GENERAL NOTES — T-A01

1.1. GENERAL
1.1.1. DESIGN AND CONSTRUCTION IS TO CONFORM TO THE REQUIREMENTS OF THE 2012 ONTARIO BUILDING CODE, THE 2014 CANADIAN HIGHWAY BRIDGE DESIGN CODE, THE 2014 CANADIAN HIGHWAY BRIDGE DESIGN CODE, AND TO THE SPECIFICATION, ALL CODES, MANUALS, STANDARDS AND SPECIFICATIONS REFERRED TO SHALL BE THE LATEST EDITIONS INCLUDING ALL REVISIONS AND ADDENDA. ALL DIMENSIONS, OTHER THAN PURELY STRUCTURAL DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS MUST BE CHECKED AGAINST THE ARCHITECTURAL DRAWINGS AND ANY INCONSISTENCIES REPORTED TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE DRAWINGS FOR DIMENSIONS.
1.2. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS AND SIZES OF OPENINGS, TRENCHES, PITS, SUMPS, EQUIPMENT, SLEEVES, DEPRESSIONS, GROOVES AND CHAMFERS NOT INDICATED ON THE STRUCTURAL DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE. THE ABOVE ITEMS WHERE SHOWN ON THE STRUCTURAL DRAWINGS ARE INDICATED ONLY APPROXIMATELY AS TO SIZE AND LOCATION.
1.3. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, NO PROVISION HAS BEEN MADE IN THE DESIGN FOR CONDITIONS OCCURRING DURING CONSTRUCTION. THE CONTRACTOR IS TO PROVIDE ALL NECESSARY BRACING AND SHORING REQUIRED FOR STRESSES AND INSTABILITY OCCURRING FROM ANY CAUSE DURING CONSTRUCTION. THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ALL SUCH CONDITIONS. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL NECESSARY BRACING, SHORING, SHEET PILING OR OTHER TEMPORARY SUPPORTS TO SAFEGUARD ALL EXISTING OR ADJACENT STRUCTURES AFFECTED BY THIS WORK. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR CONSULTANTS REVIEW.
2. SHOP DRAWINGS, PLACING DRAWINGS AND BAR LISTS:
2.1. SHOP DRAWINGS, PLACING DRAWINGS AND BAR LISTS: FOR STRUCTURAL DRAWINGS, SUBMIT COPIES OF SHOP DRAWINGS AS DIRECTED FOR REVIEW BY THE STRUCTURAL CONSULTANT SHOP DRAWINGS TO SHOW COMPLETE INFORMATION FOR THE FABRICATION AND ERECTION OF THE STRUCTURAL COMPONENTS.
2.2. REVIEW OF SHOP DRAWINGS BY THE STRUCTURAL CONSULTANT IS ONLY TO ASSESS THAT THE SUBMITTED SHOP DRAWINGS REFLECT THE INTENT OF THE STRUCTURAL DESIGN.
2.3. SHOP DRAWINGS BY THE STRUCTURAL CONSULTANT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR BEING THAT THE WORK IS COMPLETE, ACCURATE AND IN CONFORMITY WITH THE STRUCTURAL DRAWINGS AND SPECIFICATIONS.
3. INSPECTION AND TESTING:
3.1. A SOILS CONSULTANT AND AN INDEPENDENT INSPECTION AND TESTING COMPANY ARE TO BE ENGAGED TO PERFORM THE FOLLOWING INSPECTIONS:
3.1.1. BEARING SOIL - REFER TO NOTES ON STRUCTURAL DRAWINGS AND TO THE SOIL REPORT
3.1.2. FILL UNDER SLAB-ON-GRADE - CONFIRM THAT FILL MATERIAL USED IS SATISFACTORY AND THAT THE REQUIRED DEGREE OF COMPACTION HAS BEEN ATTAINED.
