1. GENERAL NOTES

1. READ STRUCTURAL DRAWINGS IN CONJUNCTION WITH SEPARATELY BOUND SPECIFICATIONS, TYPICAL DETAILS AND ALL OTHER CONTRACT DOCUMENTS. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY DOCUMENTS.

2. WHERE DOCUMENTS ARE REFERENCED IN THE GENERAL AND DESIGN NOTES, THEY SHALL BE THE LATEST EDITIONS, UNLESS OTHERWISE NOTED OR SHOWN.

3. BEFORE PROCEEDING WITH WORK, CHECK ALL THE DIMENSIONS SHOWN ON STRUCTURAL DRAWINGS AGAINST ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND EXISTING SITE CONDITIONS. REPORT INCONSISTENCIES TO CONSULTANT BEFORE PROCEEDING WITH THE WORK.

4. CHECK AND VERIFY IN THE FIELD ALL SIZES AND DIMENSIONS INVOLVING THE EXISTING STRUCTURE AND COORDINATE WITH NEW CONSTRUCTION.

5. DO NOT EXCEED DURING CONSTRUCTION, DESIGN LIVE LOADS SHOWN ON PLANS, REDUCED AS NECESSARY UNTIL MATERIALS REACH DESIGN STRENGTH.

6. DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. ELEVATIONS ARE IN METRES UNLESS NOTED OTHERWISE.

7. SCALES NOTED ON DRAWINGS ARE FOR GENERAL INFORMATION ONLY. DO NOT SCALE DRAWINGS.

8. TYPICAL STRUCTURAL DETAILS SHOWN IN DRAWING SERIES S02 SHALL GOVERN THE WORK. IF DETAILS DIFFER ON OTHER DRAWINGS, THE MOST STRINGENT GOVERNS.

9. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
   a. SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, EXCEPT AS NOTED. WHERE NOMINAL DIMENSIONS ARE SHOWN, MAKE NECESSARY PROVISIONS FOR ROUGH OPENINGS TO ALLOW PROPER INSTALLATION OF ALL BUILDING SYSTEMS.
   b. SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR NON-LOAD BEARING PARTITIONS. MAKE NECESSARY PROVISIONS TO ALLOW FOR DEFLECTION OF THE STRUCTURE WITHOUT LOADING ANY NON-LOAD BEARING PARTITIONS.
   c. SIZE AND LOCATION OF ALL CONCRETE CURBS, FLOOR DRAINS SLOPES, INSERTS, ETC. EXCEPT AS SHOWN.
   d. TRENCHES, PITS, AND SUMPS.
   e. ROOF, WALL AND FLOOR FINISHES.
   f. WATERPROOFING AND DAMP PROOFING.
   g. ELEVATIONS AND DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS. NOTE THAT STRUCTURAL DRAWINGS DO NOT INTEND TO DUPLICATE DIMENSIONS SHOWN ON OTHER CONTRACT DOCUMENTS.

10. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR THE FOLLOWING:
   a. PIPE AND DUCT RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS ETC. EXCEPT AS SHOWN OR NOTED.
   b. ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS.
   c. CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES.
   d. SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES, ANCHOR BOLTS FOR MOTOR MOUNTS, EXCEPT AS SHOWN OR NOTED.

11. ALL ARCHITECTURAL, ELECTRICAL OR MECHANICAL LOADS IMPOSED ON THE STRUCTURE THAT EXCEED 50kg SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER PRIOR TO INSTALLATION UNLESS SPECIFICALLY DETAILED OR NOTED ON THE STRUCTURAL DRAWINGS.

12. DRAWINGS AND DETAILS ARE INTENDED TO SHOW THE END RESULT OF DESIGN. MODIFICATIONS TO THE DESIGN NECESSARY TO SUIT MEANS AND METHODS OF CONSTRUCTION, SITE DIMENSIONS OR CONDITIONS SHALL BE SUBMITTED TO CONSULTANT FOR APPROVAL BEFORE PROCEEDING.

13. IN THE CASE OF DISCREPANCIES BETWEEN THE GENERAL NOTES, SPECIFICATIONS, PLANS/DETAILS OR REFERENCE STANDARDS THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.

14. MISCELLANEOUS METAL, PRECAST AND STAIR FABRICATORS SHALL:
   a. PROVIDE SHOP DRAWINGS TO THE CONSULTANT PRIOR TO FABRICATION, STAMPED, SIGNED AND DATED BY A PROFESSIONAL ENGINEER.
   b. DESIGN ALL GUARDS AND HANDRAILS TO MEET LATERAL LOADS DESCRIBED IN NBC (2015) 4.1.5.14 AND 4.1.5.15.
   c. DESIGN ALL STAIRS TO SUPPORT A MINIMUM LIVE LOAD OF 4.8 kPa UNLESS NOTED OTHERWISE ON DRAWINGS.

2. CONSTRUCTION

1. THE CONTRACTOR SHALL PROPOSE A FULL METHODOLOGY FOR EXECUTING THE WORK DETAILED IN THE CONTRACT DOCUMENTS.

2. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, NO PROVISIONS HAVE BEEN MADE IN THE DESIGN FOR CONDITIONS OCCURRING DURING CONSTRUCTION.
   a. THE CONTRACTOR SHALL DEMONSTRATE THE STABILITY AND SAFETY OF ALL ELEMENTS OF THE BUILDING DURING EVERY STAGE OF CONSTRUCTION.
   b. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING AND SHORING REQUIRED FOR ALL STRESSES AND INSTABILITY OCCURRING DURING CONSTRUCTION. THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ALL SUCH MEASURES.
   c. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING, SHORING, SHEET PILING OR OTHER TEMPORARY SUPPORTS TO SAFEGUARD ALL EXISTING OR ADJACENCY AFFECTED BY THIS WORK.

3. THE CONTRACTOR SHALL LIAISE WITH OWNER AND ASSOCIATED UTILITIES AUTHORITIES REGARDING THE REMOVAL AND DISCONNECTION OF EXISTING UTILITIES IN THE BUILDING. NO UTILITIES SHALL BE REMOVED OR DISCONNECTED WITHOUT THE APPROVAL OF OWNER AND ASSOCIATED UTILITIES AUTHORITIES.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK. THE CONSULTANT HAS NO OVERALL SUPERVISION AUTHORITY AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM ACTIONS OF ANY TRADE CONTRACTOR. THE CONSULTANT HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES OF THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS ON THE PROJECT SITE.

5. THE CONTRACTOR SHALL DETERMINE THE LOCATIONS OF ALL ADJACENT UNDERGROUND UTILITIES PRIOR TO EARTHWORK, FOUNDATIONS SHORING AND EXCAVATION. ANY UTILITY INFORMATION SHOWN ON THE DRAWINGS AND DETAILS IS APPROXIMATE AND NOT NECESSARILY COMPLETE.

6. THE PROPOSED SCHEDULE OF WORK IS TO BE COORDINATED WITH ALL SUB-TRADES, THE CONSULTANT AND OWNER.

7. INSPECT THE EXISTING CONSTRUCTION AND BECOME THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS. DETAILS SHOWN ARE BASED ON INFORMATION AVAILABLE FROM EARLIER CONSTRUCTION PHASES.

3. SHOP DRAWINGS

1. FOR ALL STRUCTURAL COMPONENTS SHOWN ON THE STRUCTURAL DRAWINGS, SUBMIT COPIES OF SHOP DRAWINGS AS DIRECTED, FOR REVIEW BY THE CONSULTANT.

2. SHOP DRAWINGS SHALL SHOW COMPLETE INFORMATION FOR THE FABRICATION AND ERECTION OF THE STRUCTURAL COMPONENTS.

3. CONCRETE REINFORCEMENT SHOP DRAWINGS SHALL CLEARLY SHOW BAR LENGTHS, BENDS, LOCATIONS OF BARS, METHOD OF SUPPORT, DETAILS OF PLACEMENT, COORDINATION WITH FORMWORK, EMBEDMENT, AND CONCRETE VIBRATION. PROVIDE AT MINIMUM, WALL AND COLUMN ELEVATIONS, WALL AND BEAM SECTIONS, MATERIAL SCHEDULES, BAR LAP SCHEDULES AND LOCATIONS.

4. WOOD FRAME SHOP DRAWINGS (INCLUDING BUT NOT LIMITED TO, FLOOR FRAMING, ROOF FRAMING, AND STAIRS) SHALL BE ACCOMPANIED BY DETAILED CALCULATIONS AND SHALL BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF ALBERTA.

5. REVIEW OF SHOP DRAWINGS BY THE STRUCTURAL CONSULTANT IS ON A SAMPLING BASIS AND SOLELY TO ASSESS THAT THE SUBMITTED SHOP DRAWINGS REFLECT THE INTENT OF THE STRUCTURAL DESIGN. INTENDED OR PROPOSED DEVIATIONS FROM THE DESIGN INTENT MUST NOT BE SUBMITTED ON SHOP DRAWINGS.

6. REVIEW BY THE CONSULTANT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR SEEING THAT THE WORK IS COMPLETE, ACCURATE AND IN CONFORMITY WITH ALL CONTRACT DRAWINGS, AND SPECIFICATIONS.

7. SHOP DRAWINGS FOR STRUCTURAL COMPONENTS DESIGNED BY THE FABRICATOR/CONTRACTOR'S ENGINEER MUST BE SEALED, SIGNED AND DATED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF ALBERTA.

4. SOILS, BACKFILLING, AND COMPACTION

1. THE GEOTECHNICAL ENGINEER SHALL INSPECT THE CONDITION AND ASSURE THE ADEQUACY OF ALL SUB-GRADES, FILLS, AND BACKFILLS BEFORE PLACEMENT OF FOUNDATIONS, FOOTINGS, SLABS AND WALLS.

2. BACKFILL MATERIAL SHALL CONSIST OF CLEAN, WELL GRADED GRANULAR SOILS FREE OF ORGANIC MATERIAL, SILT AND CLAY AS SPECIFIED IN THE EARTH WORKS SPECIFICATION SECTION.

3. BACKFILLING SHALL BE CARRIED OUT IN A MAXIMUM LIFTS OF 200 mm OF LOOSE FILL, EACH COMPACTED THE STANDARD PROCTOR MAXIMUM DRY DENSITY INDICATED IN THE SPECIFICATIONS.

4. DO NOT PLACE BACKFILL AGAINST WALLS RETAINING EARTH (OTHER THAN CANTILEVER WALLS) UNTIL THE WALLS AND THE FLOOR CONSTRUCTIONS AT TOP AND BOTTOM OF THE WALLS HAVE BEEN CAST AND ATTAINED THEIR DESIGN STRENGTH.

5. WHERE BACKFILL IS PLACED ON EACH SIDE OF FOUNDATION WALLS, DO NOT EXCEED A GRADE DIFFERENCE OF 600 mm.

6. WHERE THE SLAB ON GRADE IS USED TO TIE THE TOP OF A WALL RETAINING EARTH, THAT WALL SHALL BE ADEQUATELY SHORED UNTIL THE SLAB HAS BEEN CAST AND ATTAINED ITS DESIGN STRENGTH.

7. USE LIGHT, HAND-OPERATED COMPACTING EQUIPMENT TO COMPACT BACKFILL ADJACENT TO FOUNDATION WALLS OR RETAINING WALLS.

8. EXCAVATED MATERIAL SHALL BE LEGALLY DISPOSED OF, STORED AT THE SITE, OR USED FOR BACKFILLING OPERATIONS AS REQUIRED IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEERS RECOMMENDATIONS AND PROJECT SPECIFICATIONS.

9. GROUNDWATER LEVEL IS ASSUMED TO BE AT MINIMUM 5.0m BELOW GRADE FOR PURPOSES OF DESIGN AND CONSTRUCTION. GEOTECHNICAL ENGINEER TO VERIFY ON SITE.

10. IT IS THE RESPONSIBILITY OF CONTRACTOR TO VERIFY THE GEOTECHNICAL INFORMATION AND TO OBTAIN HIS OWN DATA AND TO POINT DISCREPANCIES TO THE CONSULTANT WHERE THEY OCCUR.

5. CAST IN PLACE CONCRETE

1. CONCRETE: CONFORM WITH CAN-CSA A23.1 REQUIREMENTS AND THOSE SHOWN IN THE CONCRETE MIX SCHEDULE BELOW, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

CONCRETE MIX SCHEDULE

LOCATION			MIN. COMPRESSIVE STRENGTH AT 28 DAYS (MPa)	EXPOSURE CLASS*	CEMENT TYPE*	AIR CONTENT (%)*
FOOTINGS	PAD/STRIP FOOTINGS		25*	R-2	GU*	4-7
WALLS	FOUNDATION WALLS	BELOW GRADE	25*	R-1	GU*	4-7
		ABOVE GRADE	25*	R-1	GU*	4-7
SLABS	BASEMENT SLAB ON GRADE		25	R-3	GU*	-
	EXT. SLAB ON GRADE		32	C-2	GU*	4-7
	STRUCTURAL SLAB		30	F-1	GU*	5-8

*CONTRACTOR TO CONFIRM WITH GEOTECHNICAL

2. DESIGN CONCRETE MIXES TO SUIT REINFORCEMENT DETAILS SHOWN ON THE PLACEMENT DRAWINGS. PROVIDE SMALLER AGGREGATES OR SELF CONSOLIDATING CONCRETE IN AREAS OF HIGHER REINFORCEMENT DENSITY.

3. SUBMIT MIX DESIGNS FOR EACH CLASS OF CONCRETE TO BE USED ON THE PROJECT.

4. ALL CONCRETE SHALL BE NORMAL DENSITY, UNLESS NOTED OTHERWISE.

5. ADMIXTURES THAT CONTAIN CHLORIDES SHALL NOT BE USED.

6. EXTERIOR CONCRETE AND INTERIOR CONCRETE SUBJECT TO FREEZE/THAW CYCLES, SALT, ETC, INCLUDING WALLS SHALL BE AIR ENTRAINED.

7. REFER TO CAN CSA A23.1&2 AND CONCRETE SPECIFICATIONS SECTION 03.30.00 FOR THE HOT AND COLD WEATHER CONCRETE PLACEMENT PROCEDURES.

8. REFER TO THE CONCRETE TYPICAL DETAILS FOR THE FOLLOWING INFORMATION:
   a. CONCRETE COVER TO REINFORCING.
   b. CONCRETE COVER FOR FIRE RATINGS.
   c. TENSION DEVELOPMENT LENGTH AND LAP SPLICES.
   d. COMPRESSION DEVELOPMENT LENGTH AND LAP SPLICES.

9. FOR ALL STRUCTURAL MEMBERS PROVIDE COVER FOR A MINIMUM 2 HOUR FIRE RATING (4 HOURS FOR FIREWALLS) UNLESS NOTED OTHERWISE IN ARCHITECTURAL DRAWINGS

10. REINFORCED CONCRETE WALLS EXPOSED TO FIRE ON BOTH SIDES SIMULTANEOUSLY SHALL HAVE THE MINIMUM COVER REQUIREMENTS FOR COLUMN.

11. DOWELS TO EXISTING CONCRETE SHALL USE THE HILTI HIT-RE500 DOWELING SYSTEM, UNLESS OTHERWISE APPROVED BY THE CONSULTANT. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. OBTAIN CONSULTANT'S APPROVAL PRIOR TO DRILLING/DOWELING ANY REINFORCEMENT.

12. THE CONTRACTOR SHALL MODIFY THE LAYOUT OF NEW THROUGH BOLTS, EXPANSION ANCHORS AND OTHER ANCHORING DEVICES TO AVOID EXISTING CONCRETE REINFORCEMENT.

13. DOWELS FROM WALLS TO SLABS SHALL HAVE A MINIMUM EMBEDMENT OF 600 mm INTO WALLS AND SLABS UNLESS OTHERWISE NOTED OR SHOWN.

14. PROVIDE DOWELS TO WALLS AND COLUMNS SIMILAR IN NUMBER, SIZE AND SPACING TO THE VERTICAL STEEL IN THE WALL OR COLUMN ABOVE UNLESS OTHERWISE NOTED OR SHOWN.

15. PROVIDE MINIMUM SLAB BEARING OF 150 mm FOR SLABS LESS THAN 150 mm THICK AND 200 mm FOR THICKER SLABS, UNLESS NOTED OTHERWISE.

16. CONSTRUCTION JOINTS SHALL BE DOWELED, KEYED AND THOROUGHLY CLEANED. ALL CONSTRUCTION JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL CONSTRUCTION JOINT DETAILS AND ANY CORRESPONDING NOTES BELOW:
   a. HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE MADE IN BEAMS UNLESS SHOWN OR REVIEWED AND APPROVED BY THE CONSULTANT.
   b. HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE MADE IN WALLS OR COLUMNS WITHOUT PRIOR APPROVAL FROM THE CONSULTANT.
   c. VERTICAL CONSTRUCTION JOINTS MAY BE MADE ONLY AT MIDSPAN OF BEAMS OR SLABS UNLESS OTHERWISE NOTED OR SHOWN OR DIRECTED, AND THEIR LOCATION SHALL BE REVIEWED AND APPROVED BY THE CONSULTANT.
   d. WHERE THE SIZE OF KEY IS NOT SHOWN ON THE DRAWINGS, THE KEY SHALL BE 25% OF THE CROSS SECTION DIMENSION AND A MINIMUM OF 38 mm INTO THE FIRST POUR OF CONCRETE.
   e. REFER TO SPECIFICATIONS FOR POUR LENGTH LIMITATIONS.

17. CONTRACTOR TO SUBMIT PROPOSED LOCATIONS OF CONSTRUCTION JOINTS FOR APPROVAL PRIOR TO START OF WORK.

18. PROVIDE WATERSTOPS AT ALL CONSTRUCTION JOINTS IN ELEMENTS RETAINING EARTH OR EXPOSED TO WEATHER.

19. OPENINGS, SLEEVES, EMBEDDED DUCTS:
   a. COORDINATE AND INSTALL ALL REQUIRED EMBEDDED ITEMS, INSETS SLEEVES, POCKETS, ETC. AS REQUIRED PRIOR TO PLACEMENT OF CONCRETE.
   b. NO SLEEVES SHALL BE PLACED VERTICALLY OR HORIZONTALLY THROUGH BEAMS UNLESS REVIEWED AND APPROVED BY THE CONSULTANT.
   c. ELECTRICAL CONDUITS SHALL NOT PASS THROUGH A COLUMN OR IN THE VICINITY OF A COLUMN AS SHOWN ON THE TYPICAL DETAILS.
   d. PIPE OR DUCT PENETRATIONS EXCEEDING ONE QUARTER OF THE SLAB OR WALL THICKNESS ARE NOT PERMITTED UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS.
   e. NO OPENINGS SHALL BE MADE IN FLAT PLATE OR FLAT SLAB COLUMN STRIPS EXCEPT AS SHOWN ON PLANS OR UNLESS REVIEWED AND APPROVED BY THE CONSULTANT.
   f. NO ALUMINUM CONDUIT OR OTHER SUCH PRODUCTS WITH MATERIAL DETRIMENTAL TO THE LONGEVITY OF THE CONCRETE SHALL BE EMBEDDED IN THE STRUCTURE.
   g. PROVIDE ADDITIONAL REINFORCING AT OPENINGS AS DETAILED IN THE TYPICAL DETAILS.
   h. OBTAIN CONSULTANT'S APPROVAL FOR ANY OPENINGS REQUIRED BUT NOT SHOWN ON STRUCTURAL DRAWINGS.

20. PROVIDE CAMBER TO SLABS AND BEAMS AS NOTED ON PLANS AND/OR DETAILS. CAMBER BOTH UNDERSIDE AND TOP OF CONCRETE TO MAINTAIN THE SLAB AND BEAM DEPTH SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED OR SHOWN.

21. PROVIDE INSERTS AND ANCHOR BOLTS IN ELEVATOR PITS AND SHAFTS AS REQUIRED.

22. CONCRETE CAST ON SLOPED SURFACES SHALL BEGIN AT THE LOWEST ELEVATION AND CONTINUE MONOLITHICALLY TOWARD THE HIGHER ELEVATION UNTIL THE INTENDED CAST IS COMPLETED.

23. PROVIDE 19 mm x 19 mm CHAMFER STRIP AT ALL EXPOSED CORNERS OF CONCRETE WALLS, INCLUDING EXPOSED CORNERS OF CONCRETE PIERS UNLESS NOTED OTHERWISE ON ARCHITECTURAL DRAWINGS.

24. PROVIDE DOVETAIL SLOTS IN CONCRETE WALLS WHERE MASONRY ABUTS.

25. ALL CONCRETE SURFACES INDICATED AS "AEC" ON THE PLANS AND SECTIONS SHALL COMPLY WITH REQUIREMENTS FOR ARCHITECTURALLY EXPOSED CONCRETE, SEE SPECIFICATIONS.

26. IN CASES WHERE CONCRETE FINISHES ARE GROUND OR POLISHED ENSURE THAT ADEQUATE COVER IS ACHIEVED IN THE FINAL CONDITION.

27. THE CONCRETE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POUR SEQUENCES AND CONSTRUCTION PROCEDURES FOR ALL CONCRETE WORK TO ACCOUNT FOR TEMPERATURE DIFFERENTIALS AND SHRINKAGE OCCURRING DURING THE CONSTRUCTION PHASE UNTIL THE BUILDING IS PERMANENTLY IN A MECHANICALLY CONTROLLED ENVIRONMENT.

28. PROVIDE POCKETS OR RECESSES IN CONCRETE WORK FOR STEEL COLUMNS AND BEAMS AS REQUIRED AND/OR AS CALLED FOR IN THE SPECIFICATIONS EVEN IF NOT SHOWN ON THE DRAWINGS. PROVIDE CONCRETE FILL AFTER STEEL ERECTION TO SEAL OPENINGS.

