STRUCTURAL GENERAL NOTES (PLATFORMS ONLY)

1. BUILDING CODE: 2006 INTERNATIONAL BUILDING CODE, (IBC);
2007 MN STATE BUILDING CODE, EXCEPT AS NOTED
AMERICAN INSTITUTE OF STEEL CONSTRUCTION ASCE 7–02

2. DESIGN LOADS:

A. ROOF LIVE LOAD 20 PSF

B. ROOF SNOW LOAD 39 PSF GROUND SNOW LOAD PLUS ACCUMULATION FOR IBC AND ASCE 7
FLAT ROOF SNOW, PF = 39 PSF
SNOW EXPOSURE FACTOR CE = 1.0
SNOW IMPORTANCE FACTOR IS = 1.1
SNOW THERMAL FACTOR CT = 1.0

C. WIND LOAD 90 MPH (3 SEC. GUST)
IMPORTANCE FACTOR 1.25
INTERNAL PRESSURE COEFFICIENT, GCPI +/– 0.18
WIND EXPOSURE C

D. LIVE LOAD: CORRIDOR: 100 PSF
STORAGE: 150 PSF
TRUCK LOADING: AASHTO HS20–44

GENERAL STRUCTURAL NOTES:

1. STRUCTURAL STEEL:

A. MATERIAL PROPERTIES:

STEEL PROPERTIES:	FY (PSI)	FU (PSI)	ASTM
W SHAPES.....	50,000	65,000	A992,A572
OTHER SHAPES, PLATES...	36,000	58,000	A36
STEEL PIPES	35,000	60,000	A53, GR B
HIGH STRENGTH BOLTS, BEARING CONN.	92,000	120,000	A325N
HIGH STRENGTH BOLTS SLIP CRITICAL CONNECTIONS, WHERE NOTED.....	92,000	120,000	A325N SC CLASS
NUTS.....	–	–	A563 HEAVY HEX*
WASHERS.....	36,000	58,000	F1554 GR 36
WELDING ELECTRODES...	–	E70XX	A233

* GRADE DH WHEN GALVANIZED. GALVANIZED STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH ASTM153 OR ASTM653 WHERE APPLICABLE.

B. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF THE AISC MANUAL OF STEEL CONSTRUCTION AND THE AISC CODE OF STANDARD PRACTICE WITH EXCEPTIONS NOTED IN THE SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ACCORDANCE WITH "COMPANY" PAINT SPECIFICATIONS.

C. EXCEPT AS NOTED, USE STANDARD FRAMED BEAM CONNECTIONS WITH 3/4" DIAMETER, (OR WELDED EQUIVALENT) A325–N BOLTS. INSTALL BOLTS IN ACCORDANCE WITH AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". ALL CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR. SELECT CONNECTIONS TO SUPPORT THE REACTIONS SHOWN ON THE PLAN. WHERE REACTIONS ARE NOT SHOWN, CONNECTION SHALL BE DESIGNED FOR A MINIMUM REACTION OF 10 KIPS. PROVIDE A MINIMUM OF 2 BOLTS FOR ALL CONNECTIONS. ALL BEAMS SHALL HAVE FULL DEPTH WEB STIFFENERS EACH SIDE OF WEBS ABOVE AND BELOW COLUMNS. ALL BOLTS SHALL BE TIGHTENED TO THE SNUG TIGHT CONDITION EXCEPT THOSE INDICATED ON THE DRAWINGS OR IN THE SPECIFICATION TO BE SLIP CRITICAL CONNECTIONS. FABRICATOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS PRIOR TO FABRICATION. ALL DETAILING SHALL CONFORM TO AISC AND OSHA ERECTION STANDARDS. COMPLIANCE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

