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The National Master Specification (NMS) NMS User's Guide 2014



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1 Executive Summary

The Canadian National Master Construction Specification (NMS) consists of more than 760 individual work result sections and is managed and maintained by the NMS Secretariat. The review and update process of the NMS is carried out over a five to seven year cycle. The sections are reviewed and updated by industry specialists from all across Canada and from both the public and private sectors.

The NMS has adopted a philosophy of environmental responsibility and promotes the concepts of sustainable construction practices. However, it must be made clear that the NMS is neither intended as a design tool nor an educational tool. Users of the NMS are assumed to be for the most part experienced specification writers. This *NMS User's Guide* is intended to assist the specification writer in the use of the NMS and how to make appropriate choices through the use of tools built into the NMS system.

This guide is intended to give the specification writer basic information about the NMS and its use in several ways as follows:

- By giving background information and describing the NMS;
- By explaining the different methods of specifying and describing the organizational structure of the NMS;
- By explaining the tools within the NMS for the specification writer's use;
- By showing examples of recommended language and style;
- By explaining the relationship between Division 01 sections and the rest of the NMS;
- By explaining how the NMS can be edited by the specification writer to produce construction project specifications and Project Manuals.

2 Notice to NMS Users

2.1 To Users of the NMS

The *Canadian National Master Construction Specification (NMS)* is a resource and reference tool for specification writers, which has developed over the last 40 years into a comprehensive database that is the culmination of expertise of many professionals and industry specialists who are well recognized in their fields.

The *NMS Secretariat* was established to provide administrative support for the development and maintenance of the *NMS*. The *NMS* consists of over 760 individual master specification sections, which are developed and reviewed by individuals, committees, and peer review groups. The sections are reviewed on a five to seven year cycle and updates are issued biannually.

Direction is given to the *NMS Secretariat* by way of the *NMS National Advisory Board*, which is composed by the principle federal department users, the major private sector professional and trade organizations, and, the publishers of the *NMS*. The *NMS* follows the recommendations of Construction Specifications Canada (CSC)'s *Manual of Practice* for the document format, numbering, language, and style.

Private sector publishers publish the *NMS* on behalf of Public Works and Government Services Canada (PWGSC). Visit our web site at <http://www.tpsgc-pwgsc.gc.ca/biens-property/ddn-nms/> for a list of the *NMS* Publishers and their contact information.

2.2 Copyright Notice

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Permission is granted to store electronically and/or to print any information residing on this site for internal use only. No part of the *National Master Specification (NMS)* may be reproduced, modified, or redistributed in any form or by any means, for any purpose other than those noted above (including sales), without the prior written permission of Public Works and Government Services Canada. No guarantee or warranty, expressed or implied, is made about the value or stability of the information or links made herein.

2.3 Disclaimer and Limitations of Use

The “*National Master Specification (NMS)*” or the “*Canadian National Master Construction Specification (NMS)*” is not a substitute for Project Manual or contract specifications.

The appropriate specification sections of the *NMS* require editing and adapting to suit the requirements of individual construction projects. The responsibility for determining the suitability of use and the selection of choices rests with the user of the *NMS*.

The *NMS* is based on the requirements of the *National Building Code of Canada* and does not necessarily include all possible regional or municipal variations concerning products, methods, materials, systems,

assemblies or accessories, their availability or their method of construction. It may not list or describe every product, material, system, assembly or accessory required for an individual project. It may not describe, in detail, the entire execution of the required work.

The *NMS* makes no representation or warranties with respect to the accuracy or completeness of the data and specifically disclaims any implied warranties of merchantability or fitness for a particular purpose and shall in no event be liable for any loss of profit or any incidental, consequential or other damages.

2.4 National Master Specification Secretariat (NMS S)

The National Master Specification Secretariat is a workgroup within Public Works and Government Services Canada (PWGSC). Real Property Branch (RPB), Professional and Technical Service Management Directorate and is responsible for managing, maintaining and promoting the *NMS*.

For contact information on the above and other contact information related to the *NMS*, refer to the NMS Secretariat website at: <http://www.tpsgc-pwgsc.gc.ca/biens-property/ddn-nms/>

3 Description and Background

3.1 The Canadian National Master Construction Specification (NMS)

The *Canadian National Master Construction Specification (NMS)* is a comprehensive library of construction specification sections used by government and private industry.

The *NMS* is a resource tool, available in English and French, designed for Canadian conditions, containing more than 760 specification sections comprising about 4000 hard copy pages in each language or approximately 100 megabytes of electronic data.

The *NMS* is supported by all major construction industry associations, and is updated regularly by industry specialists to incorporate changes in:

- ❑ technology,
- ❑ environmentally responsible choices for materials, products and systems,
- ❑ installation requirements, and methods, and
- ❑ current industry practices.

The *NMS* is a resource tool and reference document. It is considered to be a delete master that is based on providing alternatives and/or blank spaces, which require editing, by the project specification writer.

Reference to materials and methods in the *NMS* does not necessarily preclude the use of other materials or methods suitable for the purpose.

The *NMS* is divided into Divisions and Sections in accordance with *CSC/CSI MasterFormat™*, the master list of titles and numbers for the construction industry jointly produced by the Construction Specifications Institute (CSI) and Construction Specifications Canada (CSC).

Sections are formatted in accordance with the *CSC/CSI* three-part *SectionFormat*TM.

Page layout follows the recommendations of *CSC/CSI PageFormat*TM.

It is the policy of the Real Property Branch (RPB) of Public Works and Government Services Canada (PWGSC) to use the *NMS* for the preparation of specifications for new construction, renovation, restoration and repair of federal government architectural, landscape, marine, structural and heavy civil engineering facilities, whether designed in-house, by private consultants or as projects done through the department's Alternate Forms of Delivery (AFD) service provider. For the RPB policy, please refer to – *Policy on the Use of the National Master Specification (NMS)*.

