General Requirements Demystified – It’s more than just a door stop!

Division One – Submittals, Substitutions & Closeout Documentation

Paul D. Gerber
Principal | Specification Writer

Kazim (Kaz) Kanani
Associate | Specifications Specialist

21 September 2017
"And should there be a sudden loss of consciousness during this meeting, oxygen masks will drop from the ceiling."
General Requirements Demystified

Learning Objectives

• Fire Statistics (United States)
• Division One
• Substitutions
• Submittals
• Requests for Information
• Delegated Design Procedures
• Legal Case Profile
Fire Stats
General Requirements Demystified

Fire Stats

- 75% of all fire deaths caused by smoke inhalation.
- 47% of survivors caught in a fire could not see more than 12 feet.
- 57% of people killed in fires are not in the room of the fire’s origin.
- Smoke travels between 120-420 feet per minute under fire conditions.

In 2015:
- 1,345,500 fires reported in the United States.
- 3,280 civilian deaths
- 15,700 civilian injuries
- $14.3 Billion in property damages
- 501,500 structure fires - $10.3 Billion in property damages
- Remainder were outside and/or vehicle fires
In 2015 (United States): Fire loss clock - a fire department responded to a fire every 23 seconds. One residential structure fire was reported every 86 seconds.

- One structure fire was reported every 63 seconds.
- One civilian fire injury was reported every 34 minutes.
- One civilian fire death occurred every 2 hours and 40 minutes.
- One outside and other fire was reported every 52 seconds.
- One highway vehicle fire was reported every 3 minutes 1 second
Division One
General Requirements Demystified

What is Division One?

- An extension of the formal agreement (the Contract)
- Outlines General Requirements for the project including but not limited to:
  - Project Summary
  - Price and Payment Procedures
  - Administrative Requirements
    - Substitution Procedures
    - Submittal Reviews
    - Requests for Information (RFIs)
  - Quality Requirements
  - Temporary Facilities and Controls
  - Product Requirements
  - Execution and Closeout Requirements
    - Closeout Documentation
  - Life Cycle Activities
Why is Division One Important?

- Forms the basis of project governance
- Sets the rules and methods relating to contract modification
- Before starting construction this should be read and understood
Substitution Procedures
• Three common types of substitutions:
  • Solicited – Consultant requested substitutions for basis of design products/materials
  • Unsolicited – Contractor/Subcontractor proposed changes in specified products/materials or changes in preferred means and methods
  • Apparent – Those that just appear on site and are realized post installation which have not been submitted or reviewed by the Consultant
• Ensure clear language is included regarding substitutions including a formal process
• Obtain Owner’s buy-in before implementing this process for your project
• Consider the following:
  • Reasons for when substitutions will be accepted.
    • Unavailable Products
    • Equivalent products that were not considered or not specified
    • Ordered in advance but not available in a timely manner
  • Submission Requirements for Substitutions:
    • Clear and detailed description of products, systems, assemblies being proposed
    • Shop Drawings including full details.
    • Technical product data.
    • Samples.
    • Mock-up.
    • Difference in price in the form of quotations
    • Compliance with regulatory requirements
Consider the following:

Contractor’s written acceptance which includes:
- Space requirements will not be exceeded and if they do, Contractor will show how the product will be accommodated.
- Compatible and inert to adjacent materials.
- Will not affect project schedule
- Have been priced to include design adjustments.

Consultant’s Review:
- Outline the extent of the review including conditions for acceptance and rejection
- Any associated costs
- Decision – acceptance or rejection is final.

Use of a Form – formalize the process by using a standard form
Substitutions on Submittals:
- Should be rejected/not reviewed
General Requirements Demystified
Substitution Procedures – Section 01 25 00

• Contractor/Subcontractor proposed substitutions:
  • Delivered to the Consultant in a timely manner
  • Submit a complete package for review – present all of the performance requirements that are specific to the project
  • Allow the Consultant sufficient time to review
  • Be prepared to discuss and answer questions
  • Provide fair and reasonable costing information
Submittal Procedures
Submittals Defined: Submittals are drawings, diagrams, illustrations, schedules, performance charts, brochures, product data, and other data which the Contractor/Construction Manager/Constructor provides to illustrate details of portions of the work.

