

# QUALITY



Minnesota Concrete Council

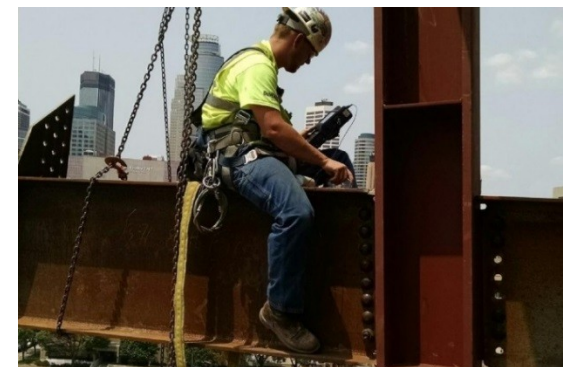
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**BRAUN**  
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The Science You Build On.

## Topics for Today

- What is quality?
  - Definitions
  - Why care about quality?
- Selecting your team
  - Who should hire?
  - Proposal and RFP
  - Qualifications
- Setting up for Success
  - Quality in a project
  - Responsibilities
- Questions



# WHAT IS QUALITY CONTROL?



## Some Definitions



- Quality: Meeting established expectations
- Quality Control
  - Driven by the firm doing the work as an internal check
  - Paid for by contractor or supplier
- Quality Assurance
  - Oversight that the quality control system is working
  - Paid for by the owner
- Independent Testing Agency (ITA)

# What are Special Inspections (SI)?

Special inspections are type of QA where observations of materials, installation, fabrication, erection or placement of components and connections requiring special expertise to evaluate whether work meets approved construction documents and referenced standards.

- Steel
- Concrete
- Masonry
- Wood
- Soils
- EIFS
- Deep foundations
- Fireproofing
- Firestopping



# Why care about quality?

- Cost of Repair
  - Investigate, access, remove, replace/restore, manage
- Cost of reputation
- Cost of loss of use
- Shortened life
- Public safety
- Everyone has to pay!



## Where should you focus on quality?

- When required by building code
- Where you have been “burned” in the past
- Where it is expensive or annoying to fix later
- Where new materials or methods are used
- Where designers or contractors are inexperienced

Most of the value of quality system, is that people know they will be watched and creating system that sets them up for success

# SELECTING YOUR TEAM FOR QC/QA SERVICES





## Challenges to Quality

- Quicker, cheaper mentality
- Diversity/Complexity of products
- Schedule acceleration
- Commoditization
- Lack of training or experience



From Pyragraph.com

## Who Retains the QC\QA Services?

- Generally the owner retains the ITA services on larger projects. (QA)
- The contractor often retains the ITA services on small to medium projects. (QC?)
- Differing parties will have differing goals in the selection and operation of the testing services

## Understand Who is Paying

- Owners should retain QA and Special inspection services
- Frequently required by code
- Representation during a conflicts
- “Fox guarding the hen house” conflicts



## Understand Who is Paying

- Contractors should perform/retain QC
- Control the situation
- Contractual Obligations

Too often QC relies on QA to catch



## How are Quality Services Selected?

- Bid Process, smallest scope, cheapest prices
- Negotiated Process
- Qualifications-Based Selection
- Select by Specification



# The Proposal

- What you need to provide:
  - Plans, Specifications, & Geotechnical Evaluation Reports
  - Schedule!
  - Criteria for how the services will be selected
  - Contact information on who is involved
  - Billing/contract/client information



# The Proposal

## What to look for in the proposal:

- Certifications/qualifications
- Staff depth
- Experience of staff on the project
- Breadth of services
- Geotechnical continuity
- Local experience
- Proximity to site
- Complete scope of services
- Through review



# The Proposal

Typical fees will correlate to construction cost:

CASE/MN — TESTING AND INSPECTION COSTS (APPROXIMATE)				
FREQUENCY	TYPE OF Q.C.	Fee % of Gross Construction Cost of Building project		
		• Commercial • Office • (c.)	• Industrial	• Monumental • Highrise • Complex
(a.)	Earthwork & Conventional Inspection and Testing	0.12% - 0.25%	0.15% - 0.20%	0.3% - 0.75%
(b.)		0.20% - 0.40%	0.20% - 0.33%	
(a.)	Special Inspection and Testing	0.08% - 0.13%	0.15% - 0.20%	0.3% - 0.75%
(b.)		0.10% - 0.20%	0.20% - 0.32%	
(a.)	Total Q.C.	0.2% - 0.35%	0.3% - 0.4%	N/A
(b.)		0.3% - 0.6%	0.4% - 0.65%	0.6% - 1.5%



# The Proposal

How much time should be budgeted?

- Performing special inspections or testing
- Project document review
- Communicating results with Contractor, Design Professionals, and internally
- Reporting
- Travel
- Engineering review

If budget is slim, what is being skipped?