3.1.3. CAST-IN-PLACE AND PRECAST CONCRETE - ROUTINE INSPECTION OF MATERIALS, INCLUDING SLUMP, AIR CONTENT AND CONCRETE STRENGTH TESTS. REINFORCING STEEL TESTS WHEN REQUIRED, OR DIRECTED IN ACCORDANCE WITH CSA STANDARD A23.1.
3.1.4. THE PROJECT SUPERINTENDENT IS TO ADVISE THE STRUCTURAL CONSULTANT AT A MINIMUM OF 24 HOURS IN ADVANCE OF A CONCRETE POUR FOR A REVIEW OF FORMWORK.
3.1.5. STRUCTURAL STEEL - ROUTINE SHOP AND FIELD INSPECTION SHALL BE CARRIED OUT IN ACCORDANCE WITH CSA STANDARD S16.
3.1.6. STEEL DECK - SEE STEEL DECK NOTES.
3.1.7. MASONRY - WHEN REQUIRED OR DIRECTED, CONCRETE BLOCKS SHALL BE TESTED IN ACCORDANCE WITH ASTM C140 BRICKS IN ACCORDANCE WITH CAN3-A82.30 AND MORTAR AND GROUT IN ACCORDANCE WITH CSA A179.
3.2. ALL INSPECTION AND TESTING SERVICES ARE TO BE PERFORMED BY COMPANIES CERTIFIED BY THE CANADIAN STANDARDS ASSOCIATION AND FOR WELDING, INSPECTORS ARE TO BE CERTIFIED BY THE CANADIAN WELDING BUREAU.
4. FOUNDATIONS
4.1. REFER TO NOTES UNDER FOUNDATION PLANS. ALL EXTERIOR FOOTINGS OR OTHER FOOTINGS EXPOSED TO FREEZING SHALL BE PLACED AT LEAST 1.2m BELOW FINISHED GRADE, UNLESS OTHERWISE NOTED. FINISHED GRADE: UNLESS OTHERWISE NOTED, ALL EXTERIOR GRADING SHALL BE IN ACCORDANCE WITH CSA STANDARD A23.1.
4.2. THE LINE OF SLOPE BETWEEN ADJACENT EXCAVATIONS FOR FOOTINGS OR ALONG STEPPED FOOTINGS SHALL NOT BE STEEPER THAN 1 VERTICAL TO 2 HORIZONTAL, UNLESS OTHERWISE NOTED.
4.3. CAP DWTING AND FOOTING ELEVATIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE BASED UPON INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THE STRUCTURAL DRAWINGS.
4.4. IF ACTUAL JOB SITE OR SOIL CONDITIONS VARY FROM THOSE ASSUMED, THEN WRITTEN DIRECTIONS MUST BE OBTAINED FROM THE STRUCTURAL CONSULTANT BEFORE PROCEEDING WITH THE WORK.
4.5. WHERE FOOTINGS ARE PLACED ON NATURAL UNDISTURBED SOIL, THEY ARE TO BE PROPORTIONED BY THE GEOTECHNICAL ENGINEER FOR THE FOOTINGS LOWERED TO SUIT.
5. BACKFILLING AND COMPACTION:
5.1. SLABS-ON-GRADE: AND ALL STRUCTURAL ELEMENTS FRAMING INTO WALLS WHICH RETAIN EARTH MUST BE IN PLACE BEFORE BACKFILLING.
5.2. ALL FOUNDATION WALLS WITH DAMP-PROOFING SIDES, UNLESS ADEQUATELY SHORED, BACKFILL EQUALLY WITH CLEAN GRANULAR EACH SIDE OF WALL SIMULTANEOUSLY.
5.3. UNDER SLAB-ON-GRADE, REMOVE SOFT SPOTS, ORGANIC AND FOREIGN MATTER IN THE SUB-GRADE. (WHERE SUB-GRADE CONSISTS OF COMPACTED FILL, REFER TO SPECIFIC NOTES ON THE DRAWINGS).
5.4. ALL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATTER AND SHALL BE APPROVED BY THE SOILS CONSULTANT. UNLESS SPECIFICALLY NOTED OTHERWISE, BACKFILLING SHALL BE CARRIED OUT IN MAXIMUM OF 200mm LIFTS LOOSE. FILL EACH CONSECUTIVE TO A MINIMUM OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
5.5. UNLESS OTHERWISE NOTED, PROVIDE IMMEDIATELY UNDER SLABS-ON-GRADE A MINIMUM OF 200mm (8") OF GRANULAR FILL COMPACTED TO 100% STANDARD PROCTOR TO ACHIEVE A MINIMUM OF 95% STANDARD PROCTOR MAXIMUM DENSITY.