29. CONCRETE CONTRACTOR SHALL INCLUDE IN HIS ESTIMATE ADDITIONAL CONCRETE QUANTITY AS REQUIRED TO COMPENSATE FOR DEFLECTIONS OF METAL DECK AND UN-SHORED COMPOSITE BEAMS AND TO PROVIDE A LEVEL CONCRETE SURFACE. REFER TO COMPOSITE STEEL BEAM (UNDER STRUCTURAL STEEL) AND METAL DECK NOTES FOR ADDITIONAL CONSIDERATIONS.

30. THE USE OF CHLORIDES SUCH AS DEICING SALTS IS PROHIBITED FOR MELTING ICE PRIOR TO PLACEMENT OF CONCRETE.

31. SIZES OF CONCRETE PLACEMENTS SHALL NOT EXCEED THE FOLLOWING, UNLESS OTHERWISE INDICTED ON THE PLANS:
   a. WALLS: 30m MAXIMUM LENGTH
   b. SLABS ON GRADE: PLACE IN ALTERNATING STRIPS (APPROXIMATE WIDTH 10m & MAXIMUM LENGTH 60m)
   c. SUPPORTED SLABS: PLACE IN SECTIONS WITH A MAXIMUM AREA OF 1100m^2 AND A MAXIMUM LENGTH OF 30m (ALL CONCRETE SLABS INCLUDING THOSE CAST ON METAL DECK)

33. MINIMUM ELAPSED TIME BETWEEN ADJACENT CONCRETE PLACEMENTS SHALL BE 48 HOURS.

34. JOINTS BETWEEN THE STRUCTURAL (AND ARCHITECTURAL) MEMBERS SHALL BE PROPERLY PREPARED AND FILLED WITH JOINT SEALANT UNLESS NOTED OTHERWISE. ALL JOINT EDGES, INCLUDING TOP AND BOTTOM SURFACES AND VERTICAL AND HORIZONTAL SURFACES SHALL BE FORMED OR TOOLED AS REQUIRED. JOINT SEALANT SHALL BE APPLIED ONLY TO THE TOP, VERTICAL, AND HORIZONTAL SURFACES UNLESS NOTED OTHERWISE ON THE DRAWINGS.

35. JOINTS TO BE PREPARED AND FILLED WITH JOINT SEALANT SHALL INCLUDE, BUT ARE NOT LIMITED TO, CONSTRUCTION JOINTS, CONTROL JOINTS, ISOLATION JOINTS, AND ALL INTERFACE JOINTS BETWEEN SIMILAR AND DISSIMILAR MEMBERS. SPECIFIC LOCATIONS MAY BE INDICATED ON THE DRAWINGS, OR MAY BE REQUIRED BY APPROVED SHOP DRAWINGS, OR MAY OCCUR DUE TO THE CONSTRUCTION SEQUENCE SELECTED BY THE CONTRACTOR.

36. PRIOR TO PLACING CONCRETE ADJACENT TO EXISTING CONCRETE WITHOUT A CONSTRUCTION JOINT THOROUGHLY CLEAN, DE-GREASE AND MECHANICALLY ROUGHEN EXISTING CONCRETE SURFACES. APPLY EPOXY BONDING AGENT PRIOR TO PLACING FRESH CONCRETE. FOLLOW ALL MANUFACTURER'S INSTRUCTIONS FOR SURFACE PREPARATION, MIXING AND APPLICATION.

37. TOOL SLAB JOINTS AT THE TIME OF FINISHING. SAW CUTTING IS NOT ALLOWED UNLESS APPROVED BY THE ENGINEER.

38. WHERE NEW CONCRETE ELEMENTS ARE CAST AGAINST EXISTING CONCRETE ELEMENTS OR STRUCTURES, PROVIDE NECESSARY TEMPORARY SHORING TO RESIST FULL HYDROSTATIC PRESSURE OR OTHERWISE EMPLOY NECESSARY MEANS AND METHODS TO AVOID EXERTING ANY PRESSURE OR LOADING ON THE EXISTING STRUCTURE.

6. FOUNDATIONS

1. REFER TO ALL NOTES UNDER FOUNDATION PLANS.

2. A SITE SPECIFIC GEOTECHNICAL REPORT WAS NOT AVAILABLE AT THE TIME OF DESIGN. THE FOUNDATION SYSTEM WILL CONSIST OF STRIP AND SPREAD FOOTINGS. A GEOTECHNICAL ENGINEER TO CONFIRM ALL DESIGN ASSUMPTIONS (E.G. SOIL BEARING CAPACITY) PRIOR TO POUR CONCRETE.

3. FOUND ALL FOOTINGS IN NATURALLY CONSOLIDATED UNDISTURBED SOIL OR ENGINEERED FILL CAPABLE OF SAFELY SUSTAINING A FACTORED ULTIMATE LIMITS STATE BEARING PRESSURE OF 100 kPa. IF THESE CONDITIONS DO NOT PREVAIL AT THE ELEVATIONS SHOWN, EXCAVATE DOWN TO THE UNDISTURBED SOIL AND REPLACE WITH ENGINEERED FILL (REFER TO TYPICAL DETAILS).

4. WHERE STRUCTURAL ELEMENTS, FOOTINGS, TUNNELS, PITS, PIERS, ETC. BEAR ON SHALE, PROTECT THE BEARING SURFACE WITH A 65 mm MUD SLAB. OBTAIN SOIL CONSULTANTS APPROVAL PRIOR TO MUD SLAB PLACEMENT.

5. CONTRACTOR SHALL CARRY OUT EXCAVATION, DEWATERING, BACKFILLING, PILING AND FOUNDATION CONSTRUCTION IN ACCORDANCE WITH RECOMMENDATIONS BY GEOTECHNICAL ENGINEER.

6. SIDES OF FOUNDATIONS SHALL BE FORMED UNLESS CONDITIONS PERMIT EARTH FORMING. FOUNDATIONS POURED AGAINST EARTH REQUIRE THE FOLLOWING PRECAUTIONS BE ADHERED TO:
   a. PROVIDE APPROPRIATE CONCRETE COVER.
   b. SLOPE SIDES OF EXCAVATIONS AS APPROVED BY GEOTECHNICAL ENGINEER.
   c. CLEAN UP SLOUGHING BEFORE AND DURING CONCRETE PLACEMENT.

7. CARRY EXTERIOR FOOTINGS DOWN 1500 mm MINIMUM BELOW FINISHED GRADE OR FOUND THEM ON SOUND UN-WEATHERED BEDROCK. PROTECT FOOTINGS EXPOSED TO FROST DURING CONSTRUCTION WITH 1500 mm OF EARTH OR ITS EQUIVALENT TO PREVENT FREEZING OF SOIL UNDER FOOTINGS.

8. WHERE FOOTING STEPS ARE NECESSARY, THEY SHALL BE NO STEEPER THAN ONE VERTICAL TO TWO HORIZONTAL U.N.O.

9. FOOTING SHALL BE CENTERED UNDER COLUMNS AND WALLS UNLESS SPECIFICALLY DETAILED OTHERWISE ON THE DRAWINGS.

10. DOWELS SHALL BE PLACED BEFORE CONCRETE IS CAST, "WET-STICKING" DOWELS IS NOT PERMITTED UNLESS APPROVED BY THE ENGINEER. TEMPLATES SHALL BE USED TO ENSURE CORRECT PLACEMENT OF DOWELS.

11. NO FOOTINGS OR SLABS SHALL BE PLACED ON OR AGAINST SUB-GRADE CONTAINING FREE WATER, FROST OR ICE. SHOULD WATER OR FROST, HOWEVER SLIGHT ENTER A FOOTING EXCAVATION AFTER SUB-GRADE APPROVAL, THE SUB-GRADE SHALL BE RE-INSPECTED BY THE GEOTECHNICAL ENGINEER AFTER REMOVAL OF THE WATER OR FROST.

12. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUB-GRADE BEFORE AND AFTER CASTING CONCRETE UNTIL THE FULL BUILDING ENCLOSURE IS COMPLETED AND HEATED.

13. FOUNDATION INSULATION SHALL CONSIST OF EXTRUDED POLYSTYRENE WITH A MINIMUM COMPRESSIVE STRENGTH OF 0.24 MPa UNLESS OTHERWISE NOTED.

14. DO NOT EXCEED A RISE OF 7 IN A RUN OF 10 IN THE LINE OF SLOPE BETWEEN ADJACENT EXCAVATIONS. MAXIMUM STEP 600 mm APPROXIMATELY UNLESS NOTED OTHERWISE.

15. WHERE NEW FOOTINGS ARE ADJACENT OR ABUT EXISTING FOUNDATIONS, CAREFULLY HAND EXCAVATE AND DETERMINE THE BOTTOM OF THE EXISTING STRUCTURE. ANY DISCREPANCIES BETWEEN THE EXISTING FOUNDATIONS AND DESIGN DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

16. FOUND NEW FOOTINGS, LOCATED IMMEDIATELY ADJACENT TO EXISTING FOOTINGS, AT THE SAME ELEVATION AS THE EXISTING FOOTINGS UNLESS NOTED OTHERWISE. IN NO CASE SHALL THE NEW FOOTING BE LOWER THAN THE EXISTING WITHOUT PROTECTION AGAINST UNDERMINING.

17. IN LOCATIONS WHERE EXISTING MECHANICAL SERVICES INTERFERE WITH NEW FOOTINGS, ESTABLISH TOP OF FOOTING MINIMUM 200 mm (8") BELOW INVERT ELEVATION. SEE ARCHITECTURAL ELEVATIONS FOR LOCATION OF SERVICES.

18. INSULATION IS SHOWN WHERE REQUIRED FOR PROTECTION OF THE FOUNDATIONS FROM DAMAGE DUE TO FROST ACTION ONLY. REFER TO ARCHITECTURAL DRAWINGS FOR FOUNDATION INSULATION NOT SHOWN ON THE STRUCTURAL DRAWINGS.

19. FOUNDING ELEVATIONS/HEIGHT OF RETAINING WALLS SHOWN ON STRUCTURAL DRAWINGS ARE BASED ON SURVEY INFORMATION PROVIDED BY A THIRD PARTY SURVEYOR. THOROUGHLY REVIEW THE SITE AND CONFIRM ALL GRADES PRIOR TO EXECUTING THE WORK. REPORT ANY INCONSISTENCIES TO THE CONSULTANT.

7. SLAB ON GRADE

1. UNDER SLAB FILL SHALL CONSIST OF A MINIMUM OF 150 mm OF COMPACTED GRANULAR MATERIAL AS STATED IN THE SPECIFICATIONS.

2. PLACE SLABS-ON-GRADE ON MATERIAL CAPABLE OF SUSTAINING 25 kPa SURCHARGE WITHOUT SETTLEMENT RELATIVE TO THE BUILDING FOUNDATIONS.

8. REINFORCING STEEL

1. REINFORCING STEEL SHALL BE DEFORMED BAR CONFORMING TO CSA STANDARD G30.18-09 (R2014), GRADE 400R, UNLESS OTHERWISE NOTED. REINFORCING STAINLESS STEEL BARS SHALL BE GRADE 420. BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS. BAR MARKS WITH PREFIX 'C' DENOTED EPOXY-COATED STEEL BARS.

2. REFER TO TYPICAL DETAILS FOR MINIMUM COVER TO REINFORCEMENT.

3. REINFORCING BAR AREAS ARE 100, 200, 300, 500, 700, 1000, 1500 AND 2500 mm^2 FOR BAR DESIGNATIONS 10, 15, 20, 25, 30, 35, 45 AND 55, RESPECTIVELY.

4. WELDED WIRE FABRIC SHALL HAVE A MINIMUM YIELD STRENGTH OF 450 MPa AND SHALL CONFORM TO CSA STANDARD G30.5. SUPPLY IN FLAT SHEET ONLY.

5. REINFORCING STEEL IS TO BE DETAILED, BENT AND PLACED IN ACCORDANCE WITH R.S.I.C. REINFORCING STEEL MANUAL OF STANDARD PRACTICE SUBMIT SHOP DRAWINGS INDICATING ALL DETAILS OF REINFORCING STEEL PLACEMENT.

6. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PROPER POSITION WHILE POURING CONCRETE. CONTRACTOR SHALL PROVIDE CHAIRS, SPACER BARS, SUPPORT BARS AND OTHER ACCESSORIES TO SUPPORT REINFORCING. ALL THE WIRE, CHAIRS AND BAR SUPPORTS FOR FOUNDATIONS AND FOR EXPOSED CONCRETE SHALL BE NON-METALLIC OR COATED.

7. TACK WELDING OF REINFORCEMENT IS NOT PERMITTED. WELDED SPLICES IN REINFORCING BARS WILL ONLY BE PERMITTED IF EXPLICITLY SHOWN ON THE STRUCTURAL DRAWINGS OR IF WRITTEN APPROVAL IS GIVEN BY THE CONSULTANT.

8. PROVIDE CLASS 'B' TENSION LAP SPLICES U.N.O. ALL SPLICE LOCATIONS SHALL BE TO THE APPROVAL OF THE CONSULTANT.

9. APPROVED REBAR COUPLERS MAY BE USED AT THE CONTRACTORS OPTION TO AID PLACEMENT OF DOWELS THROUGH FORMS. MECHANICAL SPLICES SHALL DEVELOP 125% OF THE TENSILE STRENGTH OF THE REBAR.

10. LAP SPLICES IN WELDED WIRE MESH SHALL NOT BE LESS THAN 200 mm, AS MEASURED BETWEEN THE OUTERMOST CROSS-WIRES OF EACH FABRIC SHEET.

9. TIMBER CONSTRUCTION

1. ALL WOOD FRAMING SHALL CONFORM TO THE MINIMUM STANDARDS BELOW UNLESS NOTED OTHERWISE ON THE ENGINEERING DRAWINGS.

WOOD MEMBER MATERIAL GRADES

MEMBER	MATERIAL GRADE
JOISTS (2x8 AND SMALLER)	SPRUCE-PINE-FIR NO. 2 OR BETTER
BEAMS AND STRINGERS (2x10 AND LARGER)	SPRUCE-PINE-FIR NO. 2 OR BETTER
POSTS AND TIMBERS	SPRUCE-PINE-FIR NO. 2 OR BETTER
STUDS, PLATES & MISC. FRAMING	SPRUCE-PINE-FIR NO. 2 OR BETTER
TOP AND BOTTOM PLATES AT BEARING WALLS	SPRUCE-PINE-FIR NO. 2 OR BETTER
2x4 STUDS	SPRUCE-PINE-FIR NO. 2 OR BETTER
2x6 STUDS AND LARGER	SPRUCE-PINE-FIR NO. 2 OR BETTER
PLYWOOD SHEATHING	GRADE C-D
OSB SHEATHING	STRUCTURAL 1

2. NAILS, SPIKES, AND STAPLES TO CONFORM TO CSA STANDARD B111.

3. ALL NAILS FOR STRUCTURAL WORK SHALL BE COMMON WIRE NAILS UNLESS NOTED OTHERWISE.

4. ALL STUD WALLS SHOWN AND NOT OTHERWISE NOTED SHALL BE 2x4 STUDS AT 400 mm o/c AT INTERIOR WALLS AND 2x6 AT 400 mm o/c AT EXTERIOR WALLS.

5. PROVIDE TWO STUDS MINIMUM AT THE END OF ALL WALLS AND ONE STUD AT EACH SIDE OF ALL OPENINGS.

6. PROVIDE ADDITIONAL STUDS UNDER TRUSSES SUPPORTED BY EXTERIOR WALLS IF THE BEARING LOCATION FALLS BETWEEN REGULARLY SPACED STUDS.

7. BEAMS (EXCEPT LINTELS) SHALL HAVE A MINIMUM BEARING LENGTH OF NO LESS THAN 89 mm UNLESS OTHERWISE REQUIRED BY NBCC 2010 (REFER TO NOTES TO TABLES A-8 TO A-11). FLOOR JOISTS SHALL HAVE A MINIMUM BEARING LENGTH OF NO LESS THAN 38 mm UNLESS OTHERWISE NOTED.

8. PROVIDE SOLID BLOCKING FOR WOOD COLUMNS THROUGH FLOOR TO SUPPORTS BELOW.

9. WALLS SHALL HAVE DOUBLE BOTTOM PLATES AND DOUBLE TOP PLATES FOR ALL EXTERIOR BEARING WALLS. END NAIL THE TOP PLATE TO EACH STUD WITH TWO 75 NAILS AND TOENAIL OR END NAIL EACH STUD TO THE BOTTOM PLATE WITH TWO 75 NAILS.

10. ALL STUD WALLS SHALL HAVE THEIR LOWER WOOD PLATES ATTACHED TO:
   a. WOOD FRAMING BELOW WITH 75 NAILS AT 300 mm o/c
   b. CONCRETE WITH 16 mm DIAMETER ANCHOR BOLTS (150 mm MIN EMBED) AT 1200 mm o/c UNLESS NOTED OTHERWISE.
   c. MASONRY WITH 12 mm (1/2") DIAMETER ANCHOR BOLTS x 300 mm (12") LONG AT 1200 mm (4'-0") o/c. STAGGER ANCHOR BOLTS.
   d. STRUCTURAL STEEL AND STEEL JOISTS WITH 12 mm (1/2") DIAMETER BOLTS AT 1200 mm (4'-0") o/c. STAGGER BOLT LOCATIONS.

12. PROVIDE DOUBLE JOISTS AROUND ALL OPENINGS IN FLOOR OR ROOFS UNLESS NOTED OTHERWISE.

13. PLYWOOD ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH THE GRAIN PERPENDICULAR TO SUPPORTS AND NAILED WITH 75 NAILS AT 150 mm o/c TO FRAMED PANEL EDGES AND OVER STUD WALLS AS SHOWN ON PLANS AND AT 300 mm o/c TO INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.

14. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED TONGUE-AND-GROOVE JOINTS OR SHALL BE SUPPORTED WITH SOLID BLOCKING. TOENAIL BLOCKING TO SUPPORTS WITH (NAILS) AT 300 mm o/c UNLESS NOTED OTHERWISE.

15. AT BLOCKED FLOOR AND ROOF DIAPHRAGMS PROVIDE FLAT 2x4 BLOCKING AT ALL UNFRAMED PLYWOOD PANEL EDGES AND NAIL WITH EDGE NAILING SPECIFIED.

16. LAY TIMBER PLANK DECKING IN A TWO-SPAN CONTINUOUS PATTERN.

17. PROVIDE MINIMUM BEARING OF 50 mm (2") FOR ALL TIMBER PLANK DECKING.

18. SAWN LUMBER SHALL NOT BE NOTCHED OR DRILLED IN THE FIELD WITHOUT THE PERMISSION OF THE CONSULTANT.

19. WOOD IS NOT PERMITTED TO BEAR DIRECTLY ON MASONRY OR CONCRETE WITHOUT PROTECTION. PROVIDE EITHER PRESSURE TREATED WOOD OR POLYETHYLENE SHEET BETWEEN THE WOOD AND MASONRY OR CONCRETE.

20. ALTERATIONS AND/OR CONNECTIONS TO EXISTING CONSTRUCTION ARE NOT PERMITTED UNLESS NOTED OTHERWISE.

21. OPENINGS AND HOLES:
   a. PREPARE LAYOUTS OF ALL NEW HOLES AND OPENINGS THROUGH EXISTING WORK FOR REVIEW BY THE CONSULTANT.
   b. CORE DRILL NEW HOLES FOR PIPES TO A DIAMETER NOT LARGER THAN THE OUTSIDE PIPE DIAMETER PLUS 25 mm (1").
   c. WHERE OPENINGS ARE TO BE CUT, ALWAYS PRE-DRILL THE CORNERS USING A 100 mm (4") DIAMETER CORE DRILL OR DRILL A SERIES OF HOLES TO PREVENT OVERCUTTING AT THE CORNERS.

22. PROVIDE SLOTTED HOLES AND FRICTION TYPE BOLTED CONNECTIONS TO CONNECT NEW STEEL TO EXISTING WORK.

23. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD.

24. ALL FASTENERS (HANGERS, CLIPS, SCREWS, BOLTS, WASHERS, ETC.) IN CONTACT WITH PRESSURE TREATED OR FIRE TREATED WOOD TO BE STAINLESS STEEL OR HOT DIP GALVANIZED. DO NOT MIX STAINLESS STEEL AND HOT DIP GALVANIZED IN THE SAME CONNECTION.

25. ALL SHIMS SHALL BE SEASONED AND DRIED AND OF THE SAME GRADE (MINIMUM) AS THE MEMBERS CONNECTED.

26. 25 mm DIAMETER HOLES MAY BE DRILLED IN THE CENTER 1/3 OF JOISTS, BUT ALL OTHER HOLES MUST BE APPROVED PRIOR TO DRILLING.

27. DIAPHRAGMS:
   THE FLOOR/ROOF SHEATHING AND SUPPORTING MEMBERS HAVE BEEN DESIGNED AS A DIAPHRAGM. UNLESS OTHERWISE NOTED, DIAPHRAGM CONNECTION REQUIREMENTS FOR FLOR/ROOF SHEATHING ARE:
   A. UNBLOCKED DIAPHRAGMS:
   a. FASTENERS: 3.7 mm DIAMETER x 75 mm LONG COMMON NAILS OR 3.1mm DIAMETER x75mm LONG SPINAL NAILS.
   b. SPACING: 100 mm o/c AT DIAPHRAGM BOUNDARIES; 100 mm o/c AT SUPPORTED PANEL EDGES; 300 mm o/c ALONG INTERMEDIATE FRAMING MEMBERS.
   B. BLOCKED DIAPHRAGMS (BLOCKING MUST BE PROVIDED AT ALL PANEL EDGES):
   a. FASTENERS: 3.7 mm DIAMETER x 75 mm LONG COMMON NAILS OR 3.1mm DIAMETER x75mm LONG SPINAL NAILS.
   b. SPACING: 75 mm o/c AT DIAPHRAGM BOUNDARIES; 100 mm o/c AT CONTINUOUS PANEL EDGES PARALLEL TO LOAD; 150 mm o/c ALONG INTERMEDIATE FRAMING MEMBERS.
   c. ALL ROOF SHEATHING COMES WITH "H" CLIPS U.N.O. ABOVE.
   C. ALL PANEL EDGES SHALL BE BACKED BY BLOCKING AT ALL JOINTS THAT ARE PERPENDICULAR TO THE FLOOR JOISTS.