The *NMS* data is currently available in various electronic formats through authorized publishers. Each publisher enhances the ease of use of the *NMS* through a variety of software applications.

3.2 History of the National Master Specification

The history of the *NMS* is intrinsically linked to the history of specification writing in North America. The development of the *CSI Format* in 1962/63 marks the beginning of a uniform system for filing technical information and organizing specifications. These 16 Divisions were adopted in Canada and integrated with an overall filing system called the *Building Construction Index (BCI)*, issued in February 1966. In 1972, the *BCI* was superseded by the *Uniform Construction Index (UCI)*. From the *UCI* in 1978, a subject-specific document for specifications was developed entitled *MasterFormat*.

The *NMS* began as the *Government Master Construction Specification (GMS)* for use by government and private sector for federal government projects. In 1974 the mandate was shared by five federal government departments: National Defence, Public Works, Indian and Northern Affairs, Industry, Trade and Commerce and Transport Canada.

In 1976, the *GMS* became the *Canadian National Master Construction Specification* (now known as the *NMS*) when *CSC* provided private sector input and made it a truly national master construction specification for use by both the public and private sectors.

The *NMS* has become the largest generic master construction specification of its kind in North America, and is the only master specification available in both French and English.

3.3 Administration of the National Master Specification

The NMS S

The National Master Specification Secretariat (NMS S), a part of the Professional and Technical Service Management Directorate (PTSM), Real Property Branch of Public Works and Government Services Canada (PWGSC), is responsible for managing and maintaining the *NMS*; developing work plans for the maintenance and update of the *NMS* database; administering the *NMS* technical review process and maintaining the integrity, the style and format of the *NMS* document.

With regard to specific documents the NMS S coordinates the continued development, maintenance and update of the:

- Entire construction master specification sections;

-
- Historic Structures and conservation specification sections for use by and for Parks Canada, Canadian Heritage, and Environment Canada (CH/EC);
 - Specialty sections for PWGSC, National Defence (DND) and the private sector;
 - Reference library.

The NMS National Technical Committee (NTC)

The NMS National Technical Committee is comprised of senior management members from the centres of expertise and client service units of PWGSC-Real Property Services (RPS), Directorate of Construction Program and Engineering Policy (DCPEP), and representatives from private sector professional associations. It is responsible for providing overall direction by establishing goals and direction for the NMS, as well as reviewing and approving work plans for the NMS.

SGML Conversion of the NMS

The NMS database was converted to *Standard Generalized Mark-up Language* (SGML), an electronic tagging process that permits data to be viewed and manipulated through user-preferred word processing programs. As a result, the NMS database is in a neutral format, which is independent of computer platforms (operating systems) and word processing software. Many of the construction standards organizations referenced in the *NMS* have already converted, or are in the process of converting, their respective databases to SGML.

The *NMS* Update Process

The NMS Secretariat is responsible for ensuring that the document is current, concise, and practical. The *NMS* is reviewed and updated on a five to seven year cycle.

The NMS Technical Review Groups and Committees are comprised of specialists from PWGSC-RPB personnel, DCPEP and private sector professional, trade, and manufacturer associations. They are responsible for the technical integrity, content, and relevancy of the sections that they review, and the relevancy to the discipline they represent. With the advent of sustainable development in the construction industry, other ad hoc committees have been struck to provide input into issues encompassing all technical committees and review groups, and are comprised of industry specialists, including members of the Canada Green Building Council (CaGBC) and other members from the various disciplines affected.

3.4 Use of Reference Standards

The NMS uses reference standards to establish levels of quality for both materials and work practices. This is done through reference to documents issued by standards development organizations (SDO), construction industry professional associations, trade associations and manufacturers' associations. Most of the standards referenced are consensus standards. Although emphasis is placed on Canadian reference standards, there are many foreign standards referenced, particularly standards from the USA. There are an increasing number of ISO standards being referenced as Canadian, American and international standards are being harmonized.

How this is used in the NMS:

Reference standards are listed in Part 1 by number, date and title under the “REFERENCES” article and repeated within the text of the section by reference to the number only.

In a project specification, only standards found in the text of the section after editing should be listed in the “REFERENCES” article in PART 1 of the section.

The Standards Council of Canada (SCC) actively fosters and promotes voluntary standardization in Canada through its various advisory committees.

The National Standards System (NSS) concerns itself with standards writing certification and testing. The NSS is also involved in international standardization through national committees. i.e. Canadian Standards Association (CSA International), Canadian General Standards Board (CGSB) and Underwriter’s Laboratories of Canada (ULC).

Other standards referenced include independent standards organizations such as the American National Standards Institute (ANSI), and the American Society for Testing and Materials (ASTM).

The NMS also includes International Standards Organization (ISO) standards if and when they are available and used by the construction industry in Canada. Industry and trade associations’ standards and practices are referenced in the NMS where applicable.

3.5 Relating Drawings and Specifications

Drawings and specifications are complementary. Drawings show the form of construction; they illustrate extent, location in the project, and quantity. Specifications establish quality of materials and quality of work and installation. Specifications should supplement, but not repeat, information shown on drawings. Duplication of information can lead to differing interpretations. It is important that drawings and specifications use the same terminology and that the drawings do not include information that belongs in the specifications.

The Contract general conditions normally indicate that in a situation of conflict between drawings and specifications, the specifications take precedence.

Refer to the *CSC Manual of Practice* for definitions of drawings and specifications.

How this is used in the NMS:

The NMS provides opportunities for cross-referencing project specifications with drawings by including, where appropriate, the words “**...as indicated**”. “**...as indicated**” means that the item is shown on the plans, supplemental drawings, or standard drawing sheets included in the project documentation.