STANDARD ABBREVIATIONS — T-A11

@	at	H (HOR)	Horizontal	PSL	Parallel Sloped Lumber
A, BOLT (A.B.)	Anchor Bolt	HEF	Horizontal Each Face	PT	Pressure Treated
ADD	Addendum	HP	Horizontal Inside Face	R	Reaction
AFB	Asphalt Impregnated Fibre Board	HOF	Horizontal Outside Face	RAD	Radius
ALT	Alternate	HSS	Hollow Structural Section	REF	Reference
ARCH	Architectural			REINF	Reinforcing
ASL	Accumulated Snow Loading	HSL	Horizontally Slotted Connection	REQ'D	Required
				REV	Revision/Revised
B (BOT)	Bottom			RF	Factored vertical Reaction
BEW	Bottom Each Way			RW	Reinforced Wall
BLK	Block	IF	Inside Face		
BLL	Bottom Lower Layer	INT	Interior	S	Standard Beam
BM	Beam	INV	Invert	SDL	Superimposed Dead Load
BML	Bottom Middle Layer			SF	Square Foot
BNT	Base Nominal Thickness	JT	Joint	SOL	Solid
BP	Base Plate	kg	Kilogram	SECT	Section
BSMT	Basement	kN.m	Kilo Newton Metres	SL	Slab
BUL	Bottom Upper Layer	kN/m²	Kilo Newton per Square Metre	SQ	Square
C	Standard Channel	kN/m	Kilo Newton per Linear Metre	SOG	Slab on Grade
CA	Column Above			SPEC	Specification
CANT	Cantilever	kPa	Kilo Pascals	STD	Steel
CC (sc)	Centre to Centre (Control Joint	L	Angle	STR	Structural
CJ	Control Joint	LL	Live Load	SW	Shear Wall
CLG	Ceiling	LLC	Live Load Reduction Factor		
CONC	Concrete	LLL	Lower Lower Layer	T/SUP	Top of Support
CONST	Construction	LOC	Location	TF	Factored Tension Force
CONST JT (CJT)	Construction Joint	LVL	Laminated Veneer Lumber	THK	Thickness
CONT (CONTIN)	Continuous			TOC	Top of Concrete
CW	Concrete Web	m	Metre	TML	Top Middle Layer
D FIR	Douglas Fir	MAX	Maximum	TOD, TID	Top of Deck
DET	Detail	MECH	Mechanical	TOS, TIS	Top of Steel
DIAG	Diagonal	MEZZ	Mezzanine	TOST	Top of Steel
DIAM	Diameter	MIN	Minimum	TSF	Tonne per Square Foot
DIM	Dimension	MISC	Miscellaneous	TW	Top Wall
DJ	Double Joist	ML	Middle Layer	TUL	Top Upper Layer
DL	Dead Load	MLL	Middle Lower Layer	TYP	Typical
DO	Ditto	MW	Millwrere	TLS	Class B Tension Splice
DWG	Drawing	MW (M)	Millwrere (M)		
EWL	Dowel	MFG	Manufacturer	UL	Upper Layer
DT	Double Tee	MUL	Middle Upper Layer	UNO	Unless Noted Otherwise
E-W	East-West	N	Newton	UTO	Unless Otherwise Noted
EA	Each	N/A	Not Applicable	US	Underside of Slab
EE	Each End	NF	Near Face	USB	Underside of Beam
EF	Each Face	NIC	Not in Contract		
ELECT	Electrical	No.(#)	Number	V (VERT)	Vertical
ELEV (EL)	Elevation / Elevator	NTS	Not to Scale	VIF	Vertically Reaction
EN	Each Side	OWSJ	Open Web Steel Joist	VIF	Vertical Inside Face
EW	Each Way			VOF	Vertical Outside Face
EXIST	Existing				
EXP. JT.	Expansion Joint	Pa	Pascal		
EXT	Exterior	PC	Precast	VSC	Vertically Slotted Connection
FDN	Foundation	PL/F	Plate		
FF	Far Face		Pounds per Linear Foot	W	Wide Flange Beam
FIN	Finished	PREL	Preliminary	WP	Wall Plate
FL	Floor	PSF	Pounds per Square Foot	WWF	Welded Wire Fabric
FWC	Full Moment Connection	PSI	Pounds per Square Inch	WWF (WWM)	Welded Wire Fabric/ Mesh
FTG	Footing				
GA	Gauge				
GALV	Galvanized				
GEN	General				

