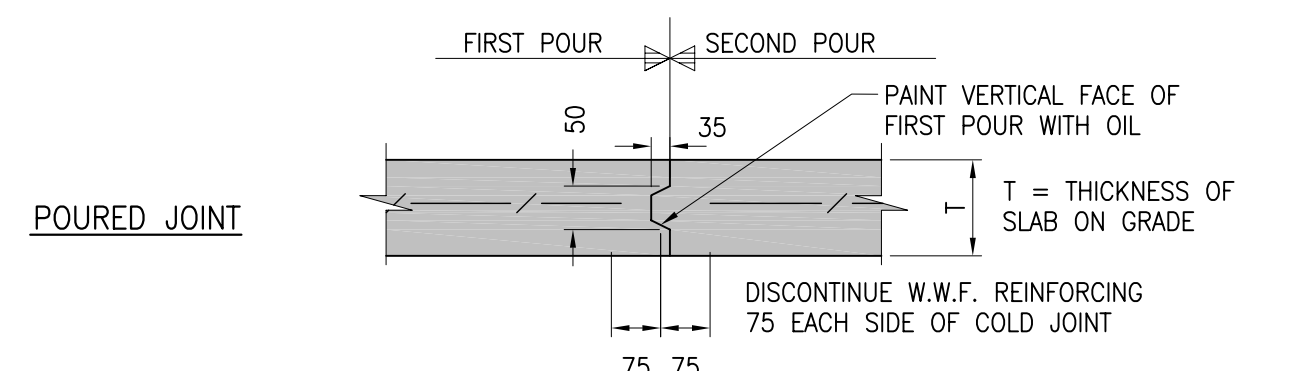
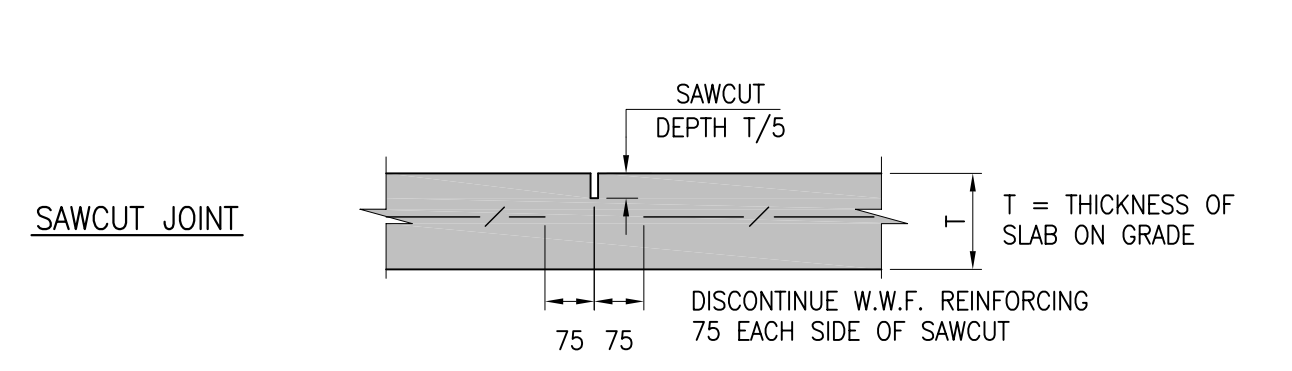


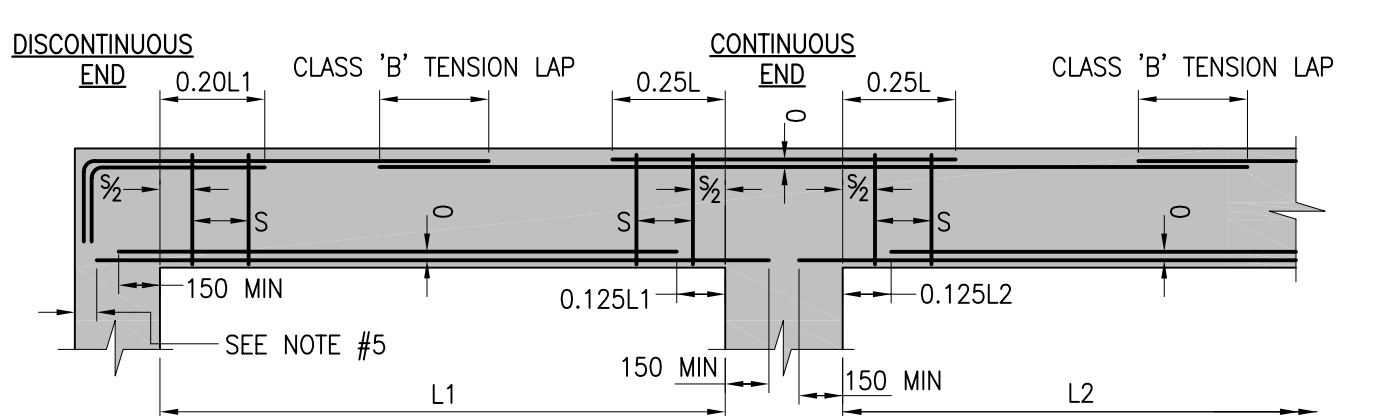
ISSUES:		
NO.	DATE	DESCRIPTION
1	SEP. 24, 2010	ISSUED FOR TENDER
2	DEC. 16, 2010	ISSUED FOR CONSTRUCTION



