



The Regional Municipality of Durham
Works Department
Facilities Design, Construction and Asset Management

Design Guidelines for Engineering and
Architectural Submissions for Facilities Projects

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1 General

The requirements of this document shall be used as guidelines for the preparation of Consultants' Proposals in response to Request for Proposals (RFPs) from the Regional Municipality of Durham (hereinafter referred to as "the Region") for all Facilities projects and all Plant and Pumping Station projects.

The requirements of this document shall be superseded by any conflicting requirements in the specific RFP document to which the Consultant is responding.

Prior to the submission of a response to an RFP for any Region projects, if there is any question as to the requirements of this document or the RFP document, the Consultant shall meet with the appropriate Region staff to obtain or clarify Region's requirements for deliverables on the specific project.

The following sections outline the requirements of the Region with respect to the review and processing of Engineering / Architectural drawings and specifications for the construction of Regional facilities, plants and pumping station projects.

2 Requirements for Regional Contracts (Tenders and Quotations)

2.1 Personnel Qualifications

A Professional Engineer or Architect, licensed to practice in the province of Ontario and registered in the relevant design specialties, must seal and sign all engineering products, including drawings, engineering reports and specifications.

The Consultant shall furnish individuals qualified in specialty fields such as architectural, mechanical, process equipment, electrical, environmental, structural, geotechnical, specification writing, transportation and landscape design to lead those activities.

2.2 Quality Assurance /Quality Control

1. All drawings and documents provided shall be sealed as per the OAA and PEO recommended practices.
2. The Consultant must provide continuous QA/QC throughout the design and submit proof of QA/QC at each deliverable milestone, unless otherwise specified.
3. Drawing QA/QC
 - .1 Refer to the Facilities Design, Construction and Asset Management CAD and BIM Drawing Standards for QA/QC requirements on drawing submissions.
4. Specification and reports QA/QC
 - .1 Engineering reports and feasibility studies must be sealed by a Professional Engineer and signed by an independent checker.
 - .2 The Specifications submitted with the 60%, 90% and 100% and issued for Tender stage must be accompanied by a document verifying that an independent checker has reviewed the submission.

2.3 Project Standards

The Consultant shall prepare the design in accordance with accepted technical standards, specifications, guidelines and state-of-the-art practices. Where appropriate, the Consultant will be responsible for ensuring compliance with the most recent technical references. The Region's Project Manager will resolve any conflicts in design criteria.

2.4 Delegated Design

If Delegated Design (design delegated to the construction contractor) is required on a project, the Consultant must clearly identify in their Proposal the extent of the Consultant's scope of work and the expectations for the contractor's Delegated Design Engineer's scope of work. Further, the Consultant must outline in their Proposal the information they intend to provide to allow the contractor's Delegated Design Engineer to complete their design work.

2.5 Temporary Works

If Temporary Works are required on a project, the Consultant must clearly identify in their Proposal the extent of the Consultant's scope of work and their expectations for the scope of work of the contractor's Delegated Design Engineer for Temporary Works. The Consultant must also outline the requirement for Field Review Engineer and who will perform the role of Field Review Engineer.

Designs prepared with the consideration of retaining Temporary Works or Field Review Engineers, must follow Professional Engineers of Ontario's, guidelines for Temporary Works.

2.6 Commissioning

If Commissioning is required on a project, the Consultant must clearly identify in their Proposal the extent of the Consultant's scope of work with respect to commissioning and their expectations for the Contractor's or third-party Commissioning Agent's scope of work. Consultants completing Commissioning work as part of an assignment must follow the Region's commissioning guidelines, provided by the Project Manager.

2.7 Shop Drawing Review

Consultants to Review shop drawings, equipment tests, samples and balancing report submissions and ensure submitted documents are consistent with the design intent of the project, plans, specifications and applicable codes and standards.

1. Maintain record of all submissions. This record must include submission and return dates, confirmation that the submission has been reviewed by the general contractor and at what stage of the review process the document is.
2. Shop drawing reviews are to be completed in accordance with the Professional Engineers of Ontario and the Ontario Association of Architects guidelines.
3. Each submission must be processed and provided to the Region within 5 business days of receipt of the document.
4. Each submission must be returned to the contractor with a company review stamp which includes the following information:
 - .1 Name of the Architectural / Engineering firm or Practice
 - .2 Action completed – Reviewed, Reviewed as modified, Revise and Resubmit or Not Reviewed.
 - .3 Date, Signed and Reviewed by.
 - .4 Date received, Region's tender/quotation number and Consultant's File or Project number.