STRUCTURAL STEEL NOTES — T-A03A

G1.1. GENERAL
1.1. STRUCTURAL STEEL DESIGN DETAILS AND CONNECTIONS SHALL CONFORM TO CSA STANDARD S16 AND SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER EXPERIENCED IN THIS TYPE OF WORK.
1.2. REFER ALSO TO GENERAL NOTES, NOTES AND DETAILS ON THE SOIL REPORT.
1.3. WELDING SHALL CONFORM TO CSA STANDARD W59 AND BE PERFORMED BY A FABRICATOR CERTIFIED TO CSA W47.1.
1.4. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF 50% OF THE BEAM SHEAR CAPACITY UNLESS OTHERWISE NOTED, AND IN NO CASE BE LESS THAN THE LOADS SHOWN ON OR IMPLIED BY THE DRAWINGS.
1.5. ALL STEEL OUTSIDE OF VAPOUR BARRIER SHALL BE HOT DIP GALVANIZED.
2. PRODUCTS
2.1. STRUCTURAL STEEL SECTIONS SHALL CONFORM TO CAN/CSA-G40.20/G40.21:
2.1.1. WW SHAPES, S SHAPES, CHANNELS, ANGLES, PLATES AND RODS - GRADE 300 W
2.1.2. HSS SECTIONS - GRADE 350W CLASS C (UR.)
2.1.3. W SHAPES - GRADE 350W
2.2. BOLTS SHALL BE SUITABLE FOR CONNECTIONS TO CONFORM TO ASTM A325 UNLESS NOTED.
2.3. ANCHOR BOLTS, NUTS AND WASHERS FOR BASE PLATES, BEARING PLATES AND MILLED PLATES TO CONFORM TO ASTM A307 UNLESS NOTED.
2.4. SHEAR STUDS WHERE REQUIRED TO CONFORM TO ASTM A108, WELDING TO CONFORM TO CSA W59.
2.5. WELDING MATERIALS TO CONFORM TO CSA W48.1.
2.6. ELECTRODES FOR WELDING TO CONFORM TO CAN/CSA-W59 OR CSA/CPA 1 OR CSI/CPA 2.
2.7. HOT DIP GALVANIZING WITH A MINIMUM COATING OF 600g/m² UNLESS OTHERWISE SPECIFIED.
3. EXECUTION
3.1. FABRICATION, WELDING AND ERECTION TO CONFORM TO CAN/ CSA - S16.
3.2. PROVIDE A MINIMUM OF 2-22 mm (7/2) DIAMETER BY 250 (10") LONG WELL ANCHORS FOR ALL BEAM AND JOIST WALLS PLATES ON MASONRY, OR AS APPROVED BY STRUCTURAL ENGINEER. ALL STEEL BEARING PLATES AND JOIST SHOES TO BE WELDED TO BEARING PLATES.
3.3. PROVIDE ADJUSTABLE ANCHORS TO ALL STEEL TO BE BUILT INTO, MILITED BY, OR FACED WITH MASONRY UNLESS NOTED OTHERWISE. TYPICAL DETAILS 9" SHOWN. SPACED AT 600 mm MAXIMUM CENTRES FOR HORIZONTAL SPACING. 1ST TIMES WALL THICKNESS* (MAX. 2000 Ø" (3") CENTRES
3.4. * (NOTE: USE BACK-UP WITH THICKNESS ONLY, FOR CAVITY WALLS.)
3.5. WHERE STEEL BEAMS ARE BUILT INTO MASONRY WALLS, TO WHICH IT IS DOES NOT SUPPORT MASONRY AND WHERE THE BEAM PENETRATES THE VERTICAL MASONRY ALIGNMENT, PROVIDE A MINIMUM 50 mm CLEARANCE BETWEEN THE BEAM AND THE MASONRY. FILL THIS SPACE WITH COMPACTED MINERAL WOOL INSULATION.
3.6. INSERTS, PRIME OUTLETS, SLEEVES, BRACKETS, CONDUITS AND FASTENING DEVICES, SHALL BE INSTALLED AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS IN A MANNER THAT SHALL NOT IMPAIR THE STRUCTURAL STRENGTH OF THE SYSTEM. BE SO INSTALLED THAT THEY SHALL NOT REQUIRE THE CUTTING, BENDING, OR DISPLACEMENT OF REINFORCING STEEL OR OTHER EMBEDDED ITEMS. CONCRETE IS PLACED SHALL
3.7. ELECTRICAL & MECHANICAL SLEEVES THAT PASS THROUGH SLABS SHALL BE LOCATED IN THE OUTSIDE DIAMETER OF THE CONCRETE COLUMN OR WALL. SLEEVE SHALL NOT EXCEED 1/3 OF THE SLAB THICKNESS. SHALL NOT BE PLACED CLOSER THAN 3 DIAMETERS ON CENTRE UNLESS APPROVED WHERE A MINIMUM CONCRETE COVER OF 25 mm (1") AND UNLESS SPECIFICALLY PERMITTED OTHERWISE, SHALL NOT RUN HORIZONTALLY IN A CONCRETE WALL.
3.8. OPENINGS, NOT SHOWN ON STRUCTURAL DRAWINGS, REQUIRED IN EITHER THE CONCRETE IS PLACED SHALL BE APPROVED BY THE STRUCTURAL CONSULTANT BEFORE PROCEEDING WITH THE WORK.
3.9. CONCRETE SURFACES SHALL BE FINISHED AS SPECIFIED. WHERE NO FINISH IS SPECIFIED FOR REQUIRED FINISH TO EXPOSED CONCRETE ALL HONEYCOMBING SHALL BE CUT OUT TO SOUND CONCRETE. FLOOR FINISHES SHALL BE AS REQUIRED BY THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS AND SHALL CONFORM TO CSA STANDARD A23.1 TOLERANCES FOR FLOOR FINISHES SHALL CONFORM
3.10. TOLERANCES FOR FLOOR SLOPES FOR CONCRETE FINISHING SYSTEMS, CAST-IN-HARDWARE AND FOR FLOOR AND ROOF FINISHES SHALL BE AS SPECIFIED IN STANDARD A23.1.
3.11. MINIMUM REINFORCING FOR ANY CONCRETE WALL TO BE AS SHOWN ON TYPICAL DETAIL FOR CONCRETE WALLS.
3.12. MINIMUM REINFORCING FOR ANY SUSPENDED SLAB SHALL BE TEMPERATURE BARS BOTTOM EACH WAY PLUS ADDITIONAL BARS OVER SUPPORTS AS FOLLOWS: 2-#10 M BARS TOP AND BOTTOM PERIMETER. REFER TO TYPICAL DETAIL OF ONE BAY SLABS.
4. QUALITY CONTROL
4.1. FOR INSPECTION AND TESTING, SEE GENERAL NOTES AND/OR SPECIFICATION.

