

**GENERAL CONSTRUCTION NOTES:**

- Reference Standards: Unless noted otherwise, all standards shall be current edition, with latest addenda, if applicable.
- Contractor shall verify all existing dimensions, member sizes, and field conditions prior to any demolition, fabrication, construction, or installation and notify Structural Engineer of Record if conditions, materials, sizes, and dimensions are different from those shown.
- The contract structural drawings and specifications represent the finished structure. Unless otherwise indicated, they do not indicate the means or method of construction. The contractor is solely responsible for the protection of the structure during all phases of demolition, construction, and installation.
- Cross reference all dimensions and details with architectural and mechanical drawings before commencing any fabrication and/or construction.
- Details and conditions not specifically shown shall be constructed in accordance with details shown for similar conditions and materials.
- Shop drawings prepared by suppliers, sub-contractors, etc. shall be reviewed, coordinated, and signed/stamped by the contractor prior to submitting to the Structural Engineer of Record. The Structural Engineer of Record's review of shop drawings, product data, design calculations, etc., does not relieve the contractor from complying with the contract documents.
- Verify location of all box outs and openings. Opening sizes and locations shown for pipes, ducts, mechanical units, etc. are for general information only and shall be verified with all trades before commencing the work.
- Contractor is solely responsible for protection of the existing building during all phases of construction.
- No structural repairs, connections, or alterations of work affecting a structural member shall be made without the approval of the Structural Engineer of Record. Design and/or review may be an additional service.
- Do not scale the drawings.

**DESIGN CRITERIA LOADS AND STRESSES:**

**CODES:**

- 2020 Minnesota State Building Code
- International Building Code (2018)
- Minimum Design Loads for Buildings and Other Structures (ASCE 7-16).

**DESIGN LOADS:**

WIND DESIGN CRITERIA	
Ultimate Design Wind Speed (3-sec gust), $V_u$	116 MPH
Normal Design Wind Speed (3-sec gust), $V_{90}$	90 MPH
Risk Category	III
Wind Exposure	'C'
Internal Pressure Coefficients	$GC_{pi} = +/- 0.18$

ROOF SNOW LOAD DATA*	
Ground Snow Load, $P_g$	50 PSF
Snow Exposure Factor, $C_e$	1.0
Snow Load Importance Factor, $I$	1.1
Thermal Factor, $C_t$	Heated $C_t = 1.0$ Unheated $C_t = 1.2$
Slope Factor, $C_s$	$C_s = XX$
Flat Roof Snow Load, $P_f$	Heated $P_f = 38.5$ PSF + drifting Unheated $P_f = 46.5$ PSF + drifting

\*See Plan for Unbalanced Snow Loads & Snow Drift Loads

**ROOF LIVE LOADS:**

- 20 PSF Minimum Roof Live Load
- 40 PSF Access Platform

**STEEL: (Fy)**

- 50,000 PSI ASTM A992 wide-flange shapes
- 36,000 PSI ASTM A36 plates, channels, and angles, etc.
- 50,000 PSI ASTM A500 grade C structural tubes (HSS)
- 35,000 PSI ASTM A53 type E or S, grade B steel pipe
- 46,000 PSI ASTM A500 grade C structural pipe (HSS)
- 92,000 PSI ASTM A325 high strength bolts

**TEMPORARY BRACING:**

- Provide temporary lateral support for all walls where grade varies on the two sides until slab has reached its design strength.
- Provide temporary bracing for all walls, concrete, masonry, light gage metal, or wood until they are of adequate design strength and are properly anchored in final form.
- Provide temporary shoring for all existing walls, floors, and roof members until new construction is in place and properly anchored or cured in final form.
- All temporary shoring is to be designed by a specialty shoring contractor, by a Professional Engineer licensed in the state of the project, at the expense of the contractor.
- Contractor shall provide adequate bracing and shoring during all phases of construction and erection of the structure.