- NOTES:
- USE ONE OR THE OTHER DETAIL AS THE CONTROL JOINT WHERE INDICATED THUS "CJ" ON THE PLAN.
 - SAWCUTS MUST BE COMPLETED WITHIN 6 TO 18 HOURS OF PLACING CONCRETE.
 - AFTER SLAB IS CURED FOR ONE MONTH, REMOVE ALL DEBRIS FROM SAWCUT JOINTS AND FILL WITH MORTAR CONTAINING CEMENT, SAND AND A LATEX BONDING AGENT, OR AS NOTED.
 - SAWCUT SLAB ON GRADE AROUND COLUMNS AS INDICATED BELOW. OTHER PATTERNS MAY BE ACCEPTABLE, BUT MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW.
 - SAWCUT JOINTS IN SLAB ON GRADE SHOULD NOT EXCEED THE FOLLOWING SPECIFIED SPACING:

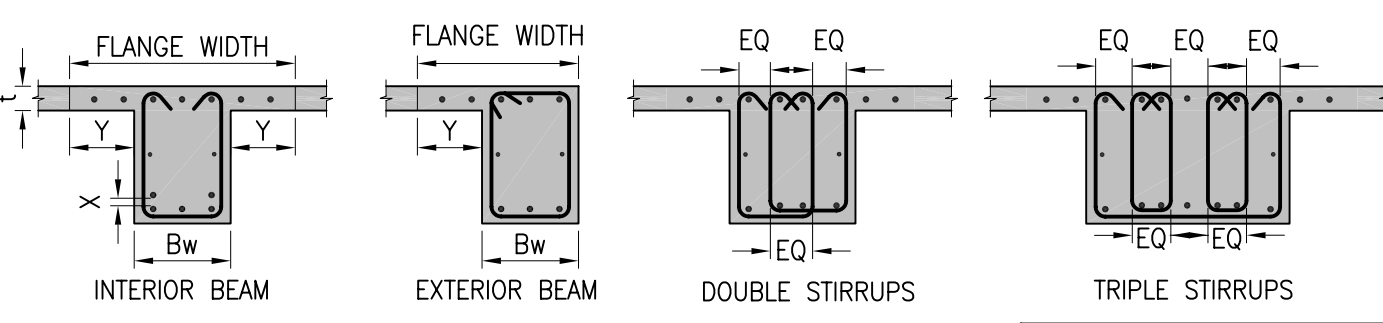
SLAB THICKNESS (T)	MAXIMUM SPACING
100	30 x slab thickness
125 OR GREATER	35 x slab thickness or 6000 whichever is less

3.15 TYPICAL FLOOR SLAB CONTROL JOINT DETAIL



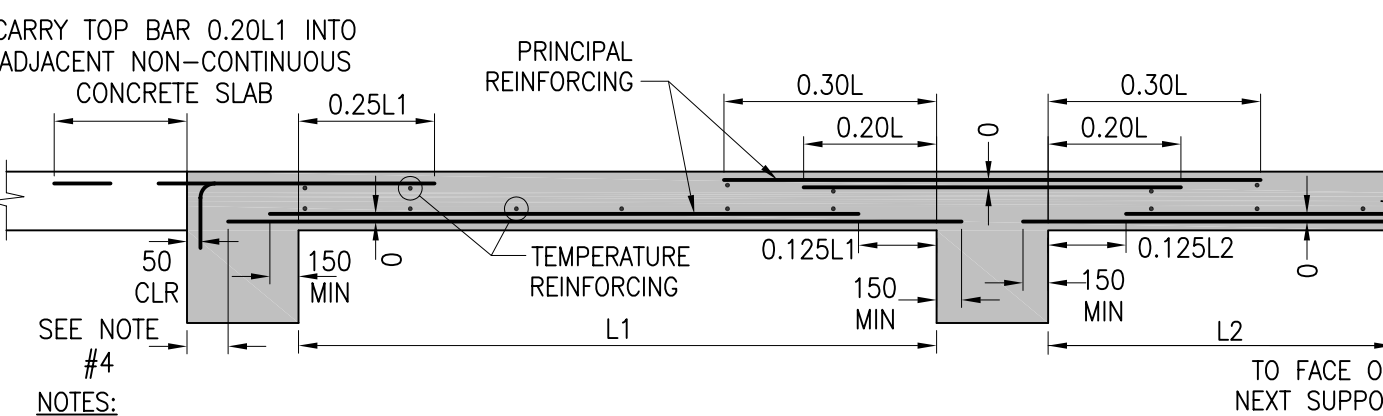
- NOTES:
- DIMENSION 'L' IS THE LARGER OF 'L1' AND 'L2'
 - 'S' IS THE STIRRUP SPACING (SEE CONCRETE BEAM SCHEDULE) - REMAINDER OF STIRRUPS NOT SHOWN.
 - THE LEFT AND RIGHT END OF THE BEAM IS DETERMINED BY THE ORIENTATION OF THE BEAM MARK ON PLAN.
 - USE THE BAR CUTTING LENGTHS SHOWN ABOVE UNLESS NOTED OTHERWISE ON THE CONCRETE BEAM SCHEDULE
 - EXTEND 50% OF BOTTOM BARS TO 300 FROM EXTERIOR COLUMN FACE
 - UNLESS NOTED OTHERWISE IN BEAM SCHEDULE, CUT SHORT NOT MORE THAN 50% OF BARS BUT PROVIDE 2 BARS CONTINUOUS (MINIMUM)

