

8. DOCUMENTATION STANDARDS

8.1 COPYRIGHT

1. The “Standard Form of Agreement Between Owner and Prime Consultant” outlines the Ownership of intellectual property dealing with the project and copyright.
2. TW has the copyright for all documents prepared for or by the department.

8.2 SEALING AND SIGNING OF DOCUMENTS

1. The Consultant or Sub-Consultant shall individually seal, sign and date technical documents contained in accordance with their respective Acts and Regulations. Electronic signatures are not acceptable; all documents shall be individually signed by the professional person(s) of record for the design and technical contents.
2. Where the contract documents have not been prepared in whole by the Consultant, and have been specifically directed by TW, the Consultant is not required to affix their seal, but shall indicate by their signature which parts of the documents have been prepared or amended under their direction or supervision.
3. The Consultant and sub-Consultants must be registered to practice in the Province of Newfoundland and Labrador.

8.3 SYSTEMS MEASUREMENT AND METRIC CONTENT

1. The SI system of measurement is referred to in the following documents, the latest issues, amendments and supplements of which apply:
2. Standard of the Canadian Standards Association (CSA) - CAN/CSA-Z234.1 Canadian Metric Practice Guide
3. National Building Code of Canada (NBCC)
4. Units for linear dimensioning are restricted to, meter (m) and millimeter (mm).

8.4 TECHNICAL DOCUMENT SUBMITTALS

1. All documents are to be submitted in electronic and hard copy.

2. Documents are to be issued for review, for comment by TW team and client partners. The Design Manager will assemble and consolidate all comments and forwarded to the Consultant, for incorporation into the report. This may be an iterative process, finishing with a final report signed and sealed by the responsible professionals.
3. The Design Manager will arrange review meetings or other communications as may be required to conclude report.
4. At each submission, inter-disciplinary review by the Consultant team must be evident. This indicates to TW that there is constant communication between the design team members, and will avoid major coordination issues at the final stages of design.
5. TW reserves the right to request copies of interdisciplinary review comments.

8.4.1 HARD COPIES

1. Review Sets:
 - a. Provide 8 copies.
 - b. Reports shall be assembled a 3-Ring binder, 8 ½" x 11".
 - c. For report submissions, provide reduced drawings 11 x 17 format, bound separately from the report.
 - d. Quantity of full scale drawings and graphic illustrations is to be determined on a project specific basis, minimum will be three (3) sets.
 - e. Specifications submitted for review purposes in WORD (.doc) with track changes turned "ON".
2. Final Issued for Tender or Construction and all revisions of:
 - a. Provide copies of drawings, specifications, and other contract related documents as stipulated in the "Standard for of Agreement between Client and Prime Consultant", if it is not stipulated, then the minimum number shall be twelve (12).
 - b. Plot finished final drawings full size on bond paper. Using a pen plotter, direct imaging plotter, laser printer, etc. Finished final drawings will be original contract documents for tender.
 - c. Specifications shall be printed on 8 ½" x 11" paper and bound.

8.4.2 ELECTRONIC SUBMISSION

1. Electronic submission of all documentation shall be in native formats, along with a ,pdf of the document.
2. The electronic copy of reports shall be bound as one document, do not submit individual sections.
3. Word processing - Microsoft WORD (.doc)
4. Spreadsheets - Excel (.xls)
5. Drawings - AutoCAD (.dwg)
 - a. Each drawing is to be in its own (.dwg) file and named with the Drawing File Number as referenced in this manual. The file should not contain any external references and should be bound and purged.
 - b. All drawings preferred in AutoCAD (.dwg) and Adobe Acrobat (.pdf) format latest version, drawings will be accepted in the two previous AutoCAD versions.
6. Secure files - Adobe Acrobat (.pdf)
7. Label disk by Project Number, Project Name, and Date.
8. Specifications submitted for review purposes in (.doc) with track changes turned “ON”.

8.5 DRAWING NUMBER AND SIGNATURE PROCEDURES

1. Consultants are to use TW standard drawing sheets which must be downloaded from TW's Website. The title block shall be completed as follows:
 - a. The space under “Drawn by” shall be used for the name of the person responsible for drawing preparation
 - b. The space marked “Checked by” shall be used for the name of the individual responsible for drawing accuracy and co-ordination (Drawn by and checked by should not be the same person)
 - c. The space under “Approved by” shall be used for the name of the design professional accepting responsibility for design and quality assurance
 - d. The space under “Project No” shall contain TW's project number
 - e. The space under “Date” shall contain the date that the drawing is issued in the format mm/dd/yyyy

- f. The space under “Scale” shall contain the words “AS NOTED”. Insert the appropriate bar scale from the provided bar scale list on the standard drawing sheet. Or indicate that a scale is not used by inserting “N.T.S”
 - g. In the revisions column, revision “0” shall be entered and dated, “0” indicating “Issued for Tender” or the appropriate stage. Submissions prior to tender shall be alphabetically numbered, and numerically numbered thereafter
 - h. The space under “Drawing No.” shall contain the drawing designation per this document
 - i. The space under “Drawing File No” shall contain the archive number as provide by TW.
 - j. The title block contains space for the project title, the drawing title, revision suffix, name and address on Consultant who prepared the drawings, reference north, professional seal and permit to practice.
2. The Consultant’s professional stamp and permit to practice must be affixed to each drawing in the space provided
 3. The revision being issued must have wet ink signatures in all locations. Previous revision information may be electronically entered
 4. TW utilizes the following series designation system to identify drawings by discipline, and provide a standard sequence within the final drawing package. A drawing number example is A1 which identifies the discipline series “A” as an architectural drawing, and “1” as the drawing number one in that series.

