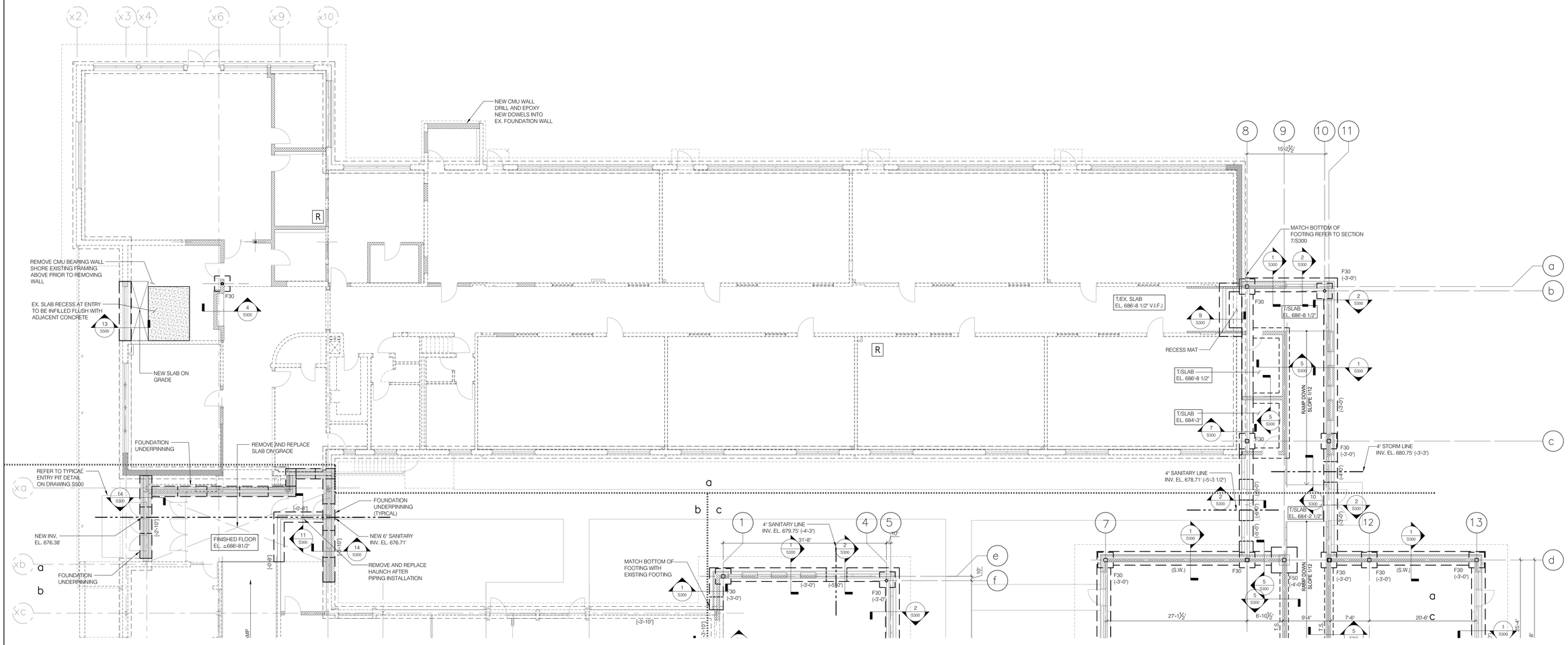


north

FLOOR AND FOUNDATION PLAN AREA A

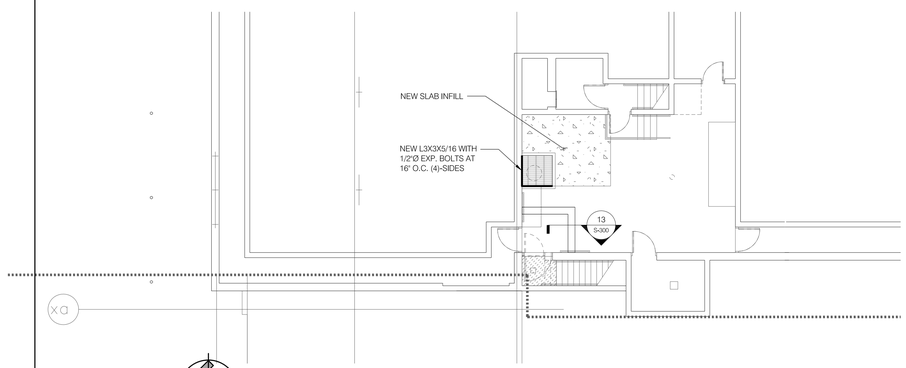
1 / S101

SCALE: 1/8" = 1'-0"

NOTES:

1. TOP OF CONCRETE SLAB ELEVATION= SHOWN ON PLAN
2. FLOOR CONSTRUCTION: 5" CONCRETE SLAB, REINFORCED WITH 6X6-W2.9XW2.9 W.W.F. (CHAIRED), OVER A 15 MIL. VAPOR RETARDER REFER TO GEOTECHNICAL REPORT FOR SUBGRADE PREPARATION.
3. "S.J." INDICATES SAWCUT CONTROL JOINT, REFER TO TYPICAL DETAILS.
4. (-X'-XX") INDICATES TOP OF FOOTING ELEVATION. GIVEN FROM DATUM 684'-0" ALL FOOTINGS EXPOSED TO FROST SHALL BE PLACED WITH BOTTOM OF FOOTING ELEVATION A MINIMUM OF 3'-6" BELOW FINISHED GRADE.

   [-X'-XX"] INDICATES APPROXIMATE TOP OF EXISTING FOOTING ELEVATION FROM DATUM 684'-0" . ALL EXISTING ELEVATIONS TO BE FIELD VERIFIED
5. "T.S." INDICATES THICKED SLAB DETAIL, REFER TO "TYPICAL THICKENED SLAB DETAIL" ON TYPICAL DETAILS SHEET ON DRAWING S500
6. R INDICATES RADON REMOVAL PIT. COORDINATE WITH PLUMBING DRAWINGS.



north

BASEMENT AND TUNNEL PLAN

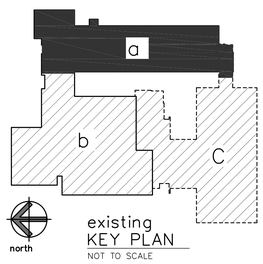
2 / S101

SCALE: 1/8" = 1'-0"

NOTES:

1.

FOOTING SCHEDULE 2 TONS/SF			
TYPE	FOOTING SIZE		BOTTOM REINFORCING (3" CLR FROM BOTTOM)
	LENGTH X WIDTH	DEPTH	
F3026	3'-0" x 2'-6"	1'-3"	(4)-#5 EACH WAY
F30	3'-0" x 3'-0"	1'-3"	(4)-#5 EACH WAY
F40	4'-0" x 4'-0"	1'-3"	(5)-#5 EACH WAY
F50	5'-0" x 5'-0"	1'-3"	(4)-#6 EACH WAY
F50T	5'-0" x 5'-0"	1'-6"	(4)-#5 TOP & (9)-#5 BOTTOM
F60	6'-0" x 6'-0"	1'-6"	(8)-#5 EACH WAY
F70	7'-0" x 7'-0"	1'-6"	(7)-#6 EACH WAY



Project Title:

Expansion and Renovate as New Project - PHASE 1 of 3

Crystal Lake Elementary School

284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers

3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-8600 mha-eng.com

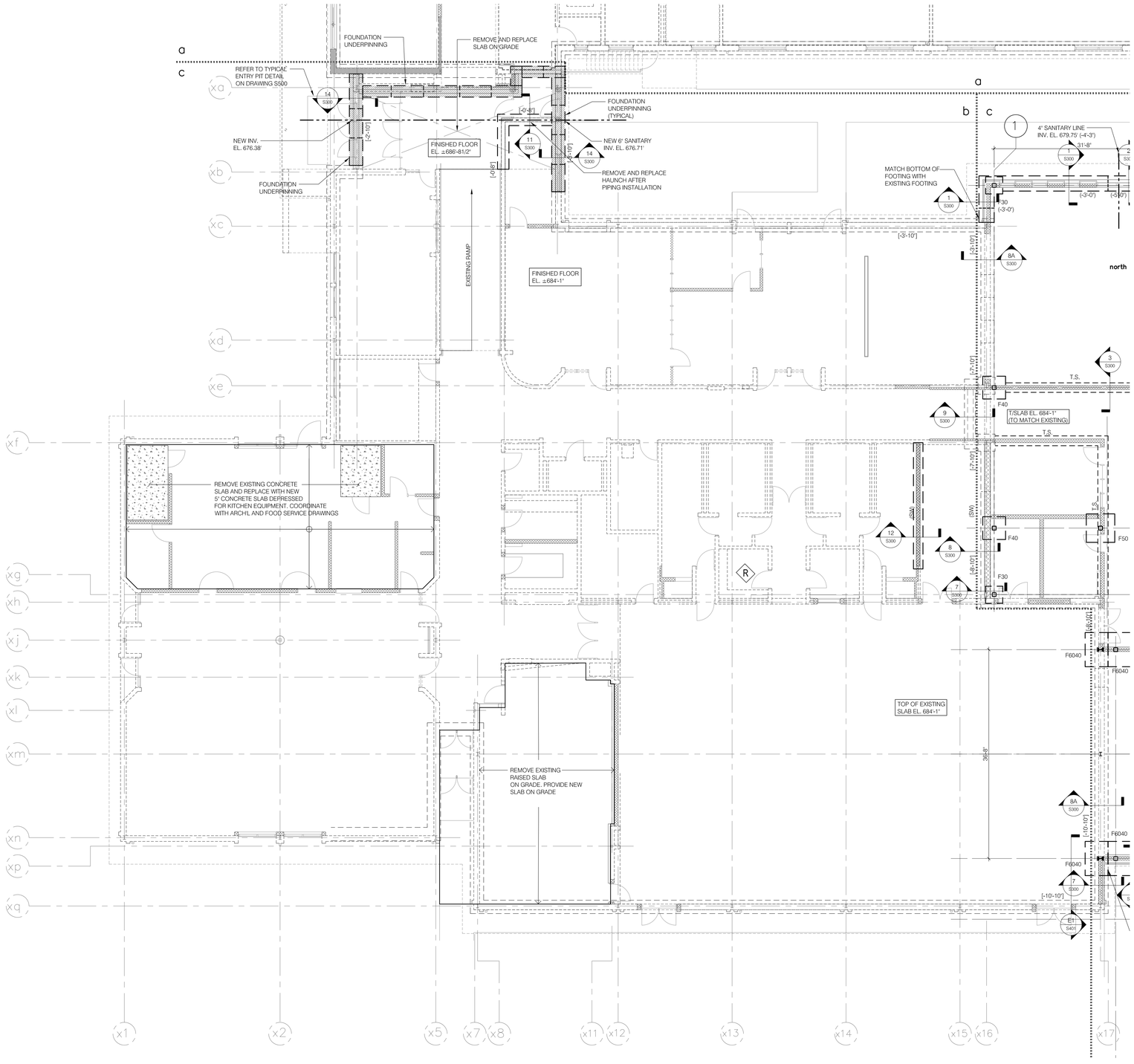
Drawing Title:

Floor & Foundation Plan Area A

State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140

Drawing Number: S101



FLOOR AND FOUNDATION PLAN AREA B

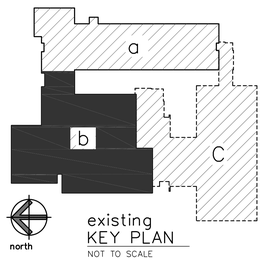
SCALE: 1/8" = 1'-0"

1 / S102

NOTES:

1. TOP OF CONCRETE SLAB ELEVATION= REFER TO PLAN
2. FLOOR CONSTRUCTION: 5" CONCRETE SLAB. REINFORCED WITH 6X6-W2.9XW2.9 W.W.F. (CHAIRED), OVER A 15 MIL. VAPOR RETARDER REFER TO GEOTECHNICAL REPORT FOR SUBGRADE PREPARATION.
3. "S.J." INDICATES SAWCUT CONTROL JOINT, REFER TO TYPICAL DETAILS.
4. (-X'-XX") INDICATES TOP OF FOOTING ELEVATION, GIVEN FROM DATUM 684'-0" ALL FOOTINGS EXPOSED TO FROST SHALL BE PLACED WITH BOTTOM OF FOOTING ELEVATION A MINIMUM OF 3'-6" BELOW FINISHED GRADE.

   [-X'-XX"] INDICATES APPROXIMATE TOP OF EXISTING FOOTING ELEVATION FROM DATUM 684'-0" . ALL EXISTING ELEVATIONS TO BE FIELD VERIFIED
5. "T.S." INDICATES THICKED SLAB DETAIL, REFER TO "TYPICAL THICKENED SLAB DETAIL" ON TYPICAL DETAIL SHEET DRAWING S500
6. R INDICATES RADON REMOVAL PIT. COORDINATE WITH PLUMBING DRAWINGS.



Project Title:
Expansion and Renovate as New Project - PHASE 1 of 3
Crystal Lake Elementary School
284 Sandy Beach Road
Ellington, Connecticut 06029

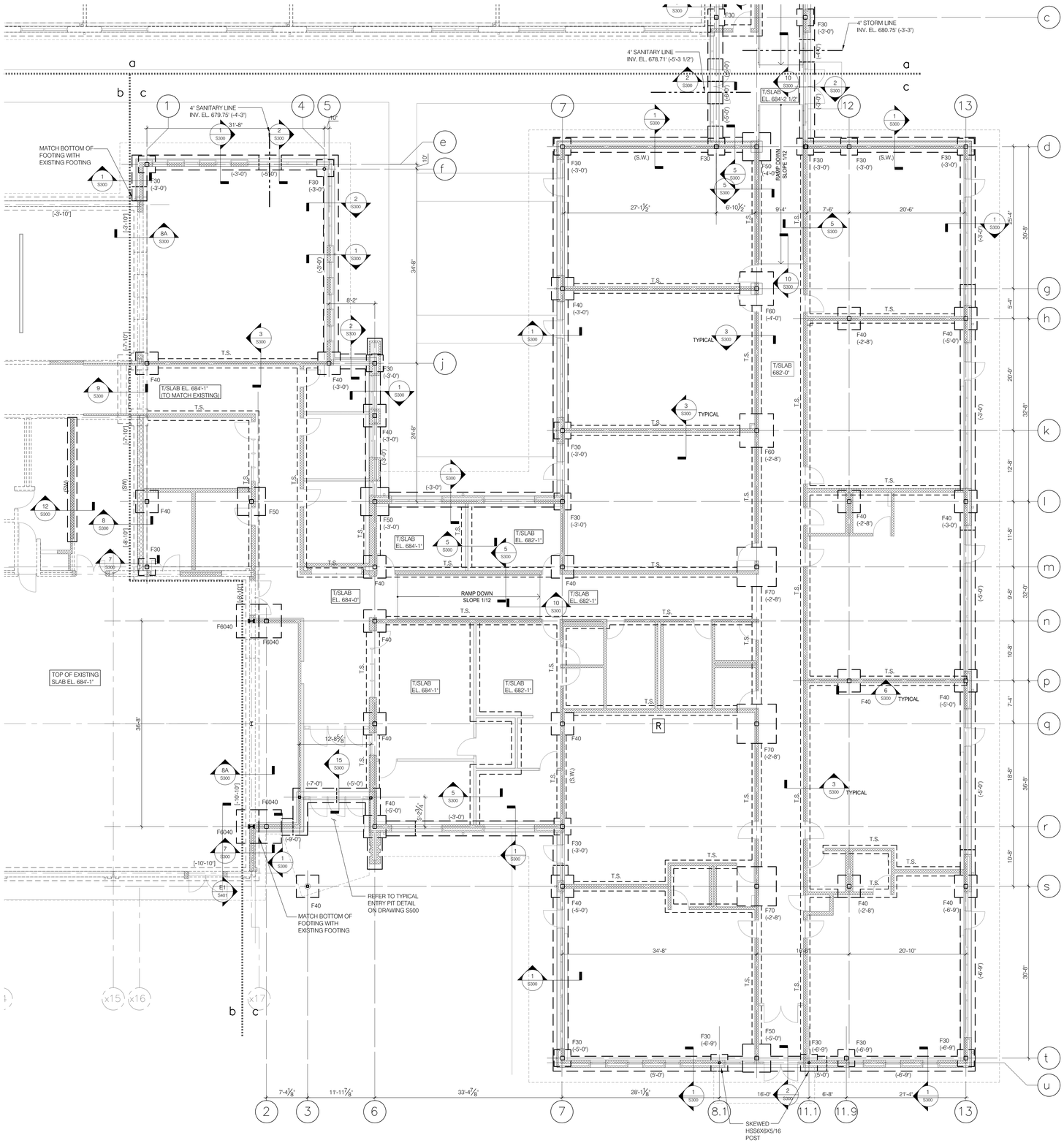
SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-6800 mhai-eng.com

Drawing Title:
Floor & Foundation Plan Area B
State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140
Drawing Number: S102



north

FLOOR AND FOUNDATION PLAN AREA C

1 / S103

SCALE: 1/8" = 1'-0"

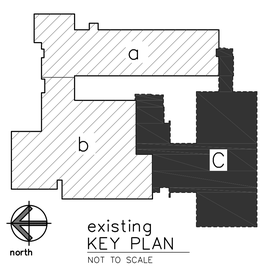
NOTES:

1. TOP OF CONCRETE SLAB ELEVATION= REFER TO PLAN
2. FLOOR CONSTRUCTION: 5" CONCRETE SLAB, REINFORCED WITH 6X6-W2.9XW2.9 W.W.F. (CHAIRED), OVER A 15 MIL. VAPOR RETARDER REFER TO GEOTECHNICAL REPORT FOR SUBGRADE PREPARATION.
3. "S.J." INDICATES SAWCUT CONTROL JOINT. REFER TO TYPICAL DETAILS.
4. (-X'-XX") INDICATES TOP OF FOOTING ELEVATION. GIVEN FROM DATUM 684'-0" ALL FOOTINGS EXPOSED TO FROST SHALL BE PLACED WITH BOTTOM OF FOOTING ELEVATION A MINIMUM OF 3'-6" BELOW FINISHED GRADE.