3.19 REINFORCING IN CONTINUOUS CONCRETE BEAMS



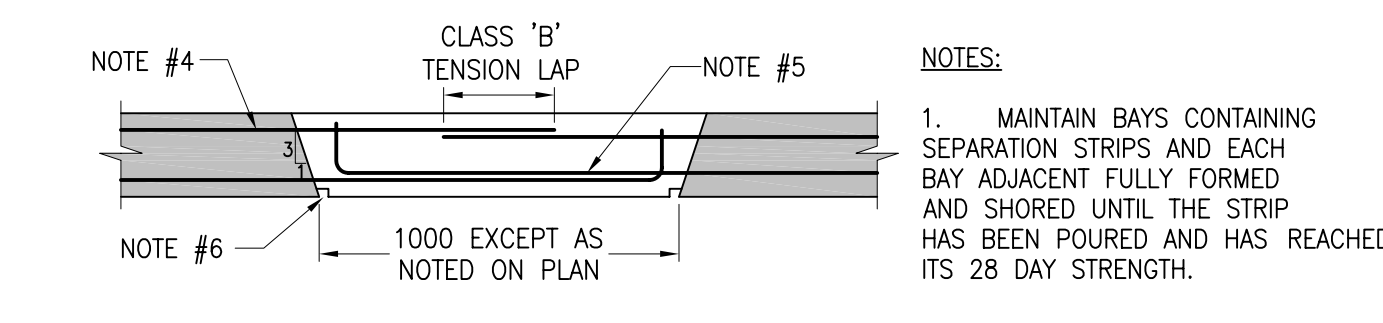
- NOTES:
- FLANGE WIDTH = $B_w + 2Y$ (OR $B_w + Y$ FOR EXTERIOR BEAMS) WHERE Y IS LESSER OF:
 - 6t
 - 1/2 BEAM SPAN
 - 1/2 DISTANCE TO ADJACENT BEAM FACE
 PLACE TOP BARS INDICATED IN CONCRETE BEAM SCHEDULE IN FLANGE WIDTH. BEAM TOP BARS ARE IN ADDITION TO TOP STEEL INDICATED FOR SLABS.
 - FOR LONGITUDINAL BARS PLACED IN MULTIPLE LIFTS AS SPECIFIED IN THE CONCRETE BEAM SCHEDULE, PROVIDE CLEAR SPACING BETWEEN LIFTS OF BARS (X) AS INDICATED IN ADJACENT CHART.
 - FOR MULTIPLE SETS OF STIRRUPS AS INDICATED IN THE BEAM SCHEDULE, PLACE VERTICAL LEGS EQUALLY SPACED ACROSS THE BEAM AS SHOWN ABOVE. STIRRUP TYPE MAY DIFFER FROM TYPE SHOWN IN THIS DETAIL - SEE BEAM SCHEDULE.
- | BAR SIZE | CLEAR SPACING (X) |
|----------|-------------------|
| 15M | 30 |
| 20M | 30 |
| 25M | 40 |
| 30M | 45 |
| 35M | 50 |
| 45M | 90 |

3.20 TYPICAL BAR PLACEMENT IN CONCRETE BEAMS



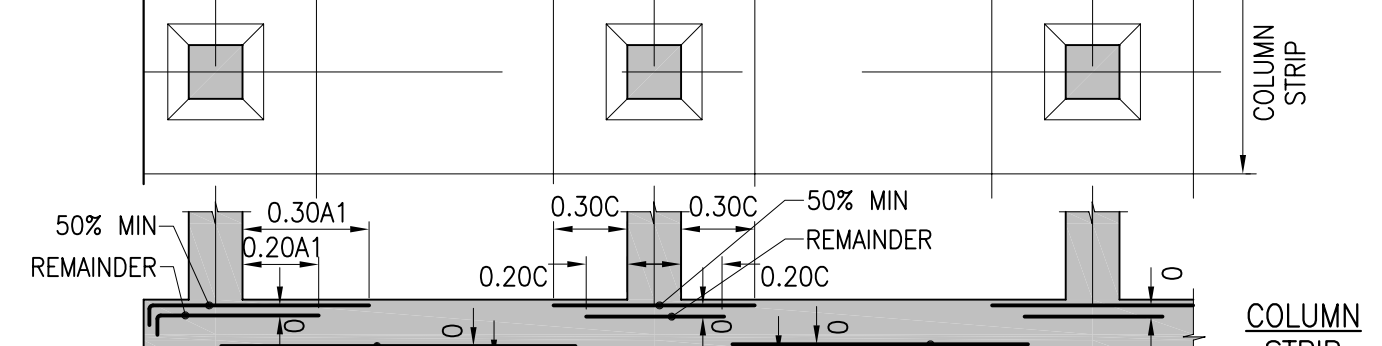
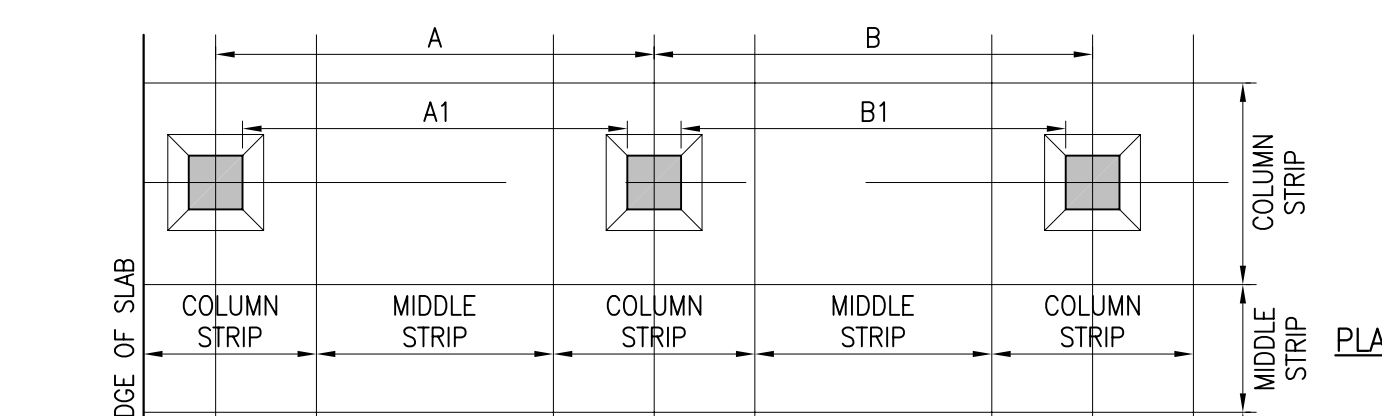
- NOTES:
- DIMENSION 'L' IS THE LARGER OF 'L1' AND 'L2'
 - TEMPERATURE REINFORCING IS PLACED PERPENDICULAR TO PRINCIPAL REINFORCING ACCORDING TO ADJACENT CHART. TEMPERATURE REINFORCING MAY BE SPLIT BETWEEN TOP AND BOTTOM OF SLAB
 - LAP ALL TEMPERATURE STEEL 24xBARØ BUT NOT LESS THAN 300
 - EXTEND BOTTOM BARS TO 300 OF EXTERIOR FACE OF SLAB SUPPORT
- | SLAB THICKNESS | INTERIOR SLABS | EXTERIOR SLABS | SLAB THICKNESS | INTERIOR SLABS | EXTERIOR SLABS |
|----------------|----------------|----------------|----------------|----------------|----------------|
| 80 | 10@400 | 10@400 | 200 | 15@500 | 15@400 |
| 100 | 10@500 | 10@400 | 220 | 15@450 | 15@350 |
| 120 | 10@425 | 10@325 | 240 | 15@400 | 20@500 |
| 140 | 10@350 | 10@275 | 260 | 15@375 | 20@450 |
| 160 | 10@325 | 10@250 | 280 | 15@350 | 20@425 |
| 180 | 10@300 | 15@500 | 300 | 20@500 | 20@400 |