CAST-IN-PLACE CONCRETE NOTES — T-A02

1. GENERAL
1.1. PROVIDE ALL LABOUR, MATERIALS, TOOLS AND EQUIPMENT REQUIRED TO CARRY OUT THE WORK.
1.2. REFER TO GENERAL NOTES, NOTES AND DETAILS ON FOUNDATION PLANS, TYPICAL DETAILS AND SPECIFICATION.
2. PRODUCTS
2.1. PORTLAND CEMENT, WATER AND AGGREGATES SHALL CONFORM TO CSA STANDARD A23.1.
2.2. PROVIDE AN APPROVED WATER REDUCING ADDITIVE IN ALL CONCRETE. PROVIDE AN APPROVED AIR ENTRAINING ADMIXTURE IN ALL CONCRETE EXPOSED TO THE WEATHER. DO NOT USE CALCIUM CHLORIDE AND/OR THE ACTION OF OR USING SALT. ADMIXTURES SHALL CONFORM TO CSA STANDARD A23.1.
2.3. FORMWORK SHALL CONFORM TO CSA STANDARD A23.1, CSA STANDARD S269.3 AND FALSEWORK SHALL CONFORM TO CSA S269.1.
2.4. IF SO INSTRUCTED, THE DESIGNS FOR THE FORMWORK SHALL BE SUBMITTED FOR REVIEW BEFORE CONSTRUCTION. FORMWORK DRAWINGS AND DESIGN SHALL BEAR THE STAMP OF A LICENSED PROFESSIONAL ENGINEER.
2.5. UNLESS OTHERWISE NOTED PROVIDE SLAB AND BEAM FORMS WITH AN UPWARD CAMBER OF 2 mm/1000 mm (1/4" PER 10 FT OF SPAN) AND UPLIFT ENDS OF CANTILEVERED SLAB AND BEAM FORMS 3 mm/ 1000 mm (1/4" PER 8 FT) OF CANTILEVER LENGTH.
2.6. FORMWORK TIES SHALL HAVE ADJUSTABLE MAXIMUM AND/OR SLOTS FOR ALL MASONRY FACING OR ARCHITECTURE FACES.
2.7. PROVIDE ANCHOR INSTALL STANDARD ADJUSTABLE INSERTS AND ALL OTHER CAST IN INSERTS AS REQUIRED BY THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATION.
2.8. REINFORCING STEEL UNLESS SPECIFICALLY NOTED, SHALL BE DEFORMED BARS CONFORMING TO CAN/CSA-G30.18 GRADE 400 MPa.
2.9. WELDED WIRE FABRIC TO BE SUPPLIED IN FLAT SHEETS - UNLESS APPROVED OTHERWISE.
2.10. REINFORCING SHALL BE DETAILED, BENT, PLACED AND SUPPORTED TO CONFORM TO ACI DETAILING MANUAL AND THE MANUAL OF STANDARD PRACTICE PUBLISHED BY THE REINFORCING STEEL INSTITUTE OF CANADA.
2.11. CEMENT SHALL BE TYPE 1 PART PORTLAND CEMENT TO 1 1/2 PARTS SAND TO 2 PARTS OF 8 mm PEA GRAVEL WITH ONLY SUFFICIENT WATER TO GIVE A WORKABLE MIX WITH A MINIMUM STRENGTH OF 15 MPa AT 28 DAYS.
2.12. NON-SHRINK GROUT TO BE AN APPROVED PRE-MIXED PROPRIETARY PRODUCT.
2.13. PROVIDE APPROVED EXTRUDED PVC WATERSTOPS OF SIZE AND STYLE INDICATED, WITH PRE-MOLDED CORNERS AND INTERSECTIONS. SEE ALSO TYPICAL DETAILS.
2.14. CONCRETE MIX DESIGNS SHALL BE PROPORTIONED ON THE BASIS OF TESTS TO CONFORM TO ASTM STANDARD C309. GENERALLY ALL CONCRETE SURFACES ARE TO BE SLUMP TESTED AS PER CSA A23.1 UNLESS NOTED OTHERWISE. CONCRETES ARE TO BE COMPATIBLE WITH APPLIED FINISHES.
2.15. SHEAR REINFORCEMENT AT SLAB CONNECTIONS AS SHOWN ON DRAWINGS AND DETAILS. SHALL BE STUDRAILS® AS MANUFACTURED BY DECON®. THE COMPLETE AND FINISHED STUDRAILS® SHALL BE SUPPLIED BY A CERTIFIED STUDRAILS® FABRICATOR. THE STUDRAILS® SHALL BE INSTALLED AND NOTED AS PER STUDRAILS® SHALL CONFORM TO THE LATEST EDITION OF ASTM A1044.