It is recommended that drawing numbers, titles, and other identifiers of drawings are **not** listed in individual specification sections since any changes to these can lead to confusion and differing interpretations.

Co-ordination of information between drawings and specifications is supported in the NMS through consistency of nomenclature and construction terminology. That consistency must extend to the drawing information.

The NMS follows the recommendations for the *CSC Manual of Practice* for the terminology used.

3.6 Methods of Specifying

There are two basic or fundamental methods used in specifying work results in the NMS: **performance** specifications and **prescriptive** specifications.

Performance Specifications: The performance specification is a statement of required work results, verifiable as meeting stipulated criteria and free of unnecessary process limitations. The *NMS* supports the use of performance specifications. Note that the performance specifications in the *NMS* do not follow the recommendations of *MasterFormat*[™], but are numbered and titled alphanumerically as recommended by *CSC/CSI UniFormat*.

Prescriptive Specifications:

Sub-Method 1 – Descriptive Specifications: Define exact materials or systems and the detailed fabrication and installation processes to be executed, without stating individual trade or manufacturer’s names required to achieve the desired work result.

A descriptive specification is best suited for describing properties of complicated components or systems that cannot adequately be shown on drawings, notably for mechanical and electrical equipment.

Sub-Method 2 – Consensus Standards: Industry on consensus standards may also be descriptive specifications. They are referred to in the *NMS* where appropriate.

A consensus standard is a written accord or agreement on certain materials, testing procedures, or processes that conform to criteria developed and accepted by a recognized public or private authority or agency.

When referenced, the standard in its entirety becomes a part of the specification. The *NMS* supports the use of consensus standards.

Sub-Method 3 – Proprietary Specifications: Proprietary specifications identify products by the manufacturer's trade name and model number.

Proprietary specifications control product selection and are deemed desirable only in those instances where there is no practical way to specify a unique product by performance or consensus standard. Where proprietary specifications are necessary, the NMS supports the use of a minimum of three brand or trade names of comparable quality or utility. An approved alternatives clause requires the appropriate Division 01 documentation to describe the process for approval of alternatives and submission of substitutes. Refer to the *CSC, Manual of Practice* for further discussion on prescriptive and performance specifications as well as other methods of specifying construction.

3.7 Specification Organization

With the exception of the performance specifications sections, the *NMS* is based on the organizational structure of *CSC/CSI MasterFormat™*—including contract forms found in Division 00 of the Project Manual. For the latest version of *CSC/CSI MasterFormat™*, visit the website <http://www.spex.ca/>.

How this is used in the NMS:

The organizing structure of the *NMS* offers considerable flexibility through its expandable and contractible number of sections, within a rigid framework of the 50 Divisions of the *CSC/CSI MasterFormat™*.

Each Division is composed of multiple sections expanding each subject category or group.

The numbering system for each section can be 6 or 8 digits depending on the depth or “scope” of information or the recommendations of *MasterFormat™*.

In most cases it is not expected many 8 digit numbers will appear in a project section since you would seldom have a “broadscope” section and a “narrowscope” section in the same project. If a “narrowscope” section is used in a project, the chances of a broader section being used in the same project are really unlikely so we would expect that the last two digits of the section number would be dropped. There will of course be some cases when a mixture of 6 and 8 digit numbers will occur in the same Project Manual.

The section itself is then subdivided into a simple and logical sequence of information arranged to follow the recommendations of *CSC/CSI SectionFormat™*. This means that each section is divided into three basic Parts.

As a further measure of organizational consistency, the *NMS* also follows the recommendations of *CSC/CSI PageFormat™* for how each page in the Project Manual is laid out and for how the articles and paragraphs are numbered.

The organizational structure of the *NMS* enables consistent organization of information and enhances cross-referencing which is critical to fully describe certain work results.

For more detailed descriptions of *CSC/CSI*’s standard construction document formatting documents refer to the *CSC Manual of Practice*.

4 Application and Use

4.1 Introduction

For language and style, the *NMS* follows the recommendations of the *CSC, Manual of Practice*.

Effective communication through the construction specifications is achieved through five fundamental and long-standing principles.

- ❑ **Accuracy** - accomplished by the use of correct words to establish exact meaning.
- ❑ **Clarity** - accomplished by organizing sentence structure using correct grammar, without ambiguity.
- ❑ **Completeness** - accomplished by presenting exact and detailed ideas and explanations.
- ❑ **Conciseness** - accomplished through the use of language that eliminates unnecessary words without compromising clarity or correctness.
- ❑ **Consistency** - accomplished by maintaining consistent spelling, language and format throughout the document.

The style and format of the *NMS* have been developed to assist the specification writer in fulfilling these basic principles of effective specification writing.

4.2 SPEC NOTES

SPEC NOTES are located throughout the text of the *NMS* and are addressed to the specification writer to assist in the development of the project specification by providing additional information and guidance. With the exception of the SPEC NOTES that occur before Part 1 - General, SPEC NOTES always occur directly in front of the article, paragraph or sub-paragraph to which they are referring.

How this is used in the NMS:

SPEC NOTES are intended as direction for the specification writer in the process of developing a project specification. They **SHOULD NOT** be manipulated by the specification writer **FOR INCLUSION** into the project specification. The *NMS* locates the SPEC NOTES in a consistent manner designed to provide the information where appropriate to best assist the specification writer.