D. CONNECTIONS SHALL BE AS FOLLOWS:

1. ALL SHOP CONNECTIONS SHALL BE WELDED OR BOLTED
2. ALL FIELD CONNECTIONS SHALL BE BOLTED UNLESS WELDS ARE SPECIFIED
3. BOLTS SHALL BE ASTMA325 IN ACCORDANCE WITH AISC 329
4. MINIMUM CONNECTION ANGLE SHALL BE 5/16"
5. MINIMUM GUSSET FLUTE THICKNESS SHALL BE 3/8"
6. BOLT DIAMETER FOR SECONDARY MEMBERS (STAIRS, ETC.) MAY BE 3/4", MIN.
7. ALL CONNECTIONS SHALL BE SYMMETRICAL

E. FILLET WELDS SHALL NOT BE LESS THAN 3/16".

F. HEADED ANCHOR STUDS (HAS) SHALL BE ATTACHED TO STRUCTURAL STEEL WITH EQUIPMENT APPROVED BY THE STUD MANUFACTURER ACCORDING TO THE STUD MANUFACTURER'S RECOMMENDATIONS.

G. WELDING SHALL BE DONE BY A CERTIFIED WELDER IN ACCORDANCE WITH AISC AND AWS SPECIFICATIONS AND RECOMMENDATIONS USING E70– ELECTRODES. WHERE NOT SPECIFICALLY NOTED, MINIMUM WELD SHALL BE 3/16" FILLET BY LENGTH OF CONTACT EDGE.

H. ALL POST–INSTALLED ANCHORS SHALL HAVE CURRENT NATIONAL EVALUATION REPORT, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

I. EXPANSION ANCHORS SHALL BE APPROVED "WEDGE" TYPE UNLESS SPECIFICALLY NOTED TO BE "SLEEVE" TYPE.

J. CHEMICAL ANCHORS SHALL BE APPROVED EPOXY OR SIMILAR ADHESIVE TYPE AND SHALL HAVE CURRENT NATIONAL EVALUATION REPORT. WHERE BASE MATERIAL IS NOT SOLID, APPROVED SCREEN TUBES SHALL BE USED.

K. GROUT BENEATH COLUMN BASE AND BEAM–BEARING PLATES SHALL BE
MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 7,500 PSI,
APPROVED PRE–BAGGED, NON–METALLIC, NON–GASEOUS, BLEED FREE,
NON–SHRINK, WHEN TESTED IN ACCORDANCE WITH ASTM C1107
GRADE B OR C AT A FLOW CONE FLUID CONSISTENCY OF 20 TO 30 SECONDS

2 PRECAST CONCRETE

A. THE DESIGN AND FABRICATION OF ALL PRECAST MEMBERS SHALL BE IN ACCORDANCE WITH BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI–318).

B. DETAILS OF ALL PRECAST MEMBERS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL. NO UNITS SHALL BE FABRICATED PRIOR TO THE APPROVAL OF SHOP DRAWINGS. BY THE ARCHITECT. ANY DESIGN ALTERATION MUST BE APPROVED BY THE ARCHITECT.

C. ERECTION AND HANDLING OF PRECAST MEMBERS SHALL BE ACCOMPLISHED IN SUCH A MANNER AS TO ASSURE THAT NO SECTIONS ARE OVER–STRESSED OR CHIPPED.

D. THE WELDING OF CONNECTIONS FOR ALL PRECAST ELEMENTS SHALL BE IN ACCORDANCE WITH AWS D1.1. WELDERS SHALL HAVE EVIDENCE OF PASSING THE AWS STANDARD QUALIFICATIONS TESTS.

3. REINFORCED CONCRETE:

A. DESIGN IS BASED ON "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318–05). CONCRETE WORK SHALL CONFORM TO "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301–05). STRUCTURAL CONCRETE SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTHS AS FOLLOWS:

		MAX SLUMP	MAX AGG.	AIR ENTR. (%)	MAX W/C
SPREAD FOOTINGS	4000 PSI	4	1–1/2	0	–
FOUNDATION WALLS	4000 PSI	4	3/4	6+/– 1.5	–
INT SLABS ON GRADE	3500 PSI	4	3/4	0	0.45
EXT. SIDEWALK	4500 PSI	4	3/4	6+/– 1.5	0.45

