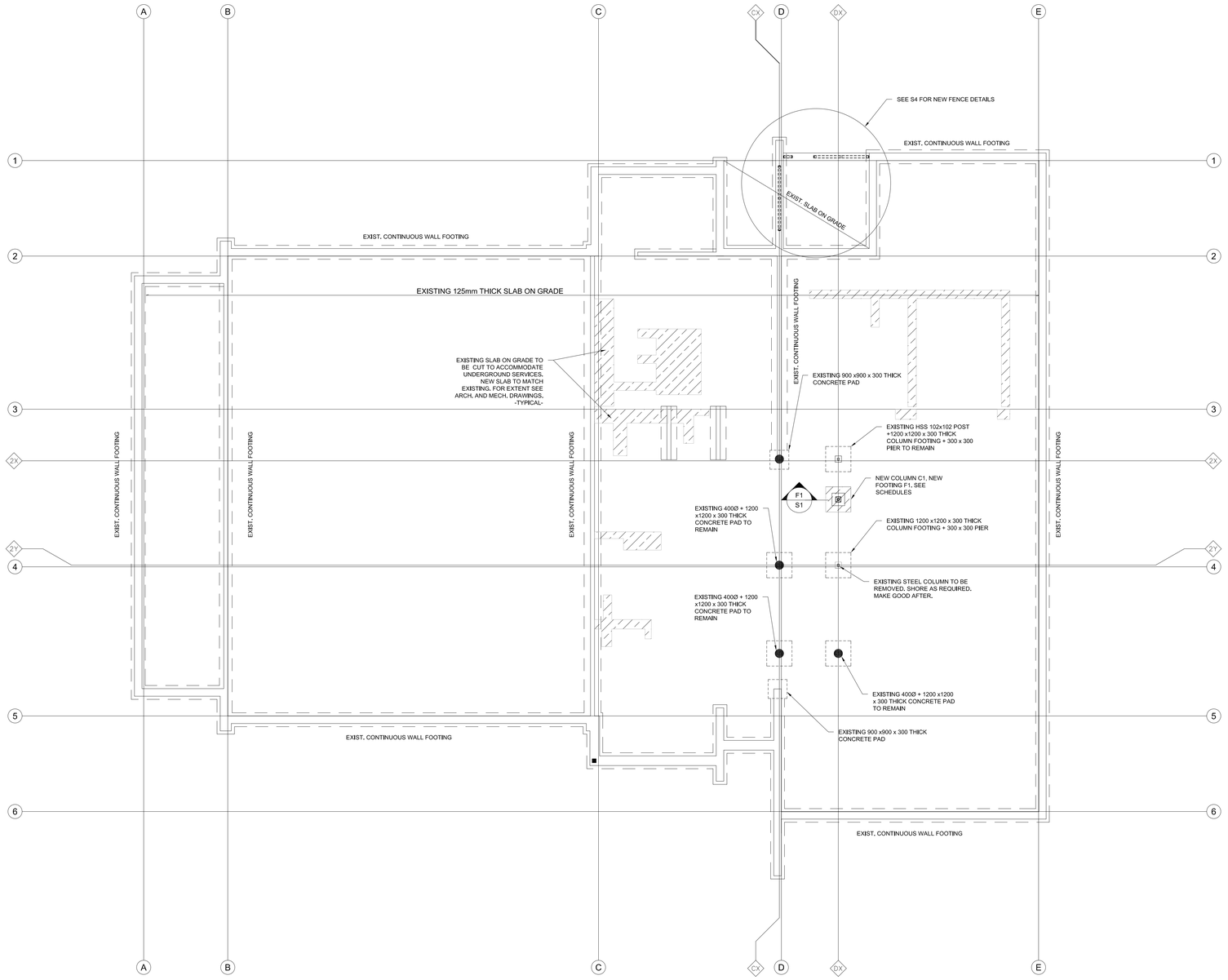


1 / S1 EXISTING FOUNDATION PLAN
1:100

FOUNDATION PLAN

SCALE 1:100

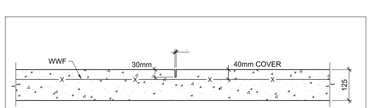
1. TOP OF SLAB IS AT ± 0.00 BELOW GROUND FLOOR FINISHED ELEVATION EXCEPT AS CROSSED AND NOTED. NEW SLAB ON GRADE ELEVATION TO MATCH EXISTING, FOUNDATIONS ARE EXISTING UNLESS NOTED OTHERWISE. EXISTING BUILDING IS DESIGNED BY POW. PETERMAN & ASSOCIATES INC., SIGNED BY R. D. PETERMAN P. ENG. DATED MARCH 1994, SEE ARCHITECTURAL DRAWINGS FOR SLOPES AND DEPRESSIONS.
2. ALL FOOTINGS SHALL BE PLACED ON NATURAL UNDISTURBED SOIL CAPABLE OF SUPPORTING MINIMUM PRESSURE OF 110kPa SLS, 150kPa ULS.
3. ALL NEW FOOTING ELEVATIONS TO MATCH EXISTING FOOTING ELEVATIONS, FOOTINGS SHALL BE MINIMUM 1350mm BELOW FINISHED GRADE.
4. BEFORE PLACING SLAB-ON-GRADE VERIFY THAT BEARING CAPACITY OF SUBGRADE AND COMPACTION OF SUBBASE ARE ADEQUATE TO SUPPORT RESPECTIVELY 25 kPa AND 50 kPa UNIFORMLY DISTRIBUTED LOAD ON SLAB ON GRADE WITHOUT SIGNIFICANT DIFFERENTIAL SETTLEMENT BETWEEN SLAB AND BUILDING FOOTINGS.
5. ALL NEW FOOTINGS SHALL BE FORMED, FOOTINGS POURED INTO NEAT EXCAVATION ARE NOT ACCEPTABLE.
6. UNLESS NOTED OTHERWISE PROVIDE NEW 125mm SLAB ON GRADE AS PER SPECIFICATION THROUGHOUT AND AS PER 2/S1, SAWCUT SLAB INTO AREAS 6m X 6 MAX. PROVIDE CONTROL JOINTS IN ALL DOORWAYS. REINF. 1 LAYER 152 X 152 MW18.7/MW18.7 WWF OR USING FIBRE MESH. REFER TO "NEW SLAB ON GRADE" DETAIL ON THIS DRAWING.
7. USE DETAIL 3/S1 AT ALL LOCATIONS WHERE EXISTING SLAB IS TO BE CUT AND REPAIRED AND FOR ALL NEW BELOW GRADE SERVICES.
8. S.D.F.- DENOTES STEPPED DOWN FOOTING, STEP DOWN NEW INTERIOR FOOTINGS TO MEET EXTERIOR FOOTING ELEVATION. NEW FOOTING ELEVATION TO MEET EXISTING FOOTING ELEVATION.
9. BACKFILLING TO BE DONE IN EQUAL HORIZONTAL LAYERS IN WHOLE LENGTH OF CONCRETE RETAINING WALLS.
10. REFER TO OTHER CONSULTANTS DRAWINGS FOR ALL EXISTING UNDERGROUND SERVICES, LOWER NEW FOOTINGS AS REQUIRED TO ACCOMMODATE THE NEW OR EXISTING UNDERGROUND SERVICES OR THE EXCAVATED DISTURBED SOILS, DO NOT UNDERMINE WALL AND COLUMN FOOTINGS
11. SEE ALSO TYPICAL DETAILS AND GENERAL NOTES ON THESE DRAWINGS. SHORE AS REQUIRED.