Types of Submittals:
- Shop Drawings
- Samples
- Product Data Sheets
- Certificates
- Test Reports
- Engineering Judgements
- Verification of Subcontractors Qualifications (Quality Assurance)
- Delegated Design
• Submittals ensure and confirm the accuracy, size, and other specific data about a product or material prior to final purchase, fabrication or delivery. Submittals are prepared to indicate:
  • Accurate dimensions, size, quantity, and location precise fabrication methods
  • Construction and/or field erection techniques
  • Information to coordinate related trades or adjacent work
  • Elaboration on diagrammatic information
  • Confirmation of the selection of options, such as colour or finish.
Before submitting shop drawings to the architect for review, the contractor is responsible for verifying:

- quantities;
- dimensions;
- accuracy;
- completeness;
- compliance with the specifications.

Shop drawings do not supersede the contract documents but supplement them to assist in the construction.

The review of shop drawings carries certain liabilities for the architect.

The architect must take care to review only those portions of the shop drawings which relate to the architectural design.
General Requirements Demystified
Submittals – Section 01 33 00

• Defining process in the Specification:
  • Be clear about submittal distribution methods and mechanisms
  • Note type of submittal – hardcopy or electronic
  • Timing required for review including that of subconsultants

• Contractors:
  • Substitutions must not occur in submittals
  • Submittals must not be part of a Request for Interpretation
  • Submit complete submissions – including those that tie-into other assemblies. Do not submit part of an assembly
  • Provide sufficient time for Consultant review
  • Do not submit items which are not required by the Contract Documents
  • Advise of deviations from Contract Documents – remember this is to be a fair an open process. Being sneaky does not win points!
Consultant’s:
- Do not review submittals relating to means and methods of construction
- Advise if additional time is required to review a submittal
- Do not include changes to the design intent in submittal reviews. Follow the proper protocols
- Ensure engineered submittals include the Professional Engineers Seal, signature and date – without the three, the submittal is invalid
Consultant’s Review:

- Is for the sole purpose of ascertaining conformance with the general design concept only
- Does not in any way constitute review of the design of engineering elements which form part of the contract documents prepared by others.
- Review shall not mean that the Consultant approves the detail design inherent in the Shop Drawings/Submittals responsibility for which shall remain with the Contractor submitting same,
- Review shall not relieve the Contractor of the responsibility for errors or omissions in the Shop Drawings/Submittals or of the responsibility for meeting all requirements of the Contract Documents.
• Contractor’s Review:
  • Is responsible for dimensions to be confirmed and correlated at the job site
  • For information that pertains solely to fabrication processes
  • Techniques of construction and installation
  • Coordination of the work of all Subcontractors.
RFIs
General Requirements Demystified

Request for Information

- Two distinct types:
  - Request for Interpretation
    - Only for documents that form part of the Contract Documents
  - Request for Clarification
    - Only for items not contained in Specifications and/or Drawings

- Specific
- Should not alter the design
- Should not change contractual responsibility
- Allow sufficient time for review
Delegated Design Procedures
Delegated Design:

- Is the act of delegating professional engineering responsibility to the constructor for one or more specialty scopes including but not limited to fire safety regulations or when completion of the design is directly affected by means and methods of the work.
- Requirements of delegated design do not diminish the responsibility of the Registered Professional of Record (RPR).
- RPR is still responsible for reviewing the work in accordance with the requirements of the authorities having jurisdiction.
- Contractors: Allow and account for the delegated design engineer to visit the Place of the Work to review the Work.
- Consultants: You are responsible for requesting and reviewing site visit reports from the delegated design engineer and for closing the loop for sign-off.
Engineering Judgements
• Not to be used in lieu of tested systems when available.
• Issued by firestop manufacturer’s qualified technical personnel in concert with a Professional Engineer/Fire Protection Engineer or testing lab.
• Based upon interpolation of previously tested firestop systems are that similar in nature or clearly indicate the conditions upon which the judgement is to be given.
• Based upon full knowledge of the elements of construction to be protected and the understanding of the probable behavior of the construction and recommended firestop system.
• Be limited to specific conditions and configurations.
• Be job/project specific and non-transferrable.
General Requirements Demystified