   [-X'-XX"] INDICATES APPROXIMATE TOP OF EXISTING FOOTING ELEVATION FROM DATUM 684'-0" . ALL EXISTING ELEVATIONS TO BE FIELD VERIFIED
5. "T.S." INDICATES THICKED SLAB DETAIL. REFER TO "TYPICAL THICKENED SLAB DETAIL" ON TYPICAL DETAILS SHEET ON DRAWING S300
6. R INDICATES RADON REMOVAL PIT. COORDINATE WITH PLUMBING DRAWINGS

FOOTING SCHEDULE 2 TONS/SF

TYPE	FOOTING SIZE		BOTTOM REINFORCING (3" CLR FROM BOTTOM)
	LENGTH X WIDTH	DEPTH	
F3026	3'-0" x 2'-6"	1'-3"	(4)-#5 EACH WAY
F30	3'-0" x 3'-0"	1'-3"	(4)-#5 EACH WAY
F40	4'-0" x 4'-0"	1'-3"	(5)-#5 EACH WAY
F50	5'-0" x 5'-0"	1'-3"	(4)-#6 EACH WAY
F50T	5'-0" x 5'-0"	1'-6"	(4)-#5 TOP & (9)-#5 BOTTOM
F60	6'-0" x 6'-0"	1'-6"	(8)-#5 EACH WAY
F70	7'-0" x 7'-0"	1'-6"	(7)-#6 EACH WAY



Project Title:
Expansion and Renovate as New Project - PHASE 1 of 3
Crystal Lake Elementary School
284 Sandy Beach Road
Ellington, Connecticut 06029

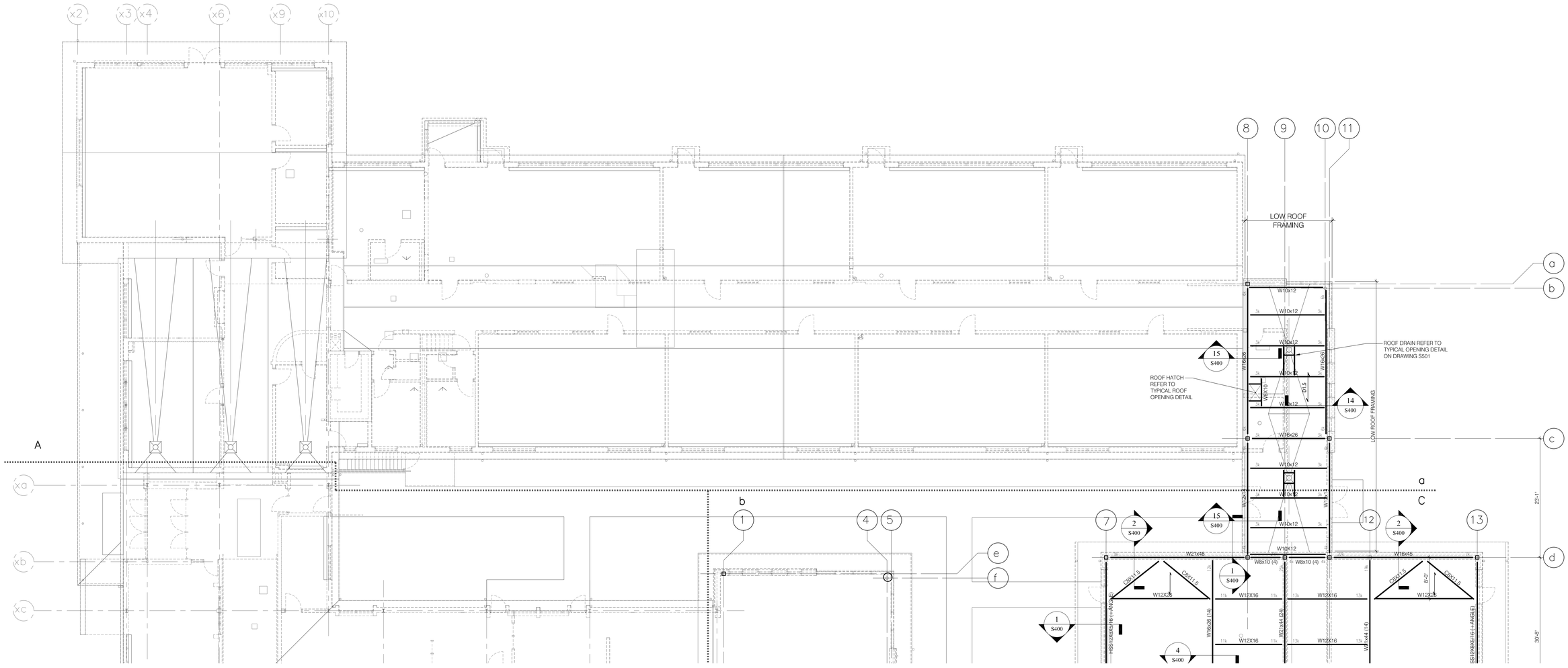
SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-8600 mha-eng.com

Drawing Title:
Floor & Foundation Plan Area C
State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140
Drawing Number: S103



north

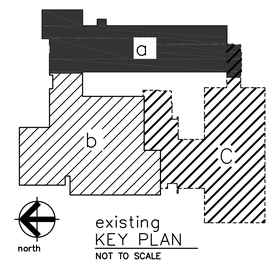
LOW ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

1 / S121

NOTES:

1. UNDER SIDE OF DECK ELEVATIONS SHOWN (+X'-X") FROM FINISHED MAIN LEVEL FLOOR ELEVATION. (+684-1")
2. D1.5 INDICATES 1 1/2"-20ga GALVANIZED TYPE B ROOF DECK- REFER TO GENERAL NOTES FOR FASTENEING REQUIREMENTS.
3. REFER TYPICAL ROOF OPENING DETAIL ON DRAWING S501 FOR ROOF OPENINGS. COORDINATE DIMENSIONS AND LOCATIONS WITH MECHANICAL.



Project Title:

Expansion and Renovate as New Project - PHASE 1 of 3

Crystal Lake Elementary School

284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers

3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-6800 mha-eng.com

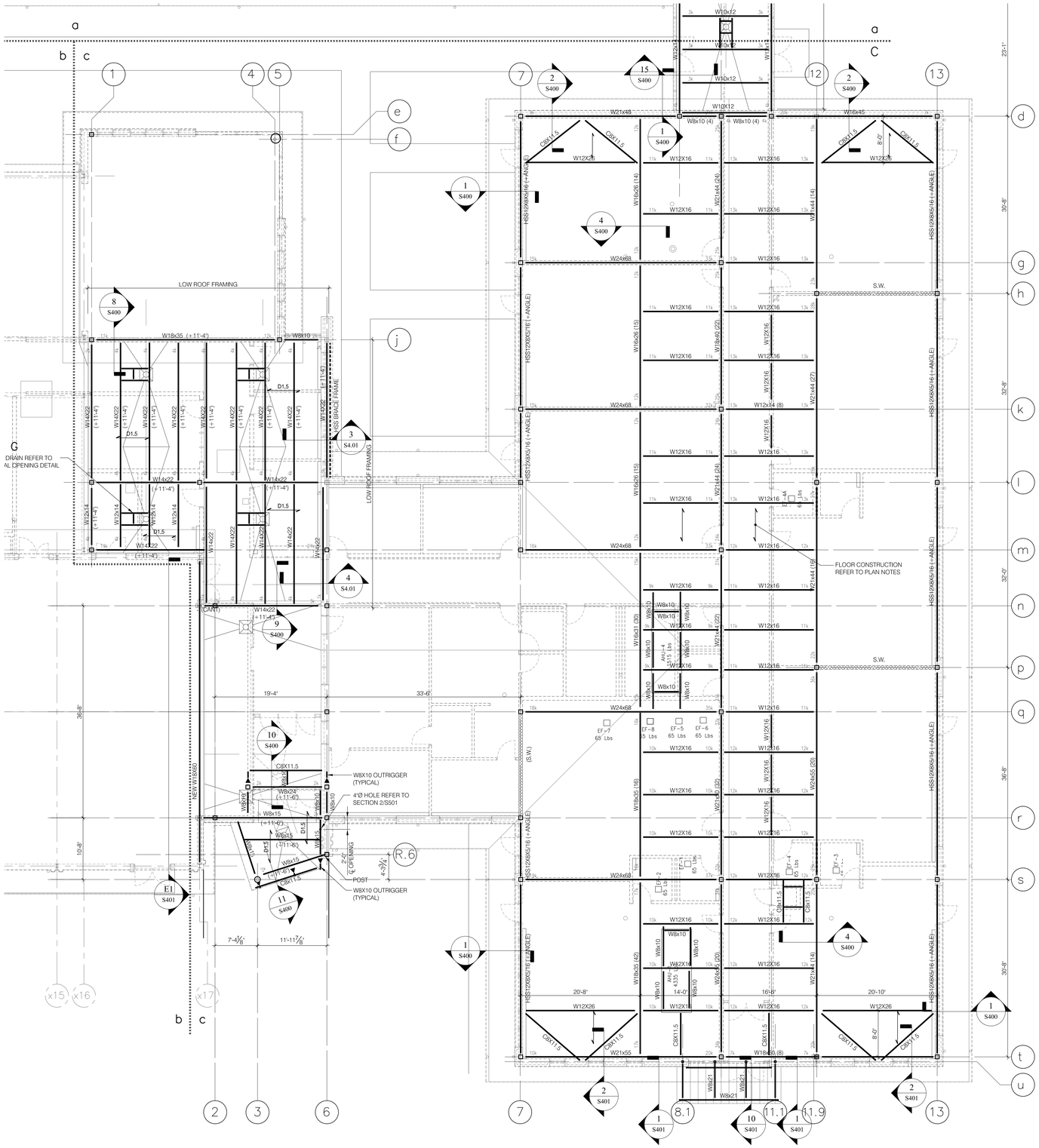
Drawing Title:

Low Roof Framing Plan - Area A

State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140

Drawing Number: S121



north

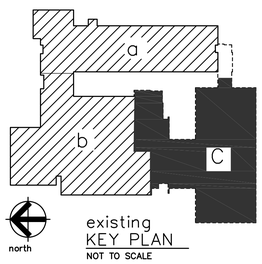
ATTIC FLOOR & LOW ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

1 / S123

NOTES:

1. FLOOR CONSTRUCTION: 3 1/2" NORMAL WEIGHT CONCRETE ON 2"-20ga LOK GALV. COMPOSITE FLOOR DECK (5 1/2" TOTAL THICKNESS) REINFORCED WITH 6x6-W2.9xW2.9WELDED WIRE FABRIC (CHAIRED).
2. TOP OF CONCRETE SLAB ELEVATION =(+12'-2") FROM ELEVATION (684'-0")
3. UNDER SIDE OF DECK ELEVATIONS SHOWN (+X'-X") FROM FINISHED MAIN LEVEL FLOOR ELEVATION. (684'-0")
4. D1.5 INDICATES 1 1/2"-20ga GALVANIZED TYPE B ROOF DECK- REFER TO GENERAL NOTES FOR FASTENEING REQUIREMENTS.
5. REFER TYPICAL ROOF OPENING DETAIL ON DRAWING S501 FOR ROOF OPENINGS. COORDINATE DIMENSIONS AND LOCATIONS WITH MECHANICAL.



Project Title:

Expansion and Renovate as New Project - PHASE 1 of 3

Crystal Lake Elementary School

284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers

3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-6800 mhai-eng.com

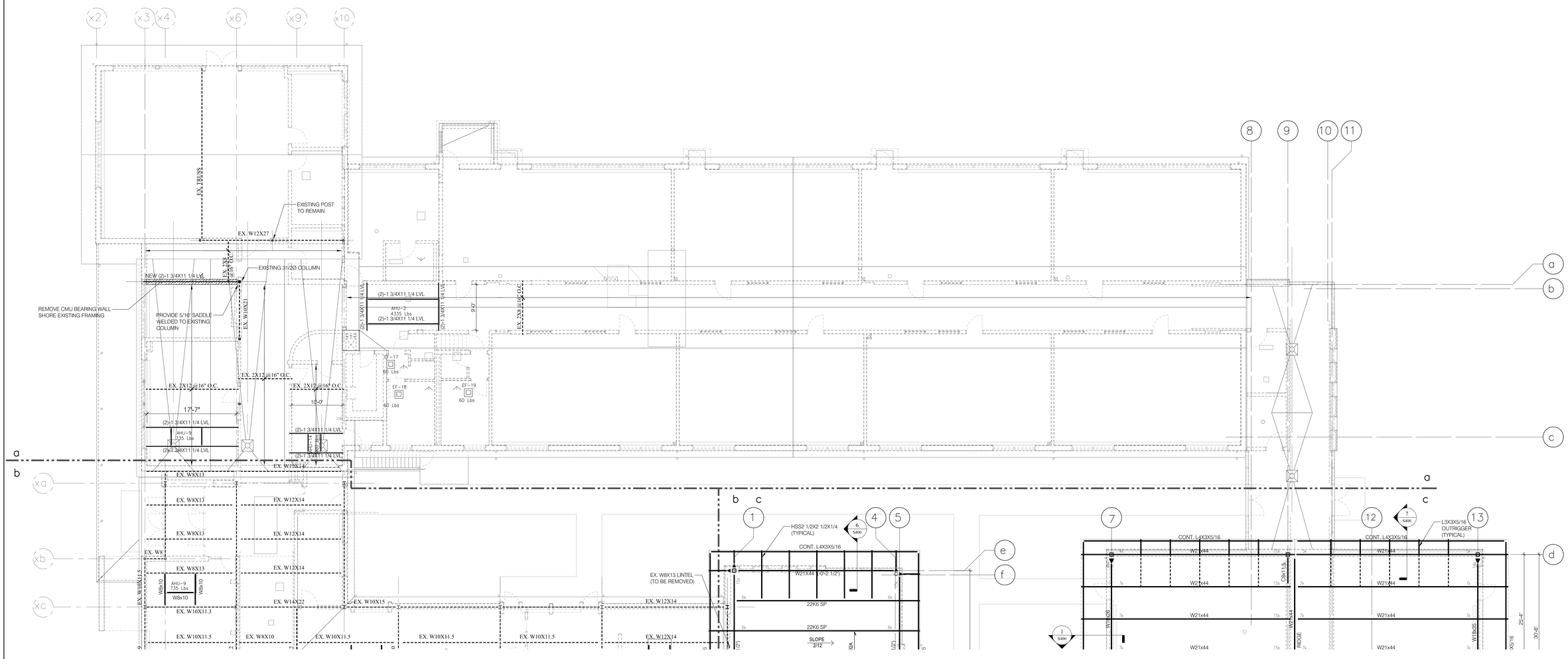
Drawing Title:

Attic Floor & Low Roof Plan Area C

State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140

Drawing Number: S123



north

ROOF FRAMING PLAN AREA A

SCALE: 1/8" = 1'-0"

1 / S131

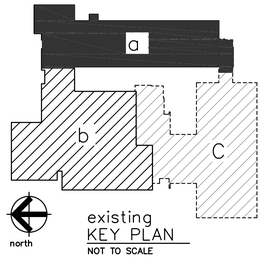
NOTES:

1. UNDER SIDE OF DECK ELEVATIONS SHOWN (+X-X') FROM FINISHED FLOOR ELEVATION (684'-0")
2. D1.5 INDICATES 1 1/2"-20ga GALVANIZED TYPE B ROOF DECK- REFER TO GENERAL NOTES FOR FASTENEING REQUIREMENTS.
3. REFER TYPICAL ROOF OPENING DETAIL ON DRAWING S501 FOR ROOF OPENINGS. COORDINATE DIMENSIONS AND LOCATIONS WITH MECHANICAL.

TYPICAL MASONRY AND LOOSE LINTEL SCHEDULE

CMU	OPENING WIDTH	LINTEL
8" BLOCK	UP TO 4'-0"	(2)-#5 CONT.
8" BLOCK	4'-4" TO 10'-0"	(2)-#6 CONT. TOP & BOTTOM
6" BLOCK	UP TO 6'-0"	(1)-#5 CONT.
INTERIOR 4" MASONRY	UP TO 6'-0"	L5X3 1/2X5/16 (4" MIN. BEARING)
INTERIOR 4" MASONRY	6'-0"-10'-0"	L7X4X3/8 (4" MIN. BEARING)

NOTE:
1. PROVIDE LINTELS WHERE NEEDED AND NOT SHOWN ON THE DRAWINGS.
2. ALL EXTERIOR STEEL SHALL BE HOT DIPPED GALVANIZED
3. COORDINATE ALL OPENINGS WITH ARCHT & MECH DRAWINGS.
4. CONTRACTOR IS RESPONSIBLE FOR ANY SHORING REQUIRED TO INSTALL LINTELS.



Project Title:

Expansion and Renovate as New Project - PHASE 1 of 3

Crystal Lake Elementary School

284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers

3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	*Description:*	*Date:*	*Revised By:*
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

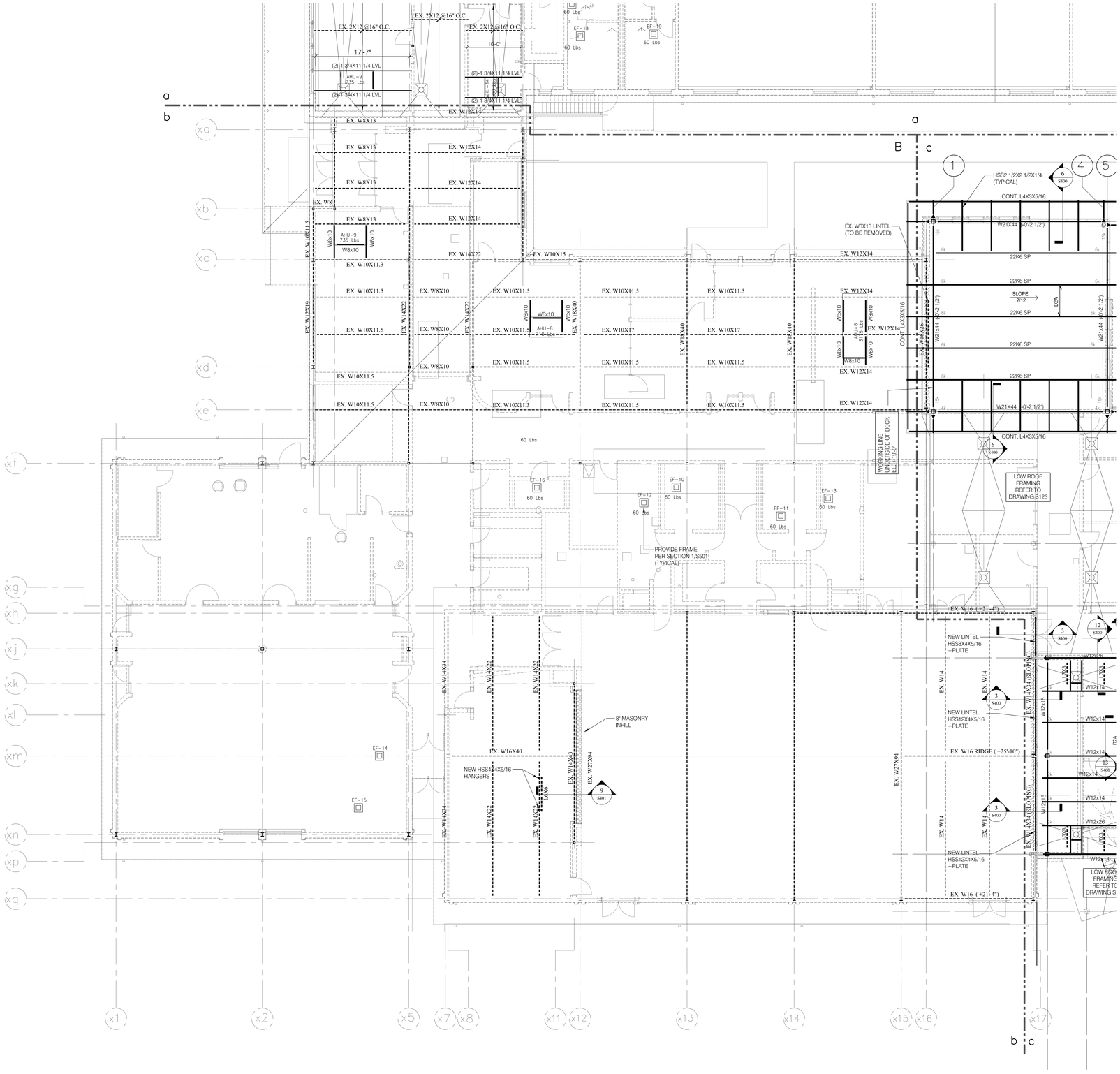
MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-6800 mhai-eng.com

Drawing Title:

Roof Framing Plan
Area A

State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140
Drawing Number: S131



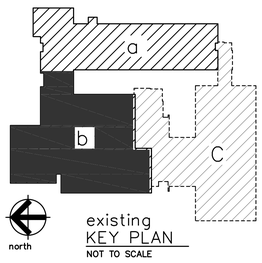
ROOF FRAMING PLAN AREA B

SCALE: 1/8" = 1'-0"

1 / S132

NOTES:

1. UNDER SIDE OF DECK ELEVATIONS SHOWN (+X-X') FROM FINISHED MAIN LEVEL FLOOR ELEVATION (684-0')
2. D1.5 INDICATES 1 1/2"-20ga GALVANIZED TYPE B ROOF DECK- REFER TO GENERAL NOTES FOR FASTENEING REQUIREMENTS.
3. REFER TYPICAL ROOF OPENING DETAIL ON DRAWING S501 FOR ROOF OPENINGS. COORDINATE DIMENSIONS AND LOCATIONS WITH MECHANICAL.



