

STRUCTURAL NOTES AND SPECIFICATIONS:

BUILDING CODES

- A. LATEST EDITION OF MINNESOTA STATE BUILDING CODE AND IBC.
- B. MEET REQUIREMENTS OF ALL PREVAILING CODES.

DESIGN LIVE LOADS

GROUND SNOW LOAD:	50 PSF
ROOF SNOW LOAD:	38.5 PSF*
FLOOR (PUBLIC, CORRIDORS, STAIRS):	100 PSF
FLOOR (OFFICE):	50 PSF
FLOOR (RESIDENTIAL):	40 PSF
FLOOR (MECHANICAL/LIGHT STORAGE):	125 PSF
WIND:	90 MPH, EXPOSURE C
SEISMIC:	DESIGN CATEGORY "A"
OTHERS:	PER BUILDING CODE

- * PLUS SNOW BUILDUP IN ACCORDANCE WITH BUILDING CODE.

FOOTINGS AND FOUNDATIONS

- A. MINIMUM FROST COVER FROM GRADE TO BOTTOM OF FOOTING IS 42 INCHES UNLESS NOTED OTHERWISE (60" IN UNHEATED AREAS).
- B. SOIL DESIGN ALLOWABLE BEARING CAPACITY IS 2000 PSF (ASSUMED). SOIL BEARING CAPACITY SHALL BE VERIFIED BY SOILS ENGINEER FAMILIAR WITH SITE AND SOIL CONDITIONS. CONTRACTOR SHALL FOLLOW ALL SOILS ENGINEER RECOMMENDATIONS. NOTIFY ENGINEER OF RECORD IMMEDIATELY OF ANY POOR SOIL CONDITIONS.
- C. FOOTING STEPS SHALL NOT EXCEED 24" UNLESS NOTED OTHERWISE, AND SHALL HAVE A MINIMUM SPACING BETWEEN STEPS OF AT LEAST TWICE THE STEP HEIGHT.
- D. FOOTINGS SHALL BEAR ON SUITABLE NATURAL SOIL OR COMPACTED FILL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SOILS ENGINEER. IF SOIL WITH QUESTIONABLE BEARING CAPACITY IS FOUND, CONTACT THE ENGINEER OF RECORD BEFORE PROCEEDING.
- E. FILL SHALL BE COMPACTED TO THE FOLLOWING MINIMUM STANDARD PROCTOR VALUES (ASTM D698) [IN ACCORDANCE WITH THE GEOTECHNICAL REPORT]:

SLAB ON GRADE:	95%
FOOTINGS:	98%
FROST FOUNDATION BACKFILL:	95%
BASEMENT BACKFILL:	80%
- F. UNLESS OTHERWISE INDICATED ON DRAWINGS OR BY THE SOILS ENGINEER, IN AREAS WHERE OVEREXCAVATION IS REQUIRED, THE EXCAVATION SHALL BE OVERSIZED A DISTANCE OF ONE FOOT BEYOND THE FOOTING EDGES FOR EACH FOOT OF EXTRA DEPTH.
- G. ALL COLUMN FOOTINGS SHALL BE CENTERED ON THE COLUMNS, AND WALL FOOTINGS SHALL BE CENTERED ON THE WALLS UNLESS NOTED OTHERWISE.

CAST-IN-PLACE CONCRETE

- A. DESIGN CODE: "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
- B. CONCRETE (f'c IS 28 DAY COMPRESSIVE STRENGTH OF CONCRETE):

FOOTINGS:	f'c=3000 PSI, 4" SLUMP, 1 1/2" MAX. AGR.
INTERIOR SLABS ON GRADE:	f'c=3500 PSI, 4" SLUMP, 3/4" MAX. AGR.
WALLS, GRADE BEAMS:	f'c=3500 PSI, 4" SLUMP, 3/4" MAX. AGR.
ALL EXTERIOR CONCRETE:	f'c=4500 PSI, 4" SLUMP, 3/4" MAX. AGR.
CORE AND BOND BEAM FILL:	f'c=3000 PSI, 6" SLUMP, 3/8" MAX. AGR.