NEW COLUMN SCHEDULE

DATA \ COL. No.	C1
U/S EXISTING TRUSS ≈ 3000±	190x250x10mm CAP PLATE, NEW BEAM ON TOP
GROUND FLOOR - ±0.00	HSS 102x102x6.0
DISTANCE FROM GROUND FLOOR TO U/S OF B.PL.	-150
BASE PLATE	300 x 16 x 300
ANCHOR BOLTS	4-19Ø x 400

COLUMN NOTES:

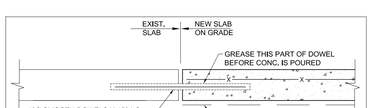
1. PROVIDE 44mm DRYPACK GROUT AND 6mm LEVELING PLATE UNDER BASE PLATES.
3. AT ALL COLUMNS IN MASONRY WALLS PROVIDE 25 X 4 X 250 LONG STEEL MASONRY TIES AT 600c/c.



SAW CUT CONTROL JOINT
IN SLAB ON GRADE

SLAB ON GRADE
U/N OTHERWISE PROVIDE 125mm SLAB ON GRADE REINF.
1 LAYER 152 X 152 MW18.7/MW18.7 WWF OR USING FIBRE MESH AS PER SPECIFICATION THROUGHOUT, SAWCUT SLAB INTO AREAS 6m X 6m MAX. PROVIDE CONTROL JOINTS IN ALL DOORWAYS.

2 / S1

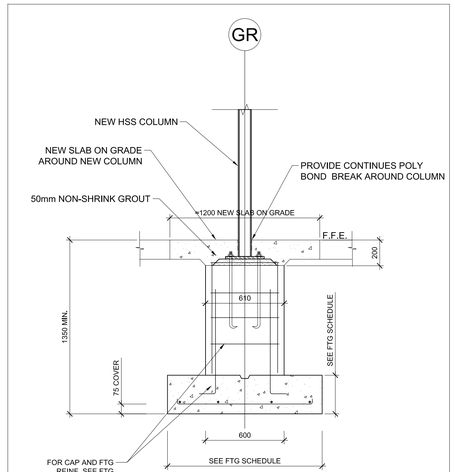


TYPICAL
(PROVIDE ALSO AT ALL LOCATIONS WHERE EXIST. SLAB IS TO BE CUT AND REPAIRED FOR NEW BELOW GRADE SERVICES).

3 / S1

FOOTING SCHEDULE

	BASE		CAP	REINF. E.W. BOTT.	CAP REINF.	COMMENT
	WIDTH x LENGTH	DEPTH	WIDTH x LENGTH			
F - 1	1200 x 1200	300	600 x 600	5-15M	4-20M DOWELS &VERT. 10M @400 C/C TIES	



F1 / S1 SCALE 1:20

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no.	revision	date

LICENCED PROFESSIONAL ENGINEER
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V. XOXA
100062276
PROVINCE OF ONTARIO

no.	issue	date
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PROJECT NORTH
GEODETIC NORTH

project

RENOVATION TO CLARINGTON FIRE & EMERGENCY SERVICES STATION 1
The Corporation of the Municipality of Clarington

2430 Durham Regional Hwy 2, Bowmanville, ON L1C 6C8

drawing

EXISTING FOUNDATION PLAN

drawing scale

1:100

ward99 project number — VX Engineering project number

24008 - DURHAM FIRE STATION — 2413 - DURHAM FIRE STATION

Ward99
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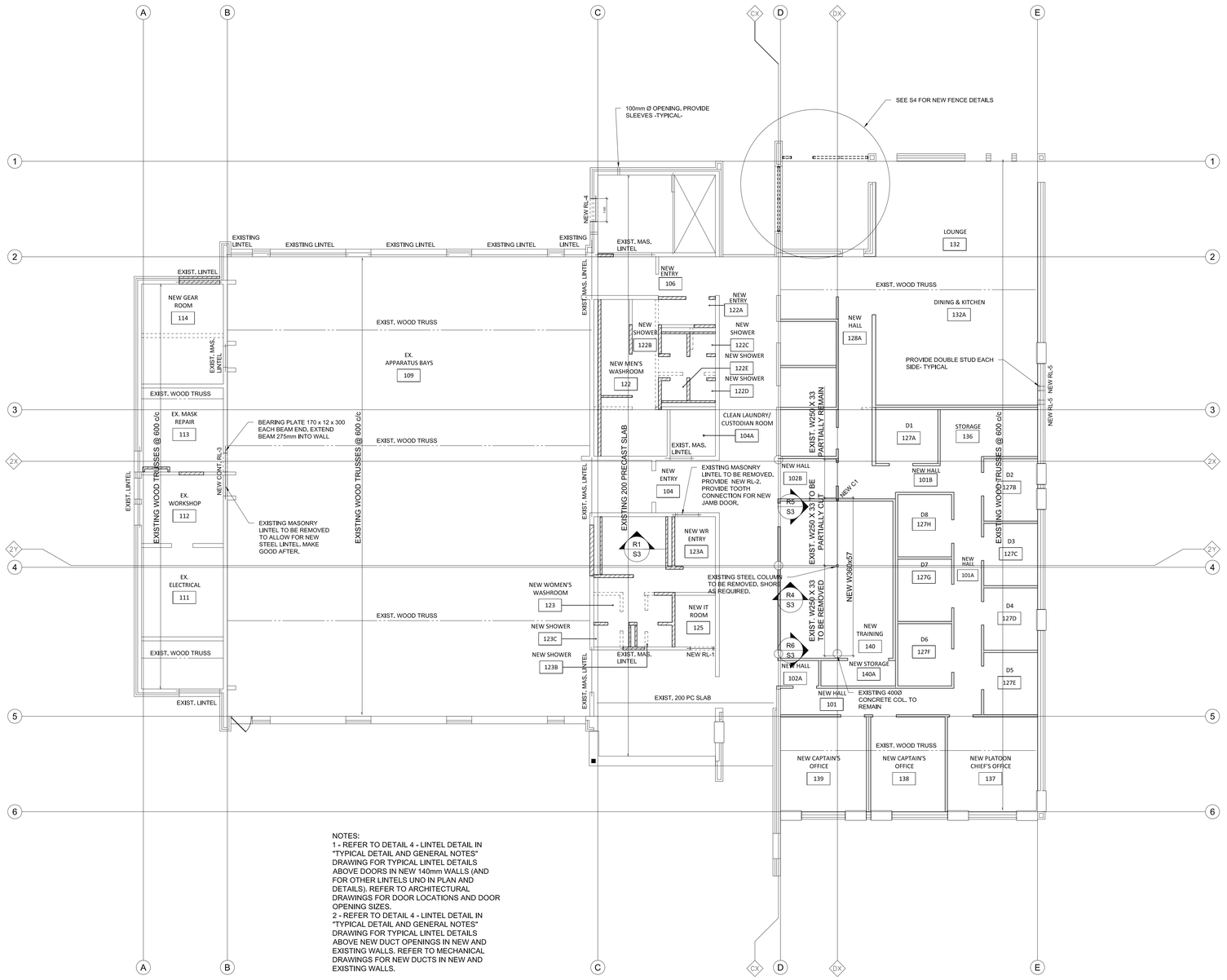
drawing no.