28. MANUFACTURED WOOD JOISTS, BEAMS AND TRUSSES:
   a. ALL MANUFACTURED WOOD JOISTS AND TRUSSES TO BE DESIGNED BY SUPPLIER AND THE SHOP DRAWINGS TO BE PROVIDED TO THE STRUCTURAL CONSULTANT FOR REVIEW PRIOR TO FABRICATION, UNLESS NOTED OTHERWISE. SHOP DRAWINGS MUST HAVE A PROFESSIONAL ENGINEER'S SEAL ON ALL PAGES. THIS ENGINEER MUST BE LICENSED IN THE PROVINCE OF JURISDICTION, AND SHALL BE RESPONSIBLE FOR SUPERVISION OF JOISTS / TRUSSES FABRICATION AND INSTALLATION (COMPLETE FLOOR / ROOF SYSTEM INCLUDING JOISTS / TRUSSES, HANGERS, BRACING, ETC. TO BE DESIGNED BY SUPPLIER.)
   b. JOIST / TRUSS SUPPLIER SHALL BE RESPONSIBLE FOR ALL FRAMING FOR ADDITIONAL MECHANICAL LOADS AND OPENINGS AS REQUIRED. COORDINATE WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL FOR SIZE & LOCATIONS OF ALL OPENINGS.
   c. ACCESSORIES: ALL ACCESSORIES REQUIRED FOR ERECTION INCLUDING BRACING, BRIDGING, BLOCKING, METAL BEARING HARDWARE AND CROSS BRACING MUST BE DESIGNED AND SUPPLIED BY JOIST / TRUSS SUPPLIER.
   d. LIVE LOAD DEFLECTION L/480 FOR FLOOR JOISTS AND TRUSSES (IF APPLICABLE) TO A MAXIMUM OF 10 mm (3/8") AND L/360 FOR ROOF TRUSSES. CANTILEVER JOISTS LIVE LOAD DEFLECTION 2L/480.
   e. LUMBER: MACHINE STRESS RATED OR LAMINATED VENEER. MOISTURE CONTENT 19% AT TIME OF MANUFACTURE.
   f. JOIST / TRUSS SUPPLIER'S ENGINEER TO PROVIDE A CERTIFICATE INDICATING THAT THE FLOOR / ROOF SYSTEM IS FABRICATED AND INSTALLED IN ACCORDANCE WITH THE DESIGN.
   g. JOIST SUPPLIER SHALL BE RESPONSIBLE FOR THE DESIGN OF CONNECTIONS TO TIMBER WALLS AND OTHER MISCELLANEOUS DETAILS.
   h. ALL MANUFACTURED JOIST PRODUCTS SHALL BE DESIGNED TO VIBRATION CRITERIA 4.1.1.6 AND 9.23.4 OF THE NATIONAL BUILDING CODE OR DESIGNED TO LOCAL CODE REQUIREMENTS, WHICHEVER IS THE MORE STRINGENT. SPACING SHOWN ON FRAMING PLANS ARE SUGGESTED ONLY AND MUST BE DESIGNED TO MEET VIBRATION REQUIREMENTS.
   i. JOIST/TRUSS SUPPLIER'S ENGINEER IS TO ACCOUNT FOR ANY STRUCTURAL IMPLICATIONS ASSOCIATED WITH "NON LOAD BEARING" WALLS CONSTRUCTED TIGHT TO THE UNDERSIDE OF THE FLOOR JOIST AND TRUSSES.

29. SHEAR WALLS:
   a. ALL EXTERIOR WALLS AND INTERIOR WALLS "W3" ON THE DRAWING ARE TO BE CONSIDERED AS SHEAR WALLS.
   b. ALL EXTERIOR WALLS TO HAVE A MINIMUM 9.5 mm PLYWOOD OR OSB SHEATHING ON ONE SIDE. NAIL SHEATHING WITH 64 mm COMMON NAILS (OR 76 mm SPIRAL NAILS) ALONG ALL PANEL EDGES AT 150 mm o/c (AT 100 mm o/c FOR W1A IF USING SPIRAL NAILS) FROM MAIN FLOOR TO TO ROOF AND NAIL AT 300 mm o/c ALONG ALL INTERMEDIATE FRAMING MEMBERS FROM MAIN TO ROOF.
   c. INTERIOR WALLS "W3" TO HAVE MINIMUM 16 mm GYPSUM BOARD ON BOTH SIDES FASTEN SHEATHING WITH 64 mm GYPSUM BOARD SCREW ALONG ALL PANEL EDGES AT 150 mm FROM BASEMENT TO ROOF AND FASTEN AT 300 mm ALONG ALL INTERMEDIATE FRAMING MEMBERS FROM BASEMENT TO ROOF.
   d. ALL PANEL EDGES SHALL BE BACKED BY BLOCKING HAVING THE SAME CROSS SECTIONAL AREA AS THE STUDS AT ALL JOINTS THAT ARE PERPENDICULAR TO THE STUDS FROM MAIN FLOOR TO ROOF.
   e. PROVIDE SOLID BLOCKING AT 1200 mm o/c MAXIMUM FOR ALL EXTERIOR WALL.
   f. NAIL SHEATHING BOARD TO STUDS, TOP AND BOTTOM PLATES AND BLOCKING. FASTENING OF GYPSUM BOARDS SHALL BE AS PER CODE.
   g. PROVIDE ANCHOR BOLTS PER TYPICAL DETAIL TDW-3.

30. ALL LUMBER EXPOSED TO WEATHER OR IN CONTACT WITH MASONRY OR CONCRETE EXPOSED TO WEATHER SHALL BE PRESSURE TREATED UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS. INTERIOR MEMBERS BEARING ON EXTERIOR CONCRETE OR MASONRY WALLS EXPOSED TO WEATHER SHALL BE TREATED WITH 3 COATS OF WOOD

DRAWING LIST

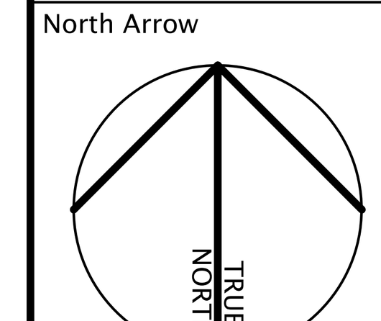
SHEET NUMBER	DRAWING NAME
S01-00-01	GENERAL NOTES
S01-00-02	GENERAL NOTES
S02-00-01	TYPICAL DETAILS
S02-00-02	TYPICAL DETAILS
S02-00-03	TYPICAL DETAILS
S02-00-04	TYPICAL DETAILS
S20-01-01	FLOOR PLANS FOUNDATION & MAIN FLOOR FRAMING PLAN
S20-02-01	FLOOR PLANS 2ND FLOOR & ROOF FRAMING PLAN
S50-00-01	SECTIONS
S50-00-02	SECTIONS

DATE	ISSUED FOR	REV
2017-07-07	60% PROGRESS	A
2017-08-15	TENDER	0
2017-09-01	BUILDING PERMIT	1

Project Component

Keyplan

North Arrow



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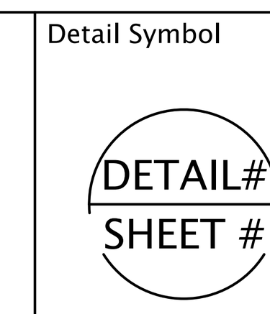

Consultants

Civil:	McELHANNEY CONSULTING SERVICES LTD.
Landscape:	NORR ARCHITECTS ENGINEERS PLANNERS
Architectural:	NORR ARCHITECTS ENGINEERS PLANNERS
Structural:	NORR ARCHITECTS ENGINEERS PLANNERS
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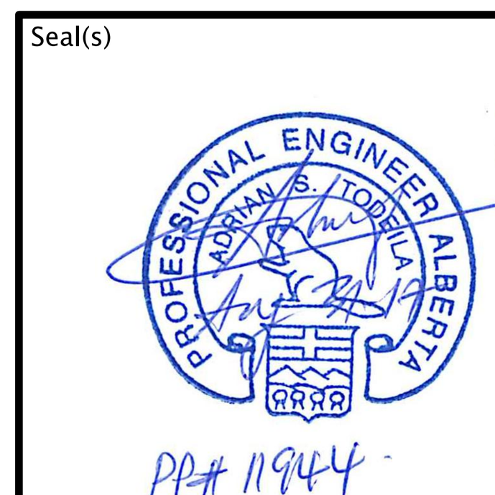
Seal(s)



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Client
PARKS CANADA AGENCY
JASPER NATIONAL PARK, JASPER, AB

Project
JASPER PARK STAFF HOUSING
918 PATRICIA STREET
JASPER, AB

Drawing Title
GENERAL NOTES

Check Scale (may be photo reduced)
0 1inch 0 10mm

Project No. NCEM-17-0002

Drawing No. S01-00-01

PRESERVATIVE ALL AROUND. USE EITHER MICRONIZED OR SOLUBLE COPPER BASED WOOD PRESERVATIVE.

10. TESTING AND INSPECTION

THE CONTRACTOR SHALL ARRANGE FOR THE FOLLOWING ITEMS TO BE INSPECTED OR TESTED BY AN INDEPENDENT THIRD-PARTY INSPECTION/TESTING AGENCY ACCEPTABLE TO THE OWNER AND THE CONSULTANT. THE ITEMS TO BE TESTED SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. GEOTECHNICAL:
   PERFORM ALL TESTING AND INSPECTION (COMPACTION, BEARING CAPACITY, SUB GRADE PREPARATION ETC.) AS PER THE REQUIREMENTS OF THE DRAWINGS AND THE GEOTECHNICAL ENGINEER.

2. CONCRETE:
   CONCRETE TO BE TESTED ON ACCORDANCE WITH THE REQUIREMENTS OF CSA A23.1 AND A23.2, INCLUDING THE REQUIREMENTS FOR AIR, SLUMP AND AGE PRIOR TO BEING USED. CONTRACTOR TO MAINTAIN RECORDS OF POUR DATES, TESTING PERFORMED, CLASS OF CONCRETE USED AND TEST RESULTS FOR ALL ITEMS POURED. RESULTS OF CYLINDER STRENGTH TESTING TO BE SENT TO OWNER AND CONSULTANT. ALL MIX DESIGNS TO BE REVIEWED AND CERTIFIED BY TESTING AGENCY.

3. REINFORCING STEEL:
   CONTRACTOR SHALL ADVISE CONSULTANT OF PLACEMENT OF ALL REINFORCING STEEL FOR REINFORCED CONCRETE, AT LEAST 48 HOURS PRIOR TO PLANNED TIME OF CONCRETE PLACEMENT.

DESIGN NOTES

1. DESIGN

1. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE:
   a. ALBERTA BUILDING CODE (2014)
   b. NATIONAL BUILDING CODE OF CANADA (2015)
   c. CSA - A438-00 "CONCRETE CONSTRUCTION FOR HOUSING AND SMALL BUILDINGS"

2. ALL REINFORCED CONCRETE ELEMENTS HAVE BEEN DESIGNED AND OR SHALL BE CONSTRUCTED IN ACCORDANCE WITH:
   a. CSA - A23.3-14 "DESIGN OF CONCRETE STRUCTURES"
   b. CSA - A23.1-14 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION"
   c. CSA - A23.2-14 "TEST METHODS AND STANDARD PRACTICES FOR CONCRETE"

3. ALL CONCRETE FORMWORK AND OR FALSEWORK SHALL CONFORM WITH:
   a. CSA - 269.1 "FALSEWORK FOR CONSTRUCTION PURPOSES"
   b. CSA - S269.2-M "ACCESS SCAFFOLDING FOR CONSTRUCTION PURPOSES"
   c. CSA - S269.3-M "CONCRETE FORMWORK"

5. ALL STRUCTURAL WOOD ELEMENTS HAVE BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH:
   a. CSA - O86-14 " ENGINEERING DESIGN IN WOOD"
   b. CSA - O325-07 (R2012) "CONSTRUCTION SHEATHING"
   c. CSA - O122-06 (R2015) "STRUCTURAL GLUED-LAMINATED TIMBER"
   d. CSA - O80.1-08 (R2012) "PRESERVATIVE TREATMENT OF WOOD"
   e. CSA - S406-14 "SPECIFICATION OF PERMANENT WOOD FOUNDATIONS FOR HOUSING AND SMALL BUILDINGS"

6. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR LOCATIONS OF REQUIRED FIRE RESISTANCE AND RATINGS.

7. UNIT FLOOR AND ROOF LOADINGS, SOIL BEARING PRESSURES AND FOUNDATION LOADS GIVEN ON DRAWINGS ARE UNFACTORED. MEMBER FORCES GIVEN ON DRAWINGS ARE FACTORED.

DATE	ISSUED FOR	REV
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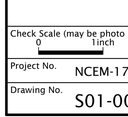
2017-08-15	TENDER	0
2017-09-01	BUILDING PERMIT	1

Project Component

Keplan

North Arrow



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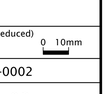

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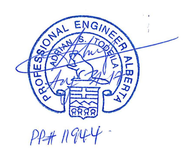

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Drawing Title
GENERAL NOTES

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Project No. NCEM-17-0002

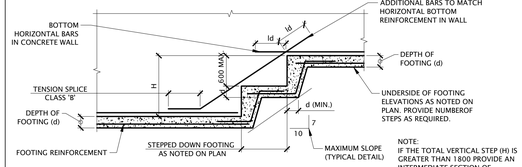
Drawing No. S01-00-02

PLOT DATE: August 31, 2017 TIME: 12:59 PM FULL PATH AND FILENAME: \\EDMAPPS01\P_DRIVES\NCEM\17-0002 - JASPER NATIONAL PARK STAFF HOUSING\500-DELIV\STRU\S01-00-02.DWG PLOTSYLE TABLE: Ingenium.ctb

STRUCTURAL ABBREVIATIONS — TD-1

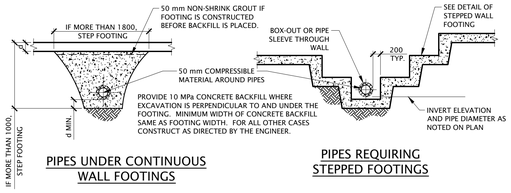
AB	ANCHOR BOLT	MAX	MAXIMUM
ABC	ALBERTA BUILDING CODE	MC	MOMENT CONNECTION
ADJ	ADJUSTABLE	MECH	MECHANICAL
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL	MEW	MIDDLE EACH WAY
ALT	ALTERNATE	MEZZ	MEZZANINE
ARCH	ARCHITECTURAL	MID	MIDDLE
AIFB	ASPHALT IMPREGNATED FIBREBOARD	MISC	MISCELLANEOUS
		MIN	MINIMUM
B, BOT	BOTTOM	ML	MIDDLE LAYER
BC	ELEV. BOT. OF CAISSON	m	METRE
BET	BETWEEN	mm	MILLIMETRE
BEW	BOTTOM EACH WAY	mm^2	SQUARE MILLIMETRE
BLDG	BUILDING	MPa	MEGAPASCAL
BLL	BOTTOM LOWER LAYER		
BM	BEAM	NBC	NATIONAL BUILDING CODE OF CANADA
BM	BENDING MOMENT BAR	NCB	NO COLUMN BELOW
BPL	BEARING/BASE PLATE	NF	NEAR FACE
BRG	BEARING	NIC	NOT IN CONTACT
BSMT	BASEMENT	NTS	NOT TO SCALE
BUL	BOTTOM UPPER LAYER		
		o/c	ON CENTRE
C	CHANNEL	o/o	OUT TO OUT
c/c	CENTRE TO CENTRE	OPNG	OPENING
c/w	COMPLETE/CONNECT WITH	OPP	OPPOSITE
CA	COLUMN ABOVE	OSB	ORIENTED STRAND BOARD
CB	COLUMN BELOW	OWSJ	OPEN WEB STEEL JOIST
CANT	CANTILEVER		
CF	CONCRETE FIREPROOFED	PC	PRECAST
CJ	CONTROL JOINT	Pf, Cf, Tf, Mf, Vf	FACTORED LOADS
CL	CLEAR	P, C, T, M, V	UNFACTORED LOADS
℄	CENTRE LINE	PL	PLATE
COMP	COMPOSITE	PROJ	PROJECTION
COL	COLUMN	P/T	POST TENSIONED, PRESSURE TREATED
CONC	CONCRETE	PVC	POLYVINYL CHLORIDE
CONST JT	CONSTRUCTION JOINT		
CONT	CONTINUOUS	R	REACTION, RADIUS
		REF	REFERENCE
DET	DETAIL	REM	REMAINDER
D.FIR	DOUGLAS FIR	REQ'D	REQUIRED
DIA, Ø	DIAMETER	REV	REVISION
DIM	DIMENSION	RE	RIGHT END
DIAG	DIAGONAL	REINF	REINFORCEMENT
DL	DEAD LOAD	R/W	REINFORCE WITH
DO, "	DITTO		
DP	DEEP	S	STANDARD BEAM
DWG	DRAWING	SS	SINGLE STIRRUP
DWL	DOWEL	SDF	STEP DOWN FOOTING
DN	DOWN	SECT	SECTION
DS	DOUBLE STIRRUPS	SF	SPRAY FIREPROOFED
		SIM	SIMILAR
EA	EACH	SLA	SNOW LOAD ACCUMULATION
EC	EPOXY COATED	SL	SLAB
EE	EACH END	SOG	SLAB ON GRADE
EF	EACH FACE	SP	SPADREL, SPRUCE
EJ, EXP JT	EXPANSION JOINT	SPEC	SPECIFICATION
EL, ELEV	ELEVATION	SPF	SPRUCE-PINE-FIR
ELEC, ELECT	ELECTRICAL	STD	STANDARD
EMBED	EMBEDMENT	STRUCT	STRUCTURAL
EQ	EQUAL	STIFF	STIFFENER
ES	EACH SIDE	SQ	SQUARE
EW	EACH WAY	ST	STRAIGHT
EX, EXIST	EXISTING	STIR	STIRRUP
EXT	EXTERIOR		
		t, THK	THICKNESS
FIN	FINISHED	T	TOP
FL	FLOOR	T&B	TOP AND BOTTOM
FTG	FOOTING	TC	ELEV TOP OF CAISSON
FMC	FULL MOMENT CONNECTION	TEMP	TEMPERATURE
f_y	YIELD STRENGTH	TEW	TOP EACH WAY
$f'c$	COMPRESSIVE STRENGTH OF CONC	TJ	TIE JOIST
FF	FAR FACE	TLE	TOP LEFT END
		TLL	TOP LOWER LAYER
GALV	GALVANIZED	TRE	TOP RIGHT END
GA	GAUGE	TUL	TOP UPPER LAYER
GL	GRIDLINE	TYP	TYPICAL
		T/O	TOP OF
HE	HOOK EACH END	TOS	TOP OF SLAB
HH	HOOK - HOOK (HOOK EACH END)	TSB	TENSION SPLICE CLASS 'B'
HIF	HORIZONTAL INSIDE FACE		
HOF	HORIZONTAL OUTSIDE FACE	USF	UNDERSIDE OF FOOTING
HOR. HORIZ	HORIZONTAL	U/S	UNDERSIDE
HEF	HORIZONTAL EACH FACE	U/N	UNLESS NOTED
HSS	HOLLOW STRUCTURAL SECTION	UNO	UNLESS NOTED OTHERWISE
HP	HIGH POINT	UL	UPPER LAYER
		UPT	UPTURNED
INT	INTERIOR		
ID	INSIDE DIAMETER	VBF	VERTICAL BRACED FRAME
		VEF	VERTICAL EACH FACE
k	KILO	VERT	VERTICAL
kN	KILONEWTON	VOF	VERTICAL OUTSIDE FACE
kPa	KILOPASCAL	VIF	VERTICAL INSIDE FACE
		VSC	VERTICALLY SLOTTED CONNECTION
Ld	DEVELOPMENT LENGTH		
LE	LEFT END	W	WIDE FLANGE BEAM
LG	LONG/LENGTH	WP	WALL PLATE, WORKING POINT
LL	LIVE LOAD	WT	STRUCTURAL TEE
LLH	LONG LEG HORIZONTAL	WWF	WELDED WIRE FABRIC
LLV	LONG LEG VERTICAL	WWF	WELDED WIDE FLANGE
L	SINGLE ANGLE		
𝐿	DOUBLE ANGLE		
LP	LOW POINT		

STEPPED WALL FOOTING AND EXCAVATION SLOPES — TDF-1



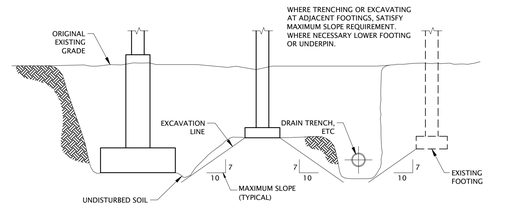
NOTE:
IF THE TOTAL VERTICAL STEP (H) IS GREATER THAN 1800 PROVIDE AN INTERMEDIATE SECTION OF HORIZONTAL FOOTING A MINIMUM OF 1200 LONG BETWEEN ADJACENT STEPS.