3. EXECUTION
3.1. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE @ 28 DAYS SHALL BE AS NOTED ON THE DRAWINGS (28MPa MINIMUM).
3.2. CONCRETE AT THE POINT OF DISCHARGE SHALL BE CONSISTENT AT 80 mm ±30mm (3" ±1 1/8") UNLESS NOTED OTHERWISE GREATER SLUMPS ARE NOT ACCEPTABLE.
3.3. CONCRETE MIXING, TRANSPORTATION, HANDLING AND PLACING SHALL CONFORM TO CSA STANDARD A23.1.
3.4. CONSTRUCTION JOINTS FOR WALLS ARE BASED UPON VERTICAL JOINTS AT A MAXIMUM SPACING OF 10000 mm (30'-0"), UNLESS CONTROL JOINTS ARE PROVIDED AS PER DETAIL 17 C16. TOTAL LENGTH OF POUR BETWEEN CONSTRUCTION JOINTS SHALL NOT EXCEED 30 m.
3.5. CONSTRUCTION JOINTS FOR WALLS, SLABS, AND BEAMS NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE APPROVED BY THE STRUCTURAL CONSULTANT BEFORE CONSTRUCTION. GENERALLY JOINTS IN SLABS SHALL BE AT RIGHT ANGLES TO THE SPANS, AT MID-SPAN IF POSSIBLE AND BE CLEAR OF SUPPORTS AND OPENINGS.
3.6. INSERTS, PRIME OUTLETS, SLEEVES, BRACKETS, CONDUITS AND FASTENING DEVICES, SHALL BE INSTALLED AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS IN A MANNER THAT SHALL NOT IMPAIR THE STRUCTURAL STRENGTH OF THE SYSTEM. BE SO INSTALLED THAT THEY SHALL NOT REQUIRE THE CUTTING, BENDING, OR DISPLACEMENT OF REINFORCING STEEL OR OTHER EMBEDDED ITEMS. CONCRETE IS PLACED SHALL
3.7. ELECTRICAL & MECHANICAL SLEEVES THAT PASS THROUGH SLABS SHALL BE LOCATED IN THE OUTSIDE DIAMETER OF THE CONCRETE COLUMN OR WALL. SLEEVE SHALL NOT EXCEED 1/3 OF THE SLAB THICKNESS. SHALL NOT BE PLACED CLOSER THAN 3 DIAMETERS ON CENTRE UNLESS APPROVED WHERE A MINIMUM CONCRETE COVER OF 25 mm (1") AND UNLESS SPECIFICALLY PERMITTED OTHERWISE, SHALL NOT RUN HORIZONTALLY IN A CONCRETE WALL.
3.8. OPENINGS, NOT SHOWN ON STRUCTURAL DRAWINGS, REQUIRED IN EITHER THE CONCRETE IS PLACED SHALL BE APPROVED BY THE STRUCTURAL CONSULTANT BEFORE PROCEEDING WITH THE WORK.
3.9. CONCRETE SURFACES SHALL BE FINISHED AS SPECIFIED. WHERE NO FINISH IS SPECIFIED FOR REQUIRED FINISH TO EXPOSED CONCRETE ALL HONEYCOMBING SHALL BE CUT OUT TO SOUND CONCRETE. FLOOR FINISHES SHALL BE AS REQUIRED BY THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS AND SHALL CONFORM TO CSA STANDARD A23.1 TOLERANCES FOR FLOOR FINISHES SHALL CONFORM
3.10. TOLERANCES FOR FLOOR SLOPES FOR CONCRETE FINISHING SYSTEMS, CAST-IN-HARDWARE AND FOR FLOOR AND ROOF FINISHES SHALL BE AS SPECIFIED IN STANDARD A23.1.
3.11. MINIMUM REINFORCING FOR ANY CONCRETE WALL TO BE AS SHOWN ON TYPICAL DETAIL FOR CONCRETE WALLS.
3.12. MINIMUM REINFORCING FOR ANY SUSPENDED SLAB SHALL BE TEMPERATURE BARS BOTTOM EACH WAY PLUS ADDITIONAL BARS OVER SUPPORTS AS FOLLOWS: 2-#10 M BARS TOP AND BOTTOM PERIMETER. REFER TO TYPICAL DETAIL OF ONE BAY SLABS.
4. QUALITY CONTROL
4.1. FOR INSPECTION AND TESTING, SEE GENERAL NOTES AND/OR SPECIFICATION.