3.21 REINFORCING IN ONE-WAY CONCRETE SLABS



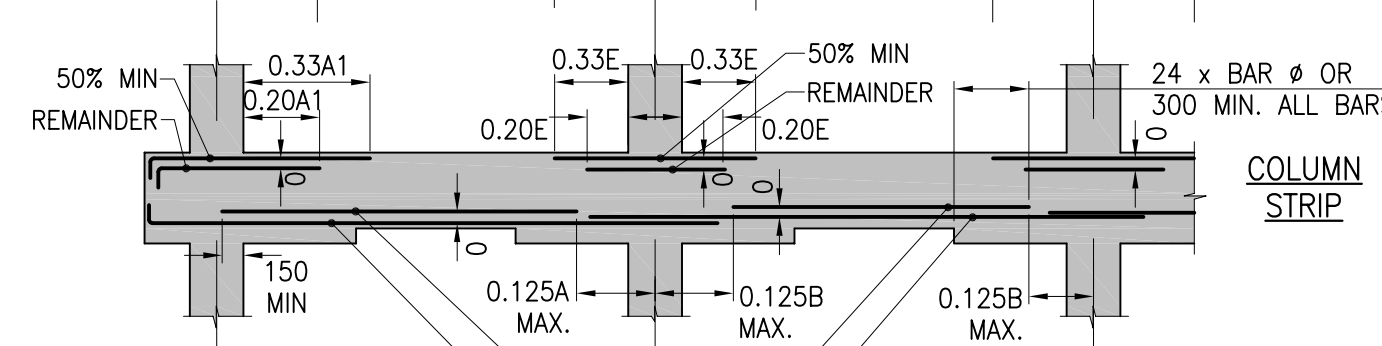
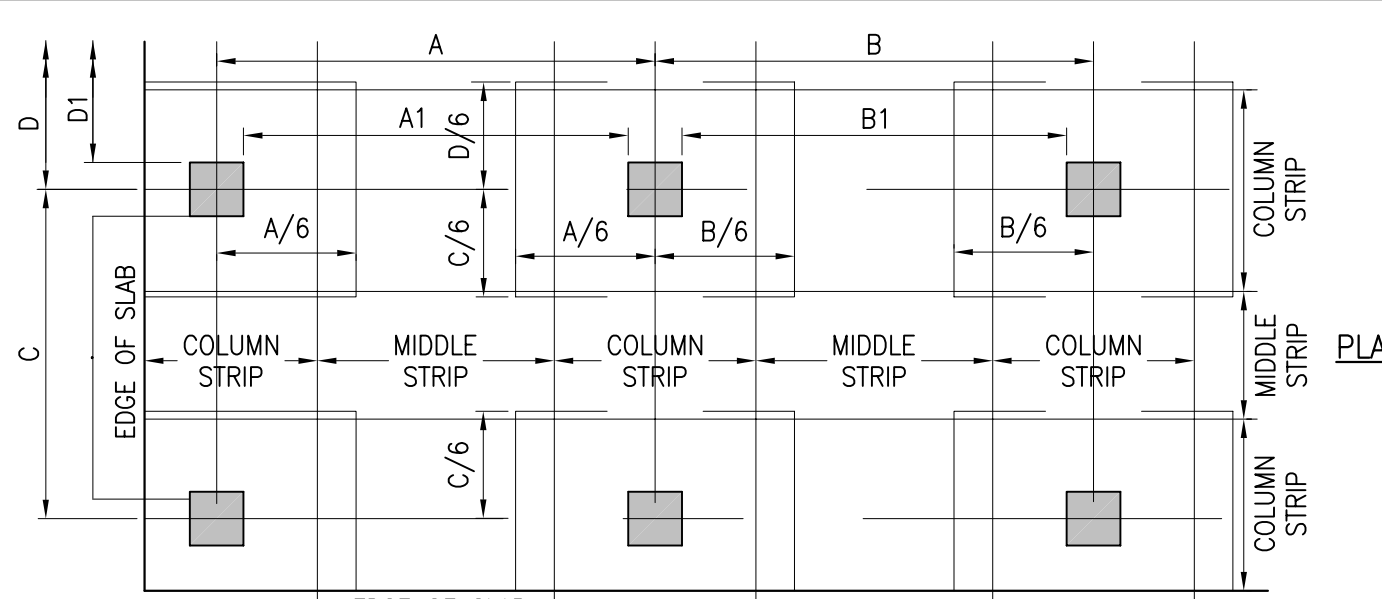
- NOTES:
- MAINTAIN BAYS CONTAINING SEPARATION STRIPS AND EACH BAY ADJACENT FULLY FORMED AND SHORED UNTIL THE STRIP HAS BEEN POURED AND HAS REACHED ITS 28 DAY STRENGTH.
 - CAST STRIP NO SOONER THAN 28 DAYS AFTER THE MOST RECENT ADJACENT SLAB HAS BEEN CAST (OR AS OTHERWISE DIRECTED IN THE SPECIFICATIONS)
 - PROVIDE VERTICAL EXPANSION JOINTS (OR VERTICAL SEPARATION STRIPS) IN CONCRETE WALLS THAT INTERSECT THE SEPARATION STRIP IN THE CONCRETE SLAB. SEE TYPICAL DETAIL 3.11 FOR VERTICAL EXPANSION JOINTS IN CONCRETE WALLS.
 - PROVIDE 15M@300 x 1800 LONG EACH SIDE OF STRIP WHERE NO TOP BARS ARE SPECIFIED ON PLAN. WHERE TOP BARS ARE CALLED FOR ON PLAN, EXTEND THEM INTO THE STRIP AND PROVIDE LAP AS SHOWN.
 - EXTEND ALL BOTTOM BARS INTO STRIP AND HOOK AT OPPOSITE SIDE AS SHOWN
 - PROVIDE REGLET IN BOTTOM OF SLAB AS SHOWN IF UNDERSIDE OF SLAB IS EXPOSED TO VIEW. SEE ARCHITECTURAL SPECIFICATIONS FOR CONFIGURATION OF REGLETS IN SLABS EXPOSED TO VIEW.