STEPPED WALL FOOTING



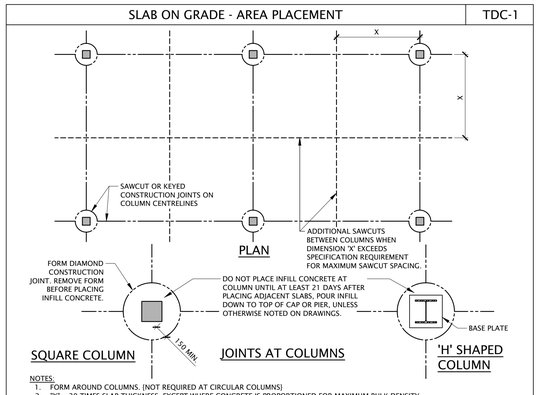
PIPES UNDER CONTINUOUS WALL FOOTINGS

PIPES REQUIRING STEPPED FOOTINGS



MAXIMUM SLOPE AT EXCAVATIONS

SLAB ON GRADE - AREA PLACEMENT — TDC-1



PLAN

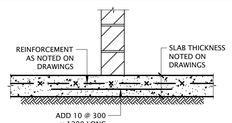
SQUARE COLUMN

JOINTS AT COLUMNS

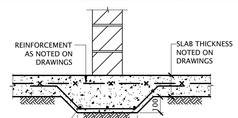
'H' SHAPED COLUMN

NOTES:
1. FORM AROUND COLUMNS. (NOT REQUIRED AT CIRCULAR COLUMNS)
2. "X" = 30 TIMES SLAB THICKNESS, EXCEPT WHERE CONCRETE IS PROPORTIONED FOR MAXIMUM BULK DENSITY IN ACCORDANCE WITH SPECIFICATION "X" = 40 TIMES SLAB THICKNESS UNLESS NOTED OTHERWISE.
3. PLACE SLAB AREA NO LARGER THAN WHAT CAN BE FINISHED IN ONE DAY.
4. SAWCUT CONTROL JOINTS IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS.
5. LIMIT RATIO OF LENGTH TO WIDTH OF ANY SAWCUT PANEL TO 1.5 MAXIMUM.
6. REFER TO TYPICAL SLAB ON GRADE JOINT DETAIL FOR REQUIRED DEPTH OF SLAB SAWCUT.
7. FILL SAWCUT JOINTS IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS.

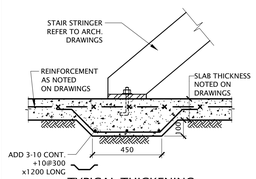
SLAB ON GRADE DETAILS - ADDITIONAL REINFORCEMENT — TDC-5



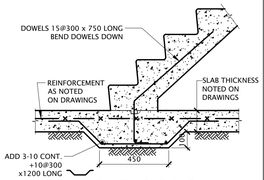
MASONRY PARTITIONS ≤ 150



TYPICAL THICKENING UNDER MASONRY PARTITIONS ≥ 150

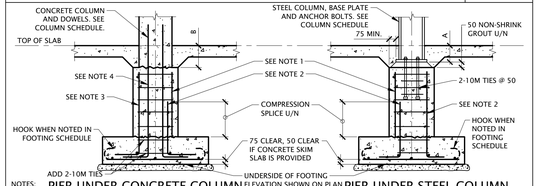


TYPICAL THICKENING UNDER STEEL STAIRS



TYPICAL THICKENING UNDER CONCRETE STAIRS

COLUMN AND WALL FOOTING DETAILS — TDF-2

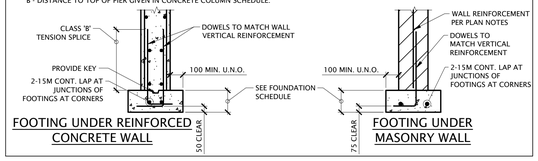


NOTES:

PIER UNDER CONCRETE COLUMN

PIER UNDER STEEL COLUMN

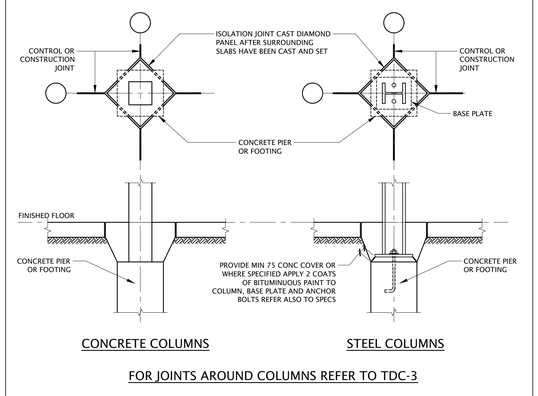
1. SIZE AND REINFORCEMENT FOR PIERS AND FOOTINGS GIVEN IN SCHEDULE OR ON PLAN.
2. FOR PIERS 1800 HIGH OR MORE, PROVIDE DOWELS FROM FOOTING TO PIER, TO MATCH PIER REINFORCEMENT. EXTEND DOWELS TO BOTTOM OF FOOTING AND HOOK.
3. FOR PIERS LESS THAN 1800 HIGH, EXTEND PIER REINFORCEMENT TO THE BOTTOM OF FOOTING AND HOOK.
4. WHERE THERE IS NO PIER, CONSIDER THE CONCRETE COLUMN AS A PIER GREATER THAN 1800 HIGH. REFER TO NOTE 2.
5. WHERE COLUMN BAR SPLICE LENGTH IS GREATER THAN PIER HEIGHT, EXTEND COLUMN DOWELS TO BOTTOM OF FOOTING AND HOOK.
6. FOR SPLICE LENGTHS, SEE CONCRETE COLUMN TYPICAL DETAILS.
7. WHERE NO PIER REINFORCING IS NOTED, PROVIDE VERTICAL STEEL OF 0.5% OR 4-15 DOWELS (WHICHEVER IS GREATER) FROM FOOTING INTO PIER.
8. A - DISTANCE TO UNDERSIDE OF BASE PLATE GIVEN IN COLUMN SCHEDULE OR ON PLAN.
   B - DISTANCE TO TOP OF PIER GIVEN IN CONCRETE COLUMN SCHEDULE.



FOOTING UNDER REINFORCED CONCRETE WALL

FOOTING UNDER MASONRY WALL

SLAB ON GRADE DETAILS — TDC-2

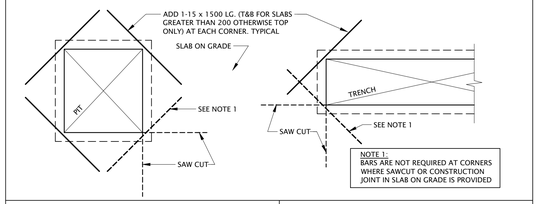


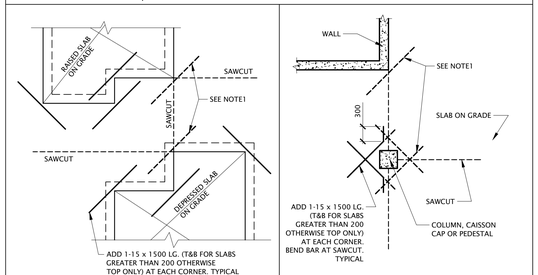
CONCRETE COLUMNS

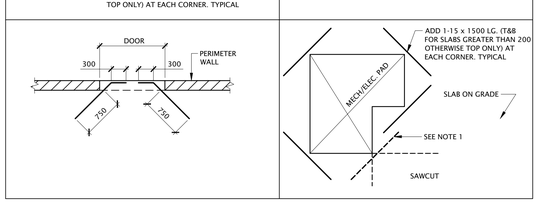
STEEL COLUMNS

FOR JOINTS AROUND COLUMNS REFER TO TDC-3

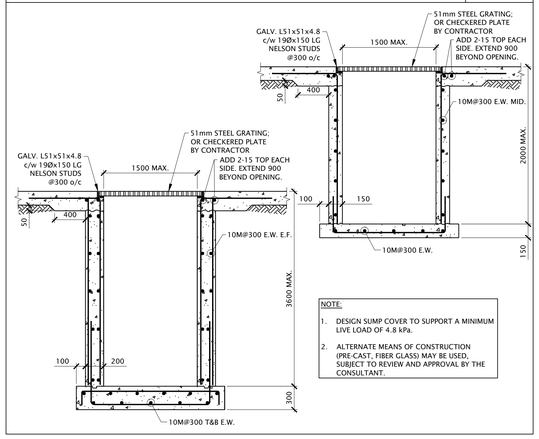
CRACK CONTROL REINFORCEMENT IN SLAB ON GRADE — TDC-4





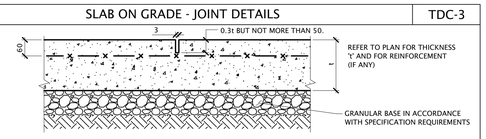


SUMP PIT DETAILS — TDF-11

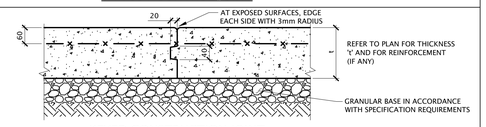


NOTE:
1. DESIGN SUMP COVER TO SUPPORT A MINIMUM LIVE LOAD OF 4.8 kPa.
2. ALTERNATE MEANS OF CONSTRUCTION (PRE-CAST, FIBER GLASS) MAY BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE CONSULTANT.

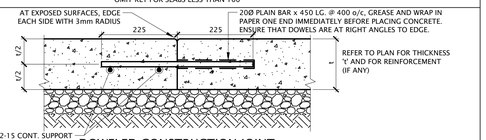
SLAB ON GRADE - JOINT DETAILS — TDC-3



SAWCUT CONTROL JOINT



KEYED CONSTRUCTION JOINT
OMIT KEY FOR SLABS LESS THAN 100



DOWELED CONSTRUCTION JOINT
FOR SLAB GREATER THAN 100

TEMPERATURE REINFORCEMENT FOR CONCRETE SLABS, COVER SLABS, AND TOPPINGS — TDC-14

	CONCRETE THICKNESS (mm)	REINFORCEMENT
TOPPINGS & COVER SLAB	50	152 x 152 - MW13.3 x MW13.3
	65	152 x 152 - MW18.7 x MW18.7
	75	152 x 152 - MW25.8 x MW25.8
	90	152 x 152 - MW25.8 x MW25.8
	100	102 x 102 - MW13.3 x MW13.3
SLABS	100	10@500
	110	10@450
	120	10@400
	130	10@350
	140	10@350
	150	10@300
	160	10@300
	170	10@250
	180	10@250
	190	10@250
	200	10@250
	210	10@200
	220	10@200
	230	10@200
	240	10@200
	250	10@200
	260	15@350
	270	15@350
	280	15@350
	290	15@300
	300	15@300

NOTES:
1. UNLESS OTHERWISE NOTED PROVIDE TEMPERATURE REINFORCEMENT IN CONCRETE SLABS, COVER SLABS AND TOPPINGS AS SHOWN IN THIS TABLE.
2. UNLESS OTHERWISE NOTED, PLACE TEMPERATURE REINFORCEMENT PERPENDICULAR TO MAIN REINFORCEMENT IN ONE WAY SLABS, WHERE MAIN REINFORCEMENT CONSISTS OF TOP AND BOTTOM BARS, PLACE TEMPERATURE REINFORCEMENT ALTERNATELY AT TOP AND BOTTOM.
3. UNLESS OTHERWISE NOTED, PROVIDE WELDED WIRE FABRIC IN FLAT SHEETS.
4. PROVIDE REINFORCEMENT FOR CONCRETE TOPPING WHICH IS PLACED OVER A SLIP SHEET OR MEMBRANE. TEMPERATURE REINFORCEMENT IS NOT REQUIRED WHERE CONCRETE TOPPINGS ARE PLACED AND BONDED DIRECTLY ON CONCRETE SLABS.
5. UNLESS OTHERWISE NOTED, PLACE WELDED WIRE FABRIC WITH 25 mm TOP COVER. LAP REBARS WITH CLASS 'B' LAP SPLICE. LAP END OF WELDED WIRE FABRIC SUCH THAT THE OVERLAP MEASURED BETWEEN THE OUTERMOST CORSS-WIRES OF EACH FABRIC SHEET SHALL NOT BE LESS THAN ONE SPACING OF CROSS-WIRE PLUS 50 mm.
6. UNLESS OTHERWISE NOTED, PROVIDE EDGE OF ALL SLABS WITH 2-15 CONTINUOUS.
7. IN UNHEATED AREAS, INCREASE REINFORCEMENT BY 25%.

DATE	ISSUED FOR	REV
2017-07-07	60% PROGRESS	A
2017-08-15	TENDER	0
2017-09-01	BUILDING PERMIT	1

Project Component

Keyplan

North Arrow

TRUE NORTH

Detail Symbol

DETAIL# SHEET #

Symbol not to scale

Consultants

Civil:	McELHANNEY CONSULTING SERVICES LTD.
Landscape:	NORR ARCHITECTS ENGINEERS PLANNERS
Architectural:	NORR ARCHITECTS ENGINEERS PLANNERS
Structural:	NORR ARCHITECTS ENGINEERS PLANNERS
Mechanical:	NORR ARCHITECTS ENGINEERS PLANNERS
Electrical:	NORR ARCHITECTS ENGINEERS PLANNERS

Seal(s)

PROFESSIONAL ENGINEER ALBERTA

PM# 119447

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Project Leader: T. BERTSCH	Checked: A. TODEILA

Client
PARKS CANADA AGENCY
JASPER NATIONAL PARK, JASPER, AB

Project
JASPER PARK STAFF HOUSING
918 PATRICIA STREET
JASPER, AB

Drawing Title
TYPICAL DETAILS

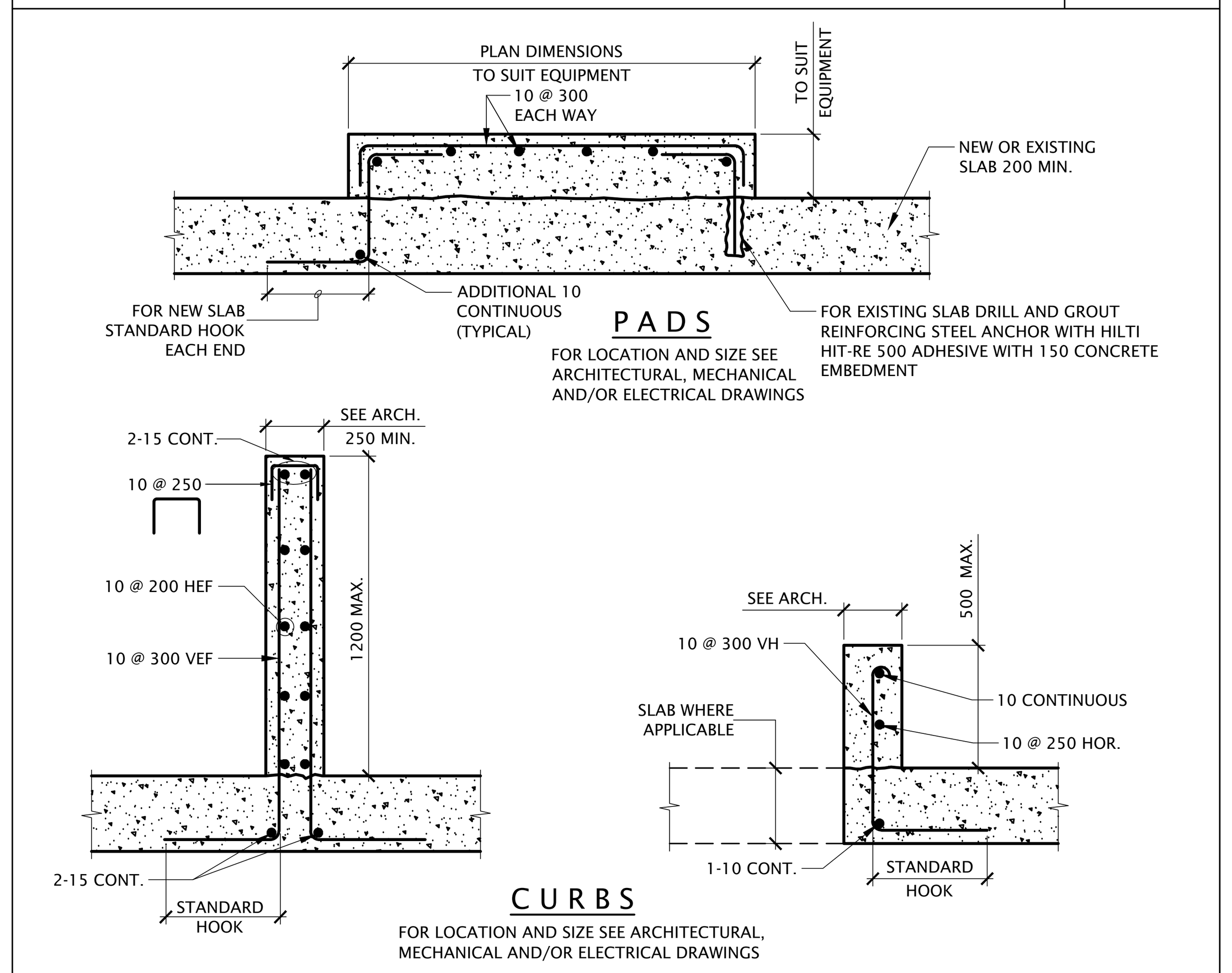
Check Scale (may be photo reduced)
0 1inch 0 10mm

Project No. NCEM-17-0002

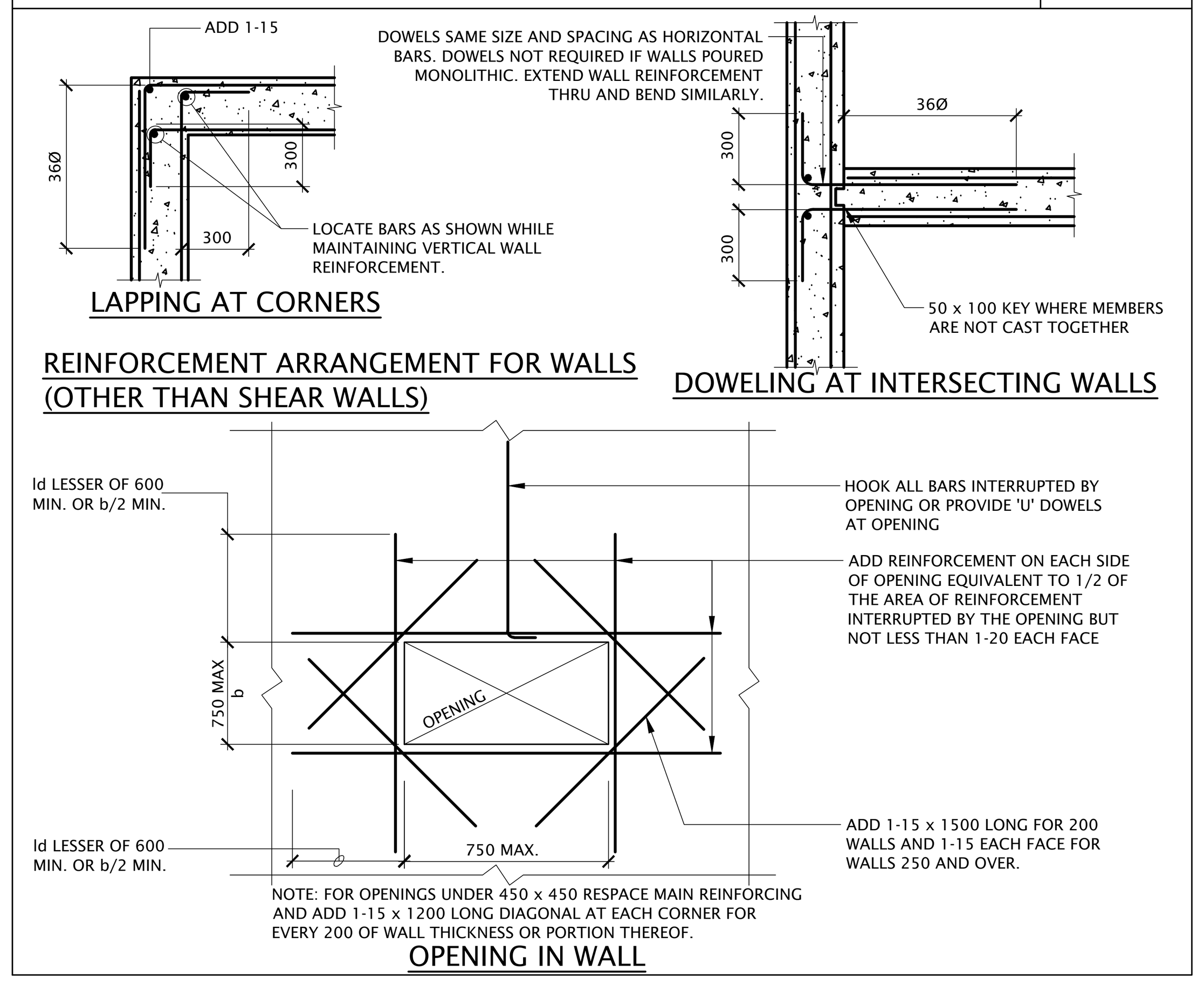
Drawing No. S02-00-01

PLOT DATE: August 31, 2017 TIME: 12:59 PM FULL PATH AND FILENAME: \\EDMAPPS01\P_DRIVES\NCEM\17-0002 - JASPER NATIONAL PARK STAFF HOUSING\500-DELIVS\STRU\S02-00-01.DWG PLOTSTYLE TABLE: Ingenium.ctb

