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**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1        The list of work sections in this division is indicative and non-exhaustive. It does not exclude the works described in the other specification sections, shown in the drawings or necessary for the execution of the works in keeping with overall intent of the plans.
- .2        Section 05 12 23 – Steel construction.
- .3        Section 06 10 00– Carpentry.

**1.2            SCOPE OF WORK**

- .1        Provide all labor, expertise, equipment and materials for the manufacture, delivery and erection of the complete structure of wood in perfect integrity with the other components.

**1.3            WORK RELATED**

- .1        In addition to all the wooden parts required to estimate which this section refers, provide :
  - .1        Connecting plates, bolts, studs and galvanized brackets for assembling the pieces of wood.
  - .2        Plates, angles and anchor bolts to concrete.
  - .3        Nails, screws and rivets.
  - .4        Nailing and hold.

**1.4            REFERENCE CODES AND STANDARDS**

- .1        Unless otherwise indicated, use the most recent editions of reference standards.
- .2        The following codes and standards must be met :
  - .1        Quebec Construction Code.
  - .2        National Building Code 2005 and comments on the design of structures (Part 4).
  - .3        Canadian Standards Association (CSA) / CSA International :
    - .1        CSA B111-1974 (R1998), Wire Nails, Spikes and Staples (nails, plugs and steel wire jumpers).
    - .2        CSA G40.20 / G40.21-98, General Requirements for Rolled or Welded Structural Steel / Structural steels.
    - .3        CAN / CSA- G164 - fm92 (R1998) Hot dip galvanizing of irregularly shaped objects.
    - .4        CAN / CSA Series O80-97, Wood Preservation.
    - .5        CAN / CSA- O86-09, Engineering Design in Wood (Engineering Design in Wood).

- .6 CSA O112 Series- M1977 (R2001), CSA Standards for Wood Adhesives.
- .7 CAN / CSA- O122 - FM89 (C1999) Structural Members glulam timber.
- .8 CAN / CSA- O177 - FM89 (R1998), Qualification Rules glulam structural elements manufacturers.
- .9 CAN / CSA- S16-01, Limit States Design of Steel Structures (Structural Design of Steel Structures to limit states).
- .10 CSA W47.1 - F92 (C2001) Welding Certification of Companies for Fusion of steel structures.
- .11 CAN / CSA- Z808 - F96, Sustainable Forest Management : a paper guide.

## **1.5 ASSEMBLY DESIGN**

- .1 The manufacturer is responsible for designing and supplying all the connectors required for the assembly of the frame. These connectors have to be designed to meet the structural requirements shown in the plans and respect the basic architectural requirements.
- .2 Deliver Departmental Representative, upon request of the latter, a copy of the calculation of all the assemblies. The responsibility to provide adequate assemblages in terms of size, capacity and general arrangement remains with the Contractor despite anything to the contrary that may contain the above reference standards.
- .3 When a connection occupies a space that goes beyond the footprint of connected frames, a check must be made to the architect to ensure that any conflicts or interference is avoided.

## **1.6 SHOP DRAWINGS**

- .1 Submit shop drawings and assembly required under the " Shop Drawings, product descriptions and samples ".
- .2 Submit the required installation drawings.
- .3 Indicate on shop drawings, stress resistance, service classes and finishing elements, finished at the factory, camber, nicks, ledgers, holes and details of assembly.
- .4 All shop drawings shipments and installation related to items designed by the manufacturer or the manufacturer stamped and signed by professional engineer registered or licensed to practice in Quebec.
- .5 Checking shop drawings will be accompanied by the representatives of the Ministry of engineering and architecture.

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## **1.7 COMPLIANCE CERTIFICATES – C.S.S.T.**

- .1 The Contractor shall provide the Commission of Health and Safety at Work Quebec (CSST), all the certificates by the latter under the security code for the construction or the Occupational Health and Safety Act of work, including those to be signed by an engineer member of the Order of Engineers of Quebec, notably regarding compliance of the installation of the anchor rods poles to the timeline and the procedures regarding compliance mounting when the posts are anchored with less than four ( 4) anchor rods (ref . 3.24.10 3.24.11 articles and the "Regulatory safety Code for Construction and health Regulations and the work safety ").
- .2 Contractor will have to design the installation and verify the installation of the anchor rods, so as to be able to provide these certificates.

## **1.8 QUALIFICATIONS OF WORKFORCE**

- .1 Structural members laminated must be manufactured in a factory certified under the requirements of CAN / CSA- O177 standard.
- .2 At the end of manufacturing jobs, submit a certificate in accordance with the requirements of CAN / CSA - O177, Schedule B, or proprietary products, a certificate of compliance in connection with the evaluation report listed in the " product evaluation Digest " published by the Canadian Construction materials Centre (CCMC).
- .3 The manufacturer of welded steel structure assemblies must be certified under CSA W47.1.
- .4 Apply on structural members glulam, probate labels indicating that these elements were manufactured in a factory certified by CSA, or proprietary products, the evaluation report number listed in the " Software Evaluation Reports " issued by the Canadian Construction materials Centre (CCMC).