ALL EXTERIOR CONCRETE SHALL BE AIR ENTRAINED 5 TO 7% (+/- 1%) BY VOLUME.
- C. REINFORCING STEEL: (NEW, DEFORMED AND CLEAN)
 - ASTM A185 FOR WELDED WIRE FABRIC.
 - ASTM A615 GRADE 60, GRADE 40 FOR STIRRUPS AND TIES.
- D. SEE "CONCRETE PROTECTION FOR REINFORCEMENT" SCHEDULE FOR MINIMUM COVER.
- E. REINFORCING SPLICES SHALL BE THE GREATER OF 40 BAR DIAMETERS OR 24" U.N.O.
- F. LOCATIONS AND SIZES OF ALL PENETRATIONS, HOLES, SLEEVES, ETC. SHALL BE COORDINATED WITH ALL TRADES.
- G. FURNISH AND INSTALL ALL CHAIRS, TIES, AND OTHER ACCESSORIES IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STD. PRACTICE".
- H. CONSOLIDATE ALL CONCRETE BY VIBRATING OR PUDDLING.
- I. ALL CONCRETE MIX DESIGNS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- J. CONCRETE CYLINDERS SHALL BE FIELD CURED FOR NOT LESS THAN 18 HOURS AND NOT MORE THAN 3 DAYS.
- K. ALL CONCRETE AND MASONRY CONSTRUCTION DURING HOT OR COLD WEATHER SHALL COMPLY WITH ACI 305R "HOT WEATHER CONCRETING" OR ACI 306R "COLD WEATHER CONCRETING" RESPECTIVELY.
- L. CONTROL JOINTS SHALL BE ZIPSTRIP OR SAWCUT (1/4 SLAB THICKNESS) AND CAULKED. CONTROL JOINT SPACING SHALL NOT EXCEED 36 MULTIPLIED BY THE SLAB THICKNESS, AND SHOULD NOT EXCEED 18' UNLESS APPROVED BY THE ENGINEER. REINFORCING STEEL SHALL BE CONTINUOUS THROUGH CONTROL JOINTS.
- M. CONSTRUCTION JOINTS SHALL BE CONSTRUCTED PER THE CONSTRUCTION JOINT DETAIL. CONSTRUCTION JOINTS SHALL BE INSTALLED IN CONTINUOUS LANES OR CHECKERBOARD PATTERN WITH SPACING NOT EXCEEDING 45 FEET, UNLESS OTHERWISE APPROVED.