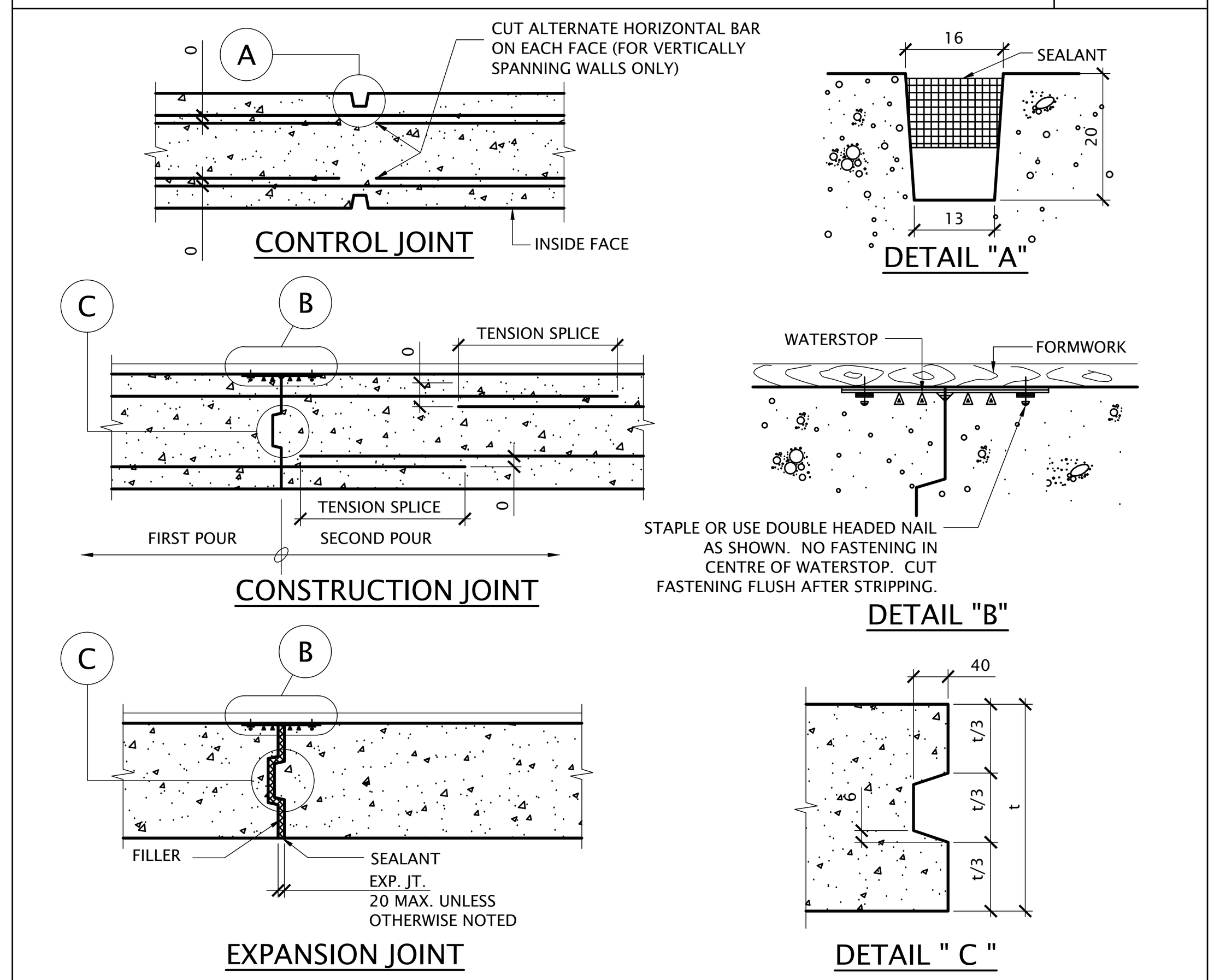
PAD AND CURB DETAILS — TDC-18



WALL REINFORCEMENT DETAILS — TDC-29

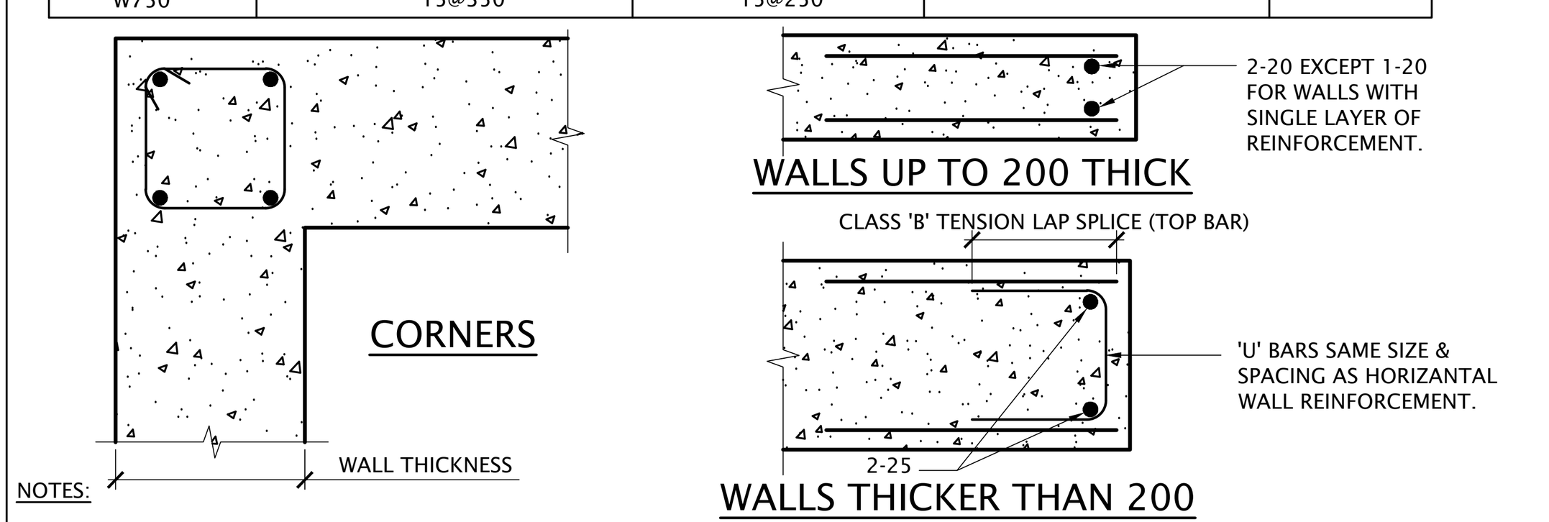


CONCRETE WALL JOINT DETAILS — TDC-30



MINIMUM CONCRETE WALL REINFORCEMENT U/N — TDC-33

MARK	VERT BARS EA FACE As=.0015Ag	HORZ EA FACE HEATED AREAS As=.002Ag	HORZ EA FACE UNHEATED AREAS As=.003Ag	REMARK
W150A	10@450	10@325		1 LAYER
W200A	10@325	10@500		1 LAYER
W200	10@500	10@500	10@325	
W250	10@500	10@400	15@500	
W300	10@450	10@325	15@450	
W350	10@375	10@275	15@375	
W400	10@325	15@500	15@325	
W450	10@300	15@450	15@300	
W500	10@250	15@400		
W550	10@250	15@350		
W600	15@450	15@325		
W650	15@400	15@300		
W700	15@375	15@275		
W750	15@350	15@250		



NOTES:

1. IN ALL WALLS PROVIDE AT LEAST THE REINFORCEMENT SHOWN IN THE SCHEDULE ABOVE TOGETHER WITH REINFORCEMENT NOTED TO BE ADDED.
2. WALL MARKS DENOTE THICKNESS OF WALLS AND CORRESPONDING REINFORCEMENT.
3. SEE ALSO RELATED DETAILS AND NOTES ON DRAWINGS.
4. AT ENDS OF WALLS CONFORM TO DETAILS SHOWN ABOVE UNLESS OTHERWISE NOTED ON DRAWINGS.

CONCRETE COVER TO REINFORCING STEEL — TDC-34

	MINIMUM COVER CSA-A23.1	MINIMUM COVER CSA-S413 (SEE NOTE #4)	MINIMUM COVER FOR FIRE-RESISTANCE RATING 1.5 h	2 h	3 h	4 h
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	75		75	75	75	75
CONCRETE CAST AGAINST FORMS, BUT EXPOSED TO EARTH OR WEATHER: 15 BARS, 16Ø WIRE, AND SMALLER, STIRRUPS, TIES, AND SPIRAL..........................	40		40	40	40	40
COLUMN PRINCIPAL REINFORCEMENT......	50		50	50	65	75
20 TO 55 BARS, AND ALL OTHER BARS......................	50		50	50	50	50
CONCRETE NOT EXPOSED TO WEATHER, OR NOT IN CONTACT WITH GROUND: 35 BARS AND SMALLER FOR SLABS AND WALLS SEE NOTE #3	20	TOP 40 BOT. 30	20	25	35	40
FOR JOISTS	20		25	25	40	50
BEAM PRINCIPAL REINFORCEMENT	40		40	40	40	50
COLUMN PRINCIPAL REINFORCEMENT......	40		50	50	65	75
STIRRUPS, TIES, SPIRALS, AND ALL OTHER BARS	40		40	40	40	40

NOTES:

1. FOR CAST-IN-PLACE (NON-PRESTRESSED) CONCRETE, PROVIDE MINIMUM CONCRETE COVER TO REINFORCEMENT ACCORDING TO CSA-A23.1 UNLESS OTHERWISE NOTED ON DRAWINGS.
2. WHERE THE FIRE-RESISTANCE RATING OF A COLUMN EXCEEDS 2 HOURS, ADD WELDED WIRE MESH, MINIMUM 102 x 102 - MW3.2 x MW3.2, MIDWAY IN CONCRETE COVER.
3. FOR SHORT WALLS WHERE INDICATED ON THE DRAWING, PROVIDE COVER SAME AS FOR COLUMNS.
4. FOR PARKING STRUCTURES PROVIDE MINIMUM CONCRETE COVER TO REINFORCEMENT ACCORDING TO CSA-S413. COVER TO BOTTOM REINFORCEMENT IN THE MAIN FLOOR SLAB EXPOSED TO DEICING MUST MEET REQUIREMENTS OF CSA-S413.

MINIMUM DEVELOPMENT AND LAP SPLICE LENGTHS IN COMPRESSION — TDC-35

BAR SIZE	Fy MPa	DEVELOPMENT LENGTHS (ℓdc) f'c = 20 MPa	f'c = 25 MPa	f'c = 30 MPa	LAP SPLICE f'c = 30 MPa
10	400	240	220	200	300
10	500	300	270	250	430
15	400	340	310	280	440
15	500	430	380	350	640
20	400	420	370	340	590
20	500	520	470	430	850
25	400	540	480	440	730
25	500	680	600	550	1070
30	400	640	570	530	880
30	500	800	720	660	1280
35	400	770	690	630	1030
35	500	960	860	790	1490
45	400	940	840	770	
45	500	1170	1050	960	
55	400	1210	1080	990	
55	500	1510	1350	1240	

NOTES:

1. VALUES GIVEN ARE FOR NORMAL WEIGHT CONCRETE AND DEFORMED BARS ONLY AND ARE TO BE MODIFIED ACCORDING TO THE FOLLOWING APPLICABLE FACTORS.
2. LAP SPLICES ARE NOT PERMITTED FOR BAR SIZES 45 AND 55.
3. 'ℓdc' DENOTES MINIMUM DEVELOPMENT LENGTH FOR EMBEDMENT OF DOWELS IN COMPRESSION.
4. INCREASE LAP SPLICE LENGTHS FOR f'c LESS THAN 20 MPa BY A FACTOR OF 1.33.
5. MINIMUM LAP SPLICE AND DEVELOPMENT LENGTHS MAY BE REDUCED UNDER THE FOLLOWING SPECIAL CONDITIONS BY THE FACTORS SHOWN:
   a) EXCESS AREA OF STEEL ....(AS REQUIRED/AS PROVIDED) USE 1.0 UNLESS NOTED OTHERWISE.
   b) BARS ENCLOSED WITH A SPIRAL WHICH HAS A MINIMUM WIRE DIA. OF 6 AND 100 MAXIMUM PITCH 0.75
6. AFTER APPLYING ALL APPLICABLE FACTORS OF NOTES 4 AND 5, THE LAP SPLICE LENGTHS SHALL NOT BE MADE LESS THAN 300 AND THE DEVELOPMENT LENGTHS SHALL NOT BE MADE LESS THAN 200.

TENSION DEVELOPMENT LENGTH AND TENSION LAP SPLICES (Fy = 400 MPa) — TDC-36

CONCRETE / BAR \ SPLICE	25 MPa CLASS A, Ld	25 MPa CLASS B	30 MPa CLASS A, Ld	30 MPa CLASS B	35 MPa CLASS A, Ld	35 MPa CLASS B	40 MPa CLASS A, Ld	40 MPa CLASS B	45 MPa CLASS A, Ld	45 MPa CLASS B	50 MPa CLASS A, Ld	50 MPa CLASS B	CONCRETE / SPLICE \ BAR
	TABLE 1: UNCOATED, OTHER THAN TOP BARS												
10	300	380	300	350	300	320	300	300	300	280	300	300	10
15	440	570	400	520	370	480	350	450	330	420	310	400	15
20	580	750	530	690	490	640	460	600	430	560	410	530	20
25	900	1170	830	1070	760	990	720	930	670	880	640	830	25
30	1080	1410	990	1290	920	1190	860	1110	810	1050	770	1000	30
35	1260	1640	1150	1500	1070	1390	1000	1300	940	1220	890	1160	35
	TABLE 2: UNCOATED, TOP BARS												
10	380	490	350	450	320	420	300	390	280	370	300	350	10
15	570	730	520	670	480	620	450	580	420	550	400	520	15
20	750	980	690	890	640	830	600	770	560	730	530	690	20
25	1170	1530	1070	1390	990	1290	930	1210	880	1140	830	1080	25
30	1410	1830	1290	1670	1190	1550	1110	1450	1050	1360	1000	1290	30
35	1640	2130	1500	1950	1390	1800	1300	1690	1220	1590	1160	1510	35
	TABLE 3: EPOXY-COATED BARS, OTHER THAN TOP BARS												
10	440	570	400	520	370	480	350	450	330	420	310	400	10
15	650	850	600	770	550	720	520	670	490	630	460	600	15
20	870	1130	790	1030	730	950	690	890	650	840	610	800	20
25	1350	1760	1240	1610	1140	1490	1070	1390	1010	1310	960	1240	25
30	1620	2110	1480	1930	1370	1780	1280	1670	1210	1570	1150	1490	30
35	1890	2460	1730	2250	1600	2080	1500	1950	1410	1840	1340	1740	35
	TABLE 4: EPOXY-COATED TOP BARS												
10	490	640	450	590	420	540	390	510	370	480	350	450	10
15	740	960	670	880	620	810	580	760	550	720	520	680	15
20	980	1280	900	1170	830	1080	780	1010	730	950	700	900	20
25	1530	1990	1400	1820	1300	1690	1210	1580	1140	1490	1090	1410	25
30	1840	2390	1680	2180	1560	2020	1460	1890	1370	1780	1300	1690	30
35	2150	2790	1960	2550	1810	2360	1700	2210	1600	2080	1520	1970	35

NOTES:

1. USE FOLLOWING TENSION LAP SPLICE LENGTHS UNLESS NOTED OTHERWISE ON DRAWINGS.
2. TENSION DEVELOPMENT LENGTHS, Ld, DENOTED AS TENSION LAP SPLICE CLASS A.
3. FOR COLUMNS, USE COLUMN TENSION SPLICE TYPICAL DETAIL.
4. TOP BARS ARE BARS WITH MORE THAN 300 OF CONCRETE CAST BELOW SPLICE.
5. CLEAR COVER NOT LESS THAN d_b, CLEAR SPACING NOT LESS THAN $2d_b$.
6. FOR STRUCTURAL LOW-DENSITY CONCRETE, INCREASE SPLICE LENGTHS BY 30%.
7. FOR STRUCTURAL SEMI-LOW-DENSITY CONCRETE, INCREASE SPLICE LENGTHS BY 20%.

MINIMUM EMBEDMENT LENGTHS FOR DEFORMED BARS (Fy = 460 MPa) — TDC-37

BAR SIZE	TENSION, Ld (CLASS A) f'c=35MPa TOP BARS	f'c=35MPa OTHER BARS	f'c=40MPa TOP BARS	f'c=40MPa OTHER BARS	f'c=45MPa TOP BARS	f'c=45MPa OTHER BARS	f'c=50MPa TOP BARS	f'c=50MPa OTHER BARS	f'c=55MPa TOP BARS	f'c=55MPa OTHER BARS	COMPRESSION f'c= 35MPa	f'c= 40MPa	f'c= 45MPa	f'c= 50MPa & 55MPa
T8	420	320	390	300	360	300	350	300	330	300	200	200	200	200
T10	530	410	490	380	460	350	430	330	410	310	200	200	200	200
T12	630	490	580	450	550	420	520	400	490	380	250	250	250	250
T16	840	650	780	600	730	560	690	530	650	500	330	320	320	320
T20	1050	810	970	750	910	700	860	660	820	630	410	400	400	400
T25	1640	1260	1520	1170	1420	1100	1340	1030	1270	980	510	500	500	500
T32	2100	1620	1950	1500	1820	1400	1720	1320	1630	1250	650	640	640	640
T40	2630	2020	2440	1870	2280	1750	2150	1650	2040	1570	810	800	800	800

NOTES:

1. TOP BARS ARE HORIZONTAL BARS LOCATED SUCH THAT MORE THAN 300mm OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR (EQ. TOP BARS OF BEAMS AND SLABS DEEPER THAN 300mm AND HORIZONTAL WALL REINFORCING).
2. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, COMPRESSION EMBEDMENT SHALL BE PROVIDED FOR COLUMN BARS ONLY AND TENSION EMBEDMENT FOR ALL OTHER REINFORCEMENT.
3. BAR SPLICE (LAP) LENGTHS SHOWN ARE BASED ON ACI-318-02 CL.12.2.2 AND 12.3 RESPECTIVELY.

MINIMUM LAP LENGTHS FOR DEFORMED BARS (Fy = 400 MPa) — TDC-38

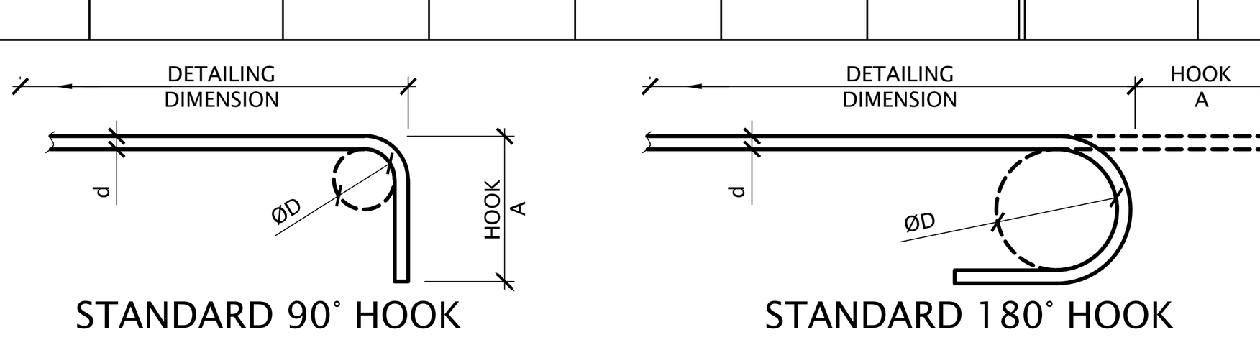
BAR SIZE	TENSION (CLASS B) f'c=35MPa TOP BARS	f'c=35MPa OTHER BARS	f'c=40MPa TOP BARS	f'c=40MPa OTHER BARS	f'c=45MPa TOP BARS	f'c=45MPa OTHER BARS	f'c=50MPa TOP BARS	f'c=50MPa OTHER BARS	f'c=55MPa TOP BARS	f'c=55MPa OTHER BARS	COMPRESSION f'c≥25MPa REGULAR LAPS	COLUMN W/TIES	COLUMN W/SPIRALS
T8	550	420	510	390	470	360	450	350	420	330	300	300	300
T10	680	530	630	490	590	460	560	430	530	410	370	300	300
T12	820	630	760	580	710	550	670	520	640	490	440	360	330
T16	1090	840	1010	780	950	730	890	690	850	650	580	480	440
T20	1370	1050	1270	970	1180	910	1120	860	1060	820	730	600	550
T25	2140	1640	1980	1520	1850	1420	1750	1340	1660	1270	910	750	680
T32	2740	2100	2530	1950	2370	1820	2230	1720	2120	1630	1160	960	870
T40	-	-	-	-	-	-	-	-	-	-	1450	1200	1090

NOTES:

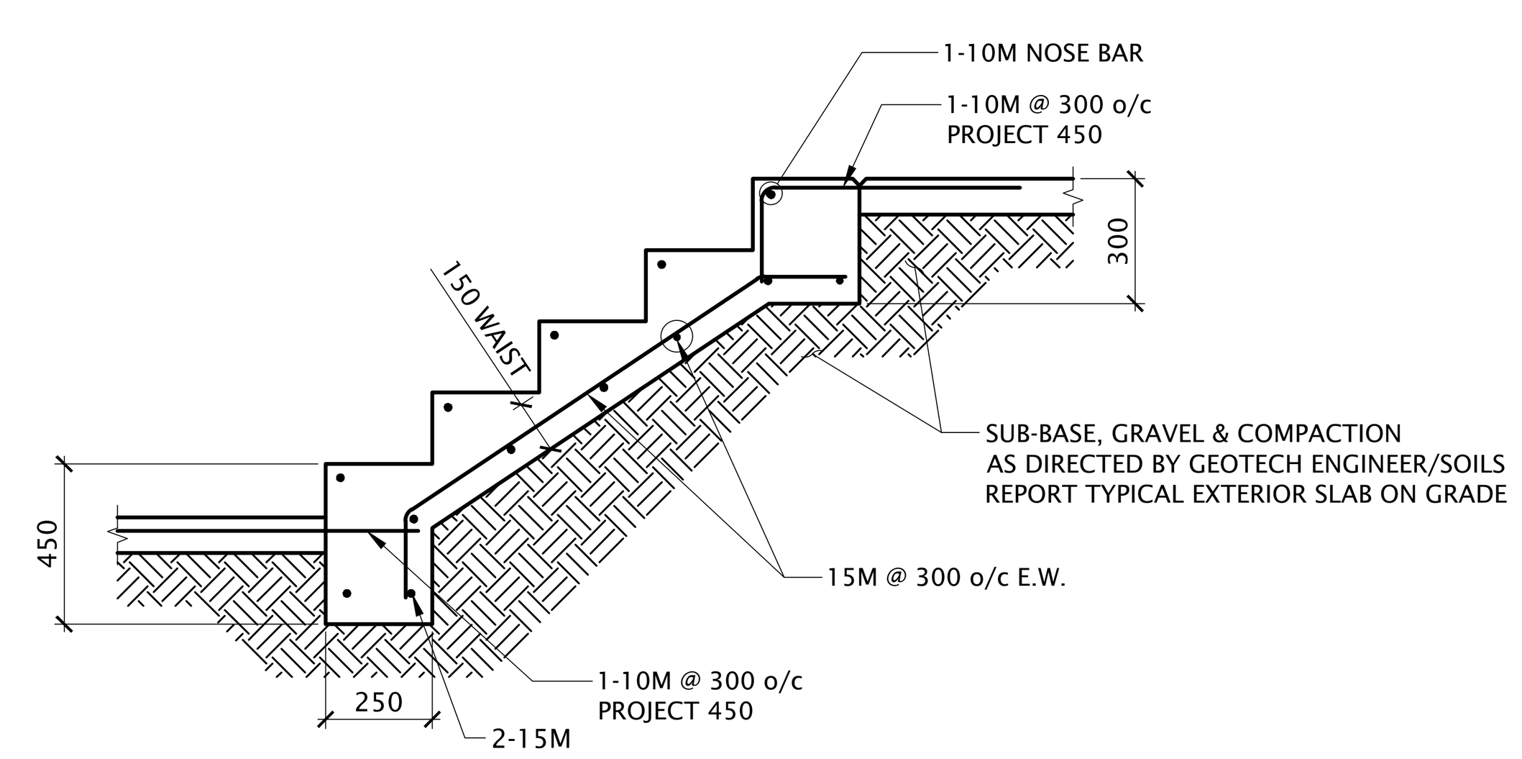
1. TOP BARS ARE HORIZONTAL BARS LOCATED SUCH THAT MORE THAN 300 mm OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR (EQ. TOP BARS OF BEAMS AND SLABS DEEPER THAN 300 mm AND HORIZONTAL WALL REINFORCING).
2. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, COMPRESSION EMBEDMENT SHALL BE PROVIDED FOR COLUMN BARS ONLY AND TENSION EMBEDMENT FOR ALL OTHER REINFORCEMENT.
3. BAR SPLICE (LAP) LENGTHS SHOWN ARE BASED ON ACI-318-02 CL.12.15 AND 12.16 RESPECTIVELY.

REINFORCING STEEL BAR AND STANDARD HOOK DIMENSIONS FOR DEFORMED BARS (Fy = 460 MPa) — TDC-39

BAR SIZE	MASS kg/m	DIA. d	AREA mm2	STANDARD HOOK BEND D	STANDARD HOOK A 90˚	STANDARD HOOK A 180˚	STIRRUP AND TIE HOOKS (90˚) D	STIRRUP AND TIE HOOKS (90˚) A
T8	0.395	8	50	50	130	120	30	85
T10	0.617	10	79	60	160	130	40	90
T12	0.888	12	113	70	190	150	50	110
T16	1.580	16	201	95	260	180	65	145
T20	2.47	20	314	120	320	220		
T25	3.86	25	491	150	400	280		
T32	6.31	32	804	260	550	420		
T40	9.87	40	1257	400	720	640		

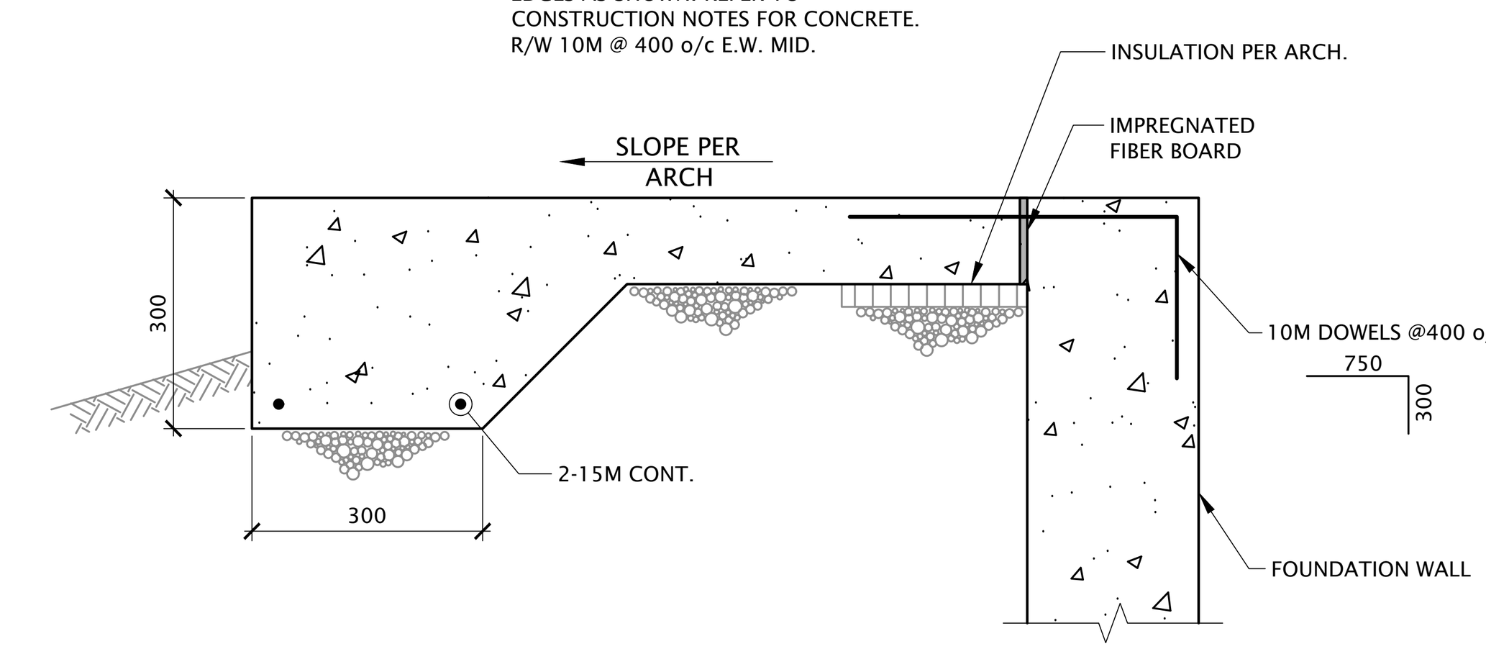


STAIR SUPPORTED ON GRADE — TDC-49



TYPICAL SIDEWALK — TDC-50

NOTE:
100 CONCRETE SLAB ON GRADE OMIT POLY V.B & PROVIDE DOWELS & THICKENING AT EDGES AS SHOWN. REFER TO CONSTRUCTION NOTES FOR CONCRETE. R/W 10M @ 400 o/c E.W. MID.



SIDEWALK DETAIL
(REFER TO ARCH FOR EXACT SIZE AND LOCATION)

DATE	ISSUED FOR	REV
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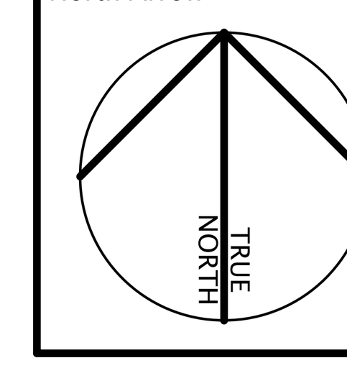
2017-08-15	TENDER	0
2017-09-01	BUILDING PERMIT	1

Project Component

Keyplan

North Arrow



Detail Symbol

DETAIL#
SHEET #
Symbol not to scale

Consultants
Civil: McELHANNEY CONSULTING SERVICES LTD.
Landscape: NORR ARCHITECTS ENGINEERS PLANNERS
Architectural: NORR ARCHITECTS ENGINEERS PLANNERS
Structural: NORR ARCHITECTS ENGINEERS PLANNERS
Mechanical: NORR ARCHITECTS ENGINEERS PLANNERS
Electrical: NORR ARCHITECTS ENGINEERS PLANNERS

Seal(s)

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Project Leader T. BERTSCH	Checked A. TODEILA

Client
PARKS CANADA AGENCY
JASPER NATIONAL PARK, JASPER, AB

Project
JASPER PARK STAFF HOUSING
918 PATRICIA STREET
JASPER, AB

Drawing Title
TYPICAL DETAILS

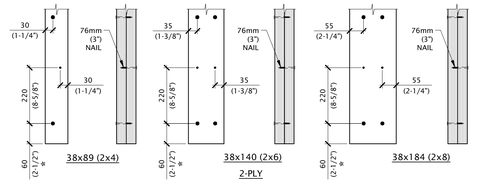
Check Scale (may be photo reduced)
0 1inch 0 10mm

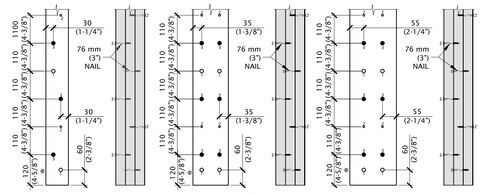
Project No. NCEM-17-0002

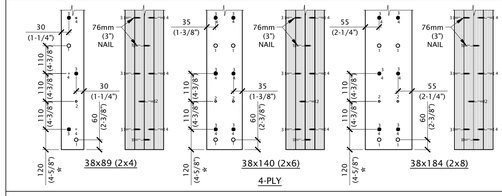
Drawing No. S02-00-02

PLOT DATE: August 31, 2017 TIME: 12:59 PM FULL PATH AND FILENAME: \\EDMAPPS01\P_DRIVES\NCEM17-0002 - JASPER NATIONAL PARK STAFF HOUSING\500-DELIV\STRU\S02-00-02.DWG PLOTSYLE TABLE: Ingenium.ctb

NAILING FOR BUILT-UP COLUMNS — TDW-1R

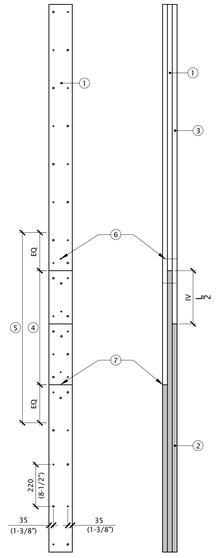






NOTE:
1. * ALL DISTANCE VALUES ARE SHOWN FOR S-P-F AND NORTHERN SPECIES. DISTANCES FOR OTHER SPECIES MUST BE CONFIRMED WITH THE ENGINEER.

SPLICED BUILT-UP COLUMNS — TDW-2



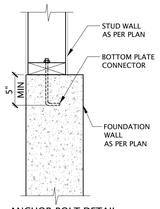
LEGEND:

1. 3#38 (3#1-1/2") THICK MEMBERS
   MINIMUM LAMINATION SIZE: 38x140 (1-1/2"x5-1/2")
   MAXIMUM LAMINATION SIZE: 38x184 (1-1/2"x7-1/4")
2. TREATED WOOD PORTION WHEN REQUIRED.
3. UNTREATED WOOD PORTION
4. SPLICE LENGTH, L= 1200mm (4'-0")
5. SPLICE REGION, R= 1.5 L
6. NAILS : 114mm (4-1/2") COMMON WIRENAIL; HOT-DIP GALVANIZED WHEN USED IN TREATED WOOD; 6 PER JOINT 220mm (8-1/2") o/c, 2 PER ROW DRIVEN FROM ALTERNATE SIDES.
7. BUTT JOINTS

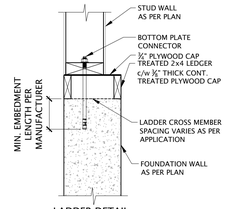
NOTE:

SPLICED COLUMN TO BE BRACED BY SHEATHING OR PURLINS SPACED AT 600mm (2'-0") c/c MAX IN DIRECTION PERPENDICULAR TO WIDE FACE OF LAMINATIONS.

BOTTOM PLATE TO FOUNDATION WALL CONNECTION DETAIL — TDW-04



ANCHOR BOLT DETAIL
OPTION 1



LADDER DETAIL
OPTION 2

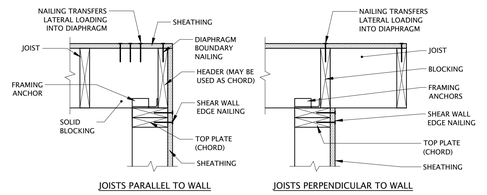
BOTTOM PLATE CONNECTOR (FOR SHEAR WALLS)(*)	
TYPE	SPACING
1/2"Ø ANCHOR BOLTS (**)	48" (1200mm) MAX.
3" CONCRETE NAILS	6" (150mm) MAX.

NOTE: (*) REFER TO PLAN AND SCHEDULE FOR LOCATION OF SHEAR WALL
(**) ANCHOR BOLTS MAYBE HILTI RE 500, TO BE CONFIRMED BY ENGINEER

BOTTOM PLATE CONNECTOR (FOR LOAD BEARING WALLS OTHER THAN SHEAR WALLS)	
TYPE	SPACING
1/2"Ø ANCHOR BOLTS (**)	72" MAX.(1800mm), MIN. 2 REQ'D
3" CONCRETE NAILS	12" (300mm) MAX.

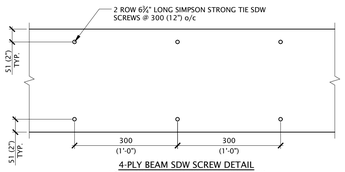
NOTE: (**) ANCHOR BOLTS MAYBE HILTI RE 500, TO BE CONFIRMED BY ENGINEER

SHEAR AND DIAPHRAGM CONNECTION DETAILS — TDW-3

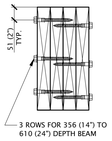


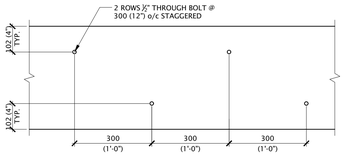
DIAPHRAGM CONNECTION DETAILS

4-PLY BUILT-UP BEAM BOLTING SCHEDULE — TDW-6



4-PLY BEAM SDW SCREW DETAIL
TO BE CONFIRMED BY BEAM SUPPLIER

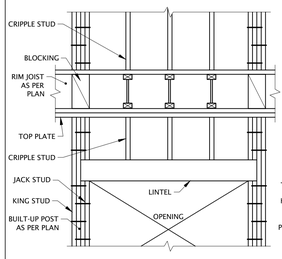




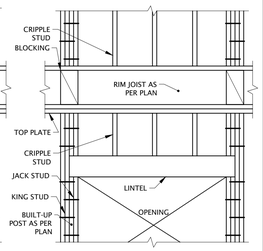
4-PLY BEAM THROUGH BOLTING DETAIL
TO BE CONFIRMED BY BEAM SUPPLIER

NOTE:
ALL MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS ARE TO BE FOLLOWED

WOOD FRAME AT OPENING DETAILS (DROPPED LINTEL) — TDW-07

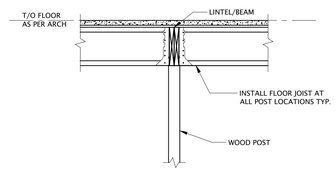


FLOOR JOISTS PERPENDICULAR TO RIM JOIST

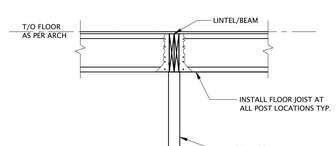


FLOOR JOISTS PARALLEL TO RIM JOIST

WOOD POST LATERAL RESTRAINT DETAILS — TDW-10

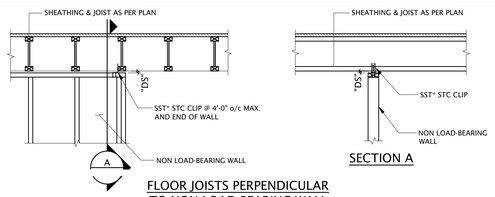


WITH TOPPING



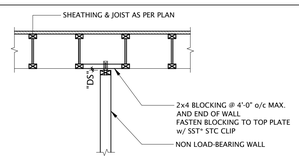
WITHOUT TOPPING

NON LOAD-BEARING WALL/JOIST CONNECTION DETAIL — TDW-11



SECTION A

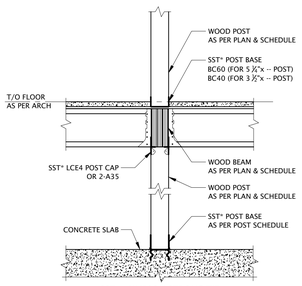
FLOOR JOISTS PERPENDICULAR TO NON LOAD-BEARING WALL



FLOOR JOISTS PARALLEL TO NON LOAD-BEARING WALL

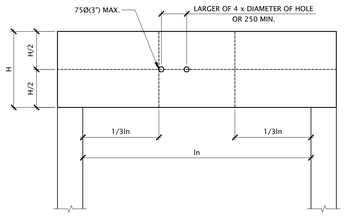
NOTES:
"DS" - DEFLECTION GAP AS DETERMINED BY JOIST DESIGNER. CONTRACTOR TO COORDINATE
SST* - SIMPSON STRONG-TIE

WOOD POST CONNECTION DETAIL — TDW-12



SST* - SIMPSON STRONG TIE

HOLES IN ENGINEERED WOOD BEAMS — TDW-14



NOTE:

ENGINEERED WOOD PRODUCT MANUFACTURER TO COORDINATED WITH MECH. AND MEET STRUCTURAL REQUIREMENTS

DATE	ISSUED FOR	REV
2017-07-07	60% PROGRESS	A
2017-08-15	TENDER	0
2017-09-01	BUILDING PERMIT	1

Project Component

Keyplan

North Arrow — TRUE NORTH

Detail Symbol — DETAIL# / SHEET #

Symbol not to scale

Consultants

Civil:	McELHANNEY CONSULTING SERVICES LTD.
Landscape:	NORR ARCHITECTS ENGINEERS PLANNERS
Architectural:	NORR ARCHITECTS ENGINEERS PLANNERS
Structural:	NORR ARCHITECTS ENGINEERS PLANNERS
Mechanical:	NORR ARCHITECTS ENGINEERS PLANNERS
Electrical:	NORR ARCHITECTS ENGINEERS PLANNERS

Seal(s)

PROFESSIONAL ENGINEER ALBERTA

PP# 11944

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Project Leader	Checked
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Client
PARKS CANADA AGENCY
JASPER NATIONAL PARK, JASPER, AB