Various information is captured within the SPEC NOTES, such as general information about the content of a section, specific information about the support received from industry organizations involved in the section review process, or product information to help the specification writer make environmentally responsible choices for product and systems, which are sustainable. Here are some examples:

The **SPEC NOTE DESCRIPTION**, about general information on the description of a section is located at the top of the first page before Part 1 of the section and serves to introduce the section and provide a brief overview of the content and recommended usage. It is intended not only to let the user know what is in the section, but also to advise him or her of items that are not in the section but that the section title may lead you to believe would be included. It is intended that this SPEC NOTE DESCRIPTION should only be used when the title of the section does not clearly represent the section's content. The following example shows:

Example 4.2.1 (from *NMS Section 08 03 11 – HISTORIC - PERIOD WOOD DOORS*):

SPEC NOTE DESCRIPTION: This Section specifies reproduction of historic hand-made wood doors for fabrication on-site (usually rough doors) and hand-made wood doors for custom fabrication in a joinery shop (usually finished doors). This section can also be used to specify reproduction of historic transom, fanlight and sidelight sash/panels.

Another example SPEC NOTE SUPPORT, acknowledges construction industry organizations that have assisted in the review or development of the NMS Section. These acknowledgements are located at the top of the first page of written text, directly below the SPEC NOTE DESCRIPTION describing the content, if it were needed, as

Example 4.2.2 (from *NMS Section 09 97 19 – Painting Exterior Metal Surfaces*):

SPEC NOTE SUPPORT: This Section had been reviewed and updated with the assistance of Steel Structures Painting Council (SSPC).

SPEC NOTES advising on other section information or that may assist the specification writer in completing a section in general terms as shown in the example below are located before Part 1 of the section. SPEC NOTES within the text offer information on the subject and guidance to the specification writer on the choices to be made or on the use of the information.

Example 4.2.3 (from *NMS Section 26 27 26 – Wiring Devices*):

SPEC NOTE: This Section is based on assumption that wiring devices will be indicated including legend covering CSA identification numbers for receptacles i.e. CSA type L5-15R corresponds to a locking type 125 V, 15 A, 2 pole, 3 wire grounding receptacle. Switches to be indicated and identified by legend, i.e. 15 A, single pole, 125 V. This specification is set up to include 15 A, 120 V, single and duplex receptacles, and 120 V switches.

SPEC NOTE: Manually operated general purpose ac switches are based on CSA C22.2No.111. Snap switches are based on CSA C22.2No.55. Receptacles, plugs and similar wiring devices are based on CSA C22.2No.42.

In some cases the general SPEC NOTE may deal with items that are general in nature, but in other instances they may focus on more narrow aspects of the construction such as environmental responsibility, sustainability or even criteria for LEED™ criteria submittals.

Example 4.2.4

SPEC NOTE: SUSTAINABILITY: This Section specifies environmentally responsible material choices, utilizing the three R's (reduce, reuse and recycle) whenever possible, and providing generally available disposal options. For construction and demolition waste management practices in Federal Government projects refer to PWGSC's Report on Plans and Priorities which presents the department's response to the Federal Sustainable Development Strategy. The Report on Plans and Priorities is where these requirements have been specifically targeted as an element in the commitment to use tools such as LEED and Green Globes in project delivery.

SPEC NOTE: This Section includes general requirements and procedures for compliance with the Canada Green Building Council's (CaGBC) - LEED Program. Co-ordinate with Section 01 35 21 - LEED Requirements.

Refer to the Canada Green Building Council (CaGBC) for more information on LEED. Visit the CaGBC web site at <http://www.cagbc.org> for further information.

4.3 Square Brackets

Square brackets are located throughout the text of the *NMS* and are addressed to the specification writer to assist in the development of the project specification by indicating the need for action by the specification writer. Whenever the specification writers see the square brackets it means that they have to make a decision.

How this is used in the NMS:

Square brackets enclose alternative words, phrases, numerical values or blank spaces. They are intended as direction for the specification writer and should be deleted through the editing process leaving only those options that are required for the completion of the project.

Generally every option within a set of square brackets should be followed with a set of square brackets enclosing blank spaces for the specification writer to fill in further information.

Where square brackets indicate several alternatives, they are generally limited to four choices or left blank. The order that choices are listed in should not be assumed to be an order of preference.

Square brackets with a blank space are immediately preceded or followed by words or symbols that clarify the intent of the blank space such as units of measurement. The specification writer is required to fill the blank.

Example 4.3.1 (from *NMS Section 09 66 23 – Resinous Matrix Terrazzo Flooring*):

1.7 MOCK-UPS

- .1 Construct mock-ups in accordance with Section [01 45 00 – Quality Control].
- .2 Construct mock-up [10] m2 of [each type of] plastic matrix terrazzo including

[one inside corner,] [one outside corner,] [change of material,] [door threshold,] [stair tread] [and] [riser].

4.4 Rules of Language

Imperative Mood:

The *NMS* is written in the directive style in the imperative mood to minimize words and to ease interpretation. The language is directed to the Prime Contractor. Phrases such as "shall be" are replaced by a statement in the imperative mood.

Example 4.4.1:

- .1 *Spread adhesive with notched trowel.*
- .2 *Install equipment plumb and level.*
- .3 *Apply two coats of paint to exposed surface.*

NOTE: The *NMS* avoids indicative mood statements such as:

- .1 Adhesive shall be spread with notched trowel.
- .2 Equipment shall be installed plum and level.
- .3 Two coats of pain shall be applied to each exposed surface.

Refer to the *CSC Manual of Practice* for further information on specification language.

Negative Statements:

The *NMS* avoids the use of negative statements, as demonstrated in the following example:

Example 4.4.2:

- .1 *Install wall mounted equipment on wall surfaces free of built-in furniture or other equipment.*

NOTE: The *NMS* avoids statements such as:

- .1 Do not install wall mounted equipment at locations where built-in furniture or other equipment is to be installed.

Streamlining:

Without loss of force or intent, the *NMS* reduces verbiage by streamlining. Listing products, materials and reference standards; utilizing a colon(:) instead of "shall be"; using "in accordance with" when an action is

implied; and using "to" when referencing, are considered streamlining devices.