MASONRY

- A. DESIGN CODE: "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI 530/ASCE 5/TMS 402).
- B. MASONRY (f'm IS 28 DAY COMPRESSIVE STRENGTH OF MASONRY):
 - HOLLOW CONCRETE MASONRY: ASTM C90, GRADE N, TYPE 1, STD. WT., f'm=1500 PSI.
- C. MORTAR AND GROUT: ASTM C-270 AND C-476.
 - TYPE "M" FOR ALL BELOW GRADE MASONRY.
 - TYPE "S" FOR ALL OTHER MASONRY.
- D. REINFORCING STEEL: SEE CAST-IN-PLACE CONCRETE SECTION.
- E. ABOVE GRADE MASONRY WALLS SHALL HAVE VERTICAL CONTROL JOINTS SPACED AT A MAXIMUM DISTANCE OF TWICE THE HEIGHT OF THE WALL, BUT NO MORE THAN 24 FEET. PROVIDE ONE #5 VERTICAL ON EACH SIDE OF CONTROL JOINTS, ENDS OF WALLS AND JAMBS UNLESS NOTED OTHERWISE.
- F. VERTICAL CONTROL JOINTS SHALL PASS THROUGH BOND BEAMS, WITH 3/4" ROUND STOCK IN LIEU OF REINFORCING PASSING THROUGH THE JOINT, GREASED ON ONE END.
- G. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, ALL MASONRY WALLS SHALL HAVE A BOND BEAM WITH TWO CONTINUOUS BARS AT THE TOP. JOIST BEARING CMU SIZE TRANSITIONS (EXAMPLE: 12" CMU TO 8" CMU, ETC.), BEARING ANGLE OR LEDGER LOCATIONS, OR ANY OTHER LOCATION SHOWN ON THE DRAWINGS.
- H. PROVIDE VERTICAL REINFORCEMENT FULL HEIGHT OF WALL (FOOTING TO TOP OF WALL). DOWEL INTO FOOTING (SEE DRAWINGS).
- I. ALL LINTELS OR STEEL BEAMS SHALL BEAR A MINIMUM OF 8" ON SOLID MASONRY. FILL BLOCK CORES UNDER ALL BEARINGS WITH CONCRETE COREFILL FOR A 16" LENGTH OF WALL FOR STEEL LINTELS OR 8" LENGTH FOR BOND BEAM LINTELS. ADD ONE #5 BAR VERTICAL UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- J. BOND BEAM REINFORCING SHALL BE CONTINUOUS THROUGH CORNERS AND STEPPED BOND BEAMS. ALL SPLICES SHALL BE LAPPED THE GREATER OF 48 BAR DIAMETERS OR 24".
- K. FILL ALL BOND BEAMS AND REINFORCED CORES WITH CONCRETE (SEE CAST-IN-PLACE CONCRETE SECTION FOR MATERIAL REQUIREMENTS).
- L. VERIFY ALL DOOR LOCATIONS, SIZES AND EMBEDMENT REQUIREMENTS WITH ARCHITECTURAL.
- M. INSTALL 9 GA. HORIZONTAL JOINT REINFORCING AT 16" O.C. UNLESS NOTED OTHERWISE.

STEEL JOISTS AND GIRDERS

- A. DESIGN CODE: "STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS AND LOAD TABLES" (S.J.I.), LATEST ADOPTION.
- B. SUBMIT SHOP DRAWINGS INCLUDING JOIST PLAN, SIZES, SPACING AND JOIST SCHEDULES FOR ENGINEER APPROVAL. DO NOT FABRICATE UNTIL RELEASED BY ENGINEER.
- C. BAR JOISTS AND JOIST GIRDERS SHALL BE DESIGNED, FABRICATED AND ERECTED ACCORDING TO SPECIFICATIONS OF THE STEEL JOIST INSTITUTE (S.J.I.), LATEST ADOPTION AS AMENDED BY THE U.B.C.
- D. BAR JOIST SUPPLIER SHALL FURNISH ALL NECESSARY BEARING ANGLES OR PLATES CAST IN MASONRY AND CONCRETE, BRIDGING, WALL ANCHORS, HEADERS (AS SHOWN), AND BOTTOM CHORD EXTENSIONS (WHERE NOTED "*" ON THE PLANS).
- E. BAR JOISTS SHALL BE SHOP PAINTED.

STEEL DECK

- A. DESIGN CODE: "STEEL DECK INSTITUTE MANUAL FOR ROOF DECKS AND FLOOR DECKS" (S.D.I.), LATEST ADOPTION.
- B. ROOF DECK SHALL BE 1-1/2" 22 GAUGE WIDE RIB STEEL DECK, DESIGNED, FABRICATED AND ERECTED ACCORDING TO THE SPECIFICATIONS OF THE STEEL DECK INSTITUTE (S.D.I.), LATEST ADOPTION.
- C. STEEL DECK SHALL BE SHOP PAINTED UNLESS NOTED OTHERWISE.
- D. PROVIDE AND INSTALL ANGLE TO SUPPORT DECKING AT AREAS WHERE DECK IS CUT FOR COLUMNS OR OTHER PENETRATIONS TO ENSURE NO WEAKENED AREAS IN DECKING.
- E. ROOF DECK SHALL BE SECURED TO ROOF JOISTS WITH 5/8" DIAMETER PUDDLE WELDS IN A 36/4 PATTERN. ROOF DECK SHALL BE SECURED TO SUPPORTING STEEL WITH 5/8" DIAMETER PUDDLE WELDS AT 6" O.C. AT END LAPS. PERIMETER JOIST OR DECK BEARING ANGLE OR PLATES. ALL SIDE LAPS SHALL BE SECURED AT CENTER SPAN OF DECK WITH ONE #10 TEK SCREW (U.N.O. ON PLAN) PROVIDED AND INSTALLED BY THE DECK ERECTOR.
- F. FLOOR DECK SHALL BE SECURED TO FLOOR JOISTS WITH 5/8" DIAMETER PUDDLE WELDS, WELDS WITH WELDING WASHERS, SCREWS, OR POWER-ACTUATED FASTENERS, ACCORDING TO THE SPECIFICATIONS OF THE STEEL DECK INSTITUTE (S.D.I.), LATEST ADOPTION.