Project Title:

Expansion and Renovate as New Project - PHASE 1

Crystal Lake Elementary School

284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers

3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-6800 mha-eng.com

Drawing Title:

Roof Framing Plan
Area B

State Project Number: 048-0058 EA/RR/PS

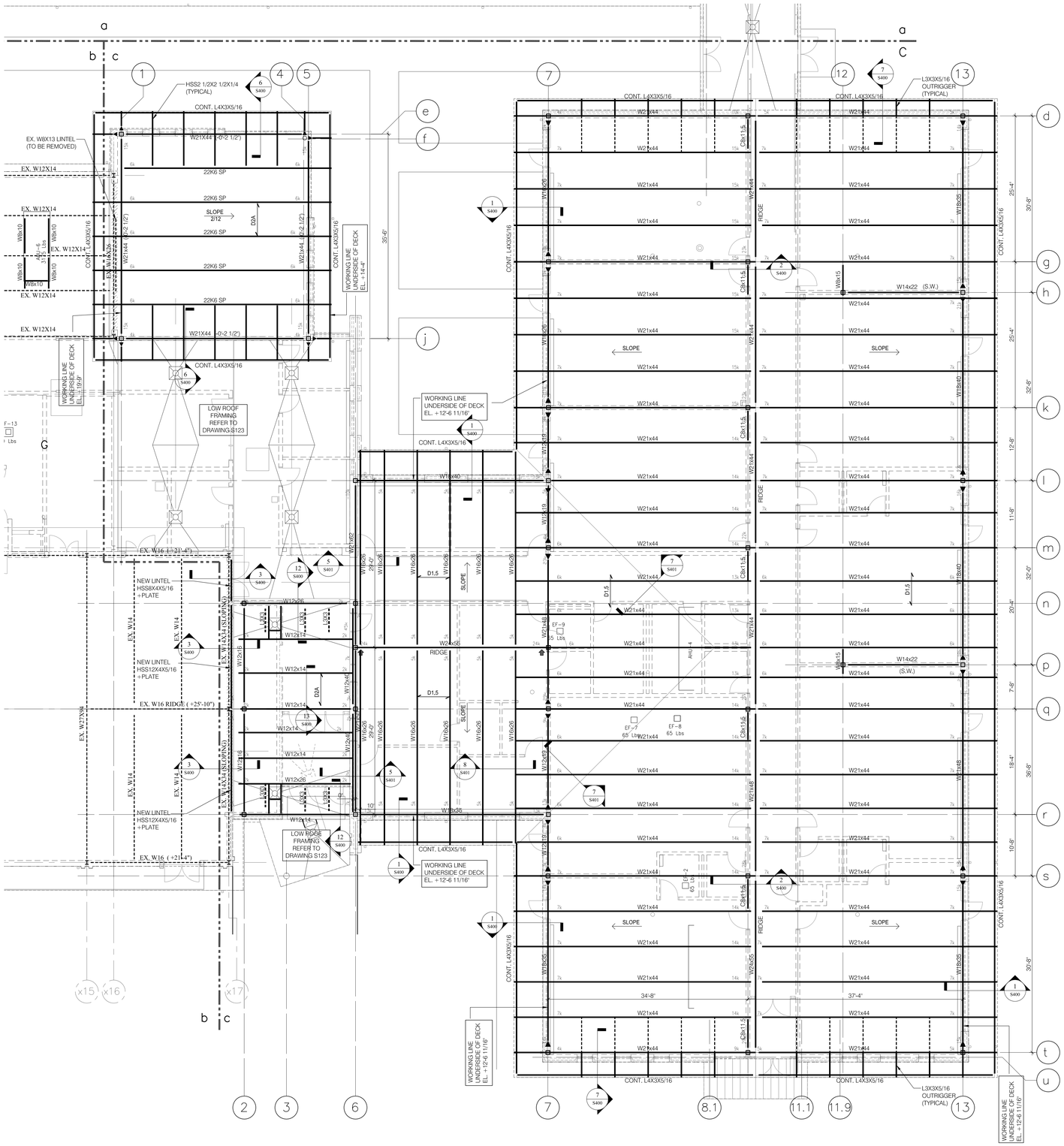
Date: april 23, 2013

Scale: AS NOTED

Drawn By: AC

Project Number: 12.140

Drawing Number: S132



north

ROOF FRAMING PLAN AREA C

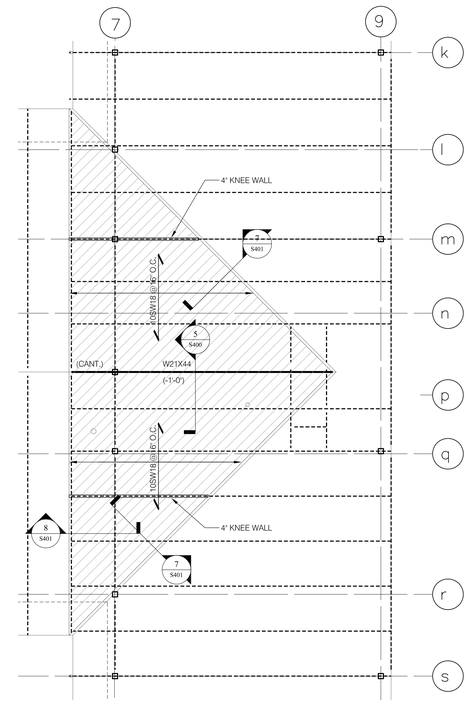
1 / S133

SCALE: 1/8" = 1'-0"

NOTES:

1. UNDER SIDE OF DECK ELEVATIONS SHOWN (+X'-X") FROM FINISHED MAIN LEVEL FLOOR ELEVATION (684'-0")
2. D1.5 INDICATES 1 1/2"-20ga GALVANIZED TYPE B ROOF DECK- REFER TO GENERAL NOTES FOR FASTENEING REQUIREMENTS.

   D2A INDICATES 2"-20 GA. GALVANIZED EPICORE ER2RA ACOUSTICAL ROOF DECK CEILING SYSTEMS REFER TO GENERAL NOTES FOR FASTENINGS REQUIREMENTS.
3. REFER TYPICAL ROOF OPENING DETAIL ON DRAWING S501 FOR ROOF OPENINGS. COORDINATE DIMENSIONS AND LOCATIONS WITH MECHANICAL.
4. INDICATES MOMENT CONNECTION. REFER TO TYPICAL DETAILS.



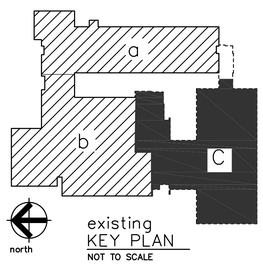
OVERBUILD ROOF FRAMING PLAN AREA C

2 / S133

SCALE: 1/8" = 1'-0"

NOTES:

1. OVERBUILD ROOF DECK 1 1/2"-22 GA GALVANIZED TYPE B ROOF DECK FASTENED WITH #10 SCREWS AT 12" O.C.



existing KEY PLAN
NOT TO SCALE

Project Title:

Expansion and Renovate as New Project - PHASE 1 of 3

Crystal Lake Elementary School

284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers

3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-8600 mha-eng.com

Drawing Title:

Roof Framing Plan
Area C

State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140
Drawing Number: S133

COLUMN SCHEDULE

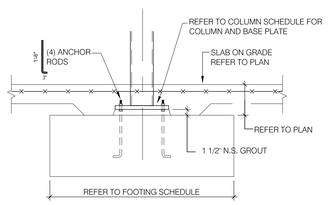
MARK	X6	1				X17			2		3	4	5	6					
LEVEL	B	E	J	M	L	L	N	R	N	R	S	F	J	J		L	M	N	Q
HIGH ROOF EL. VARIES																			
ATTIC FLOOR																			
EL. 684'-0"	HSS5x5x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS6x6x5/16	W12X50	W12X50	HSS8x8x5/16	HSS8x8x5/16	HSS3X3X5/16	HSS8 6250x0.322	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16
FIRST FLOOR EL. 682'-0"	6½"															6½"			
BASE PLATE DETAIL	BP-1	BP-2	BP-2	BP-2	BP-2	BP-2	BP-3	BP-3	BP-2	BP-2	BP-1	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2
PIER DETAIL	—	P2	P3	P3	P3	—	—	—	P3	P3	P1	P2	P6	P5	P4	P6	—	—	—

MARK	6					7								8			8.1
LEVEL	R	D	G	K	L	M	Q	R	S	T	A	C	D	U
HIGH ROOF EL. VARIES														
ATTIC FLOOR														
EL. 684'-0"	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16
FIRST FLOOR EL. 682'-0"				2-6½"							1'-3½"			
BASE PLATE DETAIL	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2
PIER DETAIL	P5	P5	P4	P4	P6	—	—	P6	P4	P5	P3	P3	P6	P4

MARK	9							10	11		11.1	11.9	12					13					
LEVEL	D	G	K	M	Q	S	T	B	C	D	U	T	D	H	L	P	S	D	H	L	P	S	T
HIGH ROOF EL. VARIES																							
ATTIC FLOOR																							
EL. 684'-0"	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS6x6x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16	HSS8x8x5/16
FIRST FLOOR EL. 682'-0"								1'-3½"	3½"	2-6½"													
BASE PLATE DETAIL	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-1	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2	BP-2
PIER DETAIL	P6	—	—	—	—	—	P4	P2	P4	P6	P4	P4	P4	—	—	—	—	P5	P4	P4	P4	P4	P5

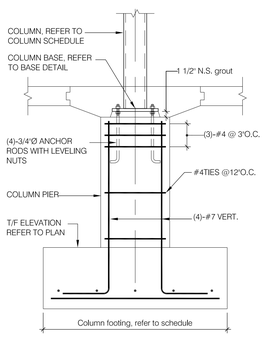
COLUMN SCHEDULE NOTES:

1. BOLD LINE AT BOTTOM OF COLUMN INDICATES BOTTOM OF STEEL BASE PLATE. ADD 1 1/2" FOR GROUT AND LEVELING NUTS FOR TOP OF CONCRETE ELEVATION.
2. IF NO PIER DETAIL IS GIVEN, COLUMN SITS DIRECTLY ON FOOTING OR STEEL BEAM.
3. BOLD LINE AT TOP OF COLUMN INDICATES APPROXIMATE TOP OF COLUMN ELEVATION. FOR ACTUAL ELEVATION SEE PLANS AND SECTIONS.
4. PROVIDE 1/4" CAP PLATE (MIN.) AT ALL HSS COLUMNS UNLESS OTHERWISE NOTED.

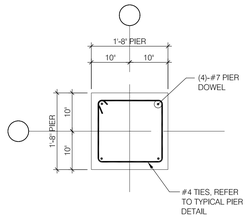


TYPICAL INTERIOR COLUMN BASE

Scale: 3/4"=1'-0"

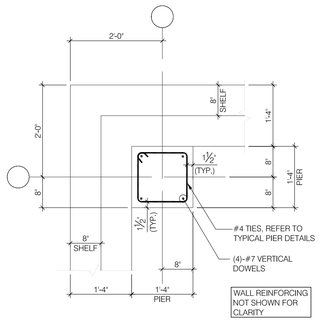


TYPICAL COLUMN PIER DETAIL



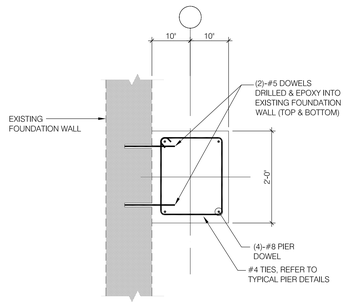
PIER DETAIL (P1)

Scale: 3/4"=1'-0"



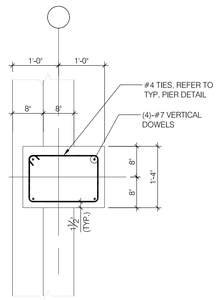
PIER DETAIL (P2)

Scale: 3/4"=1'-0"



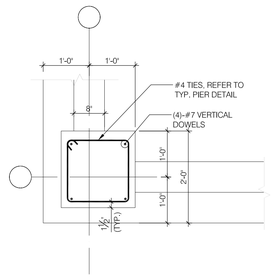
PIER DETAIL (P3)

Scale: 3/4"=1'-0"



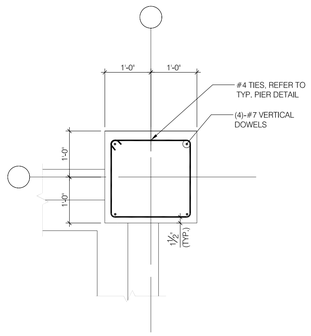
PIER DETAIL (P4)

Scale: 3/4"=1'-0"



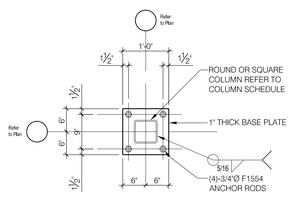
PIER DETAIL (P5)

Scale: 3/4"=1'-0"



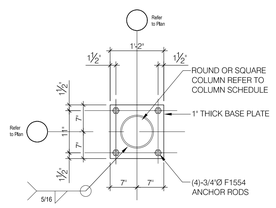
PIER DETAIL (P6)

Scale: 3/4"=1'-0"



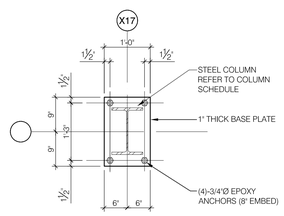
BASE PLATE DETAIL (BP1)

Scale: 3/4"=1'-0"



BASE PLATE DETAIL (BP2)

Scale: 3/4"=1'-0"



BASE PLATE DETAIL (BP3)

Scale: 3/4"=1'-0"

Project Title:
Expansion and Renovate as New Project - PHASE 1 of 3
Crystal Lake Elementary School
284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

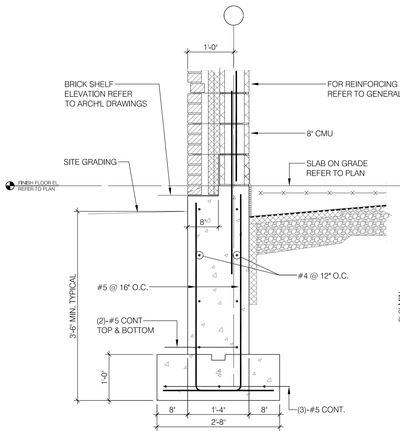
MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-6800 mhai-eng.com

Drawing Title: Column Schedule

State Project Number: 048-0058 EA/RR/PS

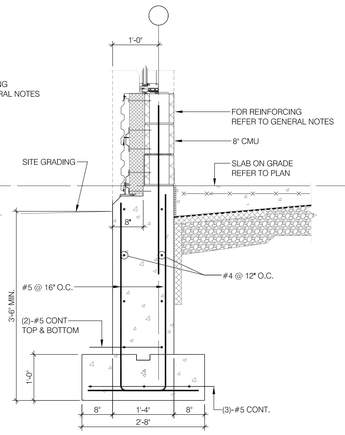
Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140

Drawing Number: S200



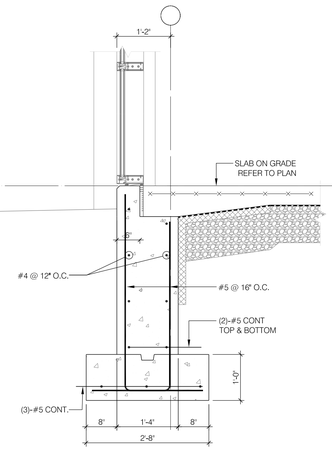
AT MASONRY VENEER

SECTION 1
Scale: 3/4"=1'-0"

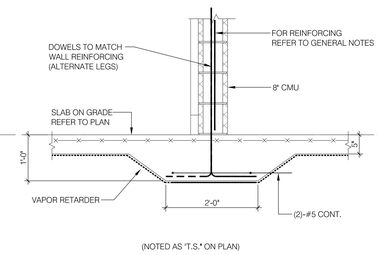


AT METAL PANEL

SECTION 2
Scale: 3/4"=1'-0"

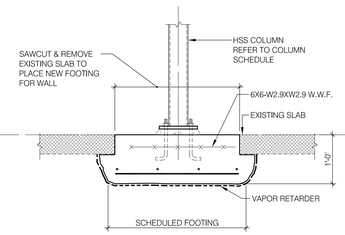


SECTION 3
Scale: 3/4"=1'-0"

