

SPEC NOTE: This master specification section is produced by ArcelorMittal Dofasco ("ArcelorMittal") and is provided to assist specification writers in implementing the Government of Canada's "Buy Canadian" steel requirements and the Government of Canada's Policy on Green Procurement.

This master specification is intended to be used by properly licensed architects, engineers and/or designers and includes SPEC NOTES to assist designers in their due diligence and decision-making process. SPEC NOTES precede the text to which they apply. This section should serve as a guideline only and should be edited by a knowledgeable person to meet the requirements of each specific Project. Text indicated in bold or by square brackets is optional or requires a selection. Make appropriate decisions and delete the optional text as well as the brackets in the final copy of the specification. Delete or hide all SPEC NOTES in the final version of the document.

While this document has adopted the general formatting and style of the National Master Specification (NMS), **it is not an official NMS specification.**

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Pre-engineered metal building systems offer a highly efficient alternative to conventional wide-flange (W-section) framing. Since W-sections are not milled in Canada, utilizing pre-engineered systems constructed from domestic plate, purlins, and girts allows for significantly higher Canadian material content. Additionally, these custom frames align structural capacity directly with project demands, optimizing load paths and reducing overall steel weight. This targeted material efficiency directly lowers the building's total embodied carbon footprint.

Part 1 General

SPEC NOTE: Public Services and Procurement Canada (PSPC) discourages the use of a 'Summary' article. Delete the following article if this is a PSPC project.

1.1 SUMMARY

.1 [xxx]

1.2 RELATED REQUIREMENTS

SPEC NOTE: List other Sections that are referenced in this Section, which contain specific information that the reader might expect to find in this Section, but is specified elsewhere. Typically, this list does not include Division 00 or Division 01 Sections.

- .1 Section [xxx].
- .2 Section 07 92 00 - Joint Sealants.

1.3 DEFINITIONS

SPEC NOTE: GREEN PROCUREMENT: Retain paragraph below if the project includes Embodied Carbon requirements. An Environmental Product Declaration (EPD) with the supporting Product Category Rule (PCR) and Life Cycle Assessment contains information that can be used to determine whether a product can be incorporated into the project to reduce global warming potential (embodied carbon) and its contribution towards the environmental impact categories.

- .1 Environmental Product Declaration (EPD): Third-party verified documentation with the supporting Product Category Rule (PCR) and Life Cycle Assessment (LCA) information. Prepared in accordance with ISO 14025, 14040, 14044, and ISO 21930. Consideration will be given to EPDs prepared in accordance with EN 15804. EPD must have at least a cradle-to-gate scope.
 - .1 Industry-wide (generic) EPD with third-party certification (Type III), including external verification in which the manufacturer is recognized as the participant by the program operator.
 - .2 Product-specific Type III EPD - Products with third-party certification (Type III), including external verification in which the manufacturer is recognized as the participant by the program operator.

SPEC NOTE: The following definitions are in accordance with the Policy on Prioritizing Canadian Materials in Federal Procurements, "Appendix C: Materials" available here:
https://Canadabuys.Canada.ca/en/buy-canadian-policy/policy-prioritizing-canadian-materials-federal-procurements#Appendix_C

- .2 Canadian Steel: Steel that is melted and poured (i.e., created from the initial transformation of raw materials) in Canada and the finished products made from that steel.
- .3 Steel melted and poured in Canada: Raw steel, or any portion of the raw steel, contained in the material first produced in a liquid state in a steel-making furnace and poured into its first solid state in Canada. Solid state can take the form of a semi-finished or finished steel mill product.
- .4 Mill Test Report (MTR): A certified document provided by primary steel manufacturer indicating the chemical and physical properties of the steel, and stating location of mill where steel was melted and poured.

1.4 REFERENCE STANDARDS

SPEC NOTE: List standards referenced within this Section for a specific project. Ensure the list below is edited to include only standards relevant to the specific product being specified.

- .1 ASTM International (ASTM)
 - 1. ASTM A653/A653M: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - 2. ASTM A792/A792M: Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
 - 3. ASTM A1008/A1008M: Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable

4. ASTM A1011/A1011M: Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength

SPEC NOTE: GREEN PROCUREMENT: Retain ISO standards 14025 through 21930 below only if EPDs and Embodied Carbon requirements are included in this Section.

- 2 International Organization for Standardization (ISO):
 1. ISO 9001-[2015], Quality management systems — Requirements.
 2. ISO 14025-[2006], Environmental labels and declarations — Type III environmental declarations — Principles and procedures.
 3. ISO 21930-[2017], Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services.