**TYPICAL LINTEL TYPES AND NOTES:**

- Verify size and location of all mechanical, U.V., U.H., louver, and duct openings with mechanical contractor.
- For all openings through masonry walls not shown, including mechanical and electrical openings, provide one of the following: (unless noted otherwise)
  - Steel angle lintels:
    - (1) L 3 1/2" x 3 1/2" x 1/4" for each 4" thickness of wall for spans up to 4'-0".
    - (1) L 5" x 3 1/2" x 5/16" (LLV) for each 4" thickness of wall for spans up to 5'-0".
    - (1) L 6" x 3 1/2" x 5/16" (LLV) for each 4" thickness of wall for spans up to 6'-0".
- Fill lintel blocks solid with 3000 PSI grout (3/8" maximum aggregate). Provide 8" minimum bearing each end of masonry lintel, unless noted otherwise.
- All steel lintel beams to bear a minimum of 8" on grouted or solid masonry, unless noted otherwise. All steel lintel angles to bear a minimum of 6" on solid or grouted masonry, unless noted otherwise.
- Carry bottom plate of lintel beam onto wall 8" at each end. Bottom plate shall be copped 1/2" each side so that width of plate on wall is 2" less than nominal wall thickness.

**GENERAL STEEL NOTES:**

- Construction of structural steel shall comply with the provisions of "AISC 360-16 Specification for Structural Steel Buildings" and "AISC 341-16 Seismic Provisions for Structural Steel Buildings."
- All shop connections shall be welded or bolted, field connections shall be bolted, unless noted otherwise. Bolted connections shall be Bearing Type (snug-tightened) and shall be made with a minimum of 3/4" ASTM A325-N Bolts. Direct-Tension Indicators are acceptable substitutions.
- All welds as per latest specifications of the AWS - E70xx electrodes.
- Before encasing steel columns in concrete or masonry, paint column bases and tops of anchor rods with asphaltic paint.
- The structural fabricator shall furnish all plates and angles cast in bond beams, concrete walls, or columns to support steel joists, beams, and steel deck.
- 'C' denotes beam is continuous over columns, 'S' denotes beam simple shear splice.
- All steel beams shall be true to line and elevation, column base plates grouted, and anchor rods tight before any loads are placed.
- All column base and cap plates to be welded around all sides.
- All welds not specified are 3/16" fillet weld, continuous and/or all around.
- Structural fabricators shall show all welding requirements on structural steel shop drawings.
- Fabricator shall select AISC simple shear connections for steel beams capable of carrying either the reaction load indicated or the reaction load calculated and based on tributary area or at a minimum 50% of the total shear capacity, whichever is less.
- Cuts, holes, or openings required in structural steel members for the work of other trades shall be shown on the shop drawings. Burning of holes and cuts in structural steel members in the field shall not be allowed, except by written permission from the Structural Engineer of Record.
- The contractor shall provide 500 pounds of structural steel contingency material to be fabricated and erected as directed by the Structural Engineer of Record. Cost of material, labor, delivery, and associated services are to be included in the bid amount.
- All connections not specifically detailed shall be designed by the fabricator. Detailing shall be performed using rational engineering design and standard practice in conformance with the contract documents. The general details shown on the drawings are approximate only and do not indicate the required number of bolts, weld requirements, etc., unless specifically noted.
- Galvanized fastener notes:
  - All threaded components of the fastener assembly (i.e. bolt, nut, washer, etc.) must be galvanized by the same galvanizing process.
  - The bolt supplier shall be limited to one process for galvanizing per item with no mixing of process in a lot.
  - High-Strength bolts, nuts, and washers must be treated as a fastener assembly and should not be mixed together.
  - The supplier must supply nuts that have been lubricated and tested with the supplied High-Strength bolts.

**STATEMENT OF SPECIAL INSPECTION:**

Special Inspections and Testing requirements per Chapter 17 of the IBC in addition to Section 110 of the IBC (Inspection performed by the Building Official). See Specs. for additional information.