Series	Discipline
C	Civil/Site/Utilities/Landscaping
A	Architectural
S	Structural
M	Mechanical
E	Electrical

8.6 PRODUCTION OF DRAWINGS

8.6.1 DRAWING COVER SHEETS

1. The standard cover sheet shall be downloaded from TW's website. The Consultant shall add the Consultants' name and logo, the Client's name and logo, and a full list of all drawings bound under that cover.

8.6.2 DRAWING SHEETS

1. The standard drawing sheets will be DTW-SHT, size 535mm x 840mm (21 x 33).
2. A B1 size drawing sheet may be used with Departmental approval, B1 size 707mm x 1000mm.
3. DTW-SHT and B1 have a preset scale of 1:1. Drawings produced within the drawing area are to use the drafting scales outlined in this manual.
4. DTW-SHT size drawings are to use a plot scale of 1:2. This will produce a 280mm x 430mm (11 x 17 inch) drawing.

8.6.3 LINES AND LETTERING BY OBJECT LINE WEIGHT

1. For AutoCAD version 2006 and higher, line work delineation can use line weights assigned to specific objects rather than by color.
2. Line thickness shall be as follows:

Line Style	Full Scale Dwg (22 x 34)	Half Scale Dwg (11 x 17)
Very Thin	0.18mm	0.09mm
Thin	0.25mm	0.13mm
Medium	0.35mm	0.18mm
Heavy	0.50mm	0.25mm
Very Heavy	0.70mm	0.35mm
Thick	0.85mm	0.42mm

3. Drawings are to be produced using line weights for half scale drawings as indicated above. Full scale drawing line weights are to be used with Departmental approval.

4. Line styles for line types shall be as follows:

Line Types	Style
Grid line	very thin
Phantom line	very thin
Hidden line	thin
Center line	thin
Dimension line	thin
Extension line	thin
Break line	thin
Object line	thin
Border line	very heavy
Outline (New)	heavy
Leader	thin
Outline (Existing)	thin

5. Lettering styles and sizes listed are for the standard DTW-SHT and B1 drawing sheets. Line weights for drawing text may be assigned to specific text objects. Only standard AutoCAD fonts are to be used as follows:

Text Type / Location	Size
Text on drawings	RomanS - 2.5mm - 0.35mm
Titles under drawings	RomanS - 4.0mm - 0.70mm
Title Block	Small RomanS - 2.5mm - 0.35mm Large RomanS - 4.0mm - 0.50mm

8.6.4 DRAFTING SCALES

1. Scale selection shall be based on of CSA B78.5-93 Table 10.1 “Preferred Scales commonly used for different types of Drawings” and as follows:

Stage	Type of Drawing	Scale
Design	Sketch and preliminary drawings	Scales may vary, but it is recommended that preference be given to those used in the working drawing phase.
	Location drawings	Scale will vary according to maps used as reference.
Contract Drawings	Key plan	1:2000
		1:1000
	Site Plan	1:500
		1:200
	General location drawings	1:200
		1:100
1:50		
Component range drawings	1:100	
	1:50	
	1:20	
Assembly drawings	1:20	
	1:10	
	1:5	
Component details drawings	1:20	
	1:10	
	1:5	

Note: Scales listed above apply to individual plans or details produced within the drawing of the standard drawing sheet. Standard drawing sheet is not to be rescaled.

8.6.5 DIMENSIONING

1. Use the DTW DIM dimension style which is assigned to the DTW-SHT.

8.6.6 CAD LAYERS

1. The following layers are pre-established on the standard drawing sheets.

Layer	Line Color
0	White (Not to be used)
ASHTT	White (Not to be used)
Dim	Cyan
Stamp	White
Text	White
Title	Magenta

2. Create new layers as required with names as clear and descriptive as possible.
3. For layers that are impossible to purge and have no use a rename is suggested, such as Rename with letter "X".

8.6.7 X-REFS AND PURGING

1. External referenced drawings or blocks (X-REF'S) contained within the drawings submitted to TW are to be bound using the "External Reference Bind" command.
2. All final drawings are to be "purged" prior to being submitted to TW.

8.7 SPECIFICATION

1. Prepare specifications using the latest edition of the NL Master Specification Guide for Public Funded Buildings. The Master Specification is available on the website <http://www.tw.gov.nl.ca/works> .
2. The specification shall be downloaded and edited in Microsoft WORD with "track changes on" for each individual project. Specifications shall not be re-used from previous projects.
3. Submit specifications on disk in Adobe Acrobat (.pdf) format, and Microsoft Word (.doc) format as well as hard copy.
4. Emailed submittals are not acceptable.

8.8 DRAWING CHANGES DURING/AFTER TENDERING

1. All changes to the drawings during or after tendering are to be shown in the Revisions Column of the original drawing indicating revision number, description, date and by whom. Also, indicate the latest revision number in the Revision Suffix Box of the title block.
2. Highlight the changed area on the drawing using a "Cloud" outline (Color # 61) accompanied by the appropriate revision number.
3. During the Tender Period, all revised drawings are to be indicated in an addendum.