Project
JASPER PARK STAFF HOUSING
918 PATRICIA STREET
JASPER, AB

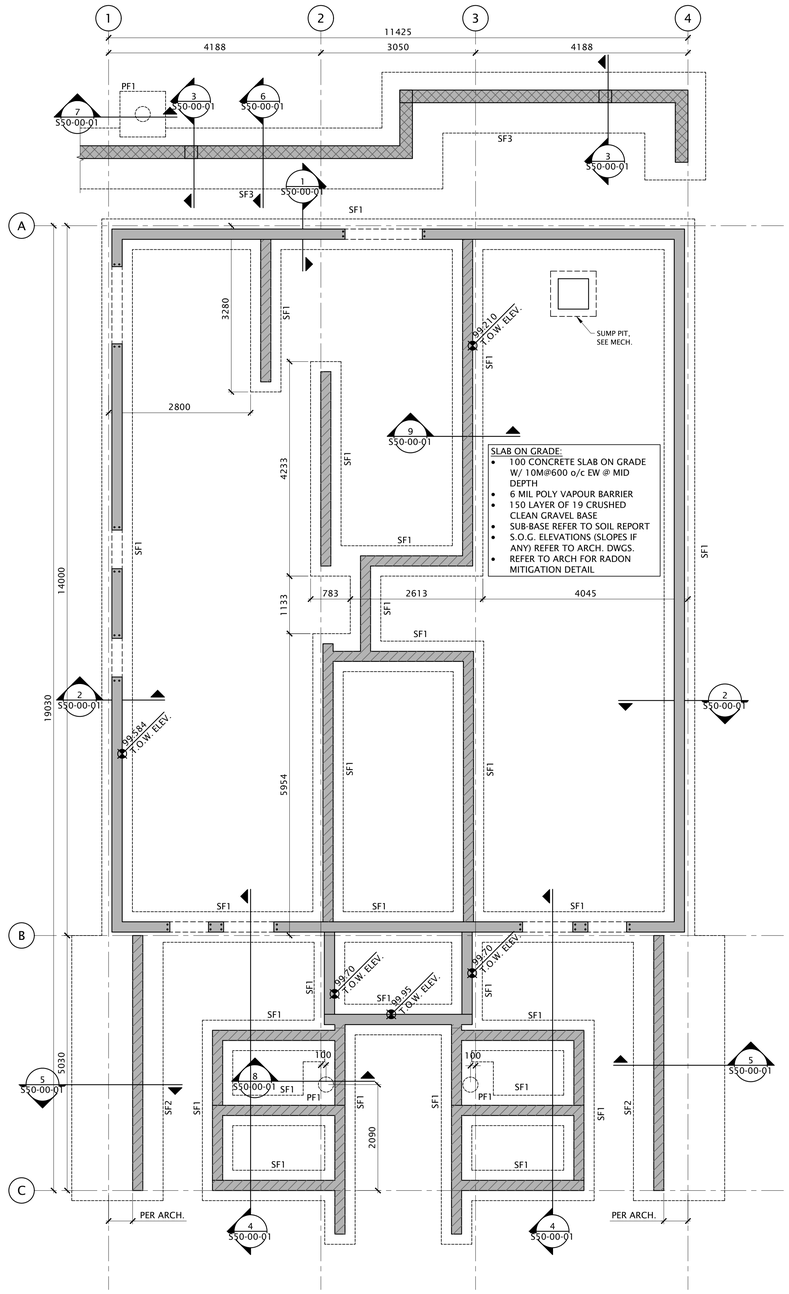
Drawing Title
TYPICAL DETAILS

Check Scale (may be photo reduced)
0 1inch 0 10mm

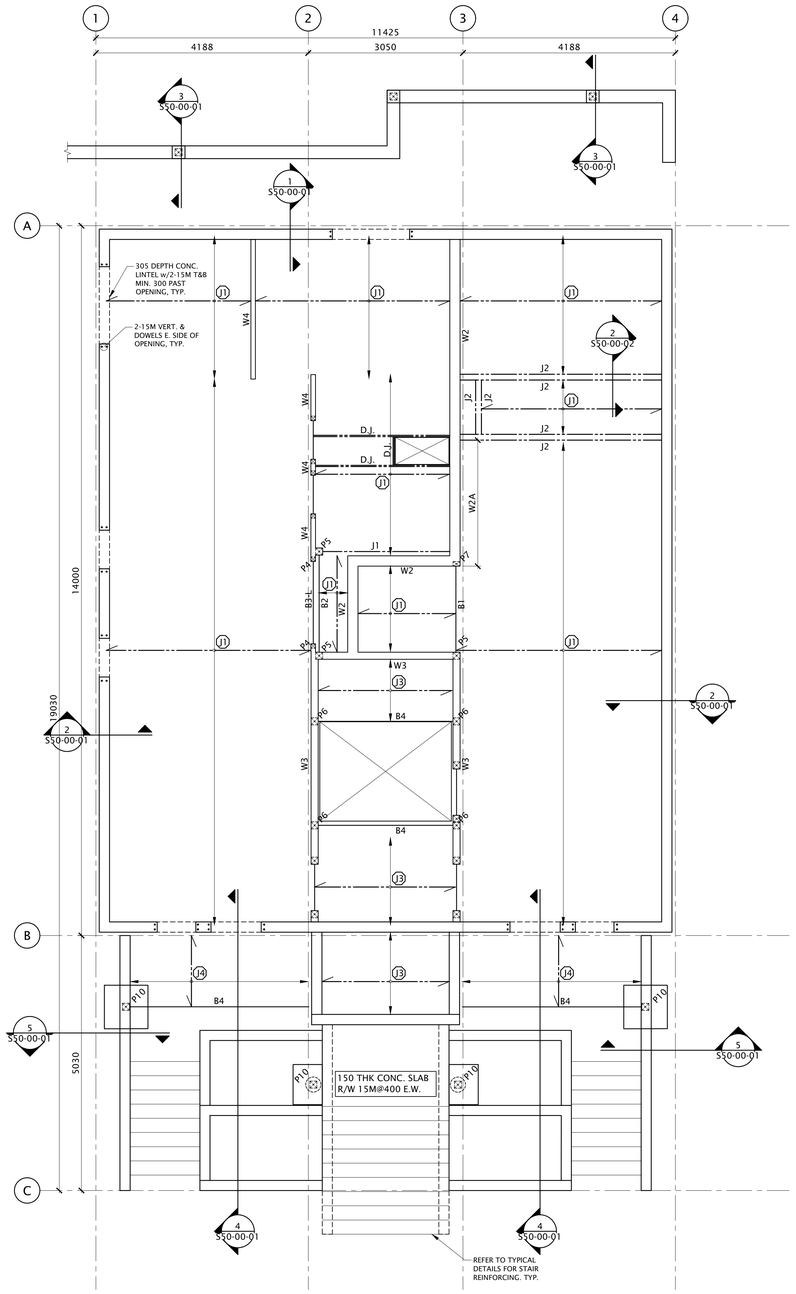
Project No. NCEM-17-0002

Drawing No. S02-00-03

PLOT DATE: August 31, 2017 TIME: 12:59 PM FULL PATH AND FILENAME: \\EDMAPPS01\P_DRIVES\NCEM17-0002 - JASPER NATIONAL PARK STAFF HOUSING\500-DELIV\STRU\S02-00-03.DWG PLOTSTYLE TABLE: Ingenium.ctb



1 FOUNDATION & BASEMENT FRAMING PLAN
S20-01-01 1:50



2 MAIN FLOOR FRAMING PLAN
S20-01-01 1:50

NOTES
1. REFER TO GEOTECHNICAL REPORT FOR SLAB ON GRADE GUIDELINES.
2. ALL FOUNDATION WORK INCLUDING EXCAVATION, BACKFILL AND COMPACTION SHALL CONFIRM TO RECOMMENDATIONS PROVIDED IN GEOTECHNICAL REPORT.
3. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION AND SIZE OF DEPRESSIONS, HOUSEKEEPING PADS, TRENCHES, ETC.
4. REFER TO CIVIL, LANDSCAPING AND ARCHITECTURAL DRAWINGS FOR TOP OF RETAINING WALL AND LANDSCAPING WALL ELEVATION.
5. FOR GENERAL NOTES, REFER TO S01 DRAWING SERIES.
6. FOR TYPICAL DETAILS, REFER TO S02 DRAWING SERIES.

LEGEND
- 200 THK ICF WALL
- 200 THK C.I.P. CONC. WALL
- 250 THK C.I.P. CONC. WALL

FOOTING SCHEDULE

MARK	SIZE	REINF
SF1	600x200	3-15M CONT.
SF2	1800x300	SEE SECTION
SF3	1200x300	SEE SECTION
PF1	900x900x200	3-15M E.W.

FLOOR DESIGN LOADS:

DEAD LOAD (SELF-WEIGHT) = 1.5 kPa
DEAD LOAD = 0.8 kPa (DECK & BALCONY)
SUPERIMPOSED PARTITION LOAD = 0.5 kPa
LIVE LOAD = 1.9 kPa (INSIDE UNITS)
= 4.8 kPa (COMMON AREAS)
= 2.4 kPa (DECK & BALCONY)

NOTE:
JOIST SUPPLIER TO REVIEW MECHANICAL DWGS AND COORDINATE ALL PENETRATION AS NECESSARY

JOIST/TRUSS SCHEDULE

J1	11 ⅞" (302 mm) DEEP TJI 110 @ 19.2" (488 mm) o/c (MAX.)	T1	TRUSS @ 24" (610 mm) o/c (MAX.)
J2	1- PLY 1 ¾"x11 ⅞" (44x302) 2.0E LVL	T2	MONO TRUSS@ 24" (610 mm) o/c (MAX.)
J3	2x8 SPF#2 @ 16" (406 mm) o/c (MAX.)	G.T.	GIRDER TRUSS
J4	TAPERED (2% ON TOP) 2x8 SPF#2 @ 16" (406 mm) o/c (MAX.) P/T	V.S.	VALLEY SET ON TOP OF TRUSSES
J5	2x8 SPF#2 @ 12" (305 mm) o/c (MAX.) P/T		
J6	2x8 SPF#2 @ 16" (406 mm) o/c (MAX.) P/T		
J7	2-2x8 SPF#2 @ 12" (305 mm) o/c (MAX.)		

NOTES:
1. JOIST/TRUSS/BEAM SUPPLIER TO PROVIDE HEADERS, HANGERS, RIM JOISTS, STIFFENERS, JOIST BLOCKING AND OTHER ACCESSORIES AS REQUIRED.
2. JOIST/TRUSS LAYOUT SHOWN ON THE PLANS AND SCHEDULE ARE SUGGESTED ONLY. JOIST/TRUSS SUPPLIER TO SUBMIT SHOP DRAWINGS WITH ENGINEER'S SEAL FOR REVIEW.
3. ALL EXTERIOR JOISTS EXPOSED TO WEATHER TO BE PRESSURE TREATED.
4. SEE GENERAL NOTES ON DRAWING S01-00-01 AND S-01-00-02.

WOOD BEAM SCHEDULE

MARK	MEMBER SIZE	NO. OF PLYS.	LUMBER GRADE	COMMENTS
B1	1 ¾"x11 ⅞" (44x302)	2	2.0E LVL	
B2	1 ¾"x11 ⅞" (44x302)	1	2.0E LVL	
B3	1 ¾"x9 ¼" (44x235)	2	2.0E LVL	
B4	2x10 (38x235)	2	SPF #2	
B5	1 ¾"x9 ¼" (44x235)	3	2.0E LVL	
B6	1 ¾"x7 ¼" (44x184)	3	2.0E LVL	

NOTES:
1. ALL FLOOR BEAMS ARE FLUSHED BEAMS, DROPPED BEAMS ARE IDENTIFIED BY "D" DESIGNATION (IE B#-D) AND LINTEL HANGERS ARE IDENTIFIED BY "L" DESIGNATION (IE B#-L)
2. HANGERS TO BE PROVIDED BY JOIST/BEAM SUPPLIER.
3. ALL EXTERIOR BEAMS EXPOSED TO WEATHER TO BE PRESSURE TREATED.
4. CONNECTIONS EXPOSED TO EXTERIOR CONDITIONS TO BE HOT DIPPED GALVANIZED/BOLTS TO BE STAINLESS STEEL.

POST SCHEDULE

MARK	MEMBER SIZE	No. OF PLYS.	LUMBER GRADE	COMMENTS
P1	2x6 (38x140)	3 (2J, IK)	SPF #2	TYP.U/N @ 2x6 LOAD BEARING WALL HEADER 2-2x8 1200mm MAX.
P2	2x6 (38x140)	4 (2J, 2K)	SPF #2	TYP.U/N @ 2x6 EXT. LOAD BEARING WALL HEADER 2-2x10 1800mm MAX.
P3	2x4 (38x89)	3 (2J, IK)	SPF #2	TYP.U/N @ 2x4 LOAD BEARING WALL HEADER 2-2x8 1000mm MAX.
P4	2x4 (38x89)	4 (2J, 2K)	SPF #2	TYP.U/N @ 2x4 LOAD BEARING WALL HEADER 2-2x10 1500mm MAX.
P5	2x6 (38x140)	3	SPF #2	
P6	2x6 (38x140)	4	SPF #2	
P7	2x4 (38x89)	3	SPF #2	
P8	2x4 (38x89)	4	SPF #2	
P9	3½"x5¼" (89x135)	1	2.0E 3100 Fb LVL	
P10	6"x6" (140x140)	1	P/T SPF #2	

NOTES:
1. ALL POSTS ARE TO CONTINUE DOWN TO CONCRETE WALLS / SLAB OR TRANSFER BEAM BELOW.
2. POSTS ARE SHOWN BELOW THE LEVEL THEY PROVIDE SUPPORT TO.
3. PROVIDE BLOCKING WITHIN FLOOR JOIST SPACE EQUIVALENT IN SIZE TO THE POST ABOVE.
4. SEE GENERAL NOTES ON DRAWING S01 AND TYPICAL DETAILS ON S02 DRAWING SERIES.
5. BALCONY WOOD TO BE PRESSURE TREATED TYP. U.N.O.
6. 2J, 1K - 2 JACK STUDS, 1 KING STUD.

WOOD WALL SCHEDULE

LEVEL	EXTERIOR WALL W1 TYP. W1A	PARTY WALL W2, TYP.	PARTY WALL W2A	INTERIOR WALL W3, TYP.	INTERIOR WALL W4
2ND FLOOR TO ROOF	2x6 @ 400 o/c	2x4 @ 400 o/c STAGG.	2x4 @ 400 o/c STAGG.	2x6 @ 400 o/c	2x4 @ 400 o/c
MAIN FLOOR TO 2ND FLOOR	2x6 @ 400 o/c	2x4 @ 400 o/c STAGG.	2x4 @ 400 o/c STAGG.	2x6 @ 400 o/c	2x4 @ 400 o/c
FOUNDATION TO MAIN FLOOR	N/A	2x4 @ 400 o/c STAGG.	2x4 @ 300 o/c STAGG.	2x6 @ 400 o/c	2x4 @ 300 o/c

NOTES:
1. W1, W1A & W3 - SHEAR WALL, SEE GENERAL NOTES ON DRAWING SERIES S01.
2. 'S' DENOTES SPACING BETWEEN STUDS, AS NOTED IN SCHEDULE.
3. PROVIDE ANCHOR BOLTS PER TYPICAL DETAIL TDW-4, TYPICAL UNLESS NOTED OTHERWISE.

DATE	ISSUED FOR	REV
2017-07-07	60% PROGRESS	A
2017-08-15	TENDER	0
2017-09-01	BUILDING PERMIT	1

Project Component

Keyplan

North Arrow

Detail Symbol

DETAIL#
SHEET #
Symbol not to scale

Consultants

Civil:	McELHANNEY CONSULTING SERVICES LTD.
Landscape:	NORR ARCHITECTS ENGINEERS PLANNERS
Architectural:	NORR ARCHITECTS ENGINEERS PLANNERS
Structural:	NORR ARCHITECTS ENGINEERS PLANNERS
Mechanical:	NORR ARCHITECTS ENGINEERS PLANNERS
Electrical:	NORR ARCHITECTS ENGINEERS PLANNERS

Seal(s)

PROFESSIONAL ENGINEER ALBERTA

PA# 11944

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ARCHITECTS ENGINEERS PLANNERS
An Ingenium Group Company
411 - 1st Street SE,
Suite 2300,
Calgary, Alberta, Canada T2G 4Y5
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A Partnership of Limited Companies

Project Manager C. ODINGA	Drawn D. ANDERSON
Project Leader T. BERTSCH	Checked A. TODEILA

Client
PARKS CANADA AGENCY
JASPER NATIONAL PARK, JASPER, AB

Project
JASPER PARK
STAFF HOUSING
918 PATRICIA STREET
JASPER, AB

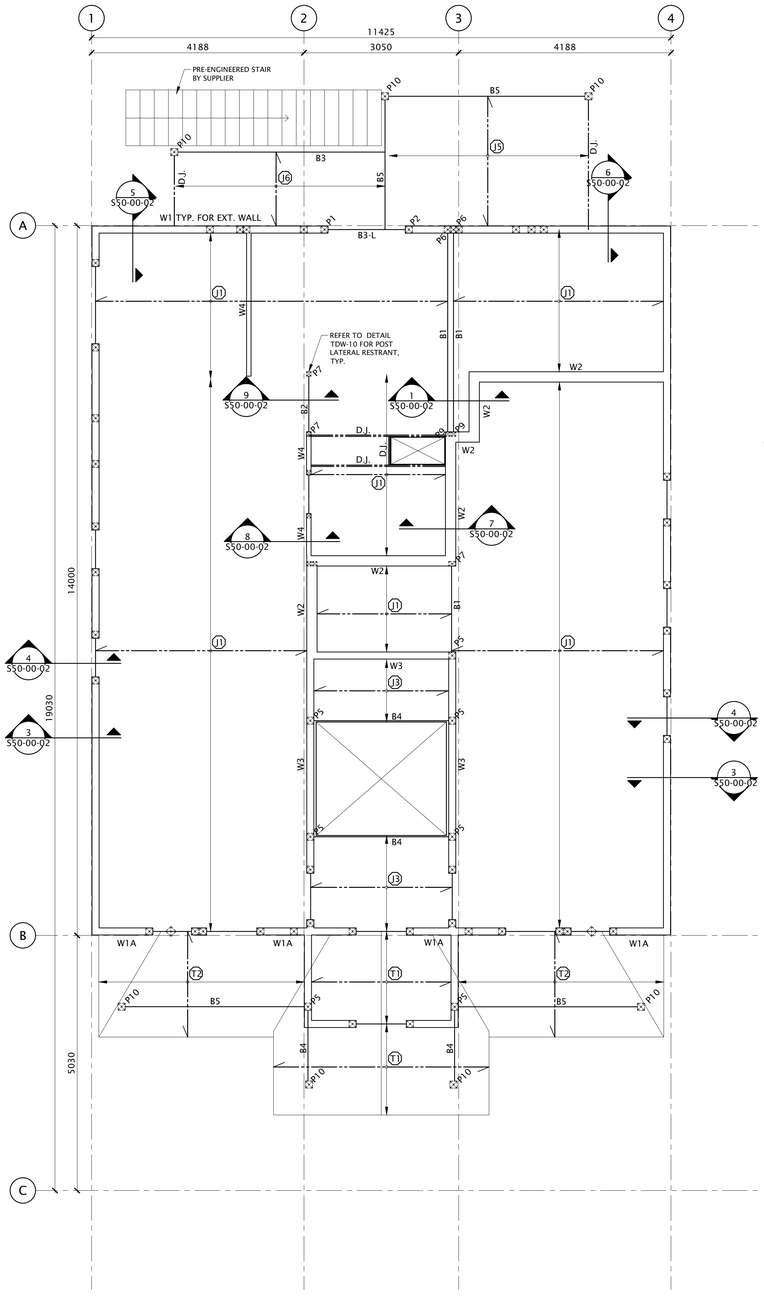
Drawing Title
FLOOR PLANS
FOUNDATION &
MAIN FLOOR FRAMING

Check Scale (may be photo reduced)
0 1inch 0 10mm

Project No. NCEM-17-0002

Drawing No. S20-01-01

PLOT DATE: August 31, 2017 TIME: 12:59 PM FULL PATH AND FILENAME: \\EDMAPPS01\P-DRIVES\NCEM17-0002 - JASPER NATIONAL PARK STAFF HOUSING\300-DELIV\STRUS\S20-01-01.DWG PLOTSTYLE TABLE: Ingenium.ctb

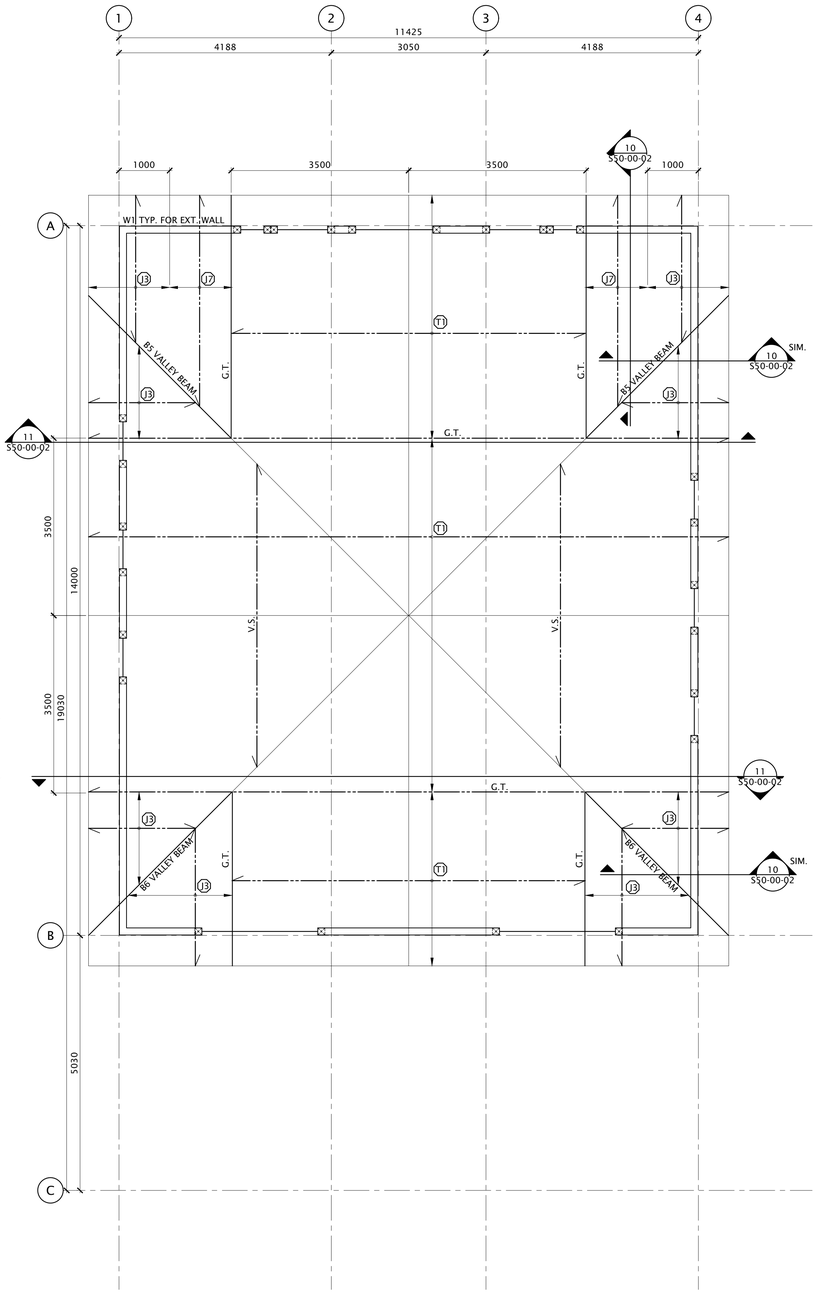


1 2ND FLOOR FRAMING PLAN
S20-02-01 1:50

FLOOR DESIGN LOADS:

DEAD LOAD (SELF-WEIGHT) = 1.5 kPa
DEAD LOAD = 0.8 kPa (DECK & BALCONY)
SUPERIMPOSED PARTITION LOAD = 0.5 kPa
LIVE LOAD = 1.9 kPa (INSIDE UNITS)
= 4.8 kPa (COMMON AREAS)
= 2.4 kPa (DECK & BALCONY)

NOTE:
JOIST SUPPLIER TO REVIEW MECHANICAL DWGS AND COORDINATE ALL PENETRATION AS NECESSARY



2 ROOF FRAMING PLAN
S20-02-01 1:50

FLOOR DESIGN LOADS:

DEAD LOAD = 0.8 kPa
SNOW LOAD = 1.92 kPa

JOIST/TRUSS SCHEDULE

J1	11 ⅞" (302 mm) DEEP TJI 110 @ 19.2" (488 mm) o/c (MAX.)	T1	TRUSS @ 24" (610 mm) o/c (MAX.)
J2	1- PLY 1 ¾"x11 ⅞" (44x302) 2.0E LVL	T2	MONO TRUSS@ 24" (610 mm) o/c (MAX.)
J3	2x8 SPF#2 @ 16" (406 mm) o/c (MAX.)	G.T.	GIRDER TRUSS
J4	TAPERED (2% ON TOP) 2x8 SPF#2 @ 16" (406 mm) o/c (MAX.) P/T	V.S.	VALLEY SET ON TOP OF TRUSSES
J5	2x8 SPF#2 @ 12" (305 mm) o/c (MAX.) P/T		
J6	2x8 SPF#2 @ 16" (406 mm) o/c (MAX.) P/T		
J7	2-2x8 SPF#2 @ 12" (305 mm) o/c (MAX.)		