Example 4.4.3:

The following two paragraphs are examples of streamlining.

2.2.4 *Stone Tile [Type D]: slate, to ASTM C629, as follows:*

2.5.1 *Underlay: in accordance with Section [06 10 10 – Rough Carpentry].*

Punctuation:

The *NMS* uses correct punctuation and follows each comma, semi-colon and colon with one space. Punctuation ending a sentence is followed by two spaces.

The *NMS* strives to construct sentences so that misplacing or eliminating a punctuation mark will NOT change the intended meaning. The serial (penultimate) comma is often used to ensure clear and unmistakable separation of statements.

Example 4.4.4

.1flexible, black and continuous (the serial (penultimate) comma)

Vocabulary:

Words are the essence of the *NMS*. They are selected and used in context with their precise meanings. The *NMS* attempts to use each word with only one meaning; the same word is used whenever that particular meaning is intended.

The *NMS* avoids the use of the following words and phrases:

<i>shall</i>	<i>should</i>	<i>wherein</i>
<i>all</i>	<i>must</i>	<i>etc.</i>
<i>any</i>	<i>the</i>	<i>herein</i>
<i>and/or</i>	<i>to be</i>	<i>hereinbefore</i>
<i>as per</i>	<i>to the satisfaction of</i>	<i>hereinafter</i>
<i>workmanship</i>	<i>owner</i>	<i>architect</i>
<i>in workmanlike manner</i>	<i>in lieu of</i>	<i>in situ</i>

The *NMS* promotes the use of GENERIC names in referencing construction materials, and follows the recommendations of the *CSC Manual of Practice*.

Example 4.4.5 identifies common MISUSED TRADE NAMES.

Example 4.4.5:

drywall: a slang term, the preferred generic term is “**gypsum board**”.

Firecode C or Type X: both are trade names; the preferred generic term is “**fire rated gypsum board**”.

Styrofoam: the preferred generic term is “**rigid extruded foam insulation**”.

Spelling:

Spelling is consistent in the *NMS* and is based on the "*Concise Oxford Dictionary of Current English*" which is

considered representative of common usage in Canada. The *NMS* avoids the use of “Americanisms” such as “thru” instead of “through” and “lite” instead of “light”. Common spelling inconsistencies are outlined, as follows:

Example 4.4.6:

advice	is used in Canada as a noun,
advise	is used in Canada as a verb,
calk	should be “caulk”,
catalog	should be “catalogue”,
color	should be colour,
database	should be “data base”,
defense	should be “defence”,
facia	should be “fascia”,
labor	should be “labour”,
gage	should be “gauge”,
lite	should be “light”,
molding	should be “moulding”,
nite	should be “night”,
practice	is used in Canada as a noun,
practise	is used in Canada as a verb,
metre	unit of measurement,
meter	a guage or measuring device,
thru	should be “through”,
centre	a noun,
center	a verb.

4.5 Abbreviations, Acronyms and Symbols

The *NMS* makes extensive use of acronyms (words formed from the first or first few, letters of a series of words). Industry accepted acronyms often increase understanding and speed up comprehension. However, the *NMS* always writes the full explanation of each acronym used the first time it is referenced in each section.

Abbreviations are discouraged as they can be misinterpreted. Abbreviations such as those used for dimensions and standard references appear on one line, not separated onto two lines. This is done by the use of a “hard” space when information is originally incorporated into an *NMS* section.

Comprehension is only realized if the abbreviation or acronym is readily recognizable. Abbreviations and acronyms are avoided where doubt exists.

Like abbreviations and acronyms, symbols are avoided unless they are readily recognized. The full description of the acronyms should be given once in the text for the first occurrence of the acronym. The following are a few of the many acronyms used by the *NMS*:

Example 4.5.1:

ASTM	American Society for Testing and Materials
ANSI	American National Standards Institute
BNQ	Bureau de normalisation du Québec
CGSB	Canadian General Standards Board
CCDC	Canadian Construction Documents Committee
CSC	Construction Specifications Canada
CSI	Construction Specifications Institute

Symbols:

The use of symbols is limited by the availability of symbols in word processing software and computer-aided drafting programs.

(See *CSC Manual of Practice* Chapter 13 - Specification Language - "Symbols and Expressions")

How this is used in the NMS:

Abbreviations in text are stated in lower case letters, except when the abbreviation represents a proper noun or nouns.

Abbreviations in the title of a section are stated in upper case letters.

Abbreviations do not use periods.

The *NMS* avoids the use of parentheses and quotation marks.

The *NMS* has access to the full *ASCII Character Set* (i.e. IBM PC/windows/MAC characters 32 to 127). (See **Appendix A**)

Like abbreviations and acronyms, symbols are avoided unless they are readily recognized.

Dimensions and standard references appear on one line, not separated onto two lines. This is done by the use of a “hard” space when information is originally incorporated into an *NMS* section.

4.6 Capital Letters

The *NMS* uses capital letters in a consistent manner, in addition to specific capitalization of certain words, to provide clarity to the intent of the document.

Capitalization should be consistent within documents and match the capitalization used in the *General and Supplementary Conditions*. In contract documents, the following words might be capitalized:

Example 4.6.1

Agreement,	Owner,
Architect,	Part,
Consultant,	Place of Work,

Contract,	Project,
Contracting Officer,	Province,
Contractor,	Room Names: Library, Science Room,
Division,	Section,
Departmental Representative	Shop Drawings, Project Data, Samples
General Conditions,	Subconsultant,
Government,	Work.

The *NMS* follows the recommendations for capitalization of the *CSC Manual of Practice*.

How this is used in the NMS:

Initial capitals are used to refer to specific nouns and proper names. Capital letters are used for section titles in section headers and for article titles in the sections themselves as recommended by ***CSC PageFormat***.