S-1



NOTES:
1 - REFER TO DETAIL 4 - LINTEL DETAIL IN "TYPICAL DETAIL AND GENERAL NOTES" DRAWING FOR TYPICAL LINTEL DETAILS ABOVE DOORS IN NEW 140mm WALLS (AND FOR OTHER LINTELS UNO IN PLAN AND DETAILS). REFER TO ARCHITECTURAL DRAWINGS FOR DOOR LOCATIONS AND DOOR OPENING SIZES.
2 - REFER TO DETAIL 4 - LINTEL DETAIL IN "TYPICAL DETAIL AND GENERAL NOTES" DRAWING FOR TYPICAL LINTEL DETAILS ABOVE NEW DUCT OPENINGS IN NEW AND EXISTING WALLS. REFER TO MECHANICAL DRAWINGS FOR NEW DUCTS IN NEW AND EXISTING WALLS.

1 / S2 EXISTING ROOF FRAMING PLAN
1:100

ROOF FRAMING PLAN

SCALE 1:100

1. FOR ROOF SLOPES AND ELEVATIONS SEE ARCHITECTURAL DRAWINGS.
2. ROOF STRUCTURE IS EXISTING UNLESS NOTED OTHERWISE. EXISTING FRAMING DATA ARE TAKEN FROM THE ORIGINAL DRAWINGS DESIGNED BY POW. PETERMAN & ASSOCIATES INC. SIGNED BY R.D. PETERMAN P.ENG, DATED MARCH 1994. REPORT TO CONSULTANTS DISCREPANCIES AND NECESSARY ADJUSTMENTS DUE TO ACTUAL CONDITIONS BEFORE PROCEEDING WITH WORK.
3. EXISTING ROOF IS DESIGNED FOR SNOW LOAD Ss=0,9 kPa, Sr=0,4 kPa, POST DISASTER.
4. SPECIFIED SNOW LOAD AS PER ACTUAL CODE IS Ss=1,4 kPa, SR=0,4 kPa, POST DISASTER, ADD DRIFT SNOW AS SHOWN, MULTIPLY SNOW LOADS BY IMPORTANCE FACTOR - SEE IMPORTANCE FACTOR TABLE.
5. UNLESS NOTED OTHERWISE PROVIDE L100x76x8,0 LLV FRAMING U/S NEW ROOF MECHANICAL UNITS AND L76 X 76 X 6,4 ANGLE REINFORCING AROUND ALL OPENINGS IN ROOF DECK THAT ARE BIGGER THAN 150mm x 150mm.
6. SEE ALSO TYPICAL DETAILS AND GENERAL NOTES ON THESE DRAWINGS.
7. UNLESS NOTED OTHERWISE PROVIDE 170 X 12 X 200 BEARING PLATES EACH END OF ALL STEEL BEAMS. ALL BEARING PLATES SHALL BE WITH 2-19Ø WELDED ANCHORS X 250 LG, WELD BEAM TO BEARING PLATES TYPICAL.
8. W.PL./1 - 75 X 6 CONTINUOUS STEEL PLATE WITH 12Ø X 200 LG. STUDS AT 800c/c SET IN BLOCK VOIDS FILLED WITH 20MPa CONCRETE
9. REFER TO OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS FOR ROOF MOUNTED OR SUSPENDED UNITS. SHOW THE UNITS ON THE STEEL FABRICATORS SHOP DRAWINGS AND OBTAIN ARCHITECTS, MECHANICAL AND OR ELECTRICAL ENGINEERS APPROVAL OF WEIGHTS AND LOCATIONS BEFORE FABRICATION IS STARTED.
10. UNLESS NOTED OTHERWISE FOR LINTELS OVER MECHANICAL WALL OPENINGS REFER TO "LINTELS FOR DUCTS AND SERVICES" ON TYPICAL DETAIL SHEET, FOR ALL NEW LINTELS IN EXISTING WALLS CONFIRM WALL THICKNESS BEFORE LINTELS ARE FABRICATED, REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS.
11. BLOCK VOIDS WITH REINFORCING OR SHOWN AS "FILLED SOLID" SHALL BE FILLED WITH 20MPa CONCRETE WITH PEA GRAVEL OR 20MPa COARSE GROUT.
12. WIND LOAD PARAMETERS, AS PER OBC 2012, PART 4, UPDATED IN 2020, 1/50 WIND PRESSURE 0,48kPa, 1/10 WIND PRESSURE 0,37kPa.
13. REFER TO "IMPORTANCE FACTOR" TABLE, THE BUILDING IS "POST DISASTER".
14. SHORE AS REQUIRED.
15. VERIFY SITE CONDITIONS BEFORE SUBMITTING SHOP DRAWINGS.

IMPORTANCE FACTOR CATEGORY `POST DISASTER'

	ULS	SLS
SNOW	1.25	0.9
WIND	1.25	0.75
EARTHQUAKE	1.5	1.0

MASONRY WALL REINFORCING-TYPICAL
(UNLESS NOTED OTHERWISE ON PLANS OR SECTIONS)

1). EXTERIOR WALLS:
- 190 BACK UP WALL - 15M VERTICAL REINFORCING AT 800c/c SET IN MIDDLE OF 190 WALL.
- 240 BACK UP WALL - 15M VERTICAL REINFORCING AT 600c/c SET IN MIDDLE OF 240 WALL.

2). INTERIOR WALLS:
- 190 WALL - 15M VERTICAL REINFORCING AT 1200c/c SET IN MIDDLE OF 190 WALL.
- 240 WALL - 15M VERTICAL REINFORCING AT 1200c/c SET IN MIDDLE OF 240 WALL.

3). PARTITIONS:
- 140 WALL - 10M VERTICAL REINFORCING AT 800c/c SET IN MIDDLE OF 140 WALL, PROVIDE EPOXY DOWELS INTO EXIST, SLAB
- 190 WALL - 15M VERTICAL REINFORCING AT 1200c/c SET IN MIDDLE OF 190 WALL, PROVIDE EPOXY DOWELS INTO EXIST, SLAB

4). PROVIDE 1-15M VERTICAL EACH FACE OF BLOCK AT EACH SIDE OF ALL WALL OPENINGS AND BEAM BEARINGS FOR SPANS LARGER THAN 1200mm, TYPICAL FOR ALL EXTERIOR AND INTERIOR WALLS, (NOT REQUIRED IF PIER REINFORCING IS SPECIFIED ON PLANS AT THIS LOCATION).

5). PROVIDE TRUSS TYPE HORIZONTAL MASONRY REINFORCING @ 400 c/c FOR 190 WALLS, LADDER TYPE @ 400 c/c PER 140 WALLS, SEE ALSO THE SPECIFICATIONS.

6). ALL BLOCK VOIDS WITH REINFORCING SHALL BE FILLED SOLID WITH 20MPa COURSE GROUT OR 20MPa CONCRETE WITH PEA GRAVEL.

7). MASONRY INDICATED ON PLAN AS "FILLED SOLID", SHALL BE FULLY FILLED WITH 20MPa COURSE GROUT OR 20MPa CONCRETE WITH PEA GRAVEL.

8). PROVIDE MINIMUM SPLICE 600mm FOR ALL VERTICAL REINFORCING.

9). MASONRY REQUIRED TO BE "FILLED SOLID", SHALL BE FILLED IN LOW LIFTS UNLESS APPROVED BY THE CONSULTANT.

10). CO-ORDINATE MASONRY REINFORCING PLACEMENT WITH LINTEL AND BEAM BEARINGS.

11). PROVIDE CONTINUOUS LINTEL BLOCK BAND COURSE WITH 2-15M CONT. BARS AT GROUND FLOOR LEVEL AND EACH SUBSEQUENT FRAMED LEVEL ABOVE.