LIGHT GAUGE METAL FRAMING

- A. DESIGN CODE: AISI "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", LATEST ADOPTION.
- B. ALL STUDS AND ACCESSORIES SHALL BE MADE OF THE TYPE, SIZE, GAUGE AND SPACING SHOWN ON THE DRAWINGS.
- C. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- D. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS. THEY SHALL BE PLUMBED, ALIGNED AND LEVELLED.
- E. FASTENING OF COMPONENTS SHALL BE MADE WITH SELF-DRILLING SCREWS OR WELDING. SCREWS AND WELDS SHALL BE OF SUFFICIENT SIZE TO ENSURE THE STRENGTH OF THE CONNECTION.
- F. STUDS SHALL BE INSTALLED SO THE ENDS ARE POSITIONED AGAINST THE INSIDE OF THE RUNNER TRACK WEB PRIOR TO FASTENING AND SHALL BE ATTACHED TO BOTH FLANGES OF THE UPPER AND LOWER RUNNER TRACKS.
- G. RESISTANCE TO BENDING AND ROTATION SHALL BE PROVIDED BY BRACING, BRIDGING AND BLOCKING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. BRACING SHALL BE SPACED AT NO MORE THAN 48" O.C..
- H. DIAGONAL BRACING SHALL BE PLACED ON STUD WALLS WHERE INDICATED ON THE DRAWINGS FOR LATERAL LOAD RESISTANCE.

GENERAL CONSTRUCTION NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION INCLUDING ANY AND ALL SHORING, SCAFFOLD, BRACING, TEMPORARY CONSTRUCTION, ETC. NECESSARY TO PERFORM REQUIRED CONSTRUCTION.
2. THE CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS FROM ALL DISCIPLINES AND COMPARE DIMENSIONS, PENETRATIONS, ETC. ANY CONFLICTS OR CONTRADICTIONS FOUND BETWEEN ANY OF THE CONSTRUCTION DOCUMENTS SHALL BE REPORTED TO THE ARCHITECT OR ENGINEER IMMEDIATELY.
3. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL STATE OR LOCAL LAWS REGARDING SAFETY AND WORKING ENVIRONMENT ON THE JOB SITE. THE CONTRACTOR SHALL CONFORM TO ALL OSHA REGULATIONS.
4. ALL SHOP DRAWINGS REQUIRED BY THESE SPECIFICATIONS SHALL BE REVIEWED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMITTAL TO THE ARCHITECT AND ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ALL FIELD VERIFICATION REQUIRED ON THE SHOP DRAWINGS. CONTRACTOR SHALL BE TIMELY ON HIS REVIEW OF SHOP DRAWINGS TO ENSURE ADEQUATE REVIEW TIME BY THE DESIGN PROFESSIONALS.
5. SPECIAL INSPECTIONS AND TESTING IN ACCORDANCE WITH THE SPECIAL STRUCTURAL TESTING AND INSPECTION SCHEDULE SHALL BE COORDINATED BY THE CONTRACTOR. SPECIAL INSPECTIONS WILL BE PAID BY THE OWNER AND TESTING SHALL BE PAID BY THE CONTRACTOR UNLESS NOTED OTHERWISE. CONTRACTOR SHALL GIVE SUFFICIENT NOTICE TO THE TESTER OR INSPECTOR. REPORTS SHALL BE PREPARED FOR ALL SPECIAL INSPECTIONS AND TESTS AND SHALL BE SUBMITTED TO THE ENGINEER. SPECIAL INSPECTIONS DO NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITIES REGARDING COMPLIANCE WITH THE CONTRACT DOCUMENTS.
6. IF ANY WORK IS COVERED UP PRIOR TO CONSENT OR APPROVAL BY THE APPROPRIATE AGENCY OR ENGINEER, IT SHALL BE UNCOVERED FOR EXAMINATION AT THE EXPENSE OF THE CONTRACTOR. ANY ADDITIONAL TESTING REQUIRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO PERFORM WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS SHALL BE BORNE BY THE RESPONSIBLE CONTRACTOR.