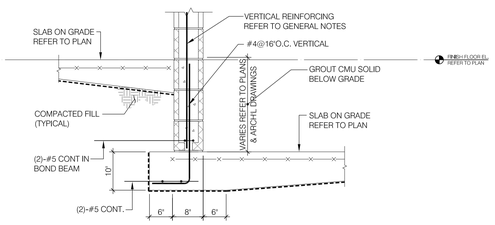


(NOTED AS "T.S." ON PLAN)

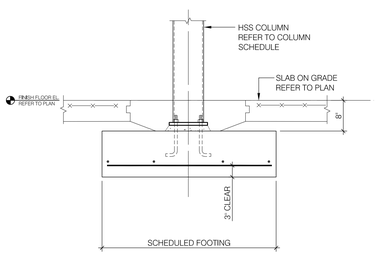
SECTION 4
Scale: 3/4"=1'-0"



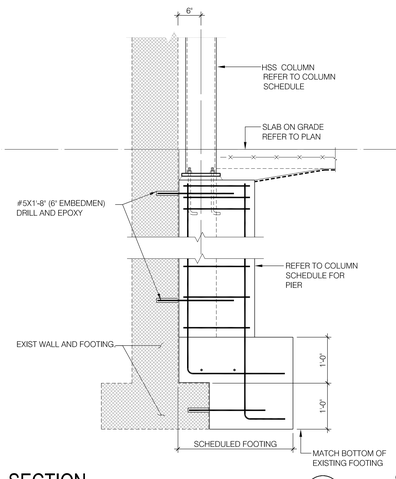
SECTION 5
Scale: 3/4"=1'-0"



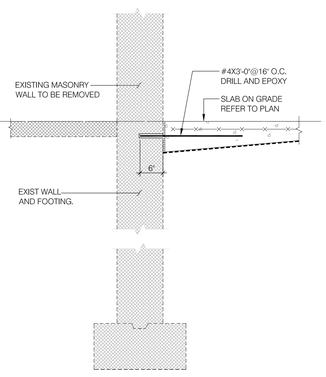
SECTION 6
Scale: 3/4"=1'-0"



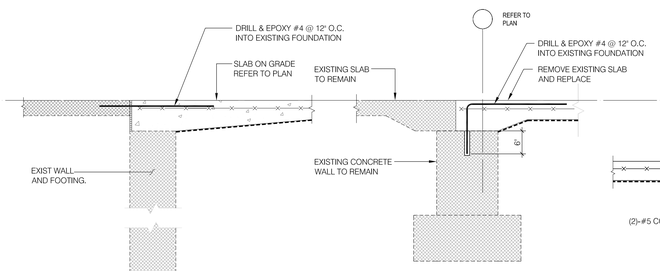
SECTION 7
Scale: 3/4"=1'-0"



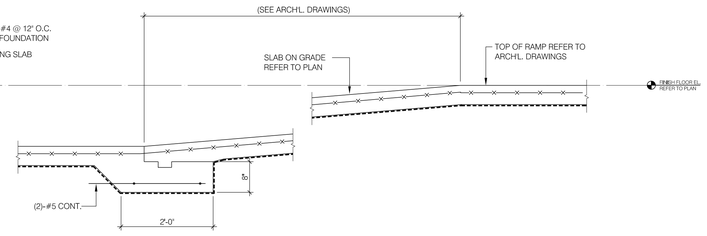
SECTION 8
Scale: 3/4"=1'-0"



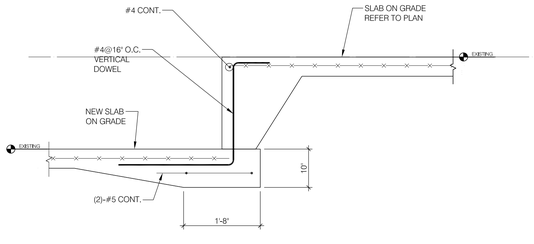
SECTION 9
Scale: 3/4"=1'-0"



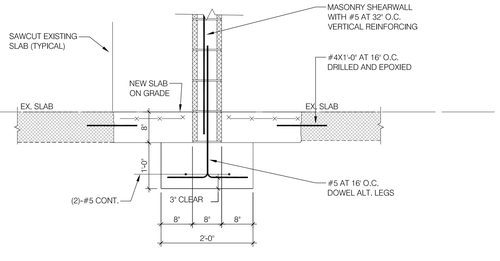
SECTION 10
Scale: 3/4"=1'-0"



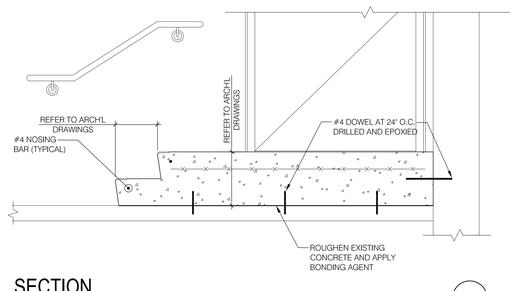
SECTION 11
Scale: 3/4"=1'-0"



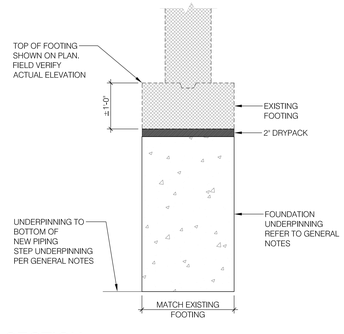
SECTION 12
Scale: 3/4"=1'-0"



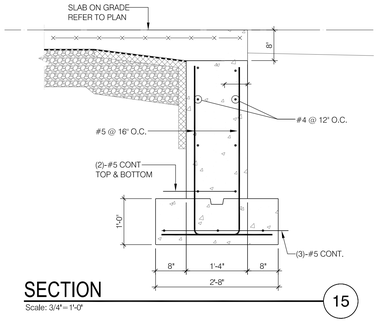
SECTION 13
Scale: 3/4"=1'-0"



SECTION 14
Scale: 3/4"=1'-0"



SECTION 15
Scale: 3/4"=1'-0"



Project Title:
Expansion and Renovate as New Project - PHASE 1 of 3
Crystal Lake Elementary School
284 Sandy Beach Road
Ellington, Connecticut 06029

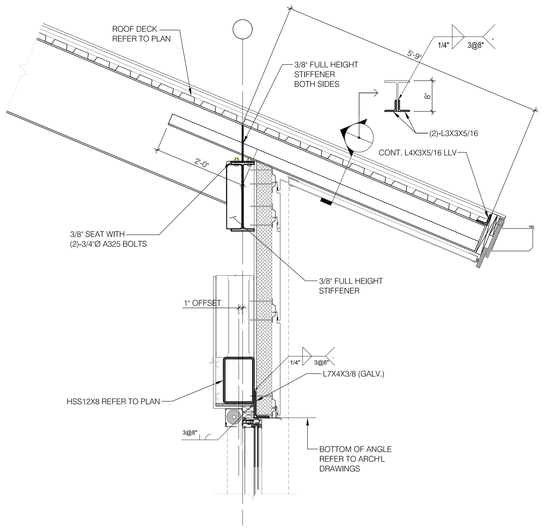
SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-8600 mha-eng.com

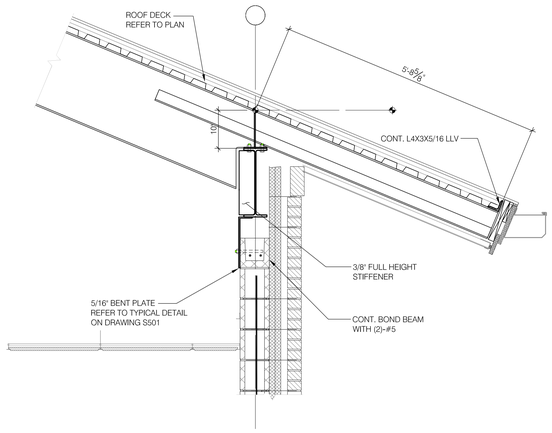
Drawing Title:
Floor & Foundation Sections
State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140
Drawing Number: S300



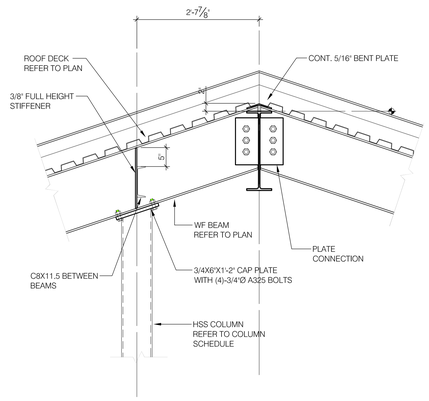
AT METAL PANEL

SECTION 1
Scale: 3/4"=1'-0"

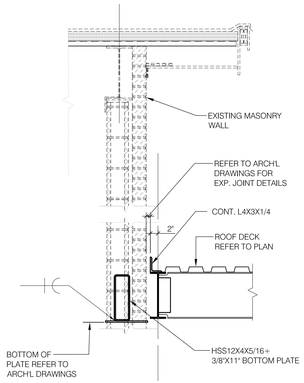


AT MASONRY VENEER

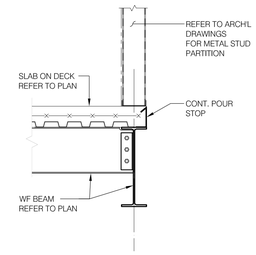
SECTION 2
Scale: 3/4"=1'-0"



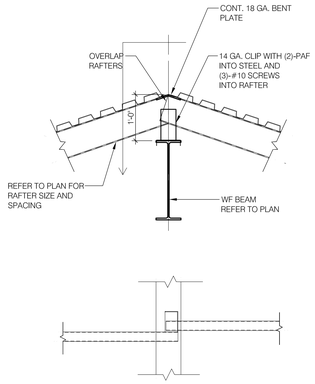
SECTION 3
Scale: 3/4"=1'-0"



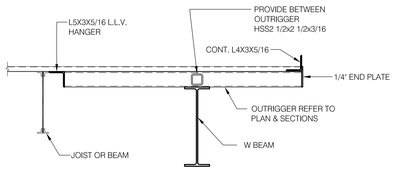
SECTION 4
Scale: 3/4"=1'-0"



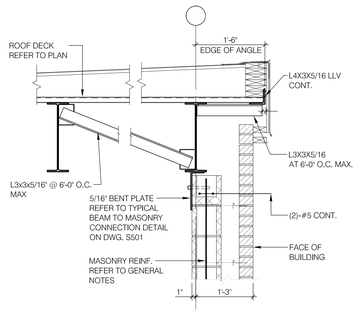
SECTION 5
Scale: 3/4"=1'-0"



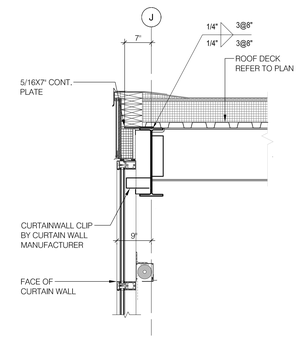
SECTION 6
Scale: 3/4"=1'-0"



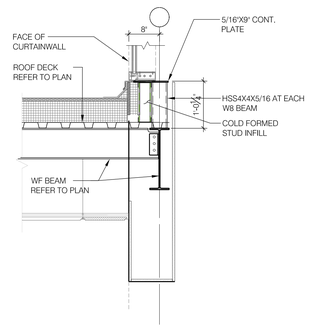
SECTION 7
Scale: 3/4"=1'-0"



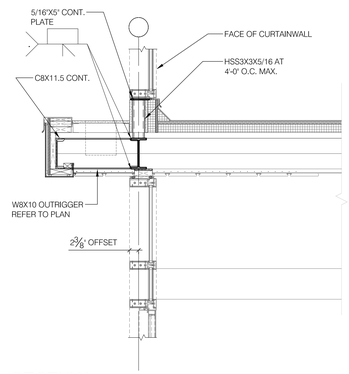
SECTION 8
Scale: 3/4"=1'-0"



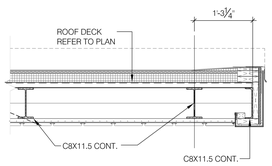
SECTION 9
Scale: 3/4"=1'-0"



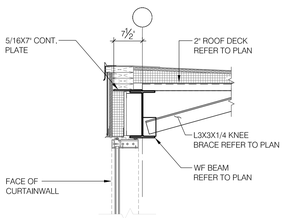
SECTION 10
Scale: 3/4"=1'-0"



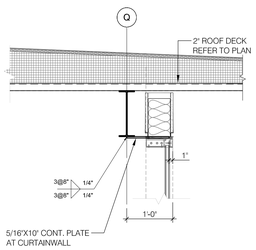
SECTION 11
Scale: 3/4"=1'-0"



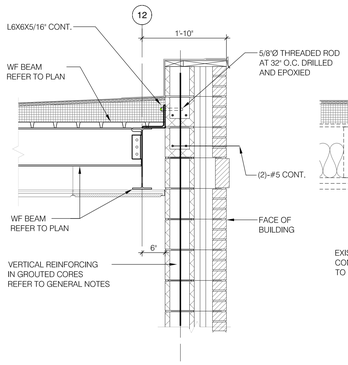
SECTION 12
Scale: 3/4"=1'-0"



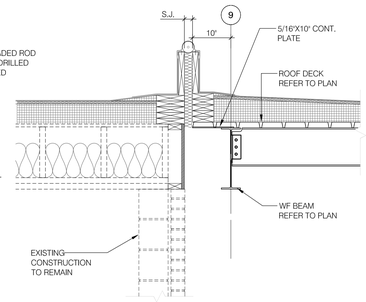
SECTION 13
Scale: 3/4"=1'-0"



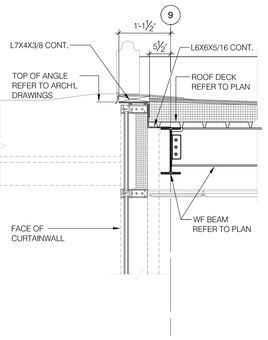
SECTION 14
Scale: 3/4"=1'-0"



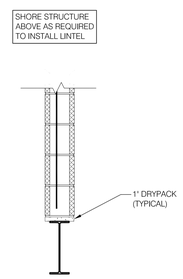
SECTION 15
Scale: 3/4"=1'-0"



SECTION 16
Scale: 3/4"=1'-0"



SECTION 17
Scale: 3/4"=1'-0"



Project Title:
Expansion and Renovate as New Project - PHASE 1 of 3
Crystal Lake Elementary School
284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

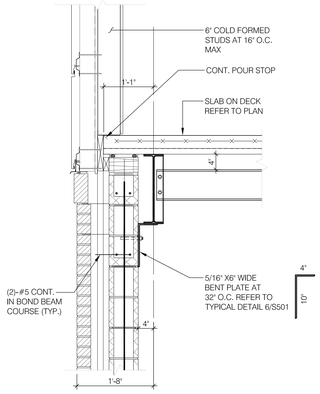
MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-6800 mha-eng.com

Drawing Title:
Roof Sections

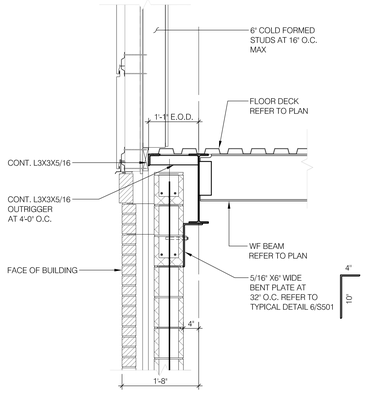
State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140

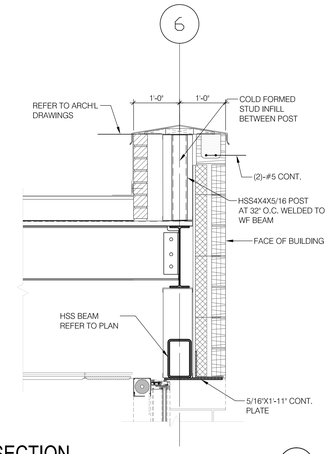
Drawing Number:
S400



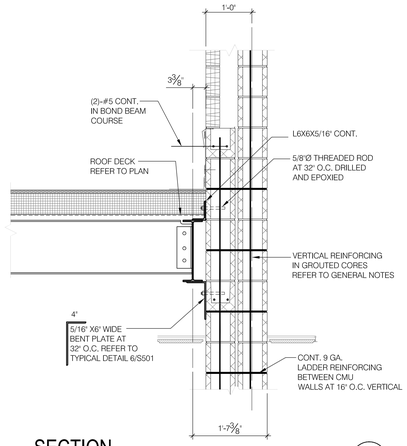
SECTION 1
Scale: 3/4"=1'-0"



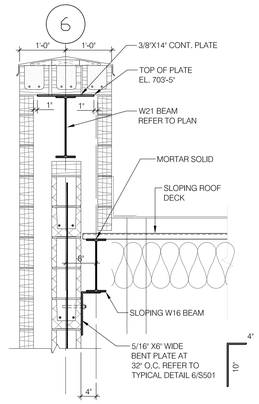
SECTION 2
Scale: 3/4"=1'-0"



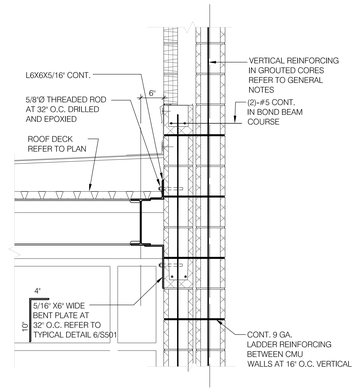
SECTION 3
Scale: 3/4"=1'-0"



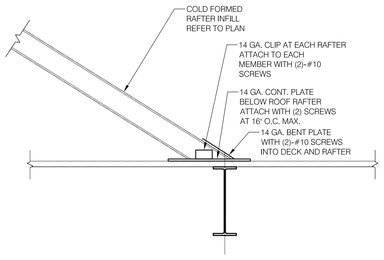
SECTION 4
Scale: 3/4"=1'-0"



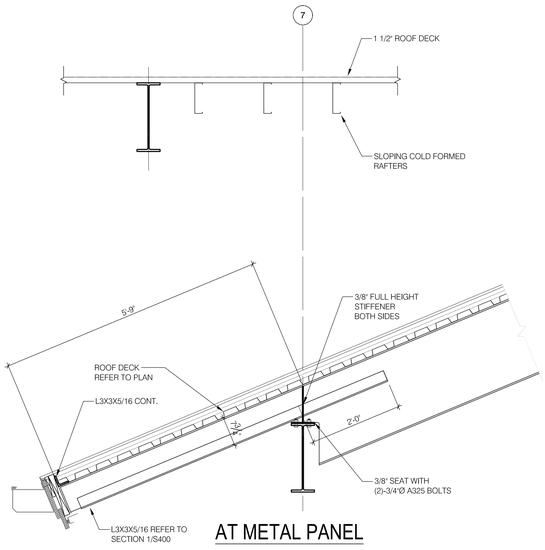
SECTION 5
Scale: 3/4"=1'-0"