3.28 SEPARATION STRIP IN SUSPENDED CONCRETE SLABS



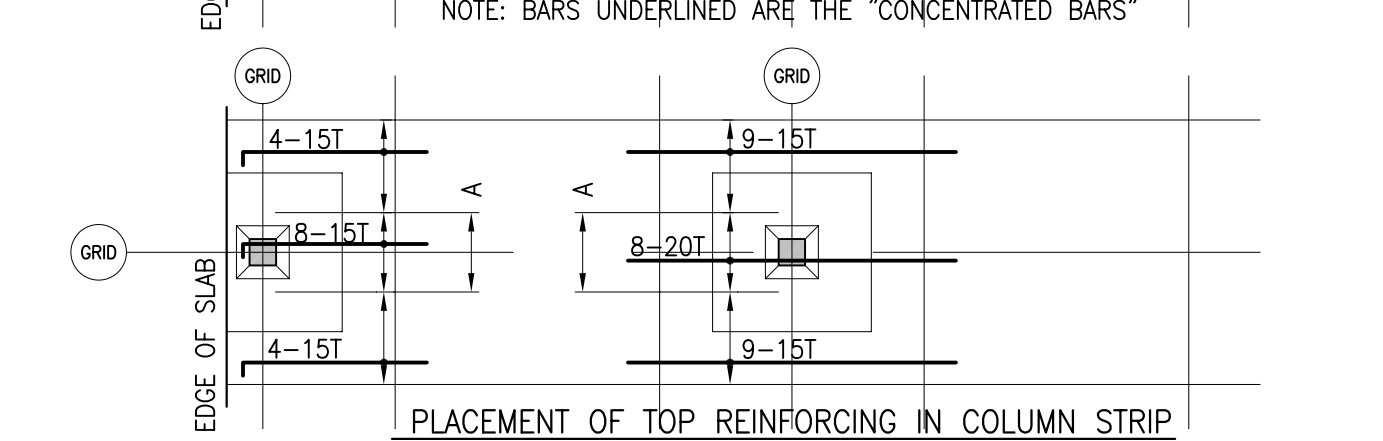
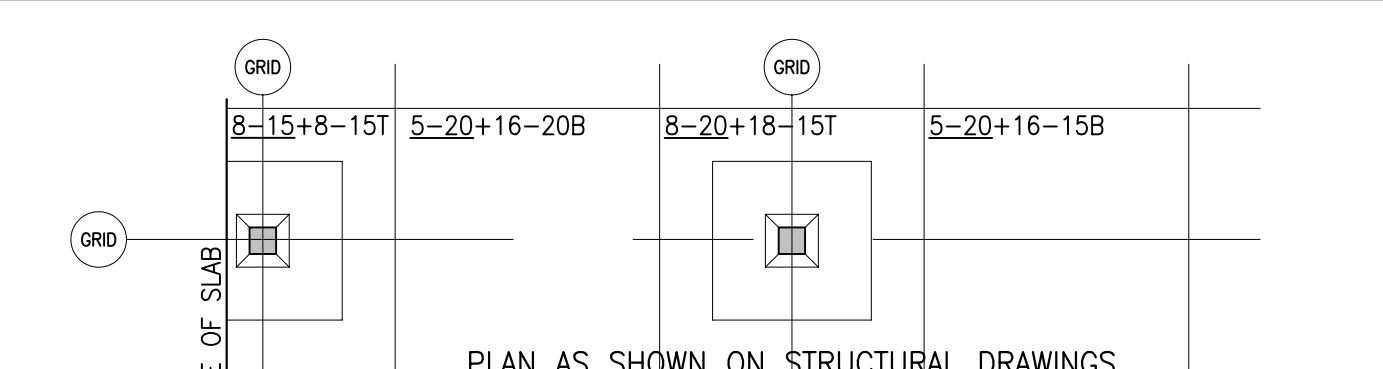
- NOTES:
- A1 & B1 IS THE CLEAR SPAN MEASURED FROM FACE OF SUPPORT (i.e. COLUMN, CAPITAL, WALL)
 - C IS THE LARGER OF A1 AND B1
 - BAR LENGTHS SHOWN ARE THE MINIMUM UNLESS SHOWN OTHERWISE ON PLAN.
 - REFER TO PLAN FOR COLUMN & MIDDLE STRIP WIDTHS AND FOR BAR PLACEMENT ORDER. BAR LENGTHS SHOWN APPLY TO BOTH DIRECTIONS. BARS SHOWN PERPENDICULAR PAGE NOT SHOWN FOR CLARITY.
 - PROVIDE CLASS 'A' TENSION LAP SPLICE AT INTERIOR COLUMNS FOR ALL CONCENTRATED BOTTOM BARS. PROVIDE A STANDARD 90° HOOK FOR ALL CONCENTRATED TOP AND BOTTOM BARS AT EXTERIOR COLUMNS (SEE RISC 3rd ED. FOR HOOK LENGTH)
 - READ THIS DETAIL IN CONJUNCTION WITH TYPICAL DETAIL 3.24 FOR EXPLANATION OF CONCENTRATED AND DISTRIBUTED BARS.