CONCRETE PROTECTION FOR REINFORCEMENT

DESCRIPTION	MINIMUM CLEAR COVER REQUIRED (INCHES)
SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3
SURFACES EXPOSED TO EARTH OR WEATHER	
#6 BAR AND LARGER	2
#5 BAR AND SMALLER (INCLUDING MESH)	1 1/2
SURFACES NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, WALLS, JOISTS	3/4
BEAMS, COLUMNS	1 1/2

- NOTES:
1. CONCRETE COVER REQUIREMENTS NOT LISTED HEREIN SHALL BE IN ACCORDANCE WITH ACI 318.

STRUCTURAL TESTING AND SPECIAL INSPECTION SCHEDULE

SPECIFICATION SECTION, ARTICLE	DESCRIPTION	TYPE OF INSPECTOR	REPORT FREQUENCY	ASSIGNED FIRM
STRUCTURAL TESTING				
IBC 1704.7	SOIL COMPACTION TESTING	TESTING AGENCY	PER SOIL REPORT	AS APPROVED BY S.E.R.
IBC 1704.4	CONC. SLUMP, AIR, TEMP., CYLINDERS (3) CYL.: 7 DAY, 28 DAY, 1 EXTRA	TESTING AGENCY	EVERY 50 CY PLACED ONCE DAILY MINIMUM	AS APPROVED BY S.E.R.
SPECIAL INSPECTION				
IBC 1704.4	CONC. WALLS AND RETAINING WALLS REINFORCING AND CONC. PLACEMENT	ENGR. OR TECH. SPV'S'D BY S.E.R.	PERIODIC DURING REINF. INST. & CONC. PLACMT.	DUFFY ENGINEERING, INC.
IBC 1704.5	MASONRY WALL REINFORCING, GROUTING AND WORKMANSHIP	ENGR. OR TECH. SPV'S'D BY S.E.R.	PERIODIC DURING REINF. INST. & GROUT PLACMT.	DUFFY ENGINEERING, INC.
IBC 1704.3	ROOF DECK WELDING	ENGR. OR TECH. SPV'S'D BY S.E.R.	PERIODIC DURING DECK INSTALLATION	DUFFY ENGINEERING, INC.
IBC 1704.3	STRUCTURAL STEEL BOLTING AND WELDING	ENGR. OR TECH. SPV'S'D BY S.E.R.	PERIODIC	DUFFY ENGINEERING, INC.

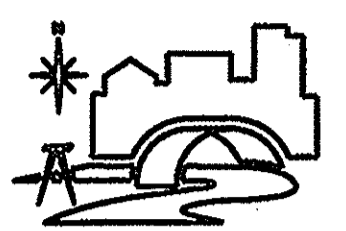
- NOTES:
1. S.E.R. = STRUCTURAL ENGINEER OF RECORD.
2. FOUNDATION DESIGN IS BASED ON CONCRETE STRENGTH OF 2500 PSI AND THEREFORE DOES NOT REQUIRE SPECIAL INSPECTION BY IBC 1704.4.2.3.

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REVISION _____ DATE _____

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 Engineer under the laws of the state of Minnesota.

RJS

RYAN J. SEAVERT, PE

Date: 02-13-07 License No. 41971

GENERAL NOTES AND SPECIFICATIONS

PROJECT NO.: 06337

SCALE:

DATE: 02-13-07

DRAWN BY: RJS

CHECKED BY: RJS