Structural Testing & Special Inspection Program Summary Schedule			
IBC Section	Material	Type of Inspector	Report Frequency
1704.2.5	Shop Fabrication	SI-S	Upon Completion
1705.2	Steel	SI-S	Weekly
1705.3	Concrete	SI-S	Weekly
1705.4	Masonry	SI-S	Weekly
1705.5	Wood	SI-S	Weekly
1705.6	Soils/Earthwork	SI-T	Upon Completion
1705.7-1705.9	Deep Foundation	SI-T	Upon Completion

SI-S Special Inspector-Structural  
SI-T-Special Inspector-Technical

**1703.1 - APPROVALS**

- Agency must be approved by the Building Official or AHJ.
- Agency must be independent of the contractor responsible for work and disclose possible conflicts of interests.

**1704.2.4 - SPECIAL INSPECTOR RESPONSIBILITIES:**

- Submit inspection reports to the Building Official, Architect, Engineer of Record (EOR), and Contractor, stating the work was or was not in conformance with construction documents.
- Discrepancies shall be brought to the immediate attention of the contractor for correction.
- If discrepancy is not corrected, it shall be brought to the attention of the building official and EOR in a timely manner to provide remediation or acceptance prior to the completion of work.
- Submit a final report documenting required special inspections and correction of any discrepancies noted.

**1704.2.5 - FABRICATION:**

Where fabrication of structural members and assemblies are being fabricated on the premises of a fabricator's shop, special inspection is required of the fabricated item.

Note: Where Special Inspection and Testing of Shop Fabricated Components is required, it shall conform to the Special Inspection and Testing required in the field for the material specific section the component is fabricated from.

Exception: Special Inspection of the Fabricator's shop is not required if approved per Section 1704.2.5.2.

In addition to the requirements below also comply w/ AISC 360-10 Chapter N

Welding Inspection Tasks	
Welding procedure specifications (WPSs) available	P
Manufacturer certifications for welding consumables available	P
Material identification (type/grade)	O
Welder identifications system (1)	O
Fit-up of groove welds (including joint geometry)	O
Configuration and finish of access holes	O
Fit-up of fillet welds	O
Check welding equipment	---
Use of qualified welders	O
Control and handling of welding consumables	O
No welding over cracked tack welds	O
Environmental conditions	O
WPS followed	O
Welding techniques	O
Welds cleaned	O
Size, length and location of welds	P
Welds meet visual acceptance criteria	P
Arc strikes	P
k-area (Z)	P
Backing removed and weld tabs removed (if required)	P
Repair activities	P
Document acceptance or rejection of welded joint or member	P

- The fabricator or erector, as applicable, shall maintain a system by which a welder who has welded a joint or member can be identified. Stamps, if used, shall be the low-stress type.
  - When welding of double plates, continuity plates or stiffeners has been performed in the k-area, visually inspect the web k-area for cracks within 3 in. (75mm) of the weld.
- O - Observe these items on a random basis. Operations need not be delayed pending these inspections.  
P - Perform these tasks for each welded joint or member

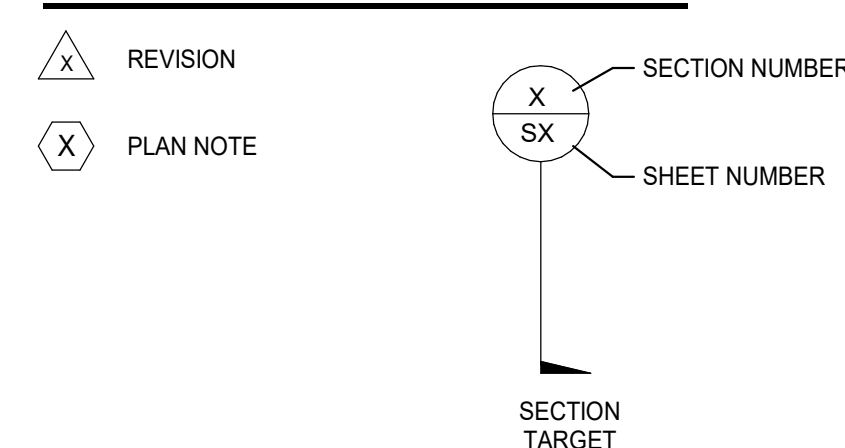
N5.5	
<b>Non-destructive Testing (NDT) of Welds shall be performed in accordance with AWS D1.1/D1.1M based on the following criteria:</b>	
1.	For structures in Risk Category III or IV, Ultrasonic Testing (UT) shall be performed on all Complete Joint Penetration (CJP) groove welds for materials 5/16" thick or greater.
2.	Structures in Risk Category II, UT shall be performed on 10% of CJP groove welds for materials 5/16" thick or greater.
3.	When flange or web thickness exceeds 2", thermally cut access holes shall be tested using Magnetic Particle Testing (MT) or Penetrant Testing (PT), any crack is unacceptable.
4.	Welded joints requiring soundness per Appendix 3, Table A-3.1 shall be tested by Radiographic Testing (RT) or UT. Reduction in the rate of UT is prohibited.
5.	Reduction rate for UT - Where the initial rate for UT is 100%, the NDT rate for an individual welder is permitted to be reduced to 25% provided the reject rate is 5% or less based on a minimum of 40 welds tested. For continuous welds over 3', each 12" increment shall be considered on weld.
6.	Increase rate for UT - Where the initial rate for UT is 10%, the NDT rate for an individual welder shall be increased to 100% if the reject rate is over 5% based on a minimum of 20 welds tested. Rate may be reduced if reduction rate criterion is met.