3 Engineering Submissions for Regional Contracts (Tenders and Quotations)

3.1 Engineering Submissions

Prepare drawings, specifications and all construction contract bidding documents according to the following:

1. Provide all drawings in AutoCAD or Revit, as specified in the Region's RFP document, in a format compatible with AutoCAD 2020 or Revit 2020. Ensure the drawing files adhere to the Region's "Facilities CAD and BIM Drawing Standards". The Consultant's name shall be shown on all drawings. The Consultant shall submit sample digital drawings (2D/3D) to the Region's Project Manager before commencing drafting to ensure formatting is acceptable.
2. Prepare drawings at 30%, 60%, 90%/Permit and Tender for review, unless otherwise specified in the Region's RFP.
3. Delineation of drawings and specifications:

Note that drawings shall not include specification type information except where strictly required by an agency for approvals. The Consultant shall provide evidence of such requirement by an agency. Specifications shall be written in the specification documents, not on the drawings. Obtain the Region's approval if the Consultant intends to have any specification type information on the drawings.
4. Prepare draft specifications and documents required for the construction contract bidding package for review by the Region. Reference the Region's RFP for submission requirements at the various project milestones.
5. Prior to initiating preparation of specifications, contact the Region's representative for specifications to confirm these instructions.
6. Prepare all specifications in compliance with the Region's documents ["Guidelines for Writing Specification Documents for Facilities Tenders"](#).
7. Ensure that all specified products and standards are up-to-date and specific for the project.

8. Use performance specifications for products as much as possible. Where “acceptable products” are named by manufacturer/model add “or reviewed equivalent”.
9. Provide specifications prepared using the current *MasterFormat* 6-digit Division and Section numbering system, in *Microsoft Word*.
10. Specifications shall be organized and formatted according to CSC’s *SectionFormat* and *PageFormat* documents (including Divisions 00 and 01 to the extent possible). All Section specifications must have a “Section Includes” article as the first article. Use the article title “Related requirements”, not “Related sections”. Use “Reference standards” not “References” unless another *SectionFormat* sub-article under References (such as “Abbreviations and Acronyms” or “Definitions”) is used.
11. Use the Region’s Master Specification Section templates and Appendix B (Supplementary Conditions to CCDC 2) template. Download copies of the most current templates from the [Design and Construction Specifications for Regional Services](#) page on the Region’s website. Click on the “Contract Document Templates” tab and then on either “Facilities Tenders” or “Vertical – Plants and Pumping Stations” as applicable. Master Specification Sections for Quotations are not posted online and will be provided by the Region upon request.
12. When re-using specifications from previous projects, the Consultant shall check to ensure all referenced standards, information and formatting are up-to-date and tailored to the specific project. **Always start with the Region’s standard templates, where applicable, and copy old specs into the templates and then coordinate the content.**
13. Revise draft drawings, specifications and contract bidding documents based on review by the Region.
14. Quality control check for all cross-references within the specifications to and from one Section to another. Verify all referenced standards are current and valid for the project. The 90% submission shall be formatted in accordance with the Region’s standards.

3.2 Format and Content Requirements

1. Provide all reports and tender documents, including specifications, in Microsoft Word .docx format using the Region's layout and formatting conventions as specified in these guidelines.
2. Ensure all specifications follow the Region's document "[Guidelines for Formatting of Tender and Quotation Documents for Facilities Preparing Specifications for Facilities DCAM's Projects](#)". Note the requirement for provision of documents with accessible formatting and the use of the Region's standard Paragraph Styles in specification documents. Documents that do not comply with the Region's accessible formatting requirements cannot be posted on the website. Do not attempt to manually duplicate the Region's paragraph styles in the Consultant's documents. **Failure to comply with this requirement will result in the specifications being returned to the Consultant unchecked and the Consultant will be required to re-submit their specifications with proper accessible formatting. Where the Consultant fails to comply with accessible formatting requirements, the Region may, at its sole discretion, convert the Consultant's documents to an accessible format and charge back the cost of such correction.**
3. Provide all calculation spreadsheets in *Microsoft Excel* .xlsx format.
4. The Consultant shall confirm in their Proposal that they are able to deliver and utilize digital data provided in the above-noted formats. The Region will not entertain requests for extra costs related to the conversion of data.
5. Reproduction and Distribution
 - .1 For each deliverable the Consultant shall provide one digital copy for distribution by the Region.

3.3 Drawing Submission Requirements

1. Drawings Submitted Prior to Tender (If Requested by the Project Manager)

Electronic PDF files requested from Consultant shall be submitted conforming to the following requirements:

- .1 Submitted on a USB flash drive, or electronically transmitted using a file transfer tool approved by the Region's Project Manager.
- .2 Updated to the Region's current Engineering Submission Standards.
- .3 Include the current revision number, date and description/status (e.g. Issued for 30%, 60%, 90% or 100% Client Review) and initials in the Revision Box of each drawing.
- .4 Be numbered as per the Drawing Numbering Convention outlined in the CAD and BIM standard.
- .5 PDF filenames shall be as specified in the Region's "Facilities CAD and BIM Drawing Standards" document.
- .6 All layers named according to the guidelines outlined in Appendix A of the Region's "Facilities CAD and BIM Drawing Standards" document.

and accompanied by:

- .7 A Transmittal Form/document identifying the status of the files (e.g. Issued for Permit, Issued for Review) and listing AutoCAD filenames and their drawing name, font shape files and pen colour table.