B. DETAILING, FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315) REINFORCING BARS SHALL CONFORM TO ASTM A615 AND SHALL BE GRADE 60. BARS TO BE WELDED SHALL CONFORM TO ASTM 706. AT SPLICES, LAP BARS 36 DIAMETERS. AT CORNERS AND INTERSECTIONS, MAKE HORIZONTAL BARS CONTINUOUS OR PROVIDE MATCHING CORNER BARS. AROUND OPENINGS, WALLS AND SLABS, PROVIDE 2–#5, EXTENDING 2'–0" BEYOND EDGE OF OPENING. IN CONTINUOUS MEMBERS, SPLICE TOP BARS AT MID–SPAN AND SPLICE BOTTOM BARS OVER SUPPORTS. PROVIDE INTERMITTENT SHEAR KEYS AT ALL CONSTRUCTION JOINTS & ELSEWHERE AS SHOWN ON THE DRAWINGS. EXCEPT AS NOTED ON THE DRAWINGS, CONCRETE/PROTECTION FOR REINFORCEMENT IN CAST–IN–PLACE CONCRETE SHALL BE AS FOLLOWS:

a. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"

b. CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 THROUGH #18 BARS 2"
#5 BAR, W31 OR D31 WIRE AND SMALLER 1–1/2"

c. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
SLABS, WALLS, #14 AND #18 BARS 1–1/2"
#11 BAR AND SMALLER 3/4"
BEAMS, COLUMNS: PRIMARY REINFORCEMENT 1–1/2"
STIRRUPS, TIES, SPIRALS 1–1/2"

C. PROVIDE SHEAR KEYS AT ALL CONSTRUCTION JOINTS AND ELSEWHERE AS SHOWN IN THE DRAWINGS. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A82–97a. EXPOSED EDGES AND CORNERS SHALL BE CHAMFERED 3/4". ANCHOR BOLTS FOR BEAM AND COLUMN BEARING PLATES SHALL BE PLACED WITH SETTING TEMPLATES.

4. GENERAL REQUIREMENTS

A. SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING TYPES OF WORK:
STRUCTURAL STEEL CONSTRUCTION INCLUDING:
a. ALL SHOP AND FIELD WELDING INCLUDING VERIFICATION OF WELD FILLER MATERIAL
b. MATERIAL VERIFICATION OF STEEL
c. ERECTION OF STEEL FRAMING AND VERIFICATION OF STEEL FRAMING OF JOINT DETAILS FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS – VISUAL INSPECTION OF ALL FIELD WELDS AND BOLTS SHALL BE PERFORMED

B. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMMEDIATELY NOTIFY THE "OWNER" SHOULD ANY EXISTING CONDITION NOT BE SHOWN, OR IF ANY EXISTING CONDITION DIFFERS FROM THOSE SHOWN ON THE DRAWINGS.

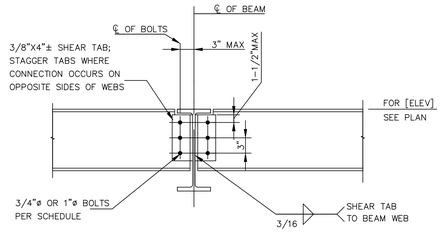
C. DURING ERECTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY BRACING TO WITHSTAND ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING LATERAL LOADS, STOCKPILES OF MATERIALS AND EQUIPMENT. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS REQUIRED FOR SAFETY AND UNTIL ALL STRUCTURAL FRAMING IS IN PLACE AND WITH CONNECTIONS COMPLETED.

D. ANY HOLES CUT IN NEW OR EXISTING CONSTRUCTION THAT ARE NOT DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE REVIEWED WITH THE STRUCTURAL ENGINEER.

E. THE STRUCTURE SHALL BE BRACED AND SHORED ADEQUATELY DURING CONSTRUCTION AGAINST WIND, ERECTION AND OTHER LOADS.

F. THE CONTRACTOR SHALL SUBMIT A PLAN TO THE ENGINEER OF RECORD SHOWING THE INTENDED UNDERPINNING PRIOR TO PROCEEDING WITH ANY CONSTRUCTION.