SECTION 6
Scale: 3/4"=1'-0"

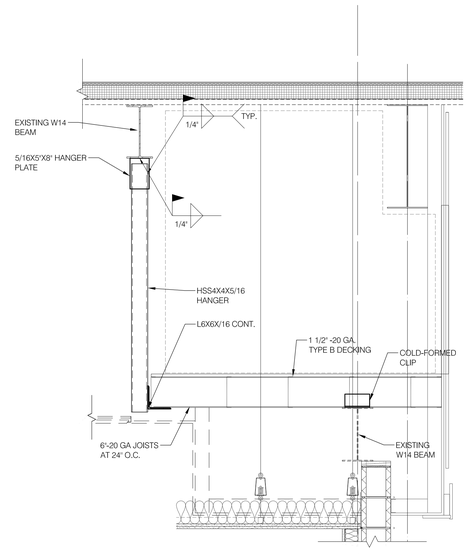


SECTION 7
Scale: 3/4"=1'-0"

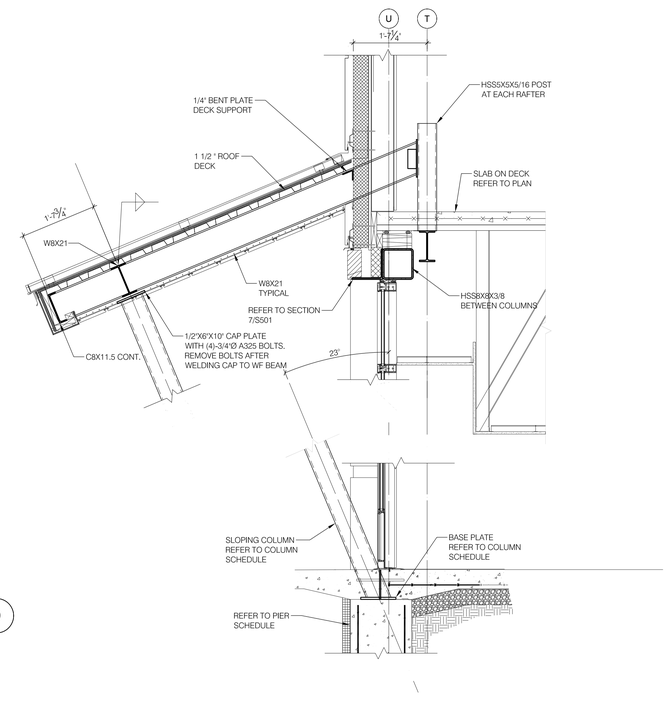


AT METAL PANEL

SECTION 8
Scale: 3/4"=1'-0"



SECTION 9
Scale: 3/4"=1'-0"



SECTION 10
Scale: 3/4"=1'-0"

Project Title:
Expansion and Renovate as New Project - PHASE 1 of 3
Crystal Lake Elementary School
284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

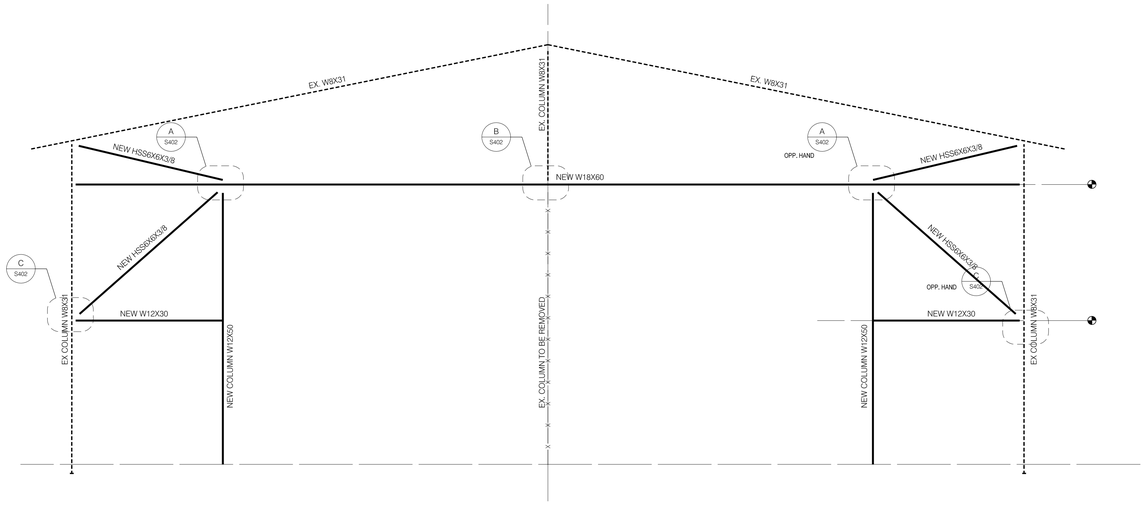
Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-8600 mha-eng.com

Drawing Title:
Roof Sections

State Project Number: 048-0058 EA/RR/PS

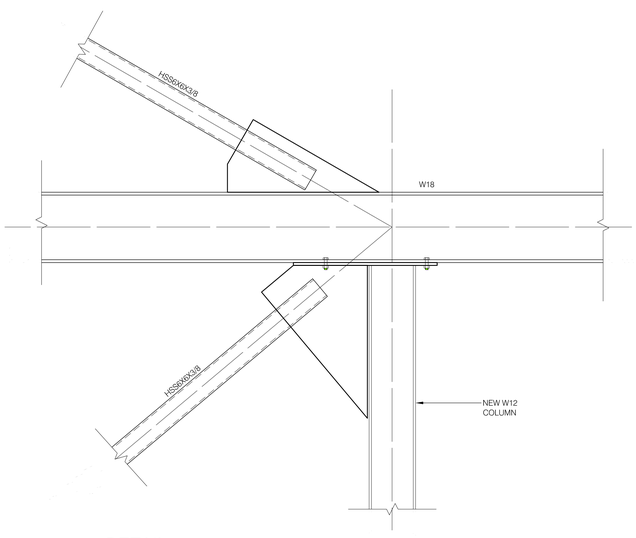
Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140
Drawing Number: S401



ELEVATION

NTS

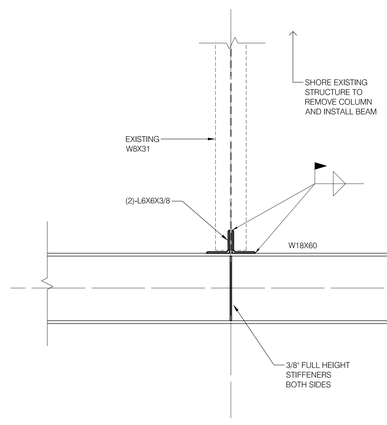
E1



DETAIL

Scale: 3/4" = 1'-0"

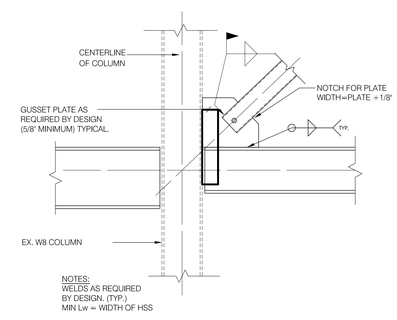
A



DETAIL

Scale: 3/4" = 1'-0"

B



DETAIL

Scale: 3/4" = 1'-0"

C

Project Title:

Expansion and Renovate as New Project - PHASE 1 of 3

Crystal Lake Elementary School

284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers

3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	*Description:*	*Date:*	*Revised By:*
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-8600 mha-eng.com

Drawing Title:

Elevations And Brace Frame Details

State Project Number: 048-0058 EA/RR/PS

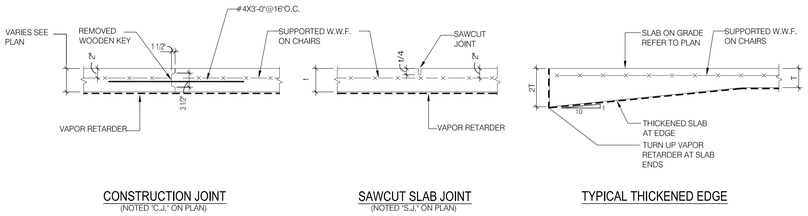
Date: june 18, 2013

Scale: AS NOTED

Drawn By: AC

Project Number: 12.140

Drawing Number: S402



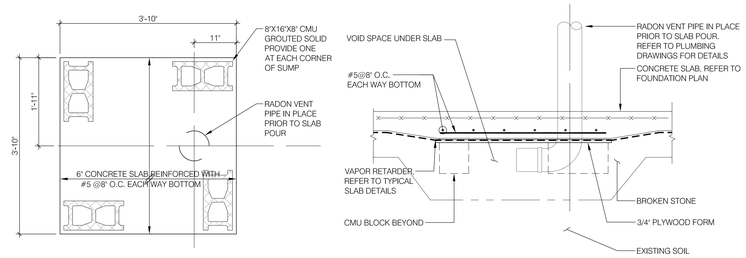
CONSTRUCTION JOINT
(NOTED "C.J." ON PLAN)

SAWCUT SLAB JOINT
(NOTED "S.J." ON PLAN)

TYPICAL THICKENED EDGE

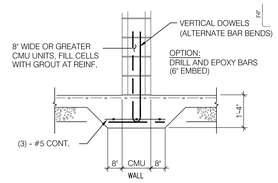
TYPICAL SLAB ON GRADE DETAILS (1)

NOTE:
CONTRACTOR SHALL SUBMIT A PLAN INDICATING THE PROPOSED LOCATION OF CONTROL AND CONSTRUCTION JOINTS PRIOR TO PLACING CONCRETE FOR SLAB.



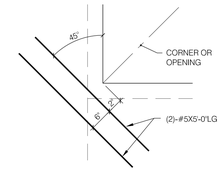
SLAB ON GRADE RADON SUMP DETAIL (2)

R RADON SUMP LOCATIONS NOTED ON FOUNDATION PLAN WITH SYMBOL SHOWN AT LEFT.

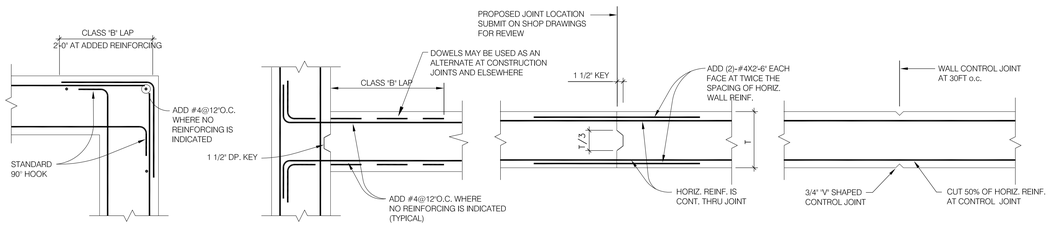


TYPICAL THICKENED SLAB DETAIL (3)

(NOTED "T.S." ON PLAN.)



TYPICAL AT REENTRANT SLAB CORNERS (4)



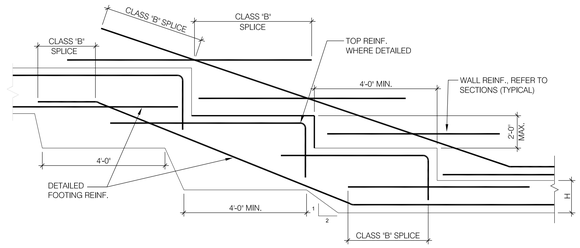
CORNER

INTERSECTION

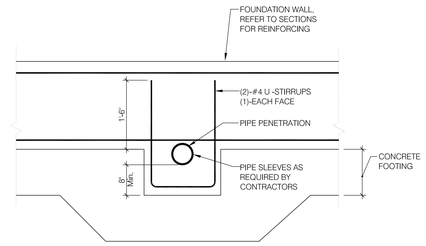
CONSTRUCTION JOINT

CONTROL JOINT

TYPICAL WALL REINFORCING DETAILS (5)

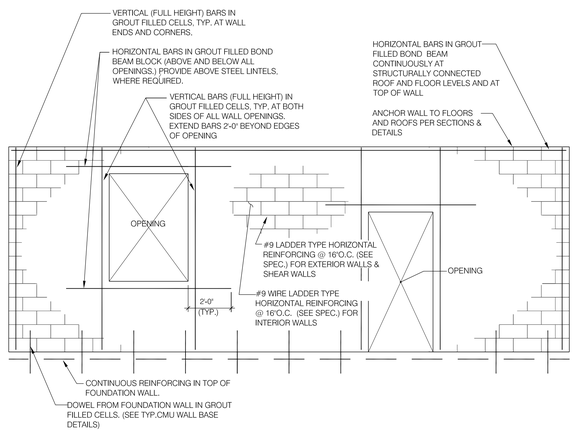


TYPICAL STEPPED FOOTING DETAIL (6)



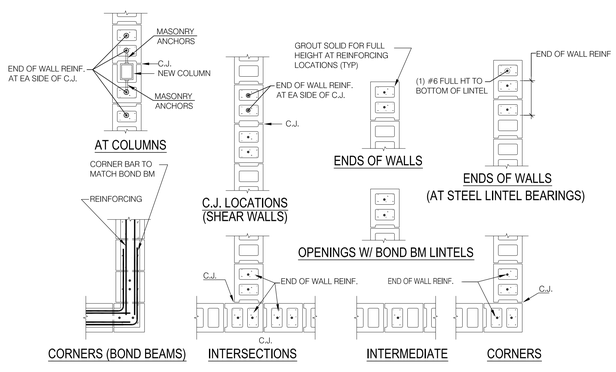
TYPICAL DETAIL OF PIPE PENETRATIONS THRU FOUNDATIONS WALLS (7)

NOTE: DO NOT PLACE PENETRATIONS THROUGH COLUMNS PIERS OR FOOTINGS. REFER TO PLAN FOR LOCATIONS AND COORDINATE WITH SITE, MECHANICAL, PLUMBING, ELECTRICAL, AND FIRE PROTECTION DRAWINGS



TYPICAL CMU WALL REINFORCEMENT DETAIL (8)

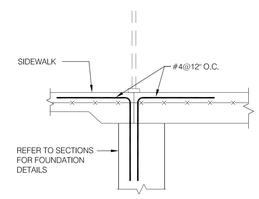
NOTE: REFER TO CONCRETE MASONRY GENERAL NOTES ON DRAWING FOR WALL REINFORCING REQUIREMENTS.



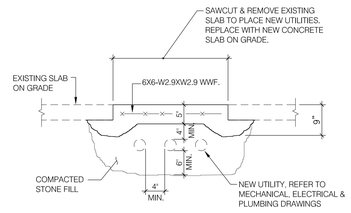
TYPICAL CMU REINFORCING PLAN DETAILS (9)

NOT TO SCALE

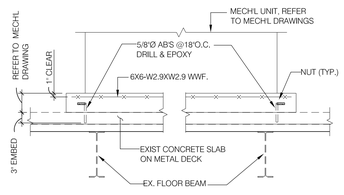
NOTES:
1. REINFORCING DETAILS APPLY TO ALL CMU WALLS. FOR ACTUAL REINFORCING REQUIREMENTS, REFER TO GENERAL NOTES ON DRAWINGS
2. PROVIDE DOWELS FROM CONCRETE FOUNDATIONS TO CMU WALL ABOVE. SIZE AND NUMBER TO MATCH WALL REINFORCING.



TYPICAL FOUNDATION AT DOORS (10)



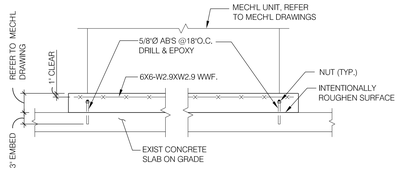
TYPICAL DETAIL FOR UTILITY TRENCH INFILL (11)



TYPICAL NEW CONCRETE PAD ON EXISTING CONCRETE SLAB ON METAL DECK

SCALE: 3/4"=1'-0"

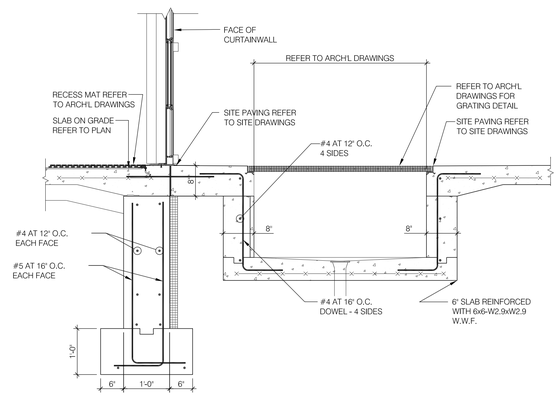
1. COORDINATE WITH MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR QUANTITY, SIZE AND LOCATION.
2. CONCRETE STRENGTH EQUALS 3,500 PSI AT 28 DAYS.



TYPICAL NEW CONCRETE PAD ON CONCRETE SLAB ON GRADE

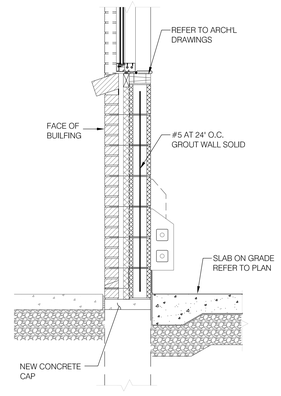
SCALE: 3/4"=1'-0"

1. COORDINATE WITH MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR QUANTITY, SIZE AND LOCATION.
2. CONCRETE STRENGTH EQUALS 3,500 PSI AT 28 DAYS.



TYPICAL ENTRY PIT DETAIL (12)

Scale: 3/4"=1'-0"



TYPICAL ENTRY PIT DETAIL (13)

Scale: 3/4"=1'-0"

Project Title:
Expansion and Renovate as New Project - PHASE 1 of 3
Crystal Lake Elementary School
284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

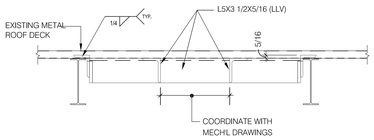
MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-6800 mha-eng.com

Drawing Title:
Typical Details

State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: pej
Project Number: 12.140

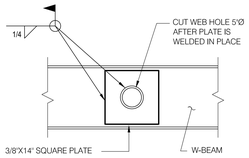
Drawing Number: S500



AT WF BEAMS

TYPICAL ROOF FRAME OPENING DETAIL (1)

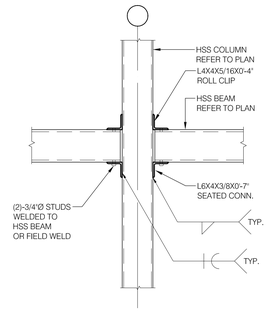
1. TYPICAL FOR ALL OPENINGS 4'-0"X4'-0" OR LESS. FOR LARGER OPENINGS SEE SPECIFIC DETAILS.
2. SIMILAR FRAMES FOR ROOF DRAIN OPENINGS.
3. FRAMES TO BE SHOP WELDED ASSEMBLY.
4. FOR LOCATION, SIZE AND QUANTITY REQUIRED SEE ARCH'L. AND MECH'L. DRAWINGS.