Capitals are used as the first letter of certain words defined in the *General Conditions* of the CCDC and Federal Government contracts. These same words used in the general sense need not be capitalized.

Acronyms are capitalized. The first letter of names of places, associations, and federal and municipal titles are capitalized.

Directions such as “east” and “north” are not capitalized. Capitals are used for the first letter of each title of columns in charts and tables.

4.7 Metric in the NMS

All measurement sensitive descriptions, whether volume, weight, height, length, pressure etc., are based on the International System of Units (SI), generally referred to as metric units. The *NMS* does not use centimetres as a unit of measurement.

4.8 Reference Standards

The *NMS* contains references to standards such as the Bureau de normalisation du Québec (BNQ), Canadian General Standards Board (CGSB), Canadian Standards Association (CSA International), American Society for Testing and Materials (ASTM), American National Standards Institute (ANSI), Underwriters’ Laboratories of Canada (ULC) and others. These consensus standards are written accords or agreements on certain materials, testing procedures, or processes that conform to criteria developed and accepted by a recognized public or private authority or agency. The term "consensus standard" means that those documents or publications were developed by these agencies, often with public input. They are referred to in a uniform manner. References to these standards are indicated within the text of a section.

How this is used in the NMS:

Reference Standards in the *NMS* text are identified by the initials or acronym of that standards writing organization, which has published the particular standard.

Standards referenced in the text of a section must be listed under the “REFERENCES” article and further identified with the applicable heading for the standards writing organization.

The *NMS* identifies by acronym the standards agency, number, title, and date, with the date enclosed in square brackets. The date and title are included only in the “REFERENCES” article; they are not included when referencing a standard in the section’s text.

As standards are continually being reviewed and updated, the specification writer must check the *NMS* text to establish if the updated standard applies. If the standard still applies, the specification writer must change publication date. The specification writer must also refer to the text of the revised standard to determine the effect of the information in the standard on the technical text in the section.

Where the standard has changed significantly, the specification writer must modify the *NMS* text as required to suit revised standards as well as the specific Project Manual being developed.

Applicable standards writing organization headings are listed in the *NMS* alphabetically.

Example 4.8.1 (from *NMS Section 08 36 19.02 – Multi-Leaf vertical Lift Metal Doors*):

1.2 REFERENCES

SPEC NOTE: *Edit the following paragraphs for this specific project.*

- .1 Aluminum Association (AA)
 - .1 AA DAF 45-[03(R2009)], *Designation System for Aluminum Finishes.*
- .2 ASTM International
 - .1 ASTM A123/A123M-[09], *Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.*
 - .2 ASTM A1008/A1008M-[11], *Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.*
 - .3 ASTM D523-[08], *Standard Test Method for Specular Gloss.*
 - .4 ASTM D822-[01(2006)], *Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.*
- .3 Canada Green Building Council (CaGBC)

- .1 LEED Canada-NC Version 1.0-[2004], LEED (Leadership in Energy and Environmental Design): Green Building Rating System for New Construction and Major Renovations (including Addendum [2007]).
 - .2 LEED Canada-NC-[2009], LEED (Leadership in Energy and Environmental Design): Green Building Rating System for New Construction and Major Renovations 2009.
 - .3 LEED Canada-CI Version 1.0-[2007], LEED (Leadership in Energy and Environmental Design): Green Building Rating System for Commercial Interiors.
 - .4 LEED Canada-EB: O&M-[2009], LEED (Leadership in Energy and Environmental Design): Green Building Rating System for Existing Buildings: Operations and Maintenance 2009.
- .4 CSA Group
 - .1 CAN/CSA-Z809-[08], Sustainable Forest Management.
 - .5 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001-[2004], FSC Principle and Criteria for Forest Stewardship

Standards are identified here and are referenced in other articles of the section by their acronym and alpha/numeric designation only.

Example 4.8.2 continues further into *Section 08 36 19.02 – Multi-Leaf Vertical Lift Metal Doors*, showing how standards are referenced within the body of a section as either initials or acronyms:

2.02 MATERIALS

SPEC NOTE: Z275 designation specified in the following paragraph is standard sheet metal used.

- .1 Galvanized steel sheet: commercial quality with [Z275] zinc coating.
- .2 Steel sheet: commercial quality to ASTM A 1008, [unexposed (U)], [exposed (E)], with [_____] finish.
- .3 Aluminum sheet: mill finish [plain] [embossed [_____] pattern] utility sheet.
- .4 Anodized aluminum sheet: [plain] [embossed [_____] pattern] anodizing quality aluminum sheet.
- .5 Aluminum extrusions: Aluminum Association alloy AA 6063-T5.
- .6 Primer: to [MPI #80] [MPI #18].
 - .1 VOC limit [250] g/L maximum to [GS-11] [SCAQMD Rule 1113].

4.9 Division 01 – Section Referencing

The content of Division 01 sections interrelate directly with the content of all other documents and specification sections. Division 01 sections are unique in their multilateral relationship to all the other documents.

Detailed guidance in the use of Division 01 is provided in the CSC *TEK·AID Division 01* documents available from CSC and downloadable from their website at <http://www.spex.ca/>.

How this is used in the NMS:

Section references to Division 01 will include, in square brackets, both the Section number and the full Section title.

Division 01 section are not listed in the “REFERENCES” article.

Example 4.9.1 (from typical *NMS* Sections):

1.4 SUBMITTALS

- .1 Submit in accordance with Section [01 33 00 - Submittal Procedures].

SPEC NOTE: *Include requests for relevant data to be furnished by the Contractor, before, during or after construction.*

- .2 Product Data:

- .1 Submit manufacturer's instructions, printed product literature and data sheets for [doors, hardware, and accessories] and include product characteristics, performance criteria, physical size, finish and limitations.