## What About Qualifications?

- Certification is not qualification, but it is the first step
- Field and Laboratory
- Engineering Oversight



## What About Qualifications?

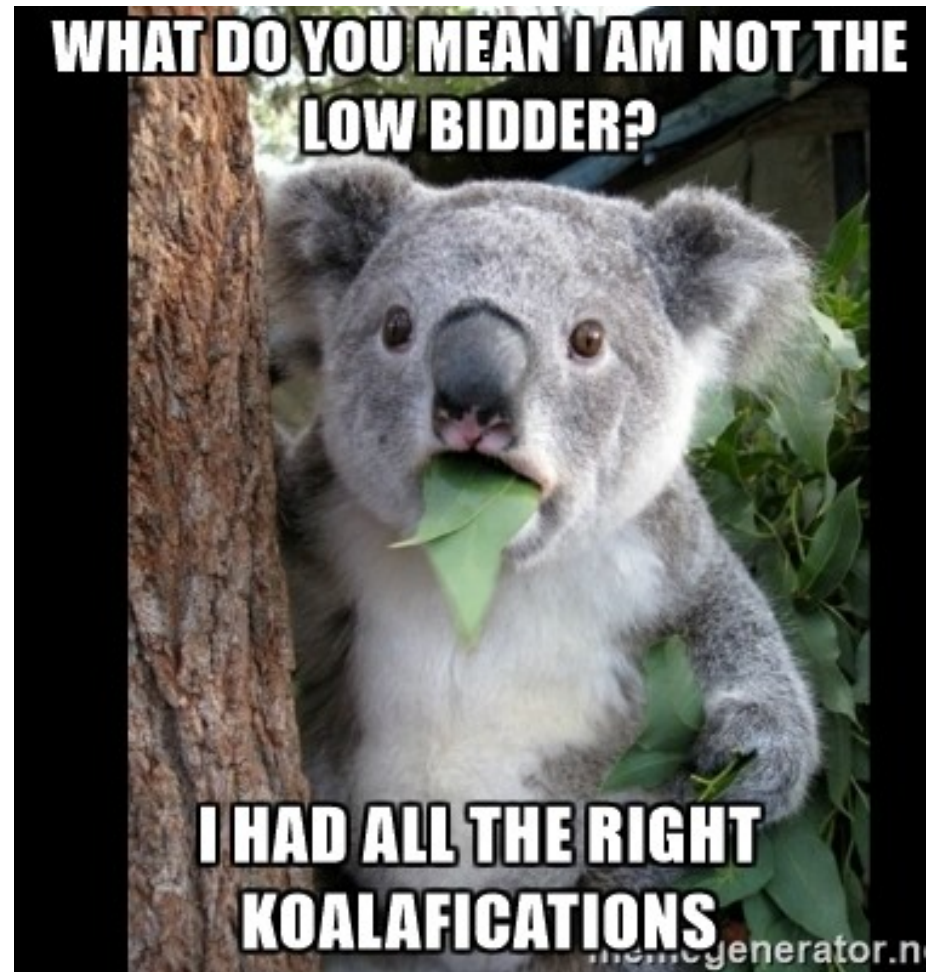
What does the code say for SI?

- A qualified person who shall demonstrate competence to the satisfaction of Building Official with relevant experience of similar complexity and materials.
- No where is ICC or any other certification program required by the building Code. Some jurisdictions may have these requirements



## Selection of ITA

- NORMALIZE THE SCOPE if cost is a selection component
- Are the people proposed on the project the people working on it?



# HOW TO IMPLEMENT A QUALITY SYSTEM DURING A PROJECT



## Parties Involved in Quality

- ITA / Laboratory
- Design Professionals
- Contractors
- Fabricator
- Code Official
- Owner



## Documents

- Plans
- Shop drawings
- Specifications
- Correspondence
- Materials and ES reports
- RFI, ASI's and Other Changes

How is QC\QA going to be up-to-date on current documents?



## Scheduling

- One of the biggest challenges for ITA
- Advance notice helps providing staffing continuity
- Provide time for testing and inspections in a schedule
- Contractors should check work before scheduling inspections and testing





## How to get the most from your QC\QA

- Get QA\QC on board early
- Design peer reviews before bidding
- Materials and assemblies pre qualification testing
- Coordinate design documents to look for conflicts
- Preconstruction meeting



## How to get the most from your QC\QA

- Demand the contractors and fabricators contribute to the quality process
- Select professional service by qualifications, experience and reputation
- Select contractors by qualifications, experience and reputation
- Establish reasonable budgets
- Decide on communication protocols
- Good communication of design changes
- Audit – Are you getting what was agreed upon?

## How to get the most of the QC/QA

- Develop relationships and trust with those that deserve it
- Set clear and realistic expectations of performance, constructability and cost



## The Real Truth...

- Quality can not be performed by one person - it takes the whole team
- Quality is not a warranty or insurance program for the owner
- Too frequently all parties are relying completely on one party to check quality
- Perfection is not economically feasible on a unique design, on a individual site with construction team that has likely never been assembled before, however leaving quality to chance will assure issues will occur

# Quality is Not Cutting Corners!



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