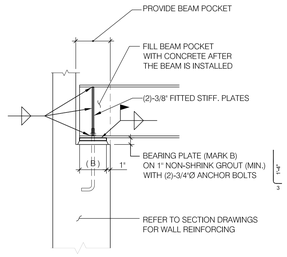
PIPE PENETRATION DETAIL (2)

SCALE: 3/4" = 1'-0"

COORDINATE LOCATIONS WITH MECHANICAL CONTRACTOR

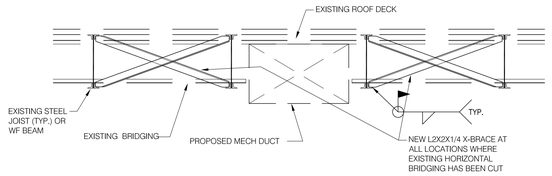


TYPICAL HSS BEAM TO HSS COLUMN (3)



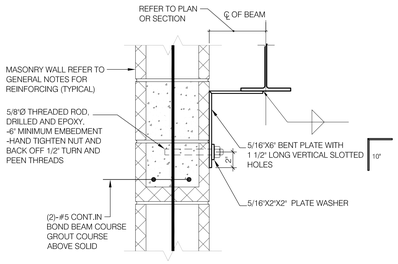
TYPICAL BEAM BEARING PLATE DETAIL (4)

Scale: 3/4"=1'-0"

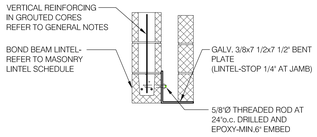


TYPICAL X-BRACE AT CUT JOIST BRIDGING (5)

SCALE: 3/4" = 1'-0"

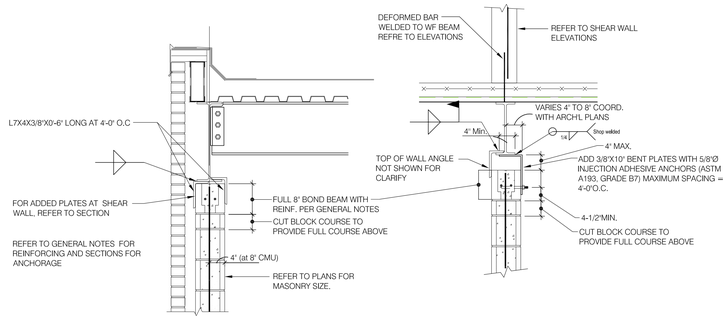


TYPICAL BEAM TO MASONRY CONNECTION (6)



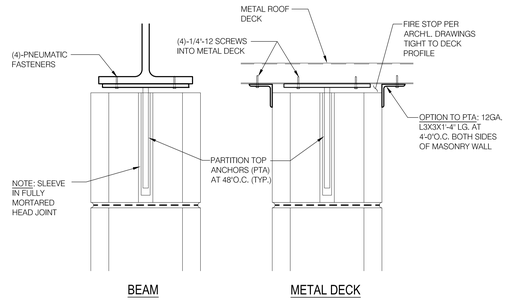
TYPICAL EXTERIOR MASONRY LINTEL (7)

Scale:3/4"=1'-0"



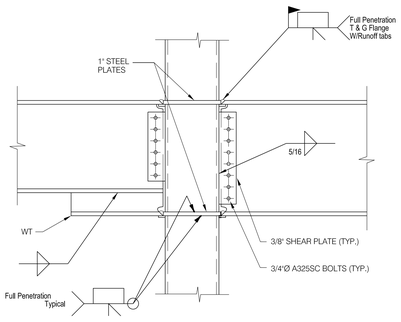
TYPICAL TOP OF WALL ANCHORAGE AT EXTERIOR WALLS & SHEAR WALLS (8)

Scale: 3/4"=1'-0"



TYPICAL TOP OF WALL MASONRY ANCHORAGE TO STEEL (9)

NOTE: APPLIES TO INTERIOR WALLS ONLY.



MOMENT CONNECTION TO TUBE COLUMN DETAIL

Project Title:
Expansion and Renovate as New Project - PHASE 1 of 3
Crystal Lake Elementary School
284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-8600 mha-eng.com

Drawing Title:
Typical Details

State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140

Drawing Number: S501

GENERAL NOTES

GENERAL

GOVERNING CODE: STATE BUILDING CODE, 2005 CONNECTICUT SUPPLEMENT WITH THE 2009 AMENDMENT (2003 INTERNATIONAL BUILDING CODE).

DESIGN LOADS: TOWN OF ELLINGTON

MINIMUM LIVE LOADS:			
	OFFICES:	50 PSF	CONCENTRATED LOAD: 1000lb
	CORRIDORS:	100 PSF	CONCENTRATED LOAD: 1000lb
	STAIRS	100 PSF	CONCENTRATED LOAD: 300lb
	PARTITIONS:	20 PSF	
	CLASSROOMS:	40 PSF	CONCENTRATED LOAD: 1000lb

ROOF LOAD:

ROOF SNOW LOAD CRITERIA: Pg = 35 PSF, Ce = 0.9 AND Is = 1.1, Ct= 1.0 WITH INCREASES FOR SNOW DRIFTING, UNBALANCES AND SLIDING PER SECTION 1608 (2003 IBC).

MINIMUM ROOF LIVE LOAD = 30 PSF

ROOF DEAD LOAD = 20 PSF

WIND LOAD CRITERIA: SECTION 1609 (2003 IBC) WITH BASIC WIND SPEED = 95 MPH, BUILDING CATEGORY III, Iw = 1.15, EXPOSURE CLASSIFICATION "B".

MINIMUM WIND LOAD ON PRIMARY STRUCTURE = 15 PSF

WIND LOADS ON SECONDARY ELEMENTS SHALL CONFORM WITH ASCE 7-02.

TYPICAL WIND LOAD ON EXTERIOR WALLS = PER ASCE 7-02
MAXIMUM WIND LOAD AT CORNERS = PER ASCE 7-02
NET WIND UPLIFT ON STEEL JOIST ROOFS = PER ASCE 7-02
NET WIND UPLIFT AT OVERHANGS = PER ASCE 7-02

SEISMIC LOAD CRITERIA: AS PER SECTION 1616 (2003 IBC) WITH:
SEISMIC IMPORTANCE FACTOR, Ie = 1.25
SEISMIC USE GROUP = II
Ss = 0.233g, S1 = 0.064g
SOIL SITE CLASS = C
SPECTRAL RESPONSE COEFFICIENTS, Sds = 0.1864G, Sd1 = 0.0725g
SEISMIC DESIGN CATEGORY, C
BASIC SEISMIC-FORCE-RESISTING SYSTEM: INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
DESIGN BASE SHEAR, V = 0.054W
RESPONSE MODIFICATION FACTOR, R = 3
ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE
DEFLECTION AMPLIFICATION FACTOR: Cd = 2 1/4

ASSUMED BEARING PRESSURE ON UNDISTURBED SOIL: 4000 PSF
ASSUMED BEARING PRESSURE ON COMPACTED FILL: 4000 PSF
ASSUMED BEARING PRESSURE ON ROCK: 16000 PSF

1. SHOULD ANY OF THE DETAILED INSTRUCTIONS SHOWN ON THE PLANS CONFLICT WITH THE GENERAL STRUCTURAL NOTES, THE SPECIFICATIONS, OR WITH EACH OTHER, THE STRICTEST PROVISION SHALL GOVERN.

2. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIEDOWNS WHICH MIGHT BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE PROJECT.

3. THE STRUCTURE UTILIZES SHEAR WALLS TO PROVIDE LATERAL STABILITY. THEREFORE, TEMPORARY BRACING, GUYS, ETC. MUST BE MAINTAINED UNTIL ALL MASONRY SHEAR WALLS HAVE BEEN ERECTED AND ATTACHED TO STEEL FRAMING.

4. LOADS, OPENINGS AND STRUCTURE IN ANY WAY RELATED TO REQUIREMENTS OF OTHER (NON-STRUCTURAL) DISCIPLINES ARE SHOWN FOR BIDDING PURPOSES ONLY. THE CONTRACTOR SHALL OBTAIN FROM THE HEATING AND VENTILATING, ELECTRICAL, PLUMBING AND OTHER SUBCONTRACTORS THE FINAL APPROVED SIZE AND LOCATION OF ALL OPENINGS AND WORK TO BE PROVIDED FOR THEIR TRADE IN ROOFS, FLOORS AND WALLS, WHETHER SHOWN OR NOT SHOWN ON STRUCTURAL DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR TRANSMISSION OF REQUIREMENTS, LOCATIONS AND DETAILS TO STRUCTURAL SUBCONTRACTORS. EXCESS COST RELATED TO VARIATION IN MECHANICAL REQUIREMENTS ARE NOT TO BE BORNE BY THE OWNER.

5. MECHANICAL EQUIPMENT WEIGHTS USED IN DESIGN OF SUPPORTING ELEMENTS HAVE BEEN INDICATED ON THE DRAWINGS. CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO INSTALLATION IF ACTUAL WEIGHT EXCEEDS WEIGHT SHOWN ON DRAWINGS.

6. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.

7. SHOP DRAWINGS ARE TO BE CHECKED BY THE CONTRACTOR AND SUBCONTRACTOR AND BEAR CHECKER'S INITIALS BEFORE BEING SUBMITTED TO THE ARCHITECT FOR APPROVAL.

8. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.

9. ALL SECTIONS AND DETAILS SHALL BE CONSIDERED TYPICAL AND APPLY FOR THE SAME AND SIMILAR SITUATIONS THROUGHOUT THE BUILDING, UNLESS OTHERWISE SPECIFICALLY NOTED.

10. CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS PRIOR TO SUBMITTING THEIR BID FOR REFERENCE TO ALL NOTES ON ARCHITECTURAL DRAWINGS REFERRING TO "SEE STRUCTURAL DRAWINGS". IF THE SIZE OF ELEMENTS AND DETAILING OF MEMBERS IS NOT INDICATED, THE CONTRACTOR SHALL CONTACT THE ARCHITECT TO REQUEST THE MISSING INFORMATION IN PREPARATION OF THEIR BID. THESE REFERENCED ITEMS SHALL BE PART OF THE BASE BID.

11. IN CASES OF DISCREPANCIES BETWEEN CONTRACT DOCUMENTS AND SUBMITTED SHOP DRAWINGS, THE CONTRACT DOCUMENTS SHALL GOVERN INSTALLATION OF MATERIALS.

FOUNDATIONS

1. BACKFILLING SHALL BE ACCOMPLISHED TO EQUAL HEIGHTS ON BOTH SIDES OF FOUNDATION WALLS TO PREVENT MOVEMENTS DUE TO UNBALANCED EARTH PRESSURE. WHERE EARTH IS ON ONE SIDE ONLY, BACKFILLING AND COMPACTION SHALL NOT START UNTIL FLOOR SLAB OR ADEQUATE BRACING IS PROVIDED FOR WALL SUPPORT (EXCEPT AT RETAINING WALLS).

2. ALL FOOTINGS ARE TO REST ON UNDISTURBED NATURAL SOIL, AS DEFINED IN THE SPECIFICATIONS, OR CONTROLLED COMPACTED FILL, REGARDLESS OF ELEVATIONS SHOWN ON DRAWINGS. FOOTING BOTTOM ELEVATIONS SHALL NOT BE HIGHER THAN INDICATED ON THE FOUNDATION PLAN, NOR LESS THAN 3'-6" BELOW FINISH GRADES.

3. IF FILL MATERIALS ARE ENCOUNTERED AT FOOTING BEARING ELEVATIONS, ALL FILL MATERIAL SHALL BE EXCAVATED AND DISPOSED OF LEGALLY OFF-SITE. THE OVER EXCAVATION SHALL BE BACKFILLED WITH CONTROLLED COMPACTED FILL TO THE BOTTOM OF FOOTING ELEVATION AS REQUIRED.

4. ALL CONTROLLED COMPACTED BACKFILL UNDER FOOTINGS AND WITHIN THE FOOTPRINT OF THE STRUCTURE SHALL BE COMPACTED TO 95% OF THE MODIFIED OPTIMUM DENSITY.

5. BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE AT LEAST 3'-6" BELOW FINISHED GRADE. PRIOR TO PROCEEDING WITH FOOTING EXCAVATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF FINISH GRADES AND BOTTOM OF EXTERIOR FOOTING ELEVATIONS TO MAINTAIN THE 3'-6" FROST PROTECTION.

6. ALL SOIL SURROUNDING AND UNDER ALL FOOTINGS SHALL BE PROTECTED FROM FREEZING AND FROST ACTION DURING THE COURSE OF CONSTRUCTION.

7. FOOTING BOTTOMS SHALL STEP AT THE RATE OF 1 UNIT VERTICAL TO 2 UNITS HORIZONTAL WITH A MAXIMUM VERTICAL STEP OF 1'-4".

8. WHERE SUBSURFACE PIPING PASSES THROUGH FOUNDATION WALLS, THE TOP OF THE FOOTINGS SHALL BE AT LEAST 8" BELOW THE INVERT ELEVATION OF THE PIPING AND CONDUITS. COORDINATE ALL INVERTS WITH MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL, SITE AND SITE UTILITY DRAWINGS.

9. WHERE FOOTINGS ARE IN CLOSE PROXIMITY OF SUBSURFACE PIPING OR CONDUIT, BOTTOM OF FOOTINGS SHALL BE AT LEAST 8" BELOW INVERT ELEVATION OF PIPING OR CONDUITS.

10. KEEP FOUNDATION EXCAVATIONS FREE OF WATER AT ALL TIMES.

11. USE LEAN CONCRETE (f'c=1500) OR CONTROLLED COMPACTED FILL FOR OVER-EXCAVATION OF FOOTINGS.

12. PLACEMENT OF ALL COMPACTED FILL MATERIALS MUST BE UNDER SUPERVISION OF AN APPROVED TESTING LABORATORY (SEE SPECIFICATIONS). CONCRETE FOUNDATIONS SHALL NOT BE PLACED UNTIL SUBGRADE HAS BEEN CHECKED IN PLACE AND APPROVED BY TESTING LABORATORY.

13. EXISTING ON-SITE EXCAVATED MATERIALS SHALL NOT BE ACCEPTABLE BACKFILL MATERIAL BELOW BUILDING FOUNDATIONS, SLABS ON GRADE, OR FOR BACKFILLING OF FOUNDATION WALLS , OR WITHIN 2 FEET OF PAVEMENT GRADES.

14. CONTROL JOINT SPACING IN FOUNDATION WALLS SHALL NOT EXCEED 30 FEET. 50% OF HORIZONTAL REINFORCEMENT SHALL EXTEND THROUGH JOINT AND HAVE A CLASS "B" SPLICE (PER ACI 318-95).

15. WHERE REQUIRED, CONSTRUCTION JOINTS SHALL BE KEYED AND OCCUR AT CONTROL JOINT INTERVALS. PROVIDE BENTONITE WATERSTOP FULL HEIGHT IN ALL WALL CONSTRUCTION JOINTS BELOW GRADE.

16. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF BRICK OR CONCRETE MASONRY BLOCK SHELF ELEVATIONS IN THE FOUNDATION WALLS.

17. THE LOCATION AND ELEVATION OF EXISTING FOOTINGS INDICATED ARE BASED ON DRAWINGS BY KAHN & BAYER, DATED OCTOBER 9, 1975, WHICH HAVE BEEN PROVIDED TO THE DESIGNERS BY THE OWNER. THIS INFORMATION IS PROVIDED FOR BIDDING PURPOSES ONLY. ACTUAL EXISTING FOUNDATIONS MAY VARY FROM WHAT IS INDICATED, AND MUST BE VERIFIED IN FIELD PRIOR TO PREPARATION OF SHOP DRAWINGS. NOTIFY ARCHITECT IF EXISTING CONDITIONS PRECLUDE USE OF DETAILS AS SHOWN.

18. THE FOUNDATION DESIGN OF THE STRUCTURE HAS BEEN PREPARED BASED ON THE SOIL BORINGS, SOILS REPORT AND RECOMMENDATIONS PROVIDED BY THE GEOTECHNICAL ENGINEER, DR. CLARENCE WELTI ASSOCIATES, P.E., P.C., DATED JANUARY 14, 2013. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE MATERIAL PRIOR TO PREPARING HIS BID TO ASSURE HE UNDERSTANDS THE SOIL CONDITIONS AND THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.

19. THE FOUNDATION DESIGN OF THE STRUCTURE HAS BEEN PREPARED BASED ON THE SITE GRADING PLAN PREPARED BY BSC GROUP, DATED JUNE 18, 2013 . IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE DRAWING PRIOR TO PREPARING HIS BID TO ASSURE HE UNDERSTANDS THE SITE CONDITIONS AND THE REQUIREMENTS OF THE SITE ENGINEER.

20. FOUNDATION DESIGN SITE PREPARATION: THE FOUNDATION DESIGN AS INDICATED ON THE STRUCTURAL DRAWINGS HAS BEEN BASED ON THE FOLLOWING SITE PREPARATION. THE SITE HAS BEEN PREPARED BY THE EXCAVATION AND REMOVAL FROM THE SITE OF ALL EXISTING FILL AND CONTAMINATED SOILS. THE FOUNDATION DESIGN IS BASED ON THE CONTROLLED BACKFILLING OF THE SITE EXCAVATION WITH CONTROLLED FILL COMPACTED TO AT LEAST 95% OF THE MODIFIED OPTIMUM DENSITY IN ACCORDANCE WITH ASTM D1557.

SLAB ON GRADE

1. ALL SLABS ON GRADE SHALL BEAR ON A VAPOR RETARDER OVER A MINIMUM OF 4 INCHES OF 3/4" COMPACTED PROCESSED AGGREGATE FILL, OVER A MINIMUM OF 16 INCHES OF COMPACTED CONTROLLED FILL. ALL JOINTS OF THE VAPOR RETARDER SHALL BE SEALED WITH TAPE.

2. IF FILL MATERIALS ARE ENCOUNTERED SLAB SUBGRADE ELEVATIONS, ALL FILL MATERIAL SHALL BE EXCAVATED AND DISPOSED OF LEGALLY OFF-SITE. THE OVER EXCAVATION SHALL BE BACKFILLED WITH CONTROLLED COMPACTED FILL TO THE BOTTOM OF THE SLAB SUBGRADE AS REQUIRED. ALL CONTROLLED COMPACTED BACKFILL UNDER SLABS WITHIN THE FOOTPRINT OF THE STRUCTURE SHALL BE COMPACTED TO 95% OF THE MODIFIED OPTIMUM DENSITY.