NEW LINTEL SCHEDULE

MARK	MATERIAL	TYPE	REMARKS
RL-1	BACK TO BACK 2L's 90 x 65 x 8 LLV FOR BLOCK SUPPORT		EXTEND L's 150mm EACH END
RL-2	BACK TO BACK 2L's 90 x 90 x 8 FOR BLOCK SUPPORT		EXTEND L's 150mm EACH END
RL-3	W200 x 36 + 190 x 8 PL. BOTT.		CUT BOTT, PLATE SHORT OF OPENING AND PROVIDE TYP. B.PL. + ANCHORS, UNLESS NOTED OTHERWISE IN PLAN (UNO).
RL-4	W200 x 27 +190 x 8 PLATE BOTT. + L 125 x 90 x 8 FOR VENEER		CUT BOTT, PLATE SHORT OF OPENING AND PROVIDE TYP. B.PL. + ANCHORS, UNLESS NOTED OTHERWISE IN PLAN (UNO), EXTEND L 150MM EACH END
RL-6	3 - 2 x 8 + L 90 x 90 x 8 FOR VENEER		PROVIDE DOUBLE STUD EACH SIDE OF NEW OPENING. EXTEND L 150MM EACH END

LINTEL NOTES:
A. GENERAL CONTRACTOR SHALL PROVIDE 38 X 5 X 150 MASONRY TIES WELDED TO BM. AT 600c/c TYP. FOR ALL BEAM LINTELS AND BMS. IN MASONRY
B. PROVIDE 1-19Ø A. BOLTS X 200 LG. GROUTED INTO BLOCK VOIDS OF PIERS BETWEEN OPENINGS. WHERE APPLICABLE.
C. UNLESS NOTED OTHERWISE BOTT. PLATE OF BEAM LINTELS SHALL STOP SHORT OF OPENINGS AND BEAM BEARING PLATE SHALL BE PROVIDED.
D. FIRST BLOCK COURSE ABOVE STEEL LINTEL SHALL BE FILLED SOLID WITH 20MPa CONCRETE, TYP.

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LICENCED PROFESSIONAL ENGINEER
June 18, 2024
V. YOXALL
100062276
PROVINCE OF ONTARIO

PROJECT NORTH
GEODETIC NORTH

no.	issue	date
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project
RENOVATION TO CLARINGTON FIRE & EMERGENCY SERVICES STATION 1
The Corporation of the Municipality of Clarington

2430 Durham Regional Hwy 2, Bowmanville, ON L1C 6C8

drawing
EXISTING ROOF FRAMING PLAN
drawing scale
1:100
ward99 project number — VX Engineering project number
24008 - DURHAM FIRE STATION — 2413 - DURHAM FIRE STATION

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7500 Hwy 27 unit 27B
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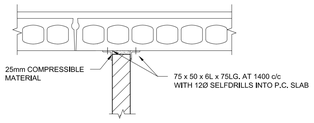
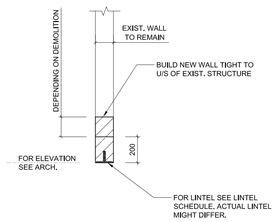
drawing no.
S-2



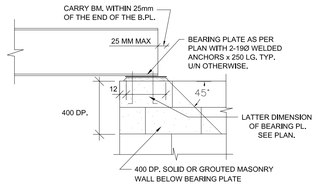
TYPICAL DETAIL FOR LATERAL SUPPORT OF NON-LOAD BEARING WALLS IN PRECAST FLOOR SLAB

R1 / S3 SCALE 1:20



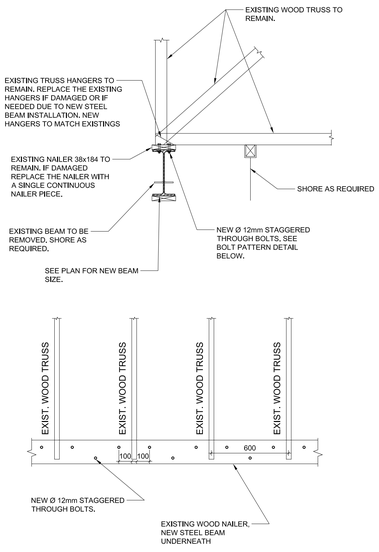
TYPICAL DETAIL OF NEW BEAM/LINTEL SUPPORTING EXISTING INTERIOR WALL. SHORE AS REQUIRED

R2 / S3 SCALE 1:20



TYPICAL BEAM / LINTEL BEARING ON NEW OR EXISTING WALL

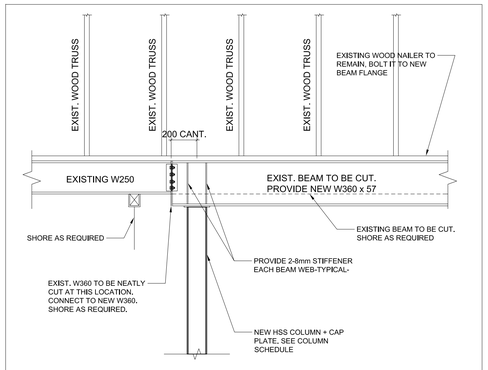
R3 / S3 SCALE 1:20



THROUGH BOLT PATTERN IN THE NAILER

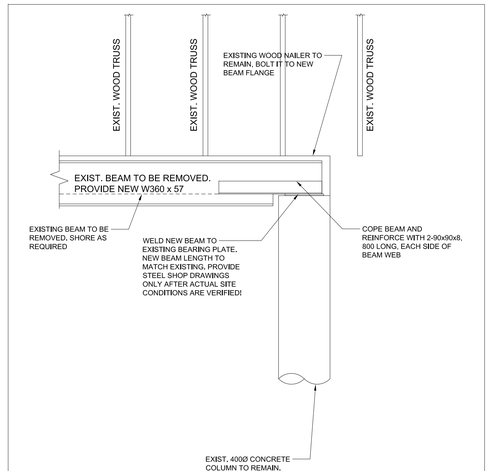
R4 / S3 SCALE 1:20

SHORE AS REQUIRED



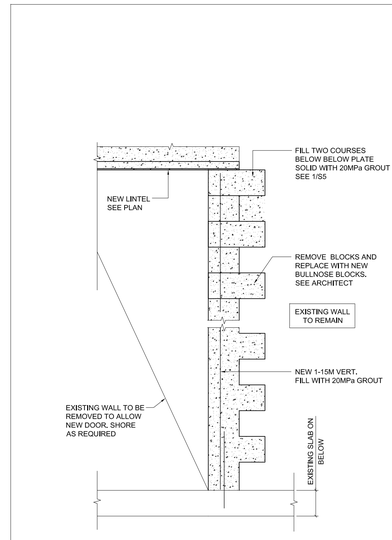
R5 / S3 SCALE 1:20

SHORE AS REQUIRED



R6 / S3 SCALE 1:20

SHORE AS REQUIRED



TYPICAL DETAIL FOR REINFORCEMENT OF NEW DOOR JAMBS. SHORE AS REQUIRED

1 / S3 SCALE 1:20

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V. KOXA
100062276
PROVINCE OF ONTARIO

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PROJECT NORTH
GEODETIC NORTH

project
RENOVATION TO CLARINGTON FIRE & EMERGENCY SERVICES STATION 1
The Corporation of the Municipality of Clarington