1.5 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section [01 78 00 - Closeout Submittals].
- .2 Operation and Maintenance Data: submit operation and maintenance data for [overhead door hardware] for incorporation into manual.

1.6 QUALITY ASSURANCE

- .1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.7 WASTE MANAGEMENT

- .1 Deliver, store and handle materials in accordance with Section [01 61 00 - Common Product Requirements] [and] [with manufacturer's written instructions].
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
- .1 Store materials [off ground] [indoors] [in dry location] and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect [multi-leaf vertical lift metal doors, hardware and accessories] from [nicks, scratches, and blemishes].
- .3 Replace defective or damaged materials with new.

SPEC NOTE: *Co-ordinate the following paragraph with Section 01 35 21 – LEED Requirements.*

- .4 Develop [Construction Waste Management Plan] [Waste Reduction Workplan] related to Work of this Section and in accordance with Section [01 35 21 - LEED Requirements].
- .5 Packaging Waste Management: remove for reuse [and return] [by manufacturer] of [pallets,] [crates,] [padding,] [and] [packaging materials] as specified in [Construction Waste Management Plan] [Waste Reduction Workplan] in accordance with Section [01 74 21 - Construction/Demolition Waste Management and Disposal] [and] [Section 01 35 21 - LEED Requirements].

4.10 Related Requirements

Formerly called “RELATED SECTIONS” in the 1997 version of *SectionFormat™*, this Article title is used to briefly list other documents or sections in the Project manual that are related to, and/or dependent on, the work results or information specified elsewhere.

For ease of use and comprehension, the *NMS* follows *SectionFormat™/ PageFormat™* to consistently locate similar information in the same place in each section. These contain products or activities that have a direct effect on the Work of the section. These listings help the specification writer to find the proper location of subjects and items that might require coordination and cross reference.

How this is used in the NMS:

The “RELATED REQUIREMENTS” article should be used to list other documents or sections dealing with work that is directly related to the section being developed for a specific project. The list should be limited to documents or sections with specific information that the reader might expect to find in this section, but is specified elsewhere. For example, if hardware for aluminum entrances is specified in the aluminum entrance section, a cross-reference would be appropriate in the finish hardware section. Cross-referencing here may also be used to coordinate assemblies or systems whose components may span multiple sections and which must meet certain performance requirements as an assembly or system.

The *NMS* does not list documents or related sections in the “RELATED REQUIREMENTS” article but leaves it blank for the specification writer to fill in. Do not include Division 01 sections in the “RELATED REQUIREMENTS” article.

Identify other sections within the Project Manual, which affect or are affected by the work of the section. Do not use this paragraph to delineate trade responsibility.

4.11 Standard Paragraphs

Standard paragraphs are used in the *NMS* when quality of work and installation are specified in another Section, but are essential for execution of work under the Section being developed. The *NMS* provides for cross-referencing to the respective Section. Standard paragraphs may be similarly referenced for extended warranties. They are also used to provide consistency throughout the *NMS*.

How this is used in the NMS:

Quality of work and installation may be specified elsewhere, but are essential for work in another section. Warranties may be similarly referenced.

5 The Contract

5.1 Introduction

As a contract document, the specification refers to other documents, which affect the legal and administrative aspects of the project. The contract documents normally consist of the **Agreement, Definitions, General Conditions of the Contract, Supplementary Conditions** if any, **Division 01 - General Requirements, technical specifications, drawings, schedules** and others. NOTE: The complete Project Manual may include bidding or tendering requirements but exclude the drawings.

The *NMS* makes provision for the referencing of other contract documents such as geotechnical reports..

5.2 Warranties & Guaranties

A **warranty** is defined as *a two-party Agreement which provides an undertaking by a seller of Good of Goods and services (Warrantor), to a purchaser (Warranty), that a Warrantor will assume stipulated responsibilities for correction of Defects in the Goods and services within a stated period of time.*

A **guaranty** is defined as *to undertake collaterally to answer for the payment of another's debt or the performance of another's duty, liability, or obligation; to assume the obligation of a Guarantor; to warrant.*

How this is used in the NMS:

The *NMS* generally assumes that the warranty period with regard to the Contract is one year from the date of Substantial Performance of the Work or those periods specified in the Contract Documents for certain portions of the Work or Products.

The *NMS* avoids naming specific defects as it is inconsistent with CCDC and the Federal Government's *General Conditions* contract documents which require the contractor to rectify and make good "any defect or fault".

The *NMS* provides, in a limited number of sections, text for extending the defined warranties. Extended warranties should only be used where experience has shown that serious defects are likely to appear after expiry of the standard one-year warranty period.

Trade practice should be considered when requesting extended warranties. Extended warranties are generally limited to items affecting the building envelope such as roofing, air barriers, and glazing systems.

Example 5.2.1 (from *NMS Section 07 52 00 – Modified Bituminous Membrane Roofing*):

1.13 WARRANTY

- .1 For Work of this Section [07 52 00 – Modified Bituminous Membrane Roofing], 12 months warranty period is extended to [12 months].

5.3 Division 01 - General Requirements

Division 01 sections provide the link between the organization and structure of all the documents and specifications sections. **Division 01 - General Requirements** establishes a standard location for specific information that may be common to a number of specification sections. It also provides the requisite link and referencing to other contract documents such as the bidding requirements and the agreement and general conditions of the contract. The Division 01 sections align with *MasterFormat*TM.

How this is used in the NMS:

Division 01 specifies recurring requirements that are either administrative, procedural, or relative to temporary construction facilities. Typically, the administrative and procedural items would include defining the type and scope of contract, the process for submissions, schedules, testing and laboratory services, record documents, and contract closeout procedures.

Section references to Division 01 will include, in square brackets, both the section number and the full section title.