2. Issued for Tender Drawings

Electronic PDF files of the "Issued for Tender" drawings shall be submitted conforming to the requirements of 3.3.1 above, except they shall:

- .1 Have the "Consultant Revisions" Block cleared of all entries on each drawing.
- .2 Have "Issued for Tender" recorded as Line 01 in the "Contract Revisions" Block.

- .3 Include the Region's Tender or Quotation number, in the "Contract Number" block. If applicable, this number will be provided by the Region's Project Manager.
- .4 Have sheet numbers recorded in the "Sheet Number" Block on each drawing.
- .5 For each drawing sheet, submit one PDF file at full size scale and one PDF file at 50% scale. The full-size PDF must fit on A1 (594 x 841 mm) size paper when printed. The 50% scale PDF must fit on 11"x17" paper. Also submit one compiled complete drawing set in PDF for printing on A1 size paper. Hard copies are not required. Submitted PDF files must be fully scalable when printed.

and accompanied by:

- .6 A Transmittal Form/document identifying the status of the files (e.g. Issued for Tender) and listing AutoCAD and Revit filenames and their drawing name, font shape files and pen colour table.

3. Issued for Construction Drawings

Unless otherwise indicated by the Region's Project Manager, the Consultant shall submit consolidated "Issued for Construction" drawings within 2 weeks of the closing of the tender period.

All drawings shall be submitted at this stage in both AutoCAD (or Revit) and PDF formats conforming to the following requirements:

- .1 Shall be based on the Issued for Tender drawings and updated to include all drawing changes issued by addendum during the tender period and any post-tender addenda if applicable.
- .2 Have "Issued for Construction" recorded as Line 02 of the "Contract Revisions" Block.
- .3 Shall be sealed by the issuing Architect or Professional Engineer.
- .4 Submitted on a USB flash drive, or electronically transmitted using a file transfer tool approved by the Region's Project Manager.
- .5 AutoCAD and Revit drawings must be saved in the Region's current version. Reference Article 3.2 of this standard.

- .6 AutoCAD drawings must have all X-Reference files bound as “*Bind Type*” “*bind*” (not exploded).
- .7 Be numbered as per the Drawing Numbering Convention outlined in the CAD and BIM standards.
- .8 PDF files shall be generated directly from AutoCAD and Revit; however, AutoCAD and Revit files should not include the Architect’s or Professional Engineer’s seal.
- .9 AutoCAD, Revit and PDF filenames shall be in accordance with the Region’s “Facilities CAD and BIM Drawing Standards” document.
- .10 All AutoCAD layers named according to the guidelines outlined in Appendix A of the Region’s “Facilities CAD and BIM Drawing Standards” document.

and accompanied by:

- .11 Transmittal Form/document identifying the status of the files (e.g. “As Recorded”) and listing AutoCAD and Revit filenames and their drawing name, font shape files and pen colour table.

3.4 Issued for Construction Specifications

- 1. Unless otherwise indicated by the Region’s Project Manager, the Consultant shall submit consolidated “Issued for Construction” specifications within 2 weeks of the closing of the tender period.

Issued for Construction specifications shall be submitted in PDF and Word formats conforming to the following requirements:

- .1 Shall be based on the Issued for Tender specifications and updated to include all specification changes issued by addendum during the tender period and any post-tender addenda if applicable.
- .2 Shall include a Seals page bearing the signed and dated seals of the issuing Architects or Professional Engineers.
- .3 Submitted on a USB flash drive, or electronically transmitted using a file transfer tool approved by the Region’s Project Manager.

3.5 As-Built Drawings and Documents

1. All As-built drawings and documents shall be prepared and submitted as per the OAA and PEO recommended practices.

As-built Drawings shall be prepared by the Consultant (not the Contractor) and submitted in AutoCAD (or Revit where applicable) and PDF formats conforming to the following requirements:

- .1 Must be updated to include Contractor's As-Built Information, addenda, contract changes, site instructions and any known site variants.
- .2 Submitted on a USB flash drive, or electronically transmitted using a file transfer tool approved by the Region's Project Manager.
- .3 Include the current revision number, date and description/status (e.g. "Record Drawings") and initials in the Region's Contract Revision Title Block on each drawing.
- .4 Have all X-Reference files bound as "*Bind Type*" "*bind*" (not exploded).
- .5 Be numbered as per the Drawing Numbering Convention outlined in the CAD and BIM standards.
- .6 Be saved using the file naming convention specified in the Region's "Facilities CAD and BIM Drawing Standards" document.
- .7 All AutoCAD layers named according to the guidelines outlined in Appendix A of the Region's "Facilities CAD and BIM Drawing Standards" document.

and accompanied by:
- .8 A Transmittal Form/document identifying the status of the files (e.g. "As Built") and listing AutoCAD and Revit filenames and their drawing name, font shape files and pen colour table.