2430 Durham Regional Hwy 2, Bowmanville, ON L1C 6C8

drawing
FOUNDATION AND ROOF FRAMING DETAILS

drawing scale
1:100

ward99 project number: 24008 - DURHAM FIRE STATION
VX Engineering project number: 2413 - DURHAM FIRE STATION

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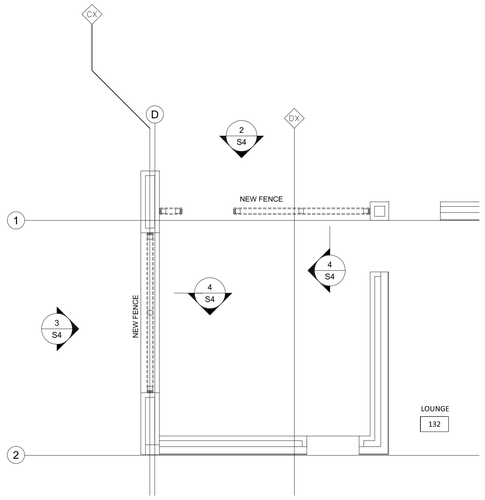
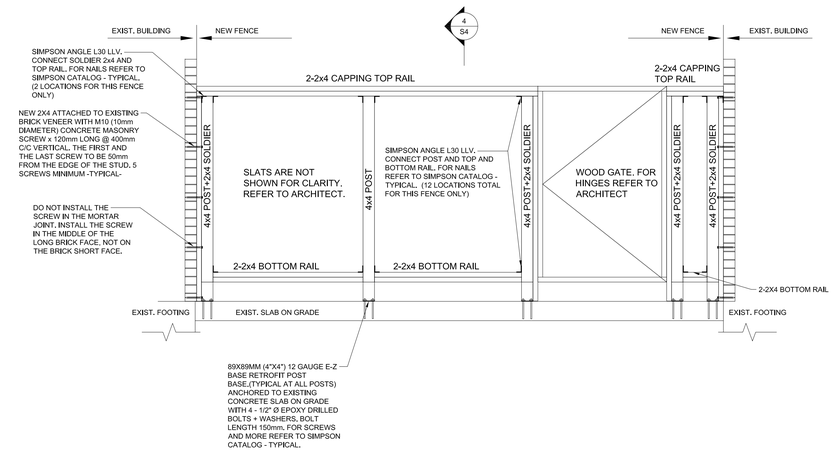
drawing no.
S-3



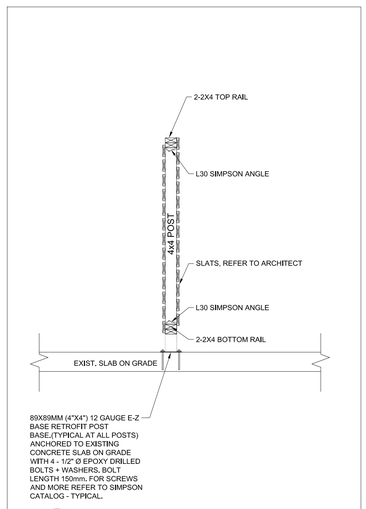
NOTE: BUILDING IS EXISTING UNLESS NOTED OTHERWISE.
FOR DIMENSIONS REFER TO ARCHITECT.

1/S4 NEW FENCES PLAN
1:50



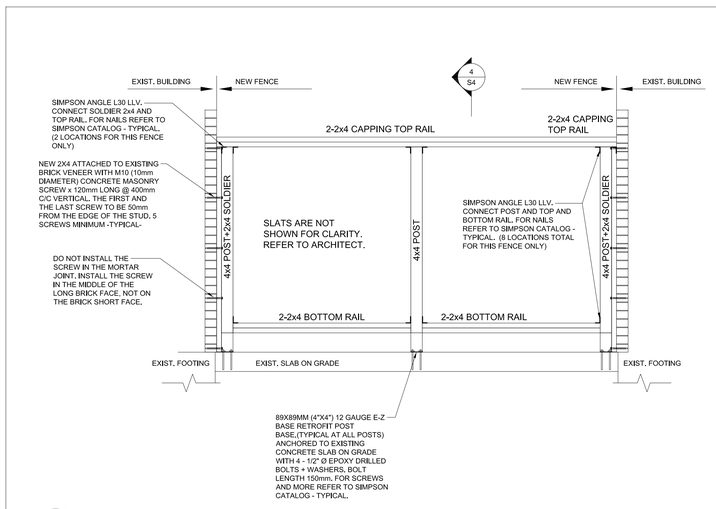
2/S4 SCALE 1:20

NOTE: ALL METAL PARTS ARE MINIMALLY HOT DEEP GALVANIZED. ALL WOOD POSTS, STUDS AND RAILINGS ARE PRESSURE TREATED. FOR DIMENSIONS SEE ARCHITECT



4/S4 SCALE 1:20

NOTE: ALL METAL PARTS ARE MINIMALLY HOT DEEP GALVANIZED. ALL WOOD POSTS, STUDS AND RAILINGS ARE PRESSURE TREATED. FOR DIMENSIONS SEE ARCHITECT



3/S4 SCALE 1:20

NOTE: ALL METAL PARTS ARE MINIMALLY HOT DEEP GALVANIZED. ALL WOOD POSTS, STUDS AND RAILINGS ARE PRESSURE TREATED. FOR DIMENSIONS SEE ARCHITECT

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drawing
FENCE FRAMING DETAILS
drawing scale
AS NOTED
ward99 project number 24008 - DURHAM FIRE STATION
VX Engineering project number 2413 - DURHAM FIRE STATION

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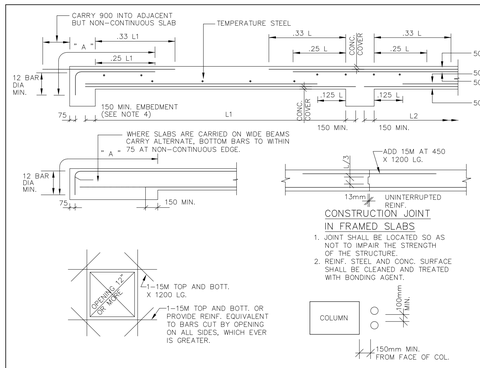
drawing no.
S-4



CONSTRUCTION JOINT IN FRAMED SLABS

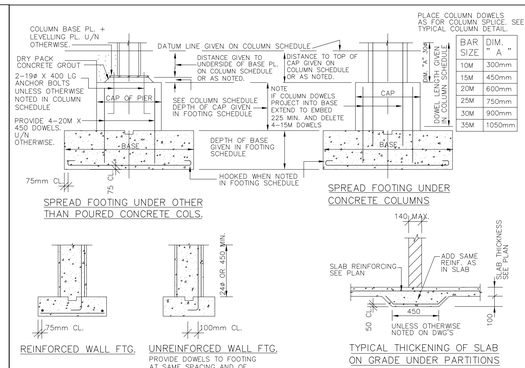
1. JOINT SHALL BE LOCATED SO AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE.
2. REINF. STEEL AND CONC. SURFACE SHALL BE CLEANED AND TREATED WITH BONDING AGENT.