Engineering Judgements

• Obtain a copy for records and safeguarding
• Ensure the EJ forms part of the project record documents
• Owner needs to be aware in the event of future renovations and modifications

• Become familiar with the Judgement Guidelines prepared by the International Firestop Council – www.firestop.org
Legal Case Study
General Requirements Demystified

Legal Case Study: One Meridian Plaza vs Building Owner
General Requirements Demystified
Legal Case Study: One Meridian Plaza vs Building Owner

• 38 story high-rise office building in Philadelphia, PA
• 150 m (492’) tower completed in 1972 (started in 1968)
• Building demolished in 1999 as a result of a fire in February 1991
• Fire began on 22\textsuperscript{nd} Floor as a result of linseed oil soaked rags ignited
• 12 alarm blaze
• Took firefighters approx. 24 hours to put the fire out
• Three firefighters died. Numerous injuries reported
Legal Case Study: One Meridian Plaza vs Building Owner

- Legal:
  - Tenants sued Owner
  - Business Owners in the immediate vicinity sued as well
  - Owner sued approx. 25 defendants including Contractor, Subcontractors and Manufacturers
  - Series of Errors during fire:
    - Foam filler used to firestop openings
    - Water pressure was inadequate for hose streams
    - Fire knocked out power
    - Backup generator failed
Settlements:
- Building Owner collected approx. $110 Million
  - Contractor paid over $40 Million – claimed failure to supervise, install and inspect fire protection system.
  - Alarm Manufacturer & Servicer paid approx. $10 Million – claimed inadequate alarm system.
- Backup Generator Manufacturer – claimed faulty wiring
- Many others settled out of court.
Case Study
One to Closely Follow
General Requirements Demystified
Case Study: London Grenfell Tower Fire - 2017
24 storey high-rise residential building in London, United Kingdom
- 120 flats with 200 bedrooms
- 67.3 m (221’) tower completed in 1974
- First four floors were non-residential until 2015/2016 which increased residential component to 127 flats and 227 bedrooms
- Designed by Clifford Wearden & Associates
Renovation ended in May 2016 with following upgrades:

- Cladding System
- Window replacement
- Communal or central heating system
- Change of use for two floors
- Renovation by Studio E Architects
General Requirements Demystified

Case Study: Grenfell Tower – What we Know

Grenfell Tower

- Stairs and lifts
- Community areas
- Residential
- Other

Source: Studio E Architects
General Requirements Demystified
Case Study: Grenfell Tower – What we Know

• 19 July 2017 – Fire!
• 40 fire engines and more than 200 firefighters to tackle the blaze
• Over 24 hours to bring the blaze under control
• 80 people dead (known fact), final death toll to be released December 2017
• Believed to have started on the 4th floor
General Requirements Demystified
Case Study: Grenfell Tower – Potential Causes

- Gas explosion?
- Faulty fridge?
- Faulty wiring?
- Cladding?
- Lack of fire suppression systems?
- Poor compartmentalization?
- Lack of firestopping?
- Lack of maintenance?
Case Study: Grenfell Tower – Potential Issues

- Building Officials?
- Architect/Consultants?
- Contractor?
- Owner?
- Manufacturers?
Thank You!
General Requirements Demystified
Thank You! Questions?

Kazim (Kaz) Kanani
Quadrangle Architects Limited
901 King Street West, Suite 701
Toronto, Ontario M5V 3H5
T: 416 598 1240 x 281
T: 416 904 7263
E: kkanani@quadrangle.ca

Paul D. Gerber
Archispectural Consulting
259 Caswell Court
Waterloo, Ontario N2J 4Y4
T: 226 220 0195
E: paul.gerber@archispectural.ca