# [3. MAKING ZERO REWORK A REALITY (RS203-1)](https://www.construction-institute.org/making-zero-rework-a-reality)

**Report Summary:** This study identified the primary components of a comprehensive process for management and quality error-related costs for construction projects. Although many errors and omissions occur in the scope development process and design, the focus of this research is error reduction efforts at the project execution level and within the construction organization.

The research team first looked at methods and techniques that have been effective in implementing safety management and reducing accidents and lost workdays in construction projects. It found that management support and pre-project tasks are similar for both safety and quality-related activities. The difference occurs at the implementation level between planning and field execution. Most importantly, worker involvement is needed to resolve the continuing problem of rework. Specifically, increasing training that targets quality-related issues, identifying quality-related rework problem areas, increasing full-time quality staff, and having field personnel analyze pre-task quality efforts all contribute to less rework.

Taking a cue from the CII’s research on safety, the research team urges the industry to take a similar look at rework. In addition to zero accidents, the industry needs to adopt the goal of making zero rework a reality. The resultant low percentages of rework could pay for error reduction efforts.

**Key Takeaways:**

## (1) Demonstrate management commitment to zero rework.

## (Project Phase: Detailed Scope through Construction)

* Set specific goals for rework reduction, such as meeting specifications or achieving zero defects.
* Ensure that senior project managers participate in regular quality reviews and audits to demonstrate upper management commitment.
* Develop constructability analysis and project-specific quality plans prior to project planning.
* Limit change orders to maintain focus on reducing rework.

## (2) Increase full-time quality staff.

## (Project Phase: Detailed Scope through Construction)

* Ensure that personnel who are responsible for quality acceptance have some form of certification to perform their project function.
* Analyze current quality staffing levels and compare them with safety staffing benchmarks.
* Integrate quality management personnel into project meetings and functions to ensure proper integration with other stakeholders.
* Allocate dedicated budget and time for ongoing quality training to improve staff expertise and effectiveness.

## (3) Conduct quality pre-project and pre-task planning.

## (Project Phase: Detailed Scope through Construction)

* Develop project/site-specific quality plans before mobilization to ensure alignment with overall goals and unique quality requirements.
* Conduct constructability reviews for quality considerations to identify potential issues early on in the project.
* Require pre-task quality analysis prior to field execution.
* Train workers to conduct pre-task quality checks before starting work.
* Establish checklists and guidelines to ensure consistent pre-project and pre-task quality planning.

## (4) Implement quality training.

## (Project Phase: Detailed Scope through Construction)

* Implement monthly quality training sessions, including toolbox talks and specialized workshops.
* Integrate quality procedures into mandatory worker orientation programs.
* Track rework reduction and worker participation to assess training effectiveness.

## (5) Encourage worker participation and involvement.

## (Project Phase: Detailed Scope through Construction)

* Encourage worker involvement in pre-task planning by providing necessary information and resources.
* Foster open communication channels with workers to address concerns and resolve issues promptly.
* Provide opportunities for workers to participate in job quality analysis and constructability reviews.
* Empower workers to take ownership of their work processes through regular feedback and recognition.

## (6) Enhance subcontract quality management.

## (Project Phase: Detailed Scope through Construction)

* Require subcontractors to submit comprehensive quality plans and track rework or defects.
* Prequalify subcontractors based on their quality performance before awarding contracts.
* Conduct regular audits of subcontractor work processes to ensure compliance with project requirements.
* Implement ‘for cause’ testing for quality incidents, including pre-employment screening.
* Establish clear expectations and incentives for subcontractors to prioritize quality in their work.

## (7) Track quality rework.

## (Project Phase: Detailed Scope through Construction)

* Track and record all quality-related rework or defects to identify trends and areas for improvement.
* Conduct regular investigations into the causes of rework or defective work to implement corrective actions.
* Establish clear procedures for reporting and documenting quality issues, including root cause analysis and corrective action plans.
* Monitor and analyze quality performance metrics, such as defect rates and rework percentages, to measure project success.
* Develop a comprehensive database to store and track quality-related data, thereby enabling informed decision-making and continuous improvement.

## (8) Select the contract type.

## (Project Phase: Detailed Scope through Construction)

* Consider using cost-plus contracts to improve quality program effectiveness.
* Implement lump-sum contracts only when necessary, as they may not be as effective in promoting high-quality work.
* Ensure that contract requirements include provisions for additional expenditures on quality control measures if needed.
* Develop clear guidelines for project managers regarding the type of contract to use based on specific project needs and goals.
* Monitor and track the effectiveness of different contract types in achieving desired outcomes, such as reduced rework.

## [(9) Tool: Zero Field Rework Self-Assessment Opportunity Checklist (IR203-2)](https://www.construction-institute.org/zero-field-rework-self-assessment-opportunity-checklist)

## (Project Phase: Detailed Scope through Construction)

This tool is designed to:

* Promote leadership by example: Fosters a culture of quality and rework minimization through visible, accountable leadership that models best practices.
* Ensure sufficient resources: Maintains capable resources and provides the necessary time and tools for achieving zero rework performance.
* Encourage employee involvement: Actively involves employees in quality improvement, thus fostering ownership and accountability for rework outcomes.
* Enhance communication: Supports open communication across all levels to address quality concerns and to share best practices effectively.
* Implement rigorous quality audits: Regularly conducts quality/rework audits to ensure compliance with established practices and continuous improvement.