## **1.9 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, handle, store and protect the equipment and materials.
- .2 Unless otherwise stated, apply a sealer on the elements glulam before shipping, to protect them.
- .3 Before they leave the factory, wrap the items in a moisture-proof packaging.
- .4 Use sheathed slings and non-marking for handling the glulam elements.
- .5 Protect edges of the elements using wooden blocks.
- .6 Hacking the packaging film at a point in the elements during storage on site, and take care not to damage them.

- .7 Store glued on blocks of wood elements to avoid direct contact with the ground, separated with wedges to allow free air circulation on all sides and protect against the elements.
- .8 If glulam elements are stored outdoors, cover with an opaque envelope moisture resistant.
- .9 Take steps to protect items against the constraints they may suffer during transport and handling.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Wood for glulam elements : wood species, the minimum requirements comply with the requirements specified on the plans. Humidity 15 % max.
- .2 All laminated wood pieces will have a level of finish "architectural" according to CSA - 0122.
- .3 All cross-laminated timber panels will have a level of finish "architectural " on one side and finishing "commercial " on the other to CSA -0122. The side panels whose finish is "architectural" must be affixed on the exposed side.
- .4 Minimum resistance qualities, depending on the application of the room, are specified in the plans, depending on the sector and needs.
- .5 Adhesive : conforms to CSA O112, appropriate for the type of service, according to the requirements of CAN / CSA- 0122 standard.
- .6 Interior finish for glulam elements : Unless otherwise stated in the specifications, apply a clear sealer against moisture and UV, as recommended by the manufacturer to protect the wood to the site. The color of the sealant will be chosen by the architect.
- .7 Structural Steel :
  - .1 Split ring Studs : steel hot-rolled carbon, SAE 1010, meeting the requirements of SAE manual.
  - .2 Connectors :
    - .1 Pressed steel : steel hot-rolled carbon, SAE 1010, meeting the requirements of SAE manual.
    - .2 Malleable : according to ASTM A 47 / A47M.
    - .3 Bolts : according to ASTM A 307 standard.
    - .4 Side plates : according to CAN / CSA - G40.20 / G40.21 or ASTM A 36.
    - .5 Assembly spindles according to ASTM A 307 standard.
    - .6 Rivets glulam elements : hot dip galvanized, according to CAN / CSA- G40.20 / G40.21 or ASTM A 36.

- .7 Nails and ankles to CSA B111.
- .8 Thrust plates : galvanized sheet steel thin, ASTM A 653, Type A.
- .9 Hot dip galvanizing : zinc coating of 610 g / m<sup>2</sup>, according.

## **2.2 DIMENSION**

- .1 The pieces of wood dimensions may be adjusted, subject to the approval of the Departmental Representative to comply with manufacturing standards. Dimensions shown in the plans are the minimum dimensions to meet.

## **2.3 FABRICATION**

- .1 Mark glulam elements so that we can identify during assembly. Brands should not be visible once the assembly is completed.
- .2 Do not apply sealer to the surfaces to be dyed or treated with preservative.
- .3 Unless otherwise stated, designing the assembly parts in accordance with CAN / CSA-O86 and CAN / CSA- S16, so that they are resistant to shear stresses, at the times indicated and efforts.
- .4 Connectors required for the foundation of the main farms to masonry walls must be of stainless steel A167 grade whose yield is at least equal to 205 MPa. All other connectors have to be coated with a gray primer.

## **Part 3 Execution**

### **3.1 MOUNTING**

- .1 Protect sealer applied to the elements from damage during assembly work.
- .2 Touch up there, with the filler prescribed damaged parts coated elements.
- .3 Install the glulam elements in the assembly drawings.
- .4 Brace and anchor elements to their final subjugation in the book.
- .5 Provide constraints exercisable on the elements during their assembly.
- .6 Splices and only joined the locations indicated on the assembly drawings.
- .7 Do not cut or alter the construction framing members glulam without prior authorization; where appropriate, coating all cut ends of a preservative.
- .8 Recover reusable timber parts.

**3.2 CLEANING**

- .1 Leave own all timber and provided to complement the work of other trades.
- .2 Once the work is completed, remove from site and surplus materials, tools, equipment and debris, so as to leave the site clean, all to the satisfaction of Departmental Representative.

**3.3 OVERLOAD ON STRUCTURE**

- .1 The Contractor must ensure not to overload the structures in place or in progress beyond the allowable loads shown in the plans.

**END OF SECTION**