5. **Checklists:** Checklists focus reviewer attention on past problem areas. They are customized for each type of review, are maintained by a designated owner, and are frequently improved.

6. **Follow-up:** Action items, questions, and issues are followed up until closed.

7. **Preparation:** Participants do substantial self-preparation before the group review meeting.

Involve the Right People

8. **Roles:** Meetings have formal roles, including designer, moderator, scribe, and reviewers. People performing these roles receive advance training.

9. **Participation**: Cross-functional technical peers, including service and manufacturing, participate in the DR process. The review team includes objective, external (to the project team) experts to augment the talent of the project team. Management does not attend meetings.

10. **Environment:** Reviews are conducted in an unbiased, fact-based, non-threatening environment.

Continually Improve the Process

11. **CI Loop:** The process includes a formal continuous improvement loop used to improve checklists and other review components, so design review effectiveness continually improves.

12. **Data:** Data from reviews is constantly collected. It is used to improve the cost and effectiveness of the review process, and to verify that design quality is in control.

Integrate with Design Process

13. **Complementary:** The DRP complements other quality mechanisms in the design process. It is not the only quality mechanism.

14. **Placement:** Reviews are placed at standard points in the design process in a way that detects errors as early and cost effectively as possible. Common points include:
    a. Project Management Plan
    b. Requirements
    c. Architecture
    d. Integration Plan
    e. Design Approach (simulation, modeling, …)
    f. Detailed Design
    g. Test Plan
    h. Final Design (code, schematics, netlists, …)

15. **Gates:** Reviews are strong gates. The work product does not proceed beyond the gate until it passes or conditionally passes (minor ARs only). Any non-mandatory hurdles are clearly identified in advance.

Congruent

16. The review process integrates with the organization's strategy, culture, processes, and skills.