3. EXISTING ON-SITE EXCAVATED MATERIALS SHALL NOT BE ACCEPTABLE BACKFILL MATERIAL BELOW BUILDING SLABS ON GRADE.

4. CONTROL JOINTS ARE TO BE CREATED IN SLABS ON GRADE. JOINTS SHALL BE SAW CUT 1/8" WIDE AND TO A DEPTH EQUAL TO 1/4 OF THE SLAB THICKNESS. LOCATE JOINTS A MAXIMUM OF 15'-0" ON CENTER IN EACH DIRECTION, IN ADDITION TO THOSE LOCATIONS INDICATED ON PLAN.

5. CONSTRUCTION JOINTS AS REQUIRED SHALL BE KEYED AND DOWELED AND LOCATED AT INTERVALS OF A MAXIMUM OF 75 FEET ON CENTER.

6. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND SIZE OF DEPRESSED AREAS IN CONCRETE SLABS AND FOR CONCRETE PADS. MAINTAIN FULL SLAB THICKNESS IN DEPRESSED AREAS, UNLESS OTHERWISE SHOWN.

7. SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF ALL MASONRY WALLS FOR WHICH NO FOOTING IS SHOWN. SEE DETAILS FOR SLAB REINFORCING REQUIREMENTS AT ALL WALL LOCATIONS.

8. CONTRACTOR SHALL CONSOLIDATE ALL SLAB CONCRETE USING VIBRATIONAL METHODS IN CONFORMANCE WITH ACI 309, "GUIDE FOR CONSOLIDATION OF CONCRETE.

CONCRETE

MATERIALS:

CONCRETE SHALL DEVELOP STRENGTH IN 28 DAYS AS FOLLOWS:

LOCATION	STRENGTH (PSI)
FOUNDATIONS	3000
WALLS	3000
SLABS ON GRADE	3500 (NOT TO EXCEED 4500 PSI)
SLABS ON METAL DECK	3500

1. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS MUST FOLLOW THE LATEST ACI CODE AND THE LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".

2. REINFORCING STEEL SHALL BE 60,000 PSI YIELD.

3. NO TACK WELDING OF REINFORCING WILL BE PERMITTED.

4. UNLESS NOTED OTHERWISE, ALL LAP SPLICES SHALL BE CLASS B, IN ACCORDANCE WITH ACI 318-02.

5. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.

6. WIRE MESH REINFORCEMENT MUST LAP ONE MESH SIZE AT SIDES AND ENDS AND BE WIRED TOGETHER.

7. WELDED WIRE FABRIC SIDE LAPS SHALL BE STAGGERED TO AVOID FOUR MESH THICKNESS AT COINCIDING END LAP AND SIDE LAP LOCATION.

8. NO CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 0.1% CHLORIDE BY WEIGHT OF ADMIXTURE SHALL BE USED IN THE CONCRETE.

9. BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE AT LEAST 3'-6" BELOW FINISHED GRADE. PRIOR TO PROCEEDING WITH FOOTING FORMWORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF BOTTOM OF EXTERIOR FOOTING ELEVATIONS WITH THE FINISH GRADES AND MAINTAINING THE 3'-6" FROST PROTECTION. WHERE SUBSURFACE PIPING PASSES THROUGH FOUNDATION WALLS, THE TOP OF FOOTINGS SHALL BE AT LEAST 8" BELOW THE INVERT ELEVATION OF THE PIPING AND CONDUITS. COORDINATE ALL INVERTS WITH MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL, SITE AND SITE UTILITY DRAWINGS. PIPING OR CONDUITS SHALL NOT PASS THROUGH COLUMNS OR PIERS.

10. CONTRACTOR SHALL ANTICIPATE DEFLECTION OF STEEL AT SUPPORTED ELEVATED SLABS, AND PROVIDE ADDITIONAL CONCRETE AS REQUIRED.

11. ALL HORIZONTAL STEEL SHOWN IN SECTIONS AND DETAILS SHALL BE CONTINUOUS, UNLESS OTHERWISE NOTED. ALL LAPS SHALL BE CLASS "B" SPLICES IN ACCORDANCE WITH ACI 318.

12. AT INTERSECTIONS OF REINFORCED CONCRETE WALLS, PROVIDE CORNER DOWELS OF SAME SIZE AND AT THE SAME SPACING AS THE SMALLER HORIZONTAL REINFORCING. DOWELS SHALL HAVE A CLASS B LAP WITH HORIZONTAL REINFORCING IN EACH DIRECTION.

13. PROVIDE DRILLED AND EPOXIED DOWELS OF SAME SIZE TO MATCH NEW REINFORCING WHERE NEW CONSTRUCTION ABUTS EXISTING CONCRETE CONSTRUCTION. LENGTH SHALL BE THE REQUIRED EMBEDMENT DEPTH PER THE ANCHOR BOLT/EPOXY MANUFACTURER PLUS A CLASS "B" LAP SPLICE FOR THE SIZE OF BAR.

14. PROVIDE CORROSION RESISTANT ACCESSORIES IN ALL EXPOSED CONSTRUCTION.

15. ALL KEYS IN CONCRETE WALLS SHALL BE 2 X 4 UNLESS NOTED OTHERWISE.

16. CONCRETE PIERS: PLACE CONCRETE PIERS AND WALLS TOGETHER. SET PIER REINFORCING AND SET WALL REINFORCING THROUGH PIER VERTICAL BARS. PROVIDE DOWELS WITH STANDARD HOOK FROM FOOTING AT ALL PIERS. SIZE AND QUANTITY OF DOWELS TO MATCH VERTICAL PIER REINFORCING, PROVIDE CLASS "B" SPLICE.

17. SEE ARCHITECTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL, SITE, SITE UTILITY AND EQUIPMENT DRAWINGS FOR CONCRETE PADS, SLEEVES, OPENINGS, RECESSES, AND BUILT-IN WORK IN CONCRETE ELEMENTS.

18. THE CONTRACTOR SHALL FURNISH, LOCATE AND INSTALL ALL ACCESSORIES FOR PROPER ANCHORAGE OF WOOD AND METAL FRAMING, WOOD BLOCKING, BRICK WORK AND MASONRY UNITS. HE SHALL BE SOLELY RESPONSIBLE FOR FURNISHING, LOCATING AND ENSURING PROPER QUANTITY OF ALL FASTENING DEVICES.

19. ALL CONCRETE TO REMAIN EXPOSED TO VIEW SHALL RECEIVE A SMOOTH RUBBED FINISH (SEE SPECIFICATIONS).

20. ALL CONCRETE CORNERS WITH BOTH SIDES EXPOSED TO VIEW SHALL BE SQUARE UNLESS OTHERWISE SHOWN OR NOTED. THE EDGE SHALL BE RUBBED, PRODUCING A SMOOTH, DENSE SURFACE WITHOUT PITS OR IRREGULARITIES.

21. PROVIDE CONTINUOUS VERTICAL DOVETAIL SLOTS AT 16 INCH CENTERS HORIZONTALLY FOR ALL CONCRETE WALLS ABUTTING A MASONRY WALL OR MASONRY VENEER, UNLESS OTHERWISE NOTED.

22. PROVIDE CLEARANCE FROM EDGE OF REINFORCING TO EDGE OF CONCRETE AS FOLLOWS:

FOOTINGS (AGAINST EARTH)	3"
COLUMNS AND PIERS (VERTICAL REINFORCING)	2"
WALLS, INTERIOR FACE	3/4"
WALLS, EXTERIOR FACE (#5 AND SMALLER)	1 1/2"
WALLS, EXTERIOR FACE (#6 AND LARGER)	2"
SLABS (INTERIOR)	3/4"
SLABS (EXTERIOR)	1 1/2"
SLABS ON GRADE (W.W.F.)	1/3 X THK. FROM TOP SURFACE

23. PROVIDE THE FOLLOWING AT OPENINGS IN ALL CONCRETE WALLS AND FRAMED SLABS, UNLESS OTHERWISE INDICATED:

1-#5 AT EACH FACE ON EACH SIDE OF OPENING, EXTENDING 2'-0" BEYOND OPENING.
1-#5 X 4'-0" LONG AT EACH FACE DIAGONALLY AT EACH CORNER.

24. REINFORCING STEEL SHOP DRAWINGS SHALL INDICATE THE SEQUENCE IN WHICH LAYERS OF CROSSING REINFORCING SHOULD BE PLACED, IN ORDER TO PRODUCE THE CORRECT OUTERMOST LAYER AS INDICATED ON THE DRAWINGS.

25. SHOP DRAWINGS SHALL INDICATE LOCATIONS OF ALL WALL CONTROL AND CONSTRUCTION JOINTS.

STRUCTURAL STEEL

MATERIALS:

STRUCTURAL STEEL	ASTM A 36
ALL W SHAPES	ASTM A 992, GR.50
STRUCTURAL STEEL TUBING	ASTM A500, GRADE B
STRUCTURAL STEEL PIPE	ASTM A53, GRADE B
BOLTS	ASTM A325
ANCHOR BOLTS	ASTM F1554
WELDING ELECTRODE	ASTM E 70

1. DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO CURRENT AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION.

2. WELDING SHALL CONFORM TO THE CODE FOR "ARC AND GAS WELDING IN BUILDING CONSTRUCTION" OF THE AMERICAN WELDING SOCIETY.

3. ALL LOOSE BEAM LINTELS SHALL HAVE 8" MINIMUM BEARING. SEE ARCHITECTURAL JAMB DETAILS FOR LENGTHS.

4. FOR MISCELLANEOUS STEEL REFER TO ARCHITECTURAL DRAWINGS.

5. ALL WELDING SHALL BE DONE BY A CERTIFIED WELDER IN ACCORDANCE WITH A.W.S. STANDARDS.

6. PROVIDE LEVELING NUTS FOR ALL COLUMN BASE PLATES WITH FOUR (4) ANCHOR BOLTS AND PROVIDE 1 1/2" MINIMUM NON-SHRINK GROUT. PROVIDE 1/4" LEVELING PLATES ON 3/4" MINIMUM NON-SHRINK GROUT AT ALL OTHER LOCATIONS, UNLESS OTHERWISE NOTED.

7. CONNECTIONS:

CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE A.I.S.C. MANUAL OF STEEL CONSTRUCTION. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION UNLESS OTHERWISE DETAILED.

CONNECTIONS SHALL BE DESIGNED TO ACCOMMODATE THE REACTIONS RESULTING FROM THE ALLOWABLE UNIFORM LOAD BEAM TABLES, PER THE AISC MANUAL, FOR THE SPAN INDICATED ON THE DRAWINGS.

MINIMUM CONNECTION ANGLE THICKNESS SHALL BE 5/16". USE DOUBLE FRAMING ANGLE CONNECTIONS.

IN ADDITION TO PROVIDING ADEQUATE BOLTS TO ACCOMMODATE REACTIONS, THE FOLLOWING MINIMUM NUMBER OF BOLT ROWS SHALL BE USED:

MEMBER DEPTH	MINIMUM BOLT ROWS
10" or Less	2
12" to 14"	3
16" to 18"	4
21" to 24"	5
27' to 30"	6
Over 30"	7

CONNECTIONS SHALL BE MADE USING 3/4" DIAMETER ASTM A325 BOLTS (SNUG TIGHT OR SLIP CRITICAL) OR WELDS, UNLESS NOTED OTHERWISE. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.

PROVIDE SLOTTED BOLTED CONNECTIONS WHERE SHOWN WITH 13/16" X 1 7/8" SLOTTED HOLES USING ASTM A 325 BOLTS WITH WASHERS. NUTS SHALL BE FASTENED SNUG TIGHT, THEN UNTIGHTENED BY ONE-HALF TURN. PEEN THREADS TO PREVENT FURTHER LOOSENING OF NUT.

USE LARGER OF 1/4" FILLET WELDS OR MINIMUM SIZE PER AISC REQUIREMENTS WHERE NO WELD SIZE IS SHOWN ON DRAWINGS.

WELDS IN EXCESS OF 24" IN LENGTH SHALL BE 3" STITCH WELDS AT 8" ON CENTERS, UNLESS SPECIFICALLY SHOWN ON DRAWINGS TO BE CONTINUOUS.

MOMENT CONNECTIONS SHALL BE DESIGNED TO DEVELOP FULL MOMENT CAPACITY OF THE ELEMENTS CONNECTED, UNLESS SPECIFIC MOMENT IS INDICATED ON THE DRAWINGS.

8. NO WELDING OR FINAL BOLTING SHALL BE DONE UNTIL AS MUCH OF THE STRUCTURE THAT WILL BE STIFFENED THEREBY HAS BEEN PROPERLY ALIGNED.

9. SEQUENCE OF PLACING WELDS SHALL BE SUCH AS TO AVOID DISTORTION OF MEMBERS.

10. SUBSTITUTION OF STRUCTURAL STEEL MEMBERS IS PERMITTED TO FACILITATE DELIVERY AT NO ADDITIONAL COST TO THE OWNER. SUBSTITUTED MEMBERS MUST BE OF THE SAME NOMINAL DEPTH AS THE MEMBER ORIGINALLY INDICATED AND HAVE A WEIGHT GREATER THAN THAT INDICATED. BEAM FLANGES MUST NOT INFRINGE ON ADJACENT ARCHITECTURAL ELEMENTS.

11. ALL STRUCTURAL STEEL BEAMS AND COLUMNS ADJACENT TO MASONRY SHALL HAVE THE FOLLOWING MASONRY ANCHORAGE:

16 GAGE GALVANIZED CHANNEL SLOTS (DUR-O-WAL, INC. D/A 901) WELDED TO COLUMNS AND BEAMS WITH 1/4" GALVANIZED STRAP ANCHORS (DUR-O-WAL, INC. D/A 914) SPACED 1'-4" O.C. AT COLUMNS AND 1'-4" AT BEAMS (UNLESS OTHERWISE NOTED). INSTALL PER MANUFACTURER'S SPECIFICATIONS.

12. PROVIDE DEFORMED BAR ANCHORS ON THE TOP OF ALL BEAMS SUPPORTING CONCRETE MASONRY UNIT WALLS OR MULTI-WYTHE BRICK WALLS. THE ANCHORS SHALL BE WELDED AT 24" ON CENTER AND SHALL BE THE SAME SIZE AS THE WALL REINFORCING. DEFORMED BAR ANCHORS SHALL BE PLACED BY A TIMED STUD WELDING MACHINE.

13. STEEL MEMBERS SHOWN CONNECTED TO MASONRY WITH EXPANSION ANCHORS SHALL HAVE 3/4" DIAMETER EXPANSION ANCHORS AT 2'-8" ON CENTERS IN VERTICALLY SLOTTED HOLES, UNLESS OTHERWISE INDICATED.

14. PROVIDE 9/16" DIAMETER HOLES FOR WOOD NAILERS AS REQUIRED BY ARCHITECTURAL DRAWINGS.

15. BEAMS BEARING ON MASONRY SHALL HAVE ANGLE WALL ANCHORS WELDED TO THE BEAM, AS DETAILED IN THE A.I.S.C. MANUAL OF STEEL CONSTRUCTION.

16. PROVIDE 8" X 8" X 5/8" BEARING PLATES FOR ALL WALL BEARING BEAMS UNLESS NOTED OTHERWISE. ALL PLATES SHALL HAVE A MINIMUM OF (2)-3/4" DIAMETER X 5" LONG WELDED STUDS ON THE BOTTOM TO SET IN CONCRETE OR MASONRY WALLS.

17. ALL RELIEVING ANGLES SHALL BE CONNECTED TO COLUMNS. ALL RELIEVING ANGLES SHALL BE MITERED AND WELDED AT ALL CORNERS. ALL RELIEVING ANGLES SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL WELDS WITH COLD GALVANIZING COMPOUND, REFER TO SPECIFICATIONS.

18. ALL BRACING RODS SHALL BE TENSIONED WITH TURNBUCKLES AND CONNECTED AT INTERSECTIONS WITH U-BOLTS.

19. PROVIDE 1/16" DRAW FOR EACH 10'-0" LENGTH OF BRACING.

20. SPRAY-ON FIREPROOFING SHALL BE APPLIED TO ALL STRUCTURAL STEEL REQUIRED TO ACHIEVE REQUIRED FIRE RATING, UNLESS OTHER PROTECTIVE COATING IS INDICATED ON THE ARCHITECTURAL DRAWINGS.

21. ALL STEEL MEMBERS EXPOSED TO WEATHER OR IN CONTACT WITH PRESSURE TREATED LUMBER OR WOOD PRODUCTS IN THE COMPLETED CONSTRUCTION SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123.

22. PROVIDE BITUMASTIC PROTECTION COATING FOR ALL STRUCTURAL STEEL BELOW GRADE.

23. EXISTING STEEL SURFACES TO RECEIVE FIELD WELDS SHALL BE THOROUGHLY CLEANED UNTIL FREE FROM PAINT, RUST, GREASE, ETC.

24. PROVIDE 1/4" CLOSURE PLATES WITH FULL SEAL WELDS FOR ALL TUBE OR PIPE HOLLOW STEEL SECTIONS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

METAL ROOF DECK

1. MATERIALS:

TYPICAL METAL DECK SHALL BE 1 1/2" GALVANIZED WIDE RIB TYPE WITH NESTING SIDE SEAMS OF GAGE INDICATED ON THE DRAWINGS.

DECK SHALL CONFORM TO "BASIC DESIGN SPECIFICATION" AS ADOPTED BY THE STEEL DECK INSTITUTE.

METAL ROOF DECK SHALL BE FURNISHED IN SHEET LENGTHS SUFFICIENT TO EXTEND OVER FOUR SUPPORTS (3 SPANS) WHEREVER POSSIBLE.

2. ATTACHMENT:

METAL DECK SHALL BE SCREWED TO SUPPORTING STEEL WITH #12 SELF TAPPING SCREWS SPACED NOT MORE THAN 12" ON CENTER WITH A 36/4 FASTENING PATTERN, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

SCREW METAL ROOF DECK TO STEEL MEMBERS PARALLEL TO SPAN OF DECK USING #12 SELF TAPPING SCREWS SPACED AT 12" ON CENTER. WELDING OF THE ROOF DECK IS PROHIBITED.

INTERMEDIATE SIDE CONNECTIONS SHALL BE MADE WITH #10 SELF TAPPING SCREWS. THE MAXIMUM SPACING OF SIDE LAP CONNECTIONS SHALL BE 1'-6", WITH A MINIMUM OF (4) SCREWS PER SPAN.