Boltng Inspection Tasks	
Manufacturer's certifications available for fastener materials	P
Fasteners marked in accordance with ASTM requirements	O
Proper fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane)	O
Proper bolting procedure selected for joint detail	O
Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	O
Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used	O
Proper storage provided for bolts, nuts, washers and other fastener components	O
Fastener assemblies, of suitable condition, placed in all holes and washers (if required) are positioned as required.	O
Joint brought to the snug-tight condition prior to the pretensioning operation	O
Fastener component not turned by the wrench prevented from rotating	O
Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid joint toward the free edges.	O
Document acceptance or rejection of bolted connections	P

- O - Observe these items on a random basis. Operations need not be delayed pending these inspections.  
P - Perform these tasks for each welded joint or steel member

N5.7	
Anchor Bolts and other embedded items supporting structural steel, verify diameter, grade, type, length of embedded item, and the embedment depth prior to placing concrete.	

**DRAWING SYMBOL LEGEND:**



**STRUCTURAL SHEET INDEX**

SHEET NUMBER	SHEET NAME
S1.0	GENERAL NOTES AND SPECIAL INSPECTION NOTES
S2.0	PARTIAL ROOF FRAMING PLAN AND SECTIONS
S2.1	PARTIAL ROOF FRAMING PLAN AND SECTIONS
GRAND TOTAL: 3	



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IMEG CORP. PROJECT # 21006107.00  
ISSUE # 000001  
IMD Design Firm Registration #194007637-0014

**REVISIONS**

REV NO	DESCRIPTION	DATE

**CROOKED LAKE  
ELEMENTARY SCHOOL**  
HVAC Replacement and Deferred  
Maintenance - Phase 3  
Anoka-Hennepin Schools I.S.D. No. 11  
2939 Bunker Lake Blvd NW  
Andover, MN 55304

**SIGNATURE / SEAL**

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

*Timothy G. LaBissoniere*  
Signature

Timothy G. LaBissoniere

Typed or printed name

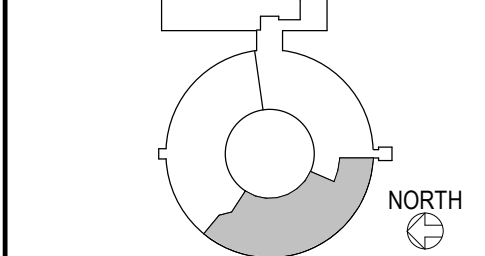
OCTOBER 27, 2021

Date

21387

License Number

**KEYPLAN**



DRAWN BY

EH

CHECKED BY

TGL

ISSUED FOR

CONSTRUCTION DOCUMENTS

ISSUE DATE

OCTOBER 27, 2021

SHEET NAME

GENERAL NOTES AND SPECIAL INSPECTION NOTES