3.22 REINFORCING IN FLAT PLATES



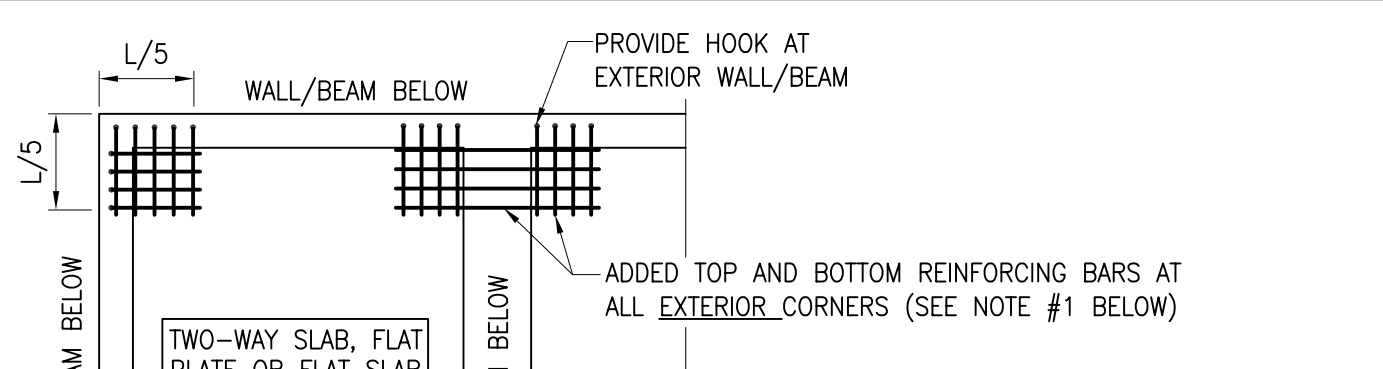
- NOTES:
- A1 & B1 IS THE CLEAR SPAN MEASURED FROM FACE OF SUPPORT (i.e. COLUMN, CAPITAL, WALL)
 - E IS THE LARGER OF A1 AND B1
 - BAR LENGTHS SHOWN ARE THE MINIMUM UNLESS SHOWN OTHERWISE ON PLAN.
 - REFER TO PLAN FOR COLUMN & MIDDLE STRIP WIDTHS AND FOR BAR PLACEMENT ORDER. BAR LENGTHS SHOWN APPLY TO BOTH DIRECTIONS. BARS SHOWN PERPENDICULAR PAGE NOT SHOWN FOR CLARITY.
 - PROVIDE CLASS 'A' TENSION LAP SPLICE AT INTERIOR COLUMNS FOR ALL CONCENTRATED BOTTOM BARS. PROVIDE A STANDARD 90° HOOK FOR ALL CONCENTRATED TOP AND BOTTOM BARS AT EXTERIOR COLUMNS (SEE RISC 3rd ED. FOR HOOK LENGTH)
 - READ THIS DETAIL IN CONJUNCTION WITH TYPICAL DETAIL 3.24 FOR EXPLANATION OF CONCENTRATED AND DISTRIBUTED BARS.
 - UNLESS SHOWN OTHERWISE ON FRAMING PLAN, DROP PANELS ARE TO HAVE PLAN DIMENSIONS SHOWN ABOVE. SEE PLAN FOR DROP PANEL DEPTH BELOW UNDERSIDE OF SLAB.