1. MAXIMUM SPACING OF BARS IN ANY ONE WAY SLAB IS 5 X SLAB THICKNESS, MAXIMUM SPACING 500.
2. AT NON-CONTINUOUS END, ALL TOP BARS SHALL BE CARRIED TO WITHIN 75 OF OUTER EDGE OF CONSTRUCTION AND SHALL TERMINATE IN A 90°HOOK, MAINTAINING A MINIMUM DIMENSION "A" AS SHOWN IN TABLE BELOW FOR THE GIVEN STRENGTH OF CONCRETE. WHERE BEAM WILL NOT ACCOMMODATE A 90° HOOK, A 180 HOOK SHALL BE USED, MAINTAINING A MINIMUM DIMENSION "A" FOR BAR SPACING GREATER THAN 150, TABULATE VALUES MAY BE MULTIPLIED BY 0.5.
3. TEMPERATURE REINFORCING SHALL BE PROVIDED IN ALL ONE WAY SLABS. BARS ARE TO BE LAPPED 36 DIAMETERS. MAXIMUM SPACING OF TEMPERATURE REINFORCING SHALL BE 5 TIMES THE SLAB THICKNESS BUT NOT MORE THAN 500, SEE TABLE BELOW.
4. WHERE 150 STRAIGHT EMBEDMENT IS NOT POSSIBLE PROVIDE A STANDARD 90°HOOK LAID FLAT.
5. L IS THE GREATER OF L1 AND L2.
6. LONG BARS SHALL ALTERNATE WITH SHORT BARS.
7. DIMENSIONS GIVEN ARE IN MILLIMETERS.
8. FOR CONCRETE COVER REFER TO CSA 23.1. COVER SHALL NOT BE LESS THAN REQUIRED FOR FIRE RATING.

TEMPERATURE REINFORCING Fy = 400MPa			
SLAB(mm) THICKNESS	REINF. (As= 0.002 Ag)	SLAB(mm) THICKNESS	REINF. (As= 0.002 Ag)
65	10M AT 500	200	15M AT 500
100	10M AT 500	215	15M AT 460
115	10M AT 450	225	15M AT 440
125	10M AT 410	240	15M AT 410
135	10M AT 380	250	15M AT 400
150	10M AT 340	265	15M AT 380
165	10M AT 310	275	15M AT 360
175	10M AT 290	290	15M AT 340
190	10M AT 270	300	15M AT 330

BAR	DIMENSION " A " MINIMUM Fy = 400MPa		
	f'c= 20MPa	f'c=25MPa	f'c=30MPa
10M	400mm	370mm	355mm
15M	575mm	540mm	510mm
20M	720mm	675mm	640mm
25M	920mm	870mm	820mm
30M	1115mm	1045mm	995mm
35M	1340mm	1260mm	1200mm

ONE WAY SLAB DETAILS | 1



SPREAD FOOTING UNDER OTHER THAN POURED CONCRETE COLS.

SPREAD FOOTING UNDER CONCRETE COLUMNS

REINFORCED WALL FTG.

UNREINFORCED WALL FTG.
PROVIDE DOWELS TO FOOTING AT SAME SPACING AND OF SAME SIZE AS WALL VERTS.

TYPICAL THICKENING OF SLAB ON GRADE UNDER PARTITIONS

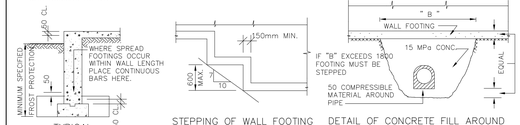
VERTICAL CONSTRUCTION JOINT IN WALLS

1. JOINT SHALL BE LOCATED SO AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE.
2. REINF. STEEL AND CONC. SURFACE SHALL BE CLEANED AND TREATED WITH BONDING AGENT.

TYPICAL WALL

LAPPING AT CORNERS

DOWELLING OF INTERSECTING WALL

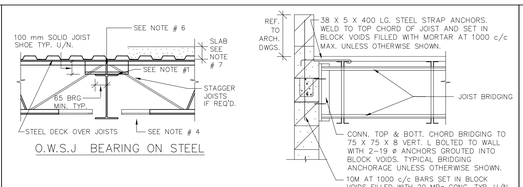


TYPICAL WALL SECTION

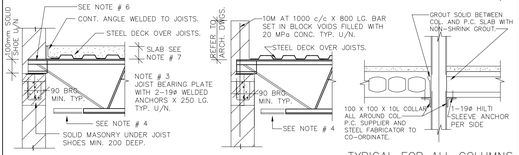
STEPPING OF WALL FOOTING

DETAIL OF CONCRETE FILL AROUND PIPE BELOW CONT. WALL FOOTING

FOUNDATION & WALL DETAILS | 2

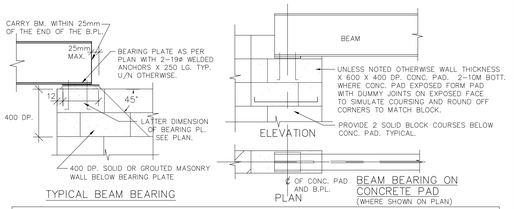


O.W.S.J BEARING ON STEEL



OWSJ BEARING ON MASONRY

TYPICAL FOR ALL COLUMNS



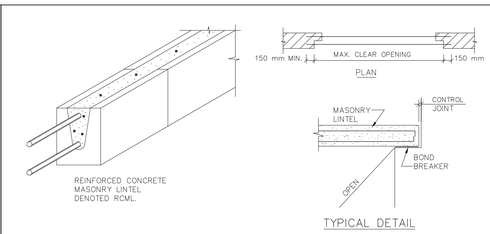
TYPICAL BEAM BEARING

BEAM BEARING ON CONCRETE PAD
(WHERE SHOWN ON PLAN)

NOTES:

1. OWSJ BEARING, ANCHORAGE AND BRIDGING REQUIREMENTS SHALL BE IN ACCORDANCE WITH CAN - S16.1
2. CONTRACTOR TO TAKE ALL NECESSARY PRECAUTIONS WHEN POURING CONC. SLABS OVER OWSJ TO AVOID LATERAL DEFLECTION AND TWISTING OF JOISTS. THIS APPLIES PARTICULAR TO FREE ENDS OF JOISTS RUNS.
3. JOISTS BEARING PLATES SHALL BE DESIGNED BY JOIST DESIGNER AND 50mm WIDER THAN JOIST SHOE.
4. PROVIDE CEILING EXTENSIONS WHERE REQUIRED.
5. JOISTS MARKED T.J. ON PLANS DENOTES TIE JOISTS.
6. JOIST WORKING POINT SHALL BE LOCATED IN MIDDLE ⅓ OF BEAM FLANGE OR SUPPORTING WALL.
7. TYP. SLAB U/N OTHERWISE = 65mm CONC. SLAB OVER STEEL DECK. SLAB REINF. 152 X 152 MW18.7/MW18.7 WWF PLACED 40mm FROM TOP SURFACE.