LINTEL NOTES — T-A06

UNLESS OTHERWISE SHOWN OR NOTED ON THE STRUCTURAL DRAWINGS, PROVIDE LINTELS OVER ALL OPENINGS IN MASONRY WALLS, AS FOLLOWS:
1. FOR OPENINGS UP TO 1200 mm (4'-0") CLEAR:
1.1. ONE ANGLE 90 x 90 x 9 (3 1/2" x 3 1/2" x 1/4") FOR EACH 100mm (4") OF WALL THICKNESS OR PORTION THEREOF.
OR
1.2. 200mm (8") DEEP MASONRY LINTEL BLOCK REINFORCED WITH 1-15M BOTTOM BAR FOR EACH 100mm (4") OF WALL THICKNESS OR PORTION THEREOF.
2. FOR OPENINGS FROM 1200mm (4'-1") TO 2400 mm (8'-0") CLEAR:
2.1. ONE ANGLE 125 x 90 x 8 LONG LEG VERTICAL (5"x 3 1/2" x 5/16") FOR EACH 100mm (4") OF WALL THICKNESS OR PORTION THEREOF.
OR
2.2. 200mm (8") DEEP MASONRY LINTEL BLOCK REINFORCED WITH 1-15M BOTTOM BAR FOR EACH 100mm (4") OF WALL THICKNESS OR PORTION THEREOF.
3. ALL LINTELS TO BEAR 100mm (8") MINIMUM AT EACH END ON SOLID MASONRY UNLESS SHOWN OTHERWISE.
4. PAIRS OF LINTEL ANGLES ARE TO BE BOLTED AND LOCK TOGETHER, PROP TO SHIPMENT, AT MAXIMUM 600mm (18") CENTRES.
5. LINTELS IN CMU BLOCKS MAY ONLY BE USED IN LOAD-BEARING WALLS WITH PERMISSION AND MUST BE FILLED WITH 20 MPa CONCRETE, MORTAR IS NOT ACCEPTABLE AS FILLING.
6. STEEL LINTELS ARE TO BE SUPPLIED BY STEEL CONTRACTOR BUT PLACED BY GENERAL CONTRACTOR OR MASONRY SUB- CONTRACTOR.
7. STEEL CONTRACTOR TO SUPPLY ALL NECESSARY DIRECTIONS REQUIRED FOR PLACING STEEL LINTELS.
8. REFER TO ARCHITECTURAL DRAWINGS FOR SIZES OF OPENINGS, LOCATIONS OF WINDOWS, DOORS, DOOR FRAMES, MECHANICAL AND ELECTRICAL SERVICES, RECESSES AND POCKETS ETC., THROUGH LOAD-BEARING MASONRY WALLS. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO CO-ORDINATE AND SUPPLY ALL LINTELS REQUIRED THROUGHOUT ALL WALLS (INCLUDING MASONRY PARTITIONS) AS SHOWN THROUGHOUT THE PROJECT. UNLESS OTHERWISE DIRECTED, LINTELS SHALL CONFORM TO THE ABOVE REQUIREMENTS.
9. REFER ALSO TO TYPICAL DETAILS.