COMPOSITE FLOOR DECK

1. MATERIALS:

METAL FLOOR DECK SHALL BE GALVANIZED AND OF DEPTH AND GAGE INDICATED ON THE DRAWINGS. METAL FLOOR DECK SHALL BE FORMED WITH EMBOSSMENTS TO PROVIDE A MECHANICAL LOCK BETWEEN THE STEEL FLOOR AND CONCRETE SLAB.

METAL FLOOR DECK SHALL BE FURNISHED IN SHEET LENGTHS SUFFICIENT TO EXTEND OVER 4 SUPPORTS (3 SPANS).

2. ATTACHMENT:

METAL FLOOR DECK SHALL BE FASTENED TO SUPPORTING STEEL, INCLUDING CAST IN PLACE PERIMETER STEEL ANGLES, WITH ATTACHMENTS EQUIVALENT TO 3/4" DIAMETER PUDDLE WELDS SPACED NOT MORE THAN 12" ON CENTER WITH A 36/4 FASTENING PATTERN. ADJACENT DECK UNITS SHALL BE FASTENED TOGETHER AT SIDE LAPS SUCH THAT THE CONNECTION SPACING DOES NOT EXCEED 24" ON CENTER, WITH A MINIMUM OF (4) SCREWS PER SPAN.

STEEL JOISTS

1. STEEL JOISTS SHALL CONFORM TO AND BE ERECTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS AND CODE OF STANDARD PRACTICE OF THE STEEL JOIST INSTITUTE AND AS SHOWN ON THE DRAWINGS.

2. BRIDGING FOR STEEL JOISTS SHALL BE AS SHOWN AND NOT LESS THAN 1 1/4"x 1 1/4"x 1/8". PROVIDE A CONTINUOUS SINGLE LINE OF BOTTOM CHORD UPLIFT BRIDGING NEAR THE FIRST PANEL POINT AT EACH END. THE MINIMUM SIZE SHALL BE 1 1/4"x 1 1/4"x 1/8".

3. HEADERS AND/OR FASTENERS BETWEEN JOISTS SHALL BE FASTENED TO TOP CHORD AND LOCATED OVER AN UPPER PANEL POINT OF A JOIST, UNLESS OTHERWISE SHOWN.

4. EXTEND ALL JOISTS 1" PAST CENTERLINE OF SUPPORTING MEMBER WHERE POSSIBLE. ON MASONRY WALLS 12" OR MORE IN THICKNESS, THE MINIMUM BEARING SHALL BE 6" UNLESS OTHERWISE NOTED.

5. ADJACENT JOISTS OF THE SAME DEPTH SHALL HAVE WEB MEMBERS IN LINE TO PERMIT PASSAGE OF MECHANICAL DUCTS.

6. ENDS OF EVERY THIRD FLOOR JOIST BEARING ON MASONRY SHALL BE ANCHORED WITH STANDARD WALL ANCHORS.

7. ANCHOR ALL STEEL JOIST BRIDGING LINES TO INTERSECTING CONCRETE WALLS, MASONRY WALLS, AND/OR STEEL BEAMS WITH LATERAL ANCHORS UNLESS SHOWN OTHERWISE.

8. JOISTS AND JOIST EXTENDED ENDS, WHETHER CANTILEVERED OR SUPPORTED, SHALL BE DESIGNED TO SUSTAIN UNIFORM LOAD CAPACITY OVER FULL SPAN INDICATED IN THE SJI LOAD TABLES FOR STEEL JOISTS, UNLESS NOTED OTHERWISE ON DRAWINGS WITH "SP" DESIGNATION.

9. JOIST MANUFACTURER SHALL DESIGN SPECIAL JOISTS, DESIGNATED "SP", FOR LOAD AND DEFLECTION CRITERIA SHOWN ON DRAWINGS. JOIST MANUFACTURER SHALL COORDINATE AND VERIFY WEIGHT, SIZE AND LOCATION OF MECHANICAL EQUIPMENT WITH GENERAL AND MECHANICAL CONTRACTORS.

10. JOISTS ON COLUMN LINES SHALL BE ANCHORED BY BOLTING. IF THERE IS NO JOIST ON COLUMN CENTERLINE, THE JOIST NEAREST THE COLUMN CENTERLINE SHALL BE ANCHORED BY BOLTING.

11. "K" SERIES JOISTS:

PROVIDE 5" DEEP ENDS ON JOISTS WHICH SHARE COMMON BEARING GIRDER WITH "LH" SERIES JOIST.

WELD ALL JOISTS TO SUPPORTING STEEL WITH 1 1/2" OF 3/16" FILLET WELD EACH SIDE OF BEARING, UNLESS OTHERWISE SHOWN.

12. "LH" SERIES JOISTS:

HORIZONTAL TOP AND BOTTOM BRIDGING MAY BE USED INSTEAD OF DIAGONAL BRIDGING ONLY WHERE REQUIRED TO PERMIT PASSAGE OF DUCTWORK. NO MORE THAN TWO ADJACENT JOIST SPACES MAY HAVE HORIZONTAL BRIDGING.

WELD ALL JOISTS TO SUPPORTING STEEL WITH 2" OF 1/4" FILLET WELD EACH SIDE OF BEARING, UNLESS OTHERWISE SHOWN.

13. MAXIMUM LIVE LOAD DEFLECTION SHALL BE 1/360 OF JOIST SPAN, UNLESS OTHERWISE NOTED ON DRAWINGS.

14. JOISTS THAT ARE 40 FEET OR LONGER SHALL HAVE A CENTER ROW OF BOLTED DIAGONAL BRIDGING INSTALLED PRIOR TO SLACKING OF HOISTING LINE.

15. WHERE DIAGONAL BRIDGING INTERFERES WITH MECHANICAL INSTALLATIONS, REMOVE CROSS BRIDGING AFTER TOTAL DEAD LOAD IS APPLIED AND REPLACE WITH HORIZONTAL ANGLES 2" X 2" x 3/16" AT TOP AND BOTTOM CHORDS.

CONCRETE MASONRY

MATERIALS:
DESIGN METHOD: WORKING STESS
HOLLOW LOAD BEARING UNITS: ASTM C 90
MORTAR: (TYPE S) ASTM C 270
(COMPRESSIVE STRENGTH OF MASONRY, f'm = 1500 PSI)
GROUT FOR REINFORCED MASONRY: ASTM C 476
(COMPRESSIVE STRENGTH AT 28 DAYS = 2500 PSI)
GROUT FOR REINFORCED MASONRY: ASTM C 476
SOLID LOAD BEARING UNITS: (GRADE N-I) ASTM C 145
CONCRETE BRICK: (GRADE N-I) ASTM C 55

1. WALLS INDICATED ON STRUCTURAL DRAWINGS ARE FOR REFERENCE ONLY. SEE ARCHITECTURAL DRAWINGS FOR LOCATION, THICKNESS AND COMPOSITION OF MASONRY WALLS.

2. ALL EXTERIOR MASONRY WALLS SHALL CONTAIN THE FOLLOWING REINFORCING:

1-#5 VERTICAL BAR AT 32" ON CENTER.

2-#6 VERTICAL BARS AT BOTH SIDES OF DOOR, WINDOW AND MECHANICAL OPENINGS.

2-#5 HORIZONTAL BAR MINIMUM ABOVE AND BELOW ALL WINDOW AND MECHANICAL OPENINGS AND ABOVE ALL DOOR OPENINGS. PROVIDE ADDITIONAL BARS ABOVE DOORS, WINDOWS AND MECHANICAL OPENINGS AS REQUIRED IN ACCORDANCE WITH LINTEL SCHEDULE ON ARCHITECTURAL DRAWINGS.

2-#5 HORIZONTAL AT TOP OF ALL WALLS, AND AT BOND BEAMS CONNECTED TO FLOORS AND ROOFS, UNLESS OTHERWISE INDICATED.

2-#6 VERTICAL BARS AT ENDS OF ALL WALLS, AND EACH SIDE OF CONTROL JOINTS.

STANDARD LADUR TYPE DESIGN DUR-O-WAL HORIZONTAL REINFORCING @ 16" O.C. VERTICAL. SIDE WIRE SIZE SHALL BE #9 GAGE WIRE.

3. INTERIOR SHEAR WALLS, WHERE INDICATED, SHALL HAVE SAME REINFORCING AS EXTERIOR WALLS.

4. ALL OTHER INTERIOR MASONRY WALLS SHALL CONTAIN THE FOLLOWING MINIMUM REINFORCING:

1-#4 VERTICAL BAR AT 48" ON CENTER.

1-#4 VERTICAL AND HORIZONTAL AT ALL SIDES OF DOORS, WINDOW AND MECHANICAL OPENINGS.

1-#4 HORIZONTAL BAR MINIMUM ABOVE AND BELOW ALL WINDOW AND MECHANICAL OPENINGS AND ABOVE ALL DOOR OPENINGS. PROVIDE ADDITIONAL BARS ABOVE DOORS, WINDOWS AND MECHANICAL OPENINGS AS REQUIRED IN ACCORDANCE WITH LINTEL SCHEDULE ON ARCHITECTURAL DRAWINGS.

1-#4 VERTICAL AT ENDS OF ALL WALLS, AND EACH SIDE OF CONTROL JOINTS.

1-#4 HORIZONTAL AT TOP OF ALL WALLS.

1-#4 HORIZONTAL IN BOND BEAMS CONNECTED TO FLOORS AND ROOFS .

STANDARD LADUR TYPE DESIGN DUR-O-WAL HORIZONTAL REINFORCING @ 16" O.C. VERTICAL. SIDE WIRE SIZE SHALL BE #9 GAGE WIRE.

5. PROVIDE VERTICAL DOWELS FROM CONCRETE WALLS INTO ALL CMU WALLS. SIZE AND SPACING OF THE DOWELS SHALL MATCH THE VERTICAL REINFORCING AS SPECIFIED IN THESE GENERAL NOTES, UNLESS OTHERWISE NOTED ON THE DRAWINGS. DOWEL LENGTHS SHALL BE THE REQUIRED CONCRETE DEVELOPMENT LENGTH PLUS THE REQUIRED BAR LAP SPLICE LENGTH FOR MASONRY AS SPECIFIED IN THESE GENERAL NOTES.

6. ALL VERTICAL WALL REINFORCING SHALL BE CONTINUOUS FOR THE FULL HEIGHT OF MASONRY WALLS, INCLUDING THROUGH CONTINUOUS MASONRY BOND BEAMS UNLESS OTHERWISE INDICATED.

7. ALL GROUTING OF MASONRY WALLS SHALL BE ASSUMED TO BE COMPLETED BY LOW LIFT GROUTING METHODS. IF THE CONTRACTOR PROPOSES TO UTILIZE HIGH LIFT GROUTING METHODS THEY SHALL SUBMIT THEIR PROPOSED HIGH LIFT GROUTING PROCEDURE FOR REVIEW PRIOR TO STARTING ANY GROUTING ON THE PROJECT SITE.

8. REINFORCING ABOVE WINDOWS, DOORS AND MECHANICAL OPENINGS IN THE EXTERIOR WALLS SHALL BE IN A BOND BEAM COURSE ABOVE THE STEEL LINTELS PROVIDED AT THESE OPENINGS. BOND BEAMS SHALL EXTEND 2'-0" BEYOND THE OPENING.

9. CELLS CONTAINING REINFORCING BARS AND ALL CELLS BELOW GRADE SHALL BE GROUTED SOLID. ALL OTHER CELLS SHALL REMAIN HOLLOW EXCEPT WHERE NOTED. THE CONTRACTOR SHALL NOT RUN CONDUIT OR PIPE IN CELLS CONTAINING REINFORCING.

10. ALL BOLTS OR ANCHORS SHALL BE SOLIDLY EMBEDDED IN MORTAR OR GROUT. IF BOND BEAM IS NOT LOCATED AT BOLT OR ANCHOR ELEVATION, PROVIDE LATH AND FILL CELL LOCALLY TO PROVIDE SUBSTRATE FOR BOLT OR ANCHOR. GROUT CELL ABOVE ALL MASONRY ANCHORS.

11. ALL COLUMNS WITHIN SHEAR WALLS AND EXTERIOR WALLS SHALL BE SOLIDLY EMBEDDED IN GROUT.

12. USE 2 COURSES (16") OF SOLID MASONRY OR GROUTED SOLID MASONRY BELOW EACH BEAM OR LINTEL BEARING EXCEPT AS NOTED.

13. USE 1 COURSE (8") OF SOLID MASONRY OR GROUTED SOLID MASONRY BELOW EACH STEEL JOIST BEARING EXCEPT AS NOTED.

14. PROVIDE CONTINUOUS GROUTED BOND BEAM WHERE MASONRY ANCHORS CONNECT CONCRETE MASONRY TO STEEL FRAMING. GROUT CELL ABOVE ANCHOR.

15. HOLLOW UNITS SHALL BE LAID WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS, EXCEPT THAT WEBS SHALL ALSO BE BEDDED IN ALL COURSES OF BEARING AND SHEAR WALLS, PIERS, COLUMNS AND PILASTERS, AND IN THE STARTING COURSE ON FOOTINGS AND SOLID FOUNDATION WALLS, AND WHERE ADJACENT TO CELLS OR CAVITIES WHICH ARE TO BE REINFORCED AND/OR FILLED WITH GROUT.

16. MORTAR PROTRUSIONS EXTENDING INTO CELLS OR CAVITIES TO BE REINFORCED AND/OR GROUTED SHALL BE REMOVED.

17. ALL MASONRY WALLS SHALL BE BRACED AT THE TOP WHERE MASONRY ENDS AT THE UNDERSIDE OF FLOOR OR ROOF CONSTRUCTION. REFER TO TYPICAL DETAILS.

18. ALL MASONRY WALLS THAT DO NOT EXTEND TO BOTTOM OF FLOOR OR ROOF STRUCTURE ABOVE SHALL BE BRACED AT THE TOP, UNLESS BRACED HORIZONTALLY BY COLUMNS OR INTERSECTING WALLS AT A MAXIMUM SPACING OF 11 FEET FOR 4" WALLS, 17 FEET FOR 6" WALLS, 23 FEET FOR 8" WALLS, AND 33 FEET FOR 12" WALLS. THE ENDS OF THE WALLS MUST BE ANCHORED TO INTERSECTING WALLS BY EITHER TOOTHING OR MECHANICAL ANCHORS. THERE SHALL BE NO VERTICAL CONTROL JOINTS WITHIN THE HORIZONTAL SPAN OF THE WALL BETWEEN THE INTERSECTING WALLS.

19. IN MASONRY WALLS, NO CHASES, RISERS, CONDUITS, OR TOOTHING OF MASONRY SHALL OCCUR WITHIN 17" OF CENTERLINE OF BEAM BEARING OR LOAD CONCENTRATION.

20. REINFORCING OF ACOUSTIC BLOCK MASONRY SHALL CONFORM WITH ARCHITECTURAL LAYOUT OF ACOUSTIC BLOCK. REFER TO ARCHITEC

UNDERPINNING NOTES

1. SUBMIT CALCULATIONS AND DRAWINGS PREPARED BY AN ENGINEER LICENSED IN THE STATE OF CONNECTICUT FOR THE UNDERPINNING WORK TO BE PERFORMED ON THE PROJECT.

2. EXCAVATE A MAXIMUM OF 5 FOOT LENGTHS FOR UNDERPINNING PIERS SPACED A MINIMUM OF 15 FEET ON CENTER A SINGLE STAGE OF WORK. INTERMEDIATE SECTIONS SHALL BE PERFORMED AS ADDITIONAL STAGES, UP2, UP3, ETC, AS INDIVIDUAL OPERATIONS. (SEE PLAN FOR STAGE INDICATION AND LAYOUT OF PIERS). EACH STAGE OF UNDERPINNING SHALL BE COMPLETED BEFORE THE NEXT STAGE BEGINS.

3. EXCAVATE TO DEPTH SHOWN ON DRAWINGS USING HAND METHODS AND SHEETING BOARDS AS REQUIRED TO PREVENT SLOUGHING OF THE SOIL INTO THE EXCAVATION. WHERE SOIL IS COHESIVE AND WILL CUT TO A VERTICAL EXCAVATION WITHOUT SLOUGHING, THE SHEETING INSTALLED MAY BE LIMITED TO THAT REQUIRED FOR SAFETY AND TO MEET THE LEGAL REQUIREMENTS OF WORKING IN AN EXCAVATION. DO NOT ASSUME THAT SHEETING IS NOT REQUIRED, UNLESS APPROVED BY THE ENGINEER BASED ON THE INITIAL EXCAVATION. PACK SPACES BETWEEN SHEETING BOARDS WITH GROUT TO PREVENT SOIL FROM SIFTING FROM BELOW EXISTING FOOTINGS. PROTECT SOIL BEHIND SHEETING FROM DRYING OUT BY WETTING OR COVERING WITH POLYETHYLENE. PLACE CONCRETE INTO PIT EXCAVATION THE SAME DAY AS EXCAVATION IS COMPLETED.

4. PLACE CONCRETE, 4000 PSI LOW SLUMP CONCRETE, IN SHEETING, OR TIGHT EXCAVATION IN THE CASE WHERE SOIL REQUIRES NO SHEETING TO REMAIN SOUND AND TIGHT AT EDGES OF EXCAVATION. STOP CONCRETE PLACEMENT 3 INCHES BELOW BOTTOM OF EXISTING FOOTINGS OR FOUNDATION BEING UNDERPINNED. AFTER 48 HOURS HAS ELAPSED, DRYPACK THE 3" GAP USING NON-SHRINK GROUT WITH ONLY ENOUGH WATER ADDED TO MAKE THE MATERIAL COHESIVE AND TO PROPERLY CURE THE MIX. PACK INTO VOID TIGHTLY FROM ACCESS SIDE USING A PIECE OF WOOD TO PACK TIGHTLY INTO SPACE. A MINIMUM OF 48 HOURS AFTER DRYPACKING IS COMPLETE, THE NEXT STAGE OF UNDERPINNING MAY PROCEED.

5. EXCAVATION SHALL PROCEED FROM ONLY ONE SIDE OF THE FOOTING/WALL BEING UNDERPINNED. USE EXTREME CARE IN THE REMOVAL OF SOIL TO AVOID DISTURBING THE ADJACENT BEARING SOIL AT EACH SIDE OF THE PIT BEING EXCAVATED.

Project Title:
Expansion and Renovate as New Project - PHASE 1 of 3
Crystal Lake Elementary School
284 Sandy Beach Road
Ellington, Connecticut 06029

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
01	ISSUED FOR BIDDING	NOV. 26, 2013	PJS

MHAI
Michael Horton Associates Inc.
Consulting Structural Engineers
151 Meadow Street
Branford, Connecticut 06405
203-481-8600 mha-eng.com

Drawing Title:
General Notes
State Project Number: 048-0058 EA/RR/PS

Date: june 18, 2013
Scale: AS NOTED
Drawn By: AC
Project Number: 12.140
Drawing Number: S600