3.6 Design Documentation and Interim Drawings

1. In addition to the reports, documents and drawings to be submitted as outlined in the above articles, the Consultant shall provide copies of the following documents, in digital format:
 - .1 All approvals, permits and Board orders, and the application packages
 - .2 Existing utility location plans and utility relocation plans
 - .3 Digital design files
 - .4 Complementary summary sheets for tender estimates
 - .5 Quantity calculations

4 RFP Submission Deliverables

4.1 Submission Matrix

1. A submission deliverables matrix will be included with all RFPs to Consultants. This matrix will be used as an indicator to Consultants, who are submitting deliverables at the 30%, 60%, 90%/Permit and Tender stages, as to what should be submitted at each milestone.
2. The matrix shall be modified by the Project Manager to meet the needs of the Project.
3. Payment for each milestone, as per the Consulting Services Agreement, shall be dependent upon receipt by the Region of all deliverables indicated for the applicable milestone.

4.2 Submission Matrix Details

1. Within the submission deliverables matrix, the following tables explain what is required at each submission for each milestone.

30% Submission Requirements

Item	Required	Not Required
Elevations	Design concept, layout.	Dimensions, scale, notes, references, section markers, descriptions, elevation from sea level.

Item	Required	Not Required
Specifications	Table of Contents to include a list of applicable sections proposed for the project.	Accessible formatting. Compliance with DCAM Eng. and Arch. submission document. Div 00 and 01 modified. Div 02 to 49 coordinated with Div 00 and 01.
Schedules	Schedule layout, approximate product types.	Product details, notes, comments, dimensions and referenced notes.
Site Plan Application	Includes utilities, site servicing, parking, landscaping, lighting, roads, access, elevations and building setbacks.	N/A
Sections	Design concept only.	Dimensions, scale, notes, references, section markers. Call out coordination.
Floor Plans	Building layouts, north symbol, room layouts, site layout, initial scope of work outline.	Gridlines, section markers, referenced notes, descriptions, detail call outs, key plan.

60% Submission Requirements

Item	Required	Not Required
Elevations	Dimensions, scale, references, section markers, descriptions.	Final annotation, elevation from sea level.
Schedules	Schedule layout, approximate product type, product details, notes, comments, dimensions and initial referenced notes.	Final equipment schedule and reference notes.
Sections	Preliminary dimensions, Scale, Section markers co-ordination. Call out coordination.	Final dimensions, reference notes.
Pre-Start Health and Safety Review	List items required to be included in review.	Detailed report. Signed, dated and sealed by P.Eng. Details for structural adequacy. Testing or test reports.
Details	Design Concept only.	Referenced notes, dimensions, grid lines and elevations.

Item	Required	Not Required
Floor Plans	Building layout, north symbol, room layouts, site layout, initial scope of work outline. Gridlines, Section markers, referenced notes, descriptions, detail call outs, key plan.	Detailed scope of work.
Specifications	Accessible formatting. Compliance with DCAM Eng. and Arch. Submissions document. Div. 00 and 01 modified. Technical specs (Div. 02 to 48) coordinated with Div. 00 and 01.	Where products are specified and named by manufacturer/model, add “or reviewed equivalent”. Up-to-date referenced standards. All section references coordinated and checked.

90% Submission Requirements

Item	Required	Not Required
Elevations	Dimensions, scale, references, section markers and descriptions. Final notes, elevation from sea level.	N/A
Schedules	Final equipment schedule and reference notes, Product details, comments	N/A
Sections	Final dimensions, reference notes.	N/A
Pre-Start Health and Safety Review	Detailed report. Signed, dated and sealed by P.Eng. Details for structural adequacy. Testing or test reports.	N/A
Details	Referenced notes, dimensions, grid lines and elevations.	N/A

Item	Required	Not Required
Floor Plans	Building layout, north symbol, room layouts, room tags, site layout, detailed scope of work outline, Gridlines, Section markers, referenced notes, descriptions, detail call outs and key plan	N/A
Specifications	<p>Accessible formatting</p> <p>Compliance with DCAM Eng. and Arch. Submissions document.</p> <p>Div. 00 and 01 modified.</p> <p>Technical specs (Div. 02 to 48) coordinated with Div. 00 and 01.</p> <p>Where products are specified and named by manufacturer/model, add “or reviewed equivalent”.</p> <p>Up-to-date referenced standards.</p> <p>All section references coordinated and checked.</p>	N/A