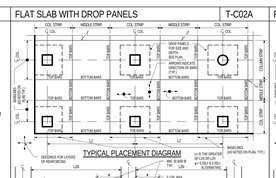
COLD WEATHER CONCRETING — T-A14

FOR FORECASTED AIR TEMPERATURES AT OR BELOW 5°C

1. ALL MATERIALS AND EQUIPMENT NEEDED FOR HEATED ENCLOSURE AND CONCRETE CURING PROTECTION SHALL BE ON HAND AND READY FOR USE BEFORE CONCRETE PLACEMENT IS STARTED.
2. FORMS AND OTHER STEEL DECK IS TO BE HEATED TO A MINIMUM OF 5°C. CONCRETE SHALL NOT BE PLACED ON FROZEN FORMS OR STEEL DECK.
3. FORMS AND/OR STEEL DECK MUST BE FREE OF SNOW AND ICE PRIOR TO PLACING CONCRETE. THE USE OF ANY DE-ICING CHEMICAL IS NOT PERMITTED ON THE FORMWORK OR STEEL DECK.
4. FOR SLABS LESS THAN 1000mm THICK THE MINIMUM CONCRETE TEMPERATURE AT TIME OF PLACEMENT IS 10°C.
CONCRETE TEMPERATURE SHALL BE KEPT AT A MINIMUM OF 10°C FOR AT LEAST 3 DAYS OR UNTIL THE CONCRETE REACHES 40% OF THE SPECIFIED STRENGTH. ADDITIONAL CURING MAY BE REQUIRED IN WHICH CASE CONCRETE SHALL BE KEPT AT A MINIMUM OF 10°C FOR AT LEAST 7 DAYS OR UNTIL THE CONCRETE REACHES 70% OF THE SPECIFIED STRENGTH.
5. WHERE THE CONCRETE TEMPERATURE IS TO FALL BELOW 0°C, THE TOP OF THE SLAB SHALL BE PROTECTED FROM FREEZING. TOP OF SLAB PROTECTION SHALL BE PLACED AS TO NOT AFFECT THE FINISH OF THE SLAB.
6. IF THE FORECASTED AIR TEMPERATURE IS TO FALL BELOW 0°C WITH REASONABLY HIGH WINDS THE CONCRETE MUST BE PROTECTED FROM FLASH FREEZING DURING PLACEMENT AND FINISHING. THIS PROTECTION MUST REMAIN IN PLACE UNTIL TOP OF SLAB PROTECTION HAS BEEN INSTALLED AS PER NOTE #5.

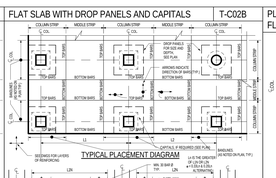
* SEE ALSO CSA A23.1/S9A23.3-09 CLAUSES 7.4.1.5 AND 7.4.2 FOR ADDITIONAL INFORMATION WITH RESPECT TO COLD WEATHER CONCRETING AND CURING.

FLAT SLAB WITH DROP PANELS — T-C02A



1. ALL REINFORCING TO CURTAIN WALL CONFORM WITH CSA A23.3 UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. PROVIDE TO ENGINEER'S APPROVAL ALL REQUIRED CHAIRS, SOLID STOOLS, SUPPORT AND SPACER BARS, CONFORM WITH RSIC "REINFORCING STEEL MANUAL OF STANDARD PRACTICE" AND ACI 315 MANUALS. PROVIDE CONTINUOUS CHAIRS FOR BOTH TOP AND BOTTOM BARS UNLESS APPROVED OTHERWISE. WHERE UNDERSIDE OF SLAB IS EXPOSED, USE PLASTIC TIPPED CHAIRS FOR BOTTOM BARS. DO NOT USE PLASTIC CHAIRS IN CONTACT WITH EARTH.
3. AT SLAB EDGES AND AT OPENINGS CARRY ALL TOP BARS TO 50mm (2") FROM SLAB EDGE AND PROVIDE STANDARD HOOKS. UNLESS SHOWN ON STRUCTURAL DRAWINGS, THERE SHALL BE NO OPENINGS THROUGH THE SLAB WITHIN THREE TIME SLAB THICKNESS FROM THE FACE OF A COLUMN.
4. REFER TO TYPICAL DETAIL TC08 FOR TRIMMING BARS AT OPENINGS THROUGH SLABS.
5. REFER TO TYPICAL DETAILS C11 AND C12 FOR CONSTRUCTION JOINTS IN SLABS AND BEAMS.
6. REFER TO TYPICAL DETAILS C13 AND C13 AND PLANS FOR ADDED INTEGRITY BARS.
7. REFER TO PLANS AND SPECS. FOR NOTES AND DETAILS FOR PARKING STRUCTURES.
8. REFER TO TYPICAL DETAIL C17 FOR PLACEMENT OF CONCENTRATED STEEL OVER COLUMNS.

FLAT SLAB WITH DROP PANELS AND CAPITALS — T-C02B



1. ALL REINFORCING TO CURTAIN WALL CONFORM WITH CSA