3.23 REINFORCING IN FLAT SLABS



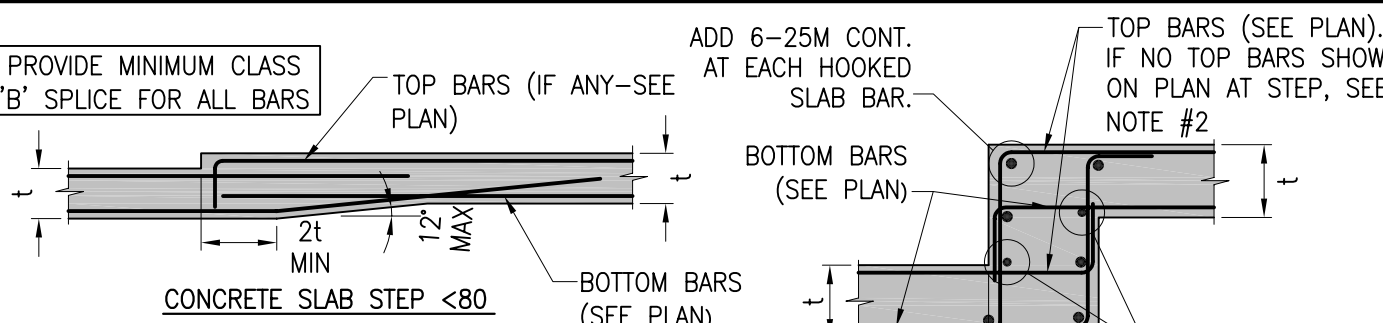
- NOTES:
- CONCENTRATED BARS ARE TO BE PLACED AS INDICATED ABOVE WITHIN A STRIP WITH THE FOLLOWING DIMENSIONS:
 - $A = C2 + 2hs$ WHERE C2 = DIMENSIONS OF COLUMN BELOW PERPENDICULAR TO THE DIRECTION OF THE BAR.
 - hs = THICKNESS OF SLAB FOR FLAT PLATES
 - hs = THICKNESS OF SLAB + DROP FOR SLABS WITH DROP PANELS
 - $B = C2 + 2$ TIMES THE CAPITAL PROJECTION (IF NO CAPITAL IS PRESENT, CONCENTRATE BARS WITHIN A WIDTH EQUAL TO C2).
 - IF COLUMNS ARE STAGGERED (i.e. ARE NOT LOCATED ALONG THE SAME GRID LINE) CONCENTRATED BOTTOM BARS WILL BE INDICATED AS THUS:
 - (3+4)-20 + 20-10B
 - WHERE 3-20B ARE CONCENTRATED OVER THE COLUMN TO THE LEFT, 4-20B ARE CONCENTRATED OVER THE COLUMN TO THE RIGHT AND 20-10B ARE EVENLY DISTRIBUTED OVER THE REMAINING SPACE.
 - REINFORCEMENT IN THE OTHER DIRECTION HAS NOT BEEN SHOWN FOR CLARITY BUT WOULD BE PLACED IN A SIMILAR MANNER.

3.24 BAR PLACEMENT IN FLAT PLATES AND SLABS



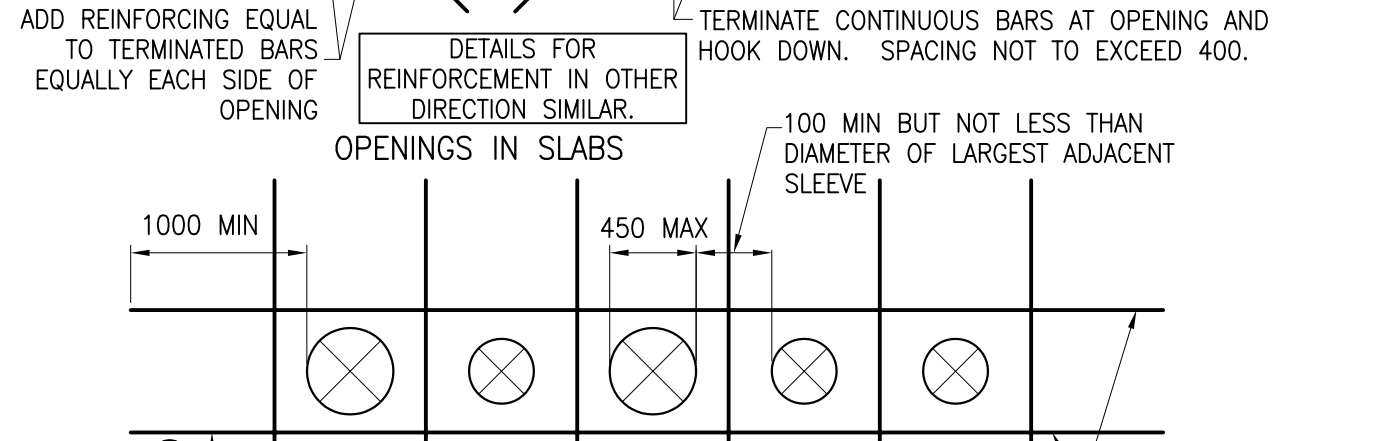
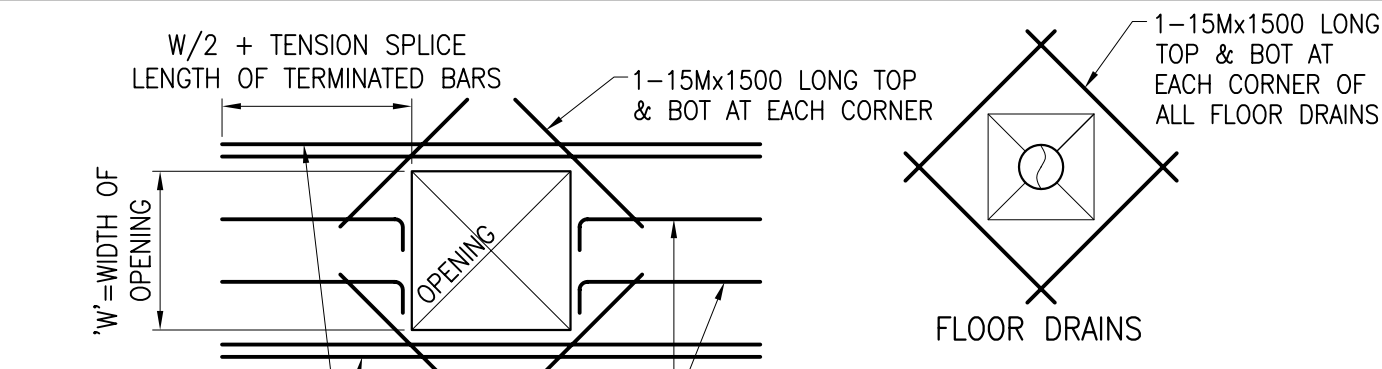
- NOTES:
- PROVIDE TOP AND BOTTOM REINFORCING BARS AS SHOWN AT EACH EXTERIOR CORNER OF CONCRETE SLABS (EXCLUDING ONE-WAY SLABS). AREA OF TOP AND BOTTOM CORNER STEEL PROVIDED TO BE THE SAME AREA PER UNIT WIDTH AS THE BOTTOM REINFORCING IN THE SHORTER SLAB DIRECTION.
 - BARS SHOWN ARE IN ADDITION TO THE REINFORCING BARS SHOWN ON PLAN.
 - DIMENSION L IS THE SHORTER SPAN OF THE SLAB BETWEEN SUPPORTS.