NOTES:
1. JOIST/TRUSS/BEAM SUPPLIER TO PROVIDE HEADERS, HANGERS, RIM JOISTS, STIFFENERS, JOIST BLOCKING AND OTHER ACCESSORIES AS REQUIRED.
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3. ALL EXTERIOR JOISTS EXPOSED TO WEATHER TO BE PRESSURE TREATED.
4. SEE GENERAL NOTES ON DRAWING S01-00-01 AND S-01-00-02.

WOOD BEAM SCHEDULE

MARK	MEMBER SIZE	NO. OF PLYS.	LUMBER GRADE	COMMENTS
B1	1 ¾"x11 ⅞" (44x302)	2	2.0E LVL	
B2	1 ¾"x11 ⅞" (44x302)	1	2.0E LVL	
B3	1 ¾"x9 ¼" (44x235)	2	2.0E LVL	
B4	2x10 (38x235)	2	SPF #2	
B5	1 ¾"x9 ¼" (44x235)	3	2.0E LVL	
B6	1 ¾"x7 ¼" (44x184)	3	2.0E LVL	

NOTES:
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POST SCHEDULE

MARK	MEMBER SIZE	No. OF PLYS.	LUMBER GRADE	COMMENTS
P1	2x6 (38x140)	3 (2J, IK)	SPF #2	TYP.U/N @ 2x6 LOAD BEARING WALL HEADER 2-2x8 1200mm MAX
P2	2x6 (38x140)	4 (2J, 2K)	SPF #2	TYP.U/N @ 2x6 EXT. LOAD BEARING WALL HEADER 2-2x10 1800mm MAX
P3	2x4 (38x89)	3 (2J, IK)	SPF #2	TYP.U/N @ 2x4 LOAD BEARING WALL HEADER 2-2x8 1000mm MAX
P4	2x4 (38x89)	4 (2J, 2K)	SPF #2	TYP.U/N @ 2x4 LOAD BEARING WALL HEADER 2-2x10 1500mm MAX
P5	2x6 (38x140)	3	SPF #2	
P6	2x6 (38x140)	4	SPF #2	
P7	2x4 (38x89)	3	SPF #2	
P8	2x4 (38x89)	4	SPF #2	
P9	3½"x5¼" (89x135)	1	2.0E 3100 Fb LVL	
P10	6"x6" (140x140)	1	P/T SPF #2	

NOTES:

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4. SEE GENERAL NOTES ON DRAWING S01 AND TYPICAL DETAILS ON S02 DRAWING SERIES.
5. BALCONY WOOD TO BE PRESSURE TREATED TYP. U.N.O.
6. 2J, 1K - 2 JACK STUDS, 1 KING STUD.

WOOD WALL SCHEDULE

LEVEL	EXTERIOR WALL W1 TYP. W1A	PARTY WALL W2, TYP.	PARTY WALL W2A	INTERIOR WALL W3, TYP.	INTERIOR WALL W4
2ND FLOOR TO ROOF	2x6 @ 400 o/c	2x4 @ 400 o/c STAGG.	2x4 @ 400 o/c STAGG.	2x6 @ 400 o/c	2x4 @ 400 o/c
MAIN FLOOR TO 2ND FLOOR	2x6 @ 400 o/c	2x4 @ 400 o/c STAGG.	2x4 @ 400 o/c STAGG.	2x6 @ 400 o/c	2x4 @ 400 o/c
FOUNDATION TO MAIN FLOOR	N/A	2x4 @ 400 o/c STAGG.	2x4 @ 300 o/c STAGG.	2x6 @ 400 o/c	2x4 @ 300 o/c

NOTES:
1. W1 ,W1A & W3 - SHEAR WALL, SEE GENERAL NOTES ON DRAWING SERIES S01.
2. 'S' DENOTES SPACING BETWEEN STUDS, AS NOTED IN SCHEDULE.
3. PROVIDE ANCHOR BOLTS PER TYPICAL DETAIL TDW-4, TYPICAL UNLESS NOTED OTHERWISE.

DATE	ISSUED FOR	REV
2017-07-07	60% PROGRESS	A
2017-08-15	TENDER	0
2017-09-01	BUILDING PERMIT	1

Project Component

Keyplan

North Arrow

TRUE NORTH

Detail Symbol

DETAIL# SHEET #

Symbol not to scale

Consultants
Civil: McELHANNEY CONSULTING SERVICES LTD.
Landscape: NORR ARCHITECTS ENGINEERS PLANNERS
Architectural: NORR ARCHITECTS ENGINEERS PLANNERS
Structural: NORR ARCHITECTS ENGINEERS PLANNERS
Mechanical: NORR ARCHITECTS ENGINEERS PLANNERS
Electrical: NORR ARCHITECTS ENGINEERS PLANNERS

Seal(s)

PROFESSIONAL ENGINEERS GEOSCIENTISTS ALBERTA

PP# 11944

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Ronald M. Poon, Architect, AAA, M.Arch, MAIBC
Bruce G. McKenzie, Architect, AAA, M.Arch, MAIBC
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Adrian Tedesla, P.Eng., APEGA
Chris Pal, P.Eng., APEGA

Project Manager: C. ODINGA	Drawn: D. ANDERSON
Project Leader: T. BERTSCH	Checked: A. TODEILA

Client
PARKS CANADA AGENCY
JASPER NATIONAL PARK, JASPER, AB

Project
JASPER PARK
STAFF HOUSING
918 PATRICIA STREET
JASPER, AB

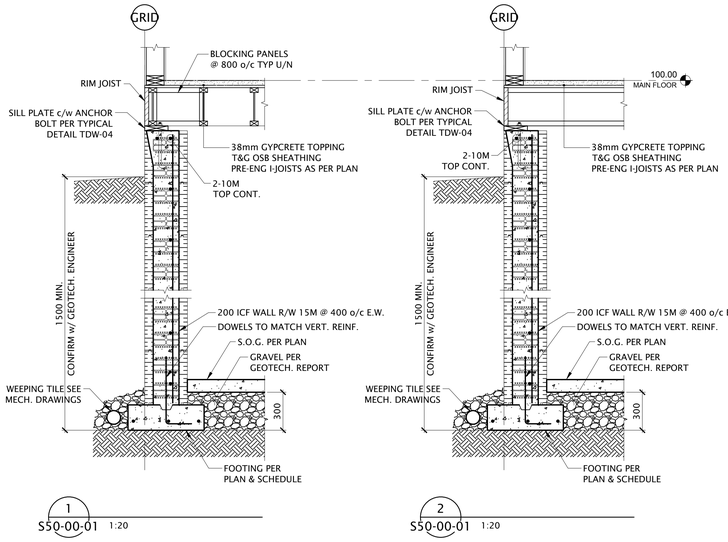
Drawing Title
FLOOR PLANS
2ND FLOOR & ROOF FRAMING

Check Scale (may be photo reduced)
0 1inch 0 10mm

Project No. NCEM-17-0002

Drawing No. S20-02-01

PLOT DATE: August 31, 2017 TIME: 12:59 PM FULL PATH AND FILENAME: \\EDMAPPS01\P_DRIVES\NCEM17-0002 - JASPER NATIONAL PARK STAFF HOUSING\500-DELIV\STRU\S20-02-01.DWG PLOTSTYLE TABLE: Ingenium.ctb



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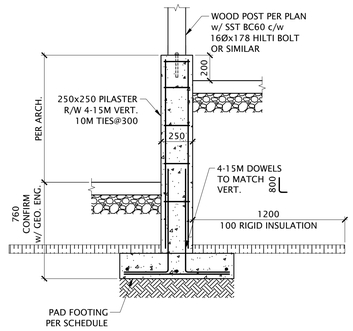

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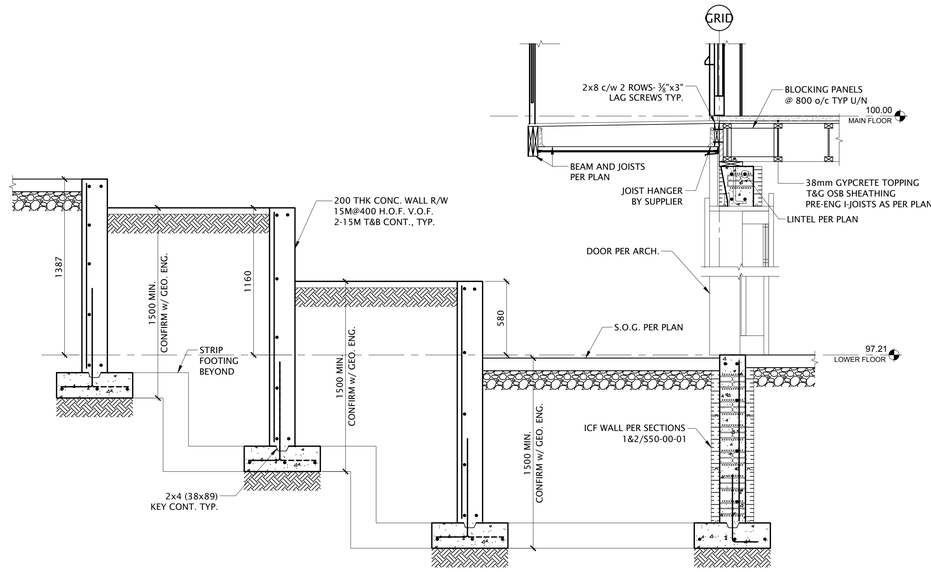

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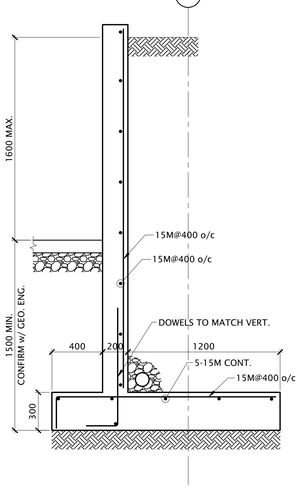

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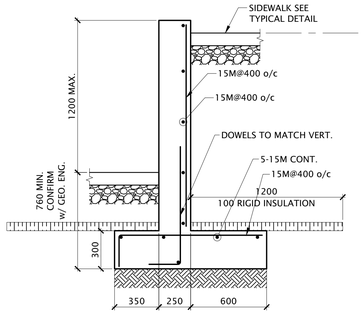

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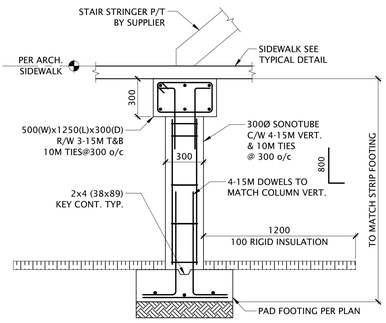

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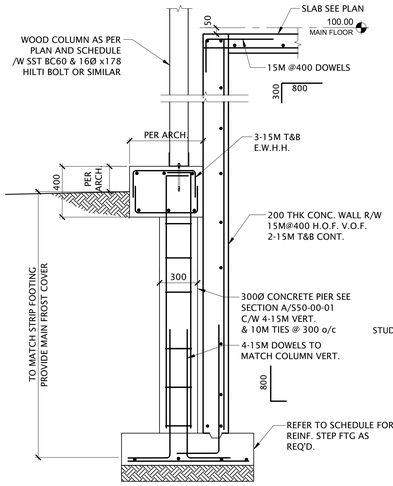

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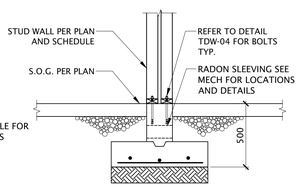

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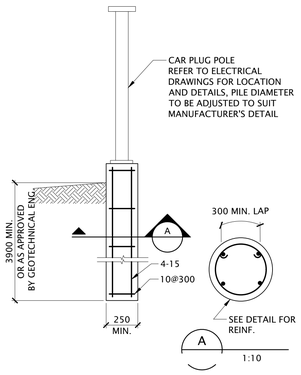

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CAR PLUGS CONCRETE BASE

DATE	ISSUED FOR	REV
2017-07-07	60% PROGRESS	A
2017-08-15	TENDER	0
2017-09-01	BUILDING PERMIT	1

Project Component

Keyplan

North Arrow

TRUE NORTH

Detail Symbol

DETAIL#
SHEET #

Symbol not to scale

Consultants

Civil:	McELHANNEY CONSULTING SERVICES LTD.
Landscape:	NORR ARCHITECTS ENGINEERS PLANNERS
Architectural:	NORR ARCHITECTS ENGINEERS PLANNERS
Structural:	NORR ARCHITECTS ENGINEERS PLANNERS
Mechanical:	NORR ARCHITECTS ENGINEERS PLANNERS
Electrical:	NORR ARCHITECTS ENGINEERS PLANNERS

Seal(s)

PROFESSIONAL ENGINEER
PROVINCE OF ALBERTA
PERMIT TO PRACTICE

PP# 119447

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ARCHITECTS ENGINEERS PLANNERS
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Anna Porretta, P.Eng., APEGA
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Project Manager C. ODINGA	Drawn D. ANDERSON
Project Leader T. BERTSCH	Checked A. TODEILA

Client

PARKS CANADA AGENCY
JASPER NATIONAL PARK, JASPER, AB

Project

JASPER PARK
STAFF HOUSING
918 PATRICIA STREET
JASPER, AB

Drawing Title

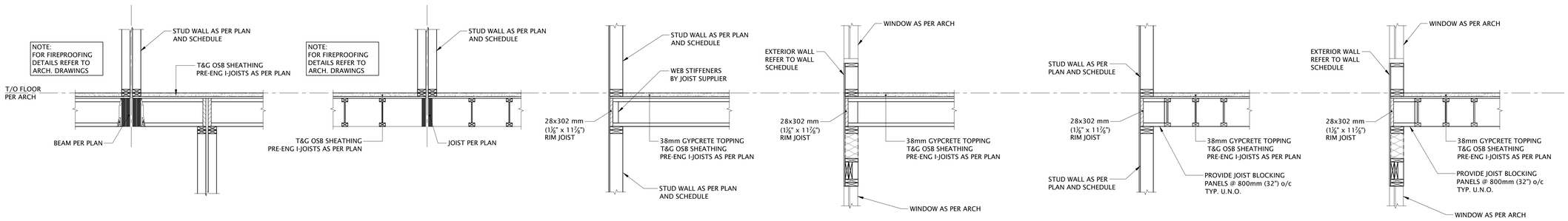
SECTIONS

Check Scale (may be photo reduced)
0 1inch 0 10mm

Project No. NCEM-17-0002

Drawing No. S50-00-01

PLOT DATE: August 31, 2017 TIME: 12:59 PM FULL PATH AND FILENAME: \\EDMAPPS01\VP_DRIVES\NCEM17-0002 - JASPER NATIONAL PARK STAFF HOUSING\500-DELIV\STRU\S50-00-01.DWG PLOTSYLE TABLE: Ingenium.ctb



1 S50-00-02 1:20

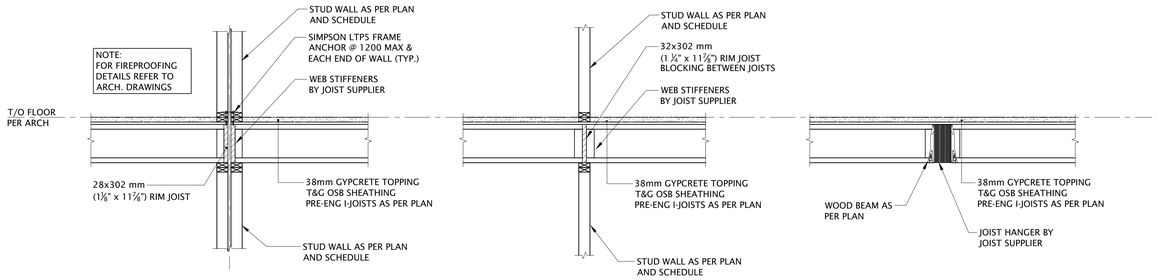
2 S50-00-02 1:20

3 EXTERIOR LOAD BEARING WALL
S50-00-02 1:20

4 EXTERIOR LOAD BEARING WALL WITH OPENING
S50-00-02 1:20

5 EXTERIOR NON-LOAD BEARING WALL
S50-00-02 1:20

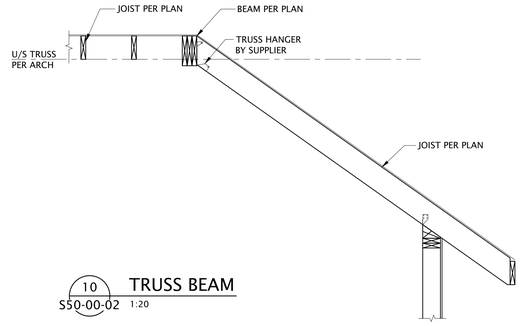
6 EXTERIOR NON-LOAD BEARING WALL WITH OPENING >1200
S50-00-02 1:20



7 DIAPHRAGM DETAIL AT PARTY WALL
S50-00-02 1:20

8 INTERIOR LOAD BEARING WALL
S50-00-02 1:20

9 TYP. WOOD BEAM TO JOIST CONNECTION
S50-00-02 1:20



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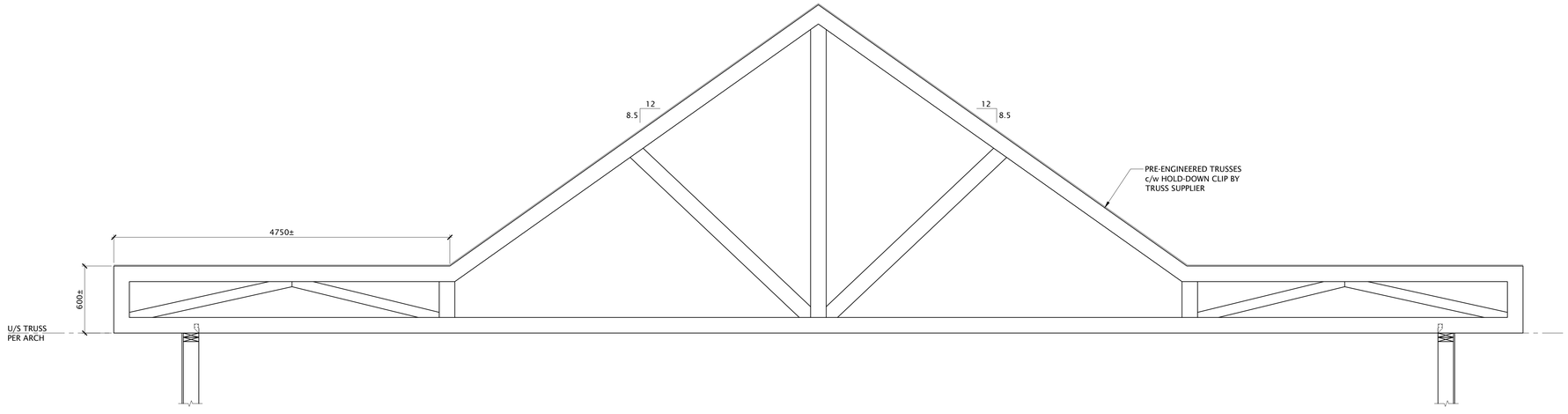

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DATE	ISSUED FOR	REV
2017-07-07	60% PROGRESS	A
2017-08-15	TENDER	0
2017-09-01	BUILDING PERMIT	1

Project Component

Keyplan

North Arrow

TRUE NORTH

Detail Symbol

DETAIL#
SHEET #

Symbol not to scale

Consultants

Civil:	McELHANNEY CONSULTING SERVICES LTD.
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Seal(s)

PROFESSIONAL ENGINEER ALBERTA
PP# 11944

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Client
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Project
JASPER PARK
STAFF HOUSING
918 PATRICIA STREET
JASPER, AB

Drawing Title
SECTIONS

Check Scale (may be photo reduced)
0 1inch 0 10mm

Project No. NCEM-17-0002

Drawing No. S50-00-02

PLOT DATE: August 31, 2017 TIME: 12:59 PM FULL PATH AND FILENAME: \\EDMAPPS01\P_DRIVES\NCEM\17-0002 - JASPER NATIONAL PARK STAFF HOUSING\500-DELIV\STRU\S50-00-02.DWG PLOTSTYLE TABLE: Ingenium.ctb