STANDARD ABBREVIATIONS

air conditioning

knockout

A/C	air conditioning		
ACOUST AD	acoustical ad justable	LAM	laminate
AFF	above finish floor	LAV	lavatory
ALT	alternate	L H	left hand
ALUM	aluminum	LL LLH	live load long leg horizontal
ANCH	anchor, anchorage	LLY	long leg vertical
ARCH	architect/architectural	LTM	light weight
BD	board		
BIT	bituminous	NE	markerboard
BLDG	building	MB MAS	markerboard masonry
BLK	block	MAX	maximum
BLKG	blocking	MECH	mechanic