3.25 EXTERIOR CORNER REINFORCING FOR SUSPENDED CONCRETE SLABS SUPPORTED ON BEAMS OR WALLS



- NOTES:
- DETAILS SHOWN HERE GOVERN UNLESS NOTED OTHERWISE ON PLAN AND/OR SECTIONS
 - ADDED BARS SHOWN ARE TO BE PLACED FULL LENGTH OF STEP. PROVIDE CORNER BARS IF STEP IS RETURNED
 - PRINCIPAL REINFORCING PERPENDICULAR TO PAGE NOT SHOWN - SEE PLAN. ADDED BARS ARE IN ADDITION TO PRINCIPAL REINFORCING

3.26 STEPS IN SUSPENDED CONCRETE SLABS



- DO NOT PLACE OPENINGS WITHIN TWO TIMES SLAB DEPTH FROM THE FACE OF COLUMN OR EDGE OF CAPITAL EXCEPT AS OTHERWISE NOTED ON STRUCTURAL DRAWINGS
- TOTAL SIZE OF OPENINGS (ADDING SIZES OF ALL OPENINGS):
 - IN AREAS COMMON TO 2 COLUMN STRIPS - NOT GREATER THAN 1/2 OF THE SMALLER OF THE TWO COLUMN STRIP WIDTHS.
 - IN AREAS COMMON TO ONE COLUMN STRIP AND ONE MIDDLE STRIP - NOT GREATER THAN 1/2 OF THE SMALLER OF THE TWO STRIP WIDTHS.
 - IN AREAS COMMON TO TWO MIDDLE STRIPS - NOT GREATER THAN 1/2 OF THE SMALLER OF THE TWO STRIP WIDTHS.
- ADD TOP & BOTTOM REINFORCEMENT AT LEAST EQUIVALENT IN AREA TO REINFORCEMENT INTERRUPTED BY SLEEVES BUT NOT LESS THAN 1-15M TOP & BOTTOM BETWEEN SLEEVES FOR SLEEVES 200 IN DIAMETER AND SMALLER AND 1-15M EACH SIDE OF EACH SLEEVE FOR SLEEVES LARGER THAN 200 IN DIAMETER. OMIT ADDED BARS WHERE SLAB REINFORCEMENT IS PLACED BETWEEN SLEEVES WITH NO LESS THAN 1 BAR TOP & BOTTOM BETWEEN EACH SLEEVE, AND RESULTING BAR SPACING IS NOT GREATER THAN 400
- DO NOT MAKE OPENINGS LARGER THAN INDICATED IN NOTE #2 WITHOUT PRIOR APPROVAL FROM THE STRUCTURAL CONSULTANT OR UNLESS NOTED ON THE STRUCTURAL DRAWINGS.

3.27 OPENINGS IN SUSPENDED SLABS

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A	A. Detail Number
B	B. Drawing Number - Where Detail Found

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PROJECT NAME:
NEW WINNIPEG STATION No. 27 PROJECT
WINNIPEG, MANITOBA

DRAWING TITLE:
TYPICAL DETAILS 2 CAST IN PLACE CONCRETE DETAILS

PROJECT NORTH:
STAMP:
R. A. STRANGES
Member
33467
Professional Engineer

SCALE:	PROJECT NO.:
DATE:	10123
ISSUED:	FILE NAME:
MAY 20 2010	
DRAWN BY:	DRAWING NO.:
DZ	S3.2
CHECKED BY:	
RAS	