5. SUBMITTALS
a. SHOP DRAWINGS FOR STRUCTURAL STEEL
b. WELDER CERTIFICATION
c. SHOP DRAWINGS FOR PRECAST TO INCLUDE CALCULATIONS
d. SHOP DRAWINGS FOR MICROPILES TO INCLUDE CALCULATIONS
e. ALL CAST IN PLACE CONCRETE WORK AND REINFORCEMENT PLACEMENT



FRAMED BEAM CONNECTION SCHEDULE	
BEAM SIZE	NUMBER OF 3/4"ø A325 BOLTS
W6, W8, W10	2
W12, W14	3
W16	4
W18	5
W21	6
W24	7
W27	8
W30	9
3/4"ø A325 BOLTS TYPICAL	

TYPICAL WF BEAM-TO BEAM CONNECTION

NO SCALE

FRAMED BEAM CONNECTION SCHEDULE			
BM. SIZE	# OF 3/4"ø BOLTS	BM. SIZE	# OF 3/4"ø BOLTS
W8, W10	2	W21	6
W12, W14	3	W24	7
W16	4	W27	8
W18	5	W30	9

ASSUMPTIONS:

1. FLEXIBLE SUPPORT USING A325–N BOLTS IN SHORT SLOTTED HOLES
2. b/t < 37.3 FOR 46KSI TUBE STEEL
3. E70XX WELD ELECTRODES
4. Fy = 36KSI FOR FIN PLATES
5. BLOCK SHEAR AND BENDING CAPACITY OF COPED MEMBERS MAY GOVERN CAPACITY AND MUST BE CHECKED SEPARATELY
6. MINIMUM WEB THICKNESS, t_w FOR WIDE FLANGE BEAMS IS 3/16"

TYPICAL BEAM TO COLUMN CONNECTION

NO SCALE

WARNING
LOCATION OF ALL UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR.
CALL BEFORE DIGGING
MINNESOTA ONE–CALL SYSTEM
1–800–252–1166
REQUIRED BY MN STATUTE 216D

No	REVISION	DATE

PERFORMANCE DRIVEN DESIGN.
LHBcorp.com
701 Washington Ave. N, Ste 200 | Minneapolis, MN 55401 | 612.338.2029

TS&C Technical Services & Consulting, LLC
TECHNICAL SERVICES AND CONSULTING
1225 TOWER AVE
SUPERIOR, WI 54880
715–392–1879

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.
SIGNATURE
TYPED OR PRINTED NAME: SHAWNA L. KRATSCH
DATE: 01/23/2015 REG. NO.: 50979

APPROVED SERVICE LINE DIRECTOR DATE:	APPROVED INFECTION CONTROL NURSE DATE:		
APPROVED GEMS COORDINATOR DATE:	APPROVED PATIENT SAFETY DATE:		
APPROVED PROJECTS SECTION MANAGER DATE:	APPROVED CHIEF OF POLICE DATE:		
APPROVED DIRECTOR FMS DATE:	APPROVED SAFETY MANAGER DATE:		

DRAWING TITLE
GENERAL NOTES AND TYPICAL DETAILS
APPROVED ASSOCIATE HEALTH CARE SYSTEM DIRECTOR DATE:
APPROVED CHIEF OF STAFF DATE:
APPROVED HEALTH CARE SYSTEM DIRECTOR DATE:

PROJECT TITLE
656–14–247 REPAIR FOUNDATIONS
BUILDINGS 4, 7, 59
St. Cloud VA Health Care System
Main Campus, St. Cloud, Minnesota

BUILDING No GENERAL NOTES | CHECKED BY SLK | DRAWN JMH
LOCATION: VA MEDICAL CENTER ST.CLOUD, MN 56303
PLOT SCALE AS NOTED
PROJECT NO.
DRAWING NO. SS1.00 DWG 8 OF 17

St. Cloud VA Health Care System
Brainerd | Montevideo | Alexandria