Since almost every Division 01 section has an impact on almost all of the “technical” sections, the Division 01 sections are not referenced in the “RELATED SECTIONS” article in each “technical” section. The list would become too long and meaningless.

Sections referring to a cash allowance for the supply of materials or services should only have their dollar value stipulated in Division 01. That dollar value should not be repeated in the technical section but rather have made reference to the Division 01 section.

Sections specifying product affected by an alternative should refer to that Division 01 section, preferably to the specific alternative by number.

The Division 01 section

The Division 01 section must then refer to the specific technical sections affecting the allowance or the alternative. Generally, Division 01 sections do not make reference to other sections.

According to *CCDC 2* (2008) and the Federal Government’s *General Conditions*, bidding requirements including an invitation to bid, instructions to bidders and bid forms are NOT part of the contract documents. Those provisions which are desirable to have become part of the contract can be included in Division 01.

Division 01 specification sections are organized and written in a style similar to the organization of *SectionFormat*TM. The administrative and procedural sections logically have no Part 2 - Products or Part 3 - Execution paragraphs. All three parts are identified but unused parts are indicated as follows:

Part 2 - Products

Not Used

Part 3 - Execution

Not Used

Division 01 takes precedence over any contradictory statements made within any of the technical specification sections. This tenet is supported in the *CCDC 2*, which specifically indicates that if there is a conflict within Contract Documents:

- ".1 the order of priority of documents, from highest to lowest, shall be the Agreement between the Owner and the Contractor, the Definitions, Supplementary Conditions, the General Conditions Division 01 of the specifications Division 02 through 49 of the specifications, material and finishing schedules, drawings.*
- .2 drawings of larger scale shall govern over those of smaller scale of the same date.*
- .3 dimensions shown on drawings shall govern over dimensions scaled from drawings.*
- .4 later dated documents shall govern over earlier documents of the same type."*

NOTE: The order of preference in the Federal Government's *General Conditions* does not include Division 01 specification sections over the other technical sections, but this is covered by a statement in some NMS Division 01 sections.

5.4 Regulatory Requirements

Construction law legislation is the responsibility of the provinces. The provinces, in turn, delegate a rigidly controlled portion to the municipalities. The National Building Code (NBC) and the National Fire Code (NFC) are applicable to most construction in Canada.

How this is used in the *NMS*:

The *NMS* is based on the NBC and other National Research Council (NRC) related documents.

Although some provincial enactments expressly require use of the NBC, the *Canadian Electrical Code* and others, adoption of the NBC by provincial and territorial governments is not universal. The specification writer must refer to provincial and municipal regulations to assure compliance with governing legislation.

"Senior" legislation takes precedence over "junior". The same principle applies to overlapping regulations at the same level; the more stringent applies.

The primary codified law of Quebec differs with regard to the basics of contract law and as such may impact on certain references of the *NMS*.

The federal government as a facility owner does not have to comply with junior legislation but generally does so voluntarily. It is the policy of the Federal government to always comply with the more stringent legislation or regulation.

Planning and zoning matters are generally municipally controlled.

**END OF PARTS 1 TO 5 INCLUSIVELY
APPENDIX "A" and "B" FOLLOW**

APPENDIX “A”

.1 SYMBOLS

There are limiting factors on the availability of symbols for use in developing NMS section text. The NMS has access to the full ASCII Character Set (i.e. IBM PC/windows/MAC characters 32 to 127). Also, special language symbol characters are available as a condition of the NMS Distributor Agreement. The following are the Hexadecimal Character Codes for the NMS files in Machine Readable Format. The combination of characters on the outside of the chart below represents the hexadecimal code of the equivalent print character. The hexadecimal code is the top character followed by the side character, e.g., HEX 61 = the character '/'

	0	1	2	3	4	5	6	7	8	9	a	b	c	d	e	f	
0			0			&	_				-	⁰				0	0
1	,		1				/		a	j	0	¹	A	J			1
2			2						b	k	s	²	B	K	S	2	2
3			3						c	l	t	³	C	L	T	3	3
4			4						d	m	u	⁴	D	M	U	4	4
5	(		5						e	n	v	⁵	E	N	V	5	5
6			6						f	o	w	⁶	F	O	W	6	6
7			7						g	p	x	⁷	G	P	X	7	7
8			8						h	q	y	⁸	H	Q	Y	8	8
9			9						i	r	z	⁹	I	R	Z	9	9
a					¢												a
b					.	\$	,	#	{	}	•	∞					b
c					<	*	%	@	'		-	•					c
d					(	)	_	'			[	]					d
e					+	;	>	=	+	±		≠					e
f					|		?	"	+		'	_					f
	0	1	2	3	4	5	6	7	8	9	a	b	c	d	e	f	

APPENDIX “B”

.1 SUBMISSION FORM

Comments, questions or suggestions regarding the National Master Specification (*NMS*) are always welcome. Please complete this *NMS* Submission Form and mail or fax it to the address as indicated below, or contact the NMS via our Web Site:

<http://www.tpsgc-pwgsc.gc.ca/biens-property/ddn-nms/cn-cu-ddn-nms-eng.html>

.2 NMS SUBMISSION FORM MAILING ADDRESS

Chief
National Master Specification Secretariat
Real Property Branch
Public Works and Government Services Canada (PWGSC)
Place du Portage, Phase III, 8B1
11 Laurier Street, Gatineau, Québec K1A 0S5
fax 819-956-3287
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.3 COMMENTS, QUESTIONS, SUGGESTIONS

SECTION NUMBER: _____ PARAGRAPH NUMBER: _____

NOTE: Attach extra sheets as required. A response will be provided to each submission when name and address are provided.

INSERT YOUR COMMENTS HERE :

SUBMITTED BY: (Print or type name and address)

DATE:

END OF NMS USER'S GUIDE