STRUCTURAL STEEL AND OPEN WEB STEEL JOIST DETAILS | 3



TYPICAL DETAIL

NOTES FOR RCML:

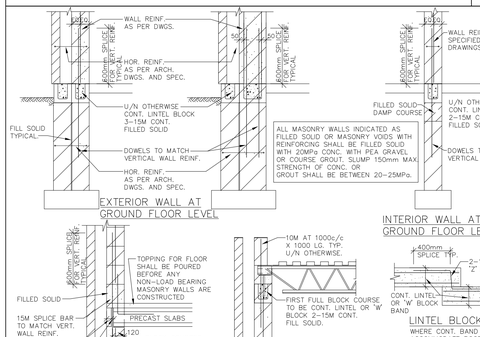
1. FOR LINTELS IN PARTITIONS AND BEARING WALLS, UP TO 1200mm CLEAR SPAN, PROVIDE 1-10M BAR TOP AND BOTTOM FOR EACH 100mm OF WALL THICKNESS OR PORTION THEREOF.
2. FOR CLEAR SPANS FROM 1200mm TO 1800mm PROVIDE 1-15M HOOKED TOP AND BOTTOM AS CALLED FOR NOTE No.1.
3. LINTEL BEAM UNITS SHALL BE FILLED WITH CONCRETE HAVING AN ULTIMATE COMPRESSIVE STRENGTH OF 20MPa AT 28 DAYS, LENGTH OF BEARING SHALL BE 200mm MIN.
4. WHERE LINTELS FRAME INTO REINFORCED CONCRETE COLUMNS, REINFORCED CONCRETE WALLS OR STEEL COLUMNS, PROVIDE 90 X 90 X 10 SHELF ANGLE FOR ANCHORAGE, USE WELDING OR 2-19ø INSERT ANCHORS, EXCEPT AS OTHERWISE SPECIFIED ON DRAWINGS.

CLEAR SPAN	140mm WALL		190mm WALL		240mm WALL		290mm WALL	
	TYPE	MATERIAL	TYPE	MATERIAL	TYPE	MATERIAL	TYPE	MATERIAL
UP TO 1200mm	JL	2L'S 90 X 65 X 8 LLV	JL	2L'S 90 X 90 X 8	JL	2L'S 100 X 100 X 8	JL L	3L'S 90 X 90 X 8
1200mm TO 2000mm	JL	2L'S 90 X 65 X 8 LLV	JL	2L'S 150 X 90 X 8 LLV	JL	2L'S 150 X 100 X 8 LLV	JL L	3L'S 150 X 90 X 8

NOTES FOR STEEL LINTELS

1. DOUBLE ANGLES SHALL BE PLACED BACK TO BACK AND BOLTED TOGETHER WITH BOLTS AT 600o/c OR EQUIVALENT STITCHWELD TOP AND BOTTOM 16ø MIN.
2. MINIMUM BEARING OF LINTELS SHALL BE 150mm SEE PLAN ABOVE
3. FOR WALLS THICKER THAN 290mm ADD 1 ANGLE OF SIZE SPECIFIED ABOVE FOR EVERY 100 OF MASONRY OR PORTION THEREOF.
4. SEE NOTE No.4 ABOVE
5. FOR LINTELS IN NON-LOAD BEARING 140 WALLS OVER 2000mm, PROVIDE W200 X 27 BEAM.
6. PROVIDE SINGLE 90 X 90 X 8L FOR OPENINGS IN 90mm BLOCK ENCLOSURES FOR SPAN UP TO 1200mm. FOR LOCATIONS SEE ARCHITECTURAL AND MECHANICAL DRAWINGS.

LINTEL DETAILS | 4



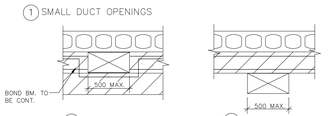
MASONRY DETAILS | 5

1. VARIATION FROM PLUMB:
   A. IN THE LINES AND SURFACES OF COLUMNS, PIERS, WALLS AND IN ARRISES:
      IN ANY 3000mm OF LENGTH 5mm
      MAXIMUM FOR THE ENTIRE LENGTH 25mm
   B. FOR EXPOSED CORNER COLUMNS, CONTROL JOINT GROOVES, AND OTHER CONSPICUOUS LINES:
      IN ANY 6000mm LENGTH 5mm
      MAXIMUM FOR THE ENTIRE LENGTH 15mm
2. VARIATION FROM THE LEVEL OR FROM THE GRADES SPECIFIED IN THE CONTRACT DOCUMENTS:
   A. IN SLAB SOFFITS, CEILINGS, BEAM SOFFITING SHORES
      IN ANY 3000mm OF LENGTH 5mm
      IN ANY BAY OR ANY 6000mm 10mm
      MAXIMUM FOR THE ENTIRE LENGTH. 20mm
   B. IN EXPOSED LINTELS, SILLS PARAPETS, HORIZONTAL GROOVES, AND OTHER CONSPICUOUS LINES:
      IN ANY BAY OR IN 6000mm LENGTH. 5mm
      MAXIMUM FOR THE ENTIRE LENGTH 15mm
3. VARIATION OF THE LINEAR BUILDING LINES FROM ESTABLISHED POSITION OF PLAN AND RELATED POSITION OF COLUMNS, WALLS AND PARTITIONS:
      IN ANY BAY 15mm
      IN ANY 6000mm OF LENGTH 15mm
      MAXIMUM FOR THE ENTIRE LENGTH. 25mm
4. VARIATION IN THE SIZES AND LOCATION OF SLEEVES, FLOOR OPENINGS AND WALL OPENINGS 5mm
5. VARIATION IN CROSS-SECTIONAL DIMENSIONS OF COLUMNS AND BEAMS AND IN THE THICKNESS OF SLABS AND WALLS:
      MINUS 5mm
      PLUS 15mm
6. FOOTINGS:
   A. VARIATIONS IN DIMENSIONS IN PLAN
      MINUS 15mm
      PLUS 50mm
   B. MISPLACEMENT OR ECCENTRICITY 2 PERCENT OF THE FOOTING WIDTH IN THE DIRECTION OF MISPLACEMENT BUT NOT MORE THAN. 50mm
   C. THICKNESS
      DECREASE IN SPECIFIED THICKNESS 5%
      INCREASE IN SPECIFIED THICKNESS . . . . . NO LIMIT
7. VARIATION IN STEPS:
   A. IN A FLIGHT OF STAIRS:
      RISE 3mm
      TREAD 5mm
   B. IN CONSECUTIVE STEPS:
      RISE 2mm
      TREAD 3mm
8. LOCATION OF SLEEVES, OPENINGS, INSERTS AND BOLTS:. 5mm
9. FABRICATION OF:
   A. STIRRUPS, TIES, SPIRALS. 5mm
   B. OTHER BARS 15mm
10. PROTECTIVE COVER TO REINFORCEMENT AND EFFECTIVE DEPTH:
   A. MEMBERS 200mm EFFECTIVE DEPTH OR LESS 10mm
   B. MEMBERS MORE THAN 200mm 15mm
11. FLOOR FINISH IN ANY 3000mm 6mm

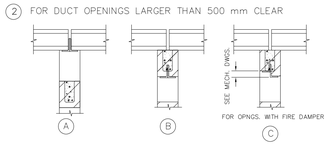
CONSTRUCTION TOLERANCES | 6

LINTELS FOR DUCT OPENINGS THRU WALLS SUPPORTING P.C. SLABS

1 SMALL DUCT OPENINGS



2 FOR DUCT OPENINGS LARGER THAN 500 mm CLEAR

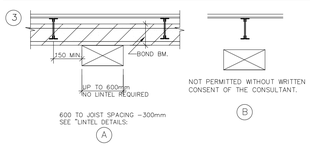


CLEAR SPAN	WALL THICKNESS		
	190 WALL	240 WALL	290 WALL
UP TO 700 mm	2 L's 90 X 90 X 8	1 L 125 X 90 X 8 LLH + 1 L 100 X 100 X 8	3 L' 90 X 90 X 8
UP TO 950 mm	2 L's 125 X 90 8 LLV	2 L's 150X100X8 LLV	3 L's 125X90X8 LLV
UP TO 2400 [UNLESS NOTED OTHERWISE ON DWGS]	W150 X 22 OR W150X22 + 170X8 PL. BOT. FOR MAS.	W150 X 22 OR W150X22 + 220X8 PL. BOT. FOR MAS.	W150 X 22 OR W150X22 + 270X8 PL. BOT. FOR MAS.