- 3 Government of Canada:
 1. Policy on Prioritizing Canadian Materials in Federal Procurements.

SPEC NOTE: GREEN PROCUREMENT: Retain the following two standards only if green procurement and embodied carbon requirements apply to the project.

2. Standard on Embodied Carbon in Construction.
3. Policy on Green Procurement.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

SPEC NOTE: The following submittals are required to verify compliance with the Government of Canada's "Buy Canadian" policy. They require the Contractor to provide formal, documented proof that they have met both material origin and embodied carbon requirements. Ensure this aligns with the administrative requirements in Division 01.

- .1 Buy Canadian and Green Procurement Submittals:

SPEC NOTE: Under Policy on Prioritizing Canadian Materials in Federal Procurements, "Appendix D: Canadian Materials Certification" is a mandatory Bid Submittal. Ensure this certification is included in Division 00 - Procurement Requirements. The submittal below serves as post-award verification.

- .1 Submit signed "Appendix D: Canadian Materials Certification", attesting that steel provided for this Section will be melted and poured in Canada.

SPEC NOTE: While standard MTRs typically include heat numbers, chemistry, and mechanical properties, requesting the physical location of melting and pouring operations is important for enforcing the "Buy Canadian" policy. It prevents contractors from submitting MTRs from domestic "finishers" or "coaters" who are simply processing foreign-melted steel.

- .2 Mill Test Reports (MTRs): Submit certified MTRs for metal building systems delivered to the site. MTRs must indicate the following:
 - .1 Name of country where steel was melted and poured ('Country of Melt').
 - .2 Name and physical location, including city, and province or territory, of primary steel mill from which steel was shipped. .
 - .3 Name and physical location of facility where steel was forged or coated, if different from shipping mill.
 - .4 Applicable material specification, grade, and Heat Number corresponding to the delivered product.

SPEC NOTE: GREEN PROCUREMENT: Retain following Articles ONLY if the project is required to track Embodied Carbon or comply with Green Procurement Guidelines.

- .2 Environmental Product Declarations (EPD): Submit facility-specific Type III EPD complying with ISO 14025 and ISO 21930, in machine-readable format for each steel product listed in this Section.
 - .1 Submit completed Embodied Carbon Project Disclosure Template as specified in Government of Canada's Standard on Embodied Carbon in Construction – Appendix B (Table B.2):
 - .1 Identify specified steel materials that will be included in the Project's Embodied Carbon Disclosure, including the structural materials listed in Appendix A of the Standard.
 - .2 Identify required information that will be reported on each relevant steel construction product, noting the location of the melting mill and the fabricating facility.
 - .3 Determine the quantities (in metric tons) supplied to the Project for each steel product being disclosed.
 - .4 Collect EPDs to verify the carbon footprint of the delivered materials.
 - .5 Complete the Embodied Carbon Project Disclosure Template with all relevant details for each eligible steel product in accordance with the Standard.
 - .6 Submit the completed Embodied Carbon Project Disclosure Template, all associated EPDs, consolidated MTRs, and/or a third-party verified LCA report for review before project completion.
 - .2 Notify **[Departmental Representative]** **[DCC Representative]** **[Consultant]** at the earliest opportunity if unable to procure domestically-manufactured Canadian steel products with an equivalent or lower embodied carbon than those specified due to lack of market availability or specialized shape requirements.

1.6 QUALITY ASSURANCE

- .1 Steel Mill Qualifications: Melting and manufacturing facilities located within Canada, operating under quality management system registered to ISO 9001, and capable of producing steel conforming to ASTM A36/A36M, ASTM A500/A500M, ASTM A529/A529M, or ASTM A572/A572M.
 - .1 Mill must be capable of providing certified MTRs that state location of melting and rolling operations to verify compliance with Government of Canada's Policy on Prioritizing Canadian Materials in Federal Procurements.

Part 2 Products

2.1 MATERIALS

SPEC NOTE: Government of Canada's Policy on Prioritizing Canadian Materials in Federal Procurements mandates the use of domestically produced materials for construction procurements valued at \$25 million or greater and where the steel package is \$250,000 or greater. While the policy mandates 100% target for covered materials, it recognizes that certain specialized structural shapes or grades may not be locally available. Exceptions to this policy (e.g., "No capacity or availability" or situations where domestic sourcing causes an overall cost increase of 25% or more) require rigorous market analysis and formal Ministerial approval. Retain 80% target below to enforce baseline requirements. If the Contractor cannot source a specific steel component domestically during construction due to capacity or availability

issues, they must use the formal Waiver/Exception request procedures with documented proof from suppliers to substitute foreign steel.

In lieu of conventional wide-flange (W-section) members, project teams may consider alternative steel framing solutions that can improve material efficiency, reduce reliance on specific rolled shapes, and support Canadian sourcing objectives where appropriate. At present, there are no plants that manufacture W-sections in Canada, and W-beams specified on projects are typically sourced from outside Canada. Designs that rely exclusively on W-sections may therefore constrain the proportion of steel that can be domestically produced.

Alternative systems such as built-up plate girders (including three-plate girders), joist girders and open-web systems, or pre-engineered building systems incorporating purlins and girts may offer greater flexibility in sourcing steel components fabricated in Canada. These systems can allow increased use of Canadian-made plate and merchant bar products, which are produced domestically and can form a significant portion of the overall steel tonnage.

In addition to supporting domestic supply chains, these alternative systems may enable closer alignment of member capacity with structural demand, optimization of spans and load paths, and reduction of overall steel mass, contributing to lower total embodied carbon at the system level.

Suitability of alternative systems will vary by project type, geometry, and performance requirements. Early engagement with steel suppliers, fabricators, joist manufacturers, and pre-engineered building providers is encouraged to evaluate system options, material availability, constructability considerations, domestic content, and embodied carbon implications during the early stages of design.

- .1 Canadian Steel Procurement Targets: **[80%]** of steel used for work by weight of this Section must be melted and poured in Canada. Coordinate with Section 01 61 33 - Canadian Steel Procurement Procedures.

- .1 Raw steel, or any portion of the raw steel, contained in the material must be first produced in a liquid state in a steel-making furnace and poured into its first solid state in Canada.

SPEC NOTE: GREEN PROCUREMENT: Retain "Embodied Carbon Targets" below to align with Green Procurement limits. The following values establish national tiered embodied carbon limits for steel construction products. Select the appropriate target based on the Project's carbon reduction goals. The first bracketed option represents the Best 20% Embodied Carbon (EC) limit. The second bracketed option represents the Best 40% EC limit. The third bracketed option represents the Best 50% EC limit. Limits are for fully fabricated products except where otherwise specified and are applicable only to carbon steel and low-alloy steel products at this time. Refer to NRC's National Tiered Greenhouse Gas Emissions Limits For Steel Construction Products: <https://nrc-publications.Canada.ca/eng/view/author/version/?id=e33c6800-6f6a-4fc8-b0e4-a0e10113c4ba>

Embodied carbon performance is influenced by both how carbon-intensive a material is and how much material is required to achieve the design intent. Selection of steel products should therefore consider total mass in addition to carbon intensity per unit mass.

In some cases, a lightweight or materially efficient steel system may result in lower total embodied carbon than a system with marginally lower carbon intensity but higher overall steel quantity.

Project teams are encouraged to evaluate embodied carbon outcomes at the system level, rather than assessing products in isolation. This includes comparing alternate framing concepts, span strategies, and load-resisting systems where such evaluation aligns with the project scope. Early engagement with steel

suppliers and fabricators is encouraged to leverage their expertise in system optimization, material efficiency, and available low-carbon solutions.

- 2 Embodied Carbon Targets: Provided compliance with the structural performance requirements is satisfied, provide domestic metal building systems products that comply with the maximum Global Warming Potential (GWP) target value specified below:
 - .1 Hot-rolled sections: Maximum [1,008] [1,105] [1,140] kg CO₂e/t
 - .2 Hot-rolled sections (unfabricated): Maximum [820] [898] [927] kg CO₂e/t
 - .3 Hollow structural sections: Maximum [1,542] [1,810] [1,908] kg CO₂e/t
 - .4 Hollow structural sections (unfabricated): Maximum [1,329] [1,560] [1,645] kg CO₂e/t
 - .5 Structural plate: Maximum [1,476] [1,646] [1,709] kg CO₂e/t
 - .6 Structural plate (unfabricated): Maximum [1,262] [1,407] [1,461] kg CO₂e/t
 - .7 Cold-formed steel sections and panels: Maximum [1,721] [2,242] [2,355] kg CO₂e/t
 - .8 Sheet steel deck: Maximum [1,860] [2,034] [2,213] kg CO₂e/t
 - .9 Hot-rolled sheet, strip, plate: Maximum [1,158] [1,401] [1,505] kg CO₂e/t
 - .10 Cold-rolled sheet, strip, plate: Maximum [1,848] [2,021] [2,102] kg CO₂e/t

Part 3 Execution

NOT USED

END OF SECTION