FOR 390 THICK WALLS PROVIDE LINTELS AS FOR 2-190 WALLS

LINTELS FOR DUCT OPENINGS THRU WALLS SUPPORTING O.W.S.J.

3



- PROVIDE MINIMUM 400mm SOLID MASONRY BETWEEN MECHANICAL OPENINGS. TYPICAL
- UNLESS NOTED OTHERWISE, FOR OPENINGS IN EXTERIOR WALLS PROVIDE LINTEL AS NOTED ABOVE FOR BACK UP WALL + STEEL ANGLE FOR VENEER. PROVIDE 90 X 90 X 8L FOR SPAN UP TO 1200mm OR 150 X 90 X 8L LLV FOR SPAN UP TO 2000mm.

LINTELS FOR DUCTS AND SERVICES | 7

CHECK ALL DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS AND REPORT DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.

FOR LOCATION OF SUMPS, PITS, BASES AND DEPRESSIONS REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.

DO NOT EXCEED THE DESIGN LIVE LOADS SHOWN DURING CONSTRUCTION.

THIS STRUCTURE HAS BEEN DESIGNED TO COMPLY WITH O.B.C. 2012.

THE GENERAL CONTRACTOR SHALL EXAMINE EXISTING SITE CONDITIONS AND REPORT ANY INCONSISTENCIES TO THE ARCHITECT BEFORE STARTING ANY WORK.

REFER TO ARCHITECTURAL DRAWINGS FOR STEPPING OF WALL FOOTINGS.

FOUNDATION NOTES:

FOOTING EXCAVATIONS SHALL BE INSPECTED BY A SOILS ENGINEER BEFORE CONCRETE IS PLACED.

FOOTINGS EXPOSED TO FREEZING SHALL BE PLACED AT LEAST 1200mm BELOW FINISHED GRADE.

PROTECT FOOTINGS EXPOSED TO FROST ACTION DURING CONSTRUCTION BY 1200mm OF SOIL OR ITS EQUIVALENT.

THE LINE OF SLOPE BETWEEN ADJACENT FOOTINGS, EXCAVATIONS OR ALONG STEPPED FOOTINGS SHALL NOT EXCEED A RISE OF 7 IN A RUN OF 10. MAXIMUM STEP 600mm.

WHERE A FOUNDATION WALL RETAINS SOIL ON EACH FACE BACKFILL ON BOTH SIDES SIMULTANEOUSLY.

PROVIDE FOOTINGS FOR PARTITIONS THICKER THAN 150mm.

REFER TO THE SOIL REPORT FOR SOIL CONDITIONS AND BEARING PRESSURES.

STRUCTURAL STEEL NOTES:

CENTRE BEARING PLATES UNDER BEAMS OR AS NOTED, BEARING PLATE DIMENSION GIVEN LAST INDICATES SIDE PARALLEL TO BEAM WEB.

STRUCTURAL STEEL SHALL BE GRADE G40.21M 350W HOLLOW STRUCTURAL SECTIONS WHICH SHALL BE G40.21M 350W CLASS C.

CONCRETE NOTES:

THE ULTIMATE 28 DAY STRENGTH OF CONCRETE SHALL BE 25MPa. REINFORCING STEEL SHALL BE DEFORMED BARS OF 400MPa YIELD STRENGTH.

MASONRY NOTES:

PROVIDE MINIMUM 200mm OF BEARING FOR STEEL OR CONCRETE BEAMS SUPPORTED ON MASONRY. REFER TO DRAWINGS FOR SIZES OF BEARING PLATES. BEARING SHALL BE OF SOLID BLOCK OR BLOCK FILLED SOLID WITH 20MPa CONCRETE 400mm DEEP AND PROJECTING 200mm EACH SIDE OF BEAM BEARING PLATE, BASE PLATE OR CONCRETE PAD. REFER ALSO TO TYPICAL DETAIL SHEET 4M.

PROVIDE 200mm DEPTH OF SOLID MASONRY UNDER STEEL JOISTS BEARING ON MASONRY.

BUILD MASONRY TIGHT INTO WEBS OF BEAMS AT THEIR BEARINGS.

PROVIDE ALL TEMPORARY BRACING REQUIRED TO HOLD ALL WALLS PLUMB AND TRUE TO LINE DURING CONSTRUCTION UNTIL THE BUILDING IS COMPLETED.

ALL LOAD BEARING MASONRY WALLS SHALL BE "ENGINEERED MASONRY" IN COMPLIANCE WITH CAN/CSA S304.1.

ALL BLOCK WALLS SHALL BE CONSTRUCTED FROM CONCRETE BLOCK UNITS IN COMPLIANCE WITH CAN3/CSA-A165 SERIES. MINIMUM COMPRESSIVE STRENGTH 15MPa UNLESS NOTED OTHERWISE ON DRAWINGS.

ALL BLOCK VOIDS WITH REINFORCING BARS SHALL BE FILLED SOLID WITH 20MPa OR COURSE GROUT.

PROVIDE MINIMUM TWO SOLID OR FILLED SOLID WITH 20MPa CONCRETE, BLOCK COURSES FOR ALL PRECAST SLABS SUPPORTED ON MASONRY.

ALL MASONRY PARTITIONS SHALL BE CONSTRUCTED ON TOP OF CONCRETE TOPPING OF PRECAST FLOORS SLABS.

PRECAST CONCRETE SLABS:

PRECAST CONCRETE SLABS SHALL BE DESIGNED IN COMPLIANCE WITH ALL APPLICABLE CODES AND SHOP DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LISCENCED IN ONTARIO.

THE PRECAST SLAB SUPPLIER SHALL REVIEW THE TENDER DOCUMENTS AND CARRY IN HIS TENDER COSTS FOR ANY ADDITIONAL MATERIAL REQUIRED TO ACCOMMODATE PRECAST BEARING BUT NOT INDICATED ON THE STRUCTURAL DRAWINGS.

GENERAL NOTES | 8

VX
VX ENGINEERING INC
STRUCTURAL ENGINEERS

VX ENGINEERING Inc.
2500 - 135Marlee Avenue
Toronto, Ontario M6B 4C6
416 670 9422 www.vxengineering.com

NOTE: THIS DRAWING IS NOT TO BE SCALED. THE CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION OF ALL SITE DIMENSIONS AND FOR NOTIFYING THE ARCHITECT OF ANY SITE CONDITIONS AND SITE MEASUREMENTS THAT ARE NOT CONSISTENT WITH THE DRAWINGS.

no.	revision	date

LICENSED PROFESSIONAL ENGINEER
June 18, 2024
V.XOXA
100062276
PROVINCE OF ONTARIO

no.	issue	date
1	Issued for Costing	June 05, 2024
2	Issued for Permit and Tender	June 18, 2024

PROJECT NORTH
GEODETIC NORTH

project
RENOVATION TO CLARINGTON FIRE & EMERGENCY SERVICES STATION 1
The Corporation of the Municipality of Clarington

2430 Durham Regional Hwy 2, Bowmanville, ON L1C 6C8

drawing
TYPICAL DETAILS AND GENERAL NOTES
drawing scale
NTS

ward99 project number
24008 - DURHAM FIRE STATION
VX Engineering project number
2413 - DURHAM FIRE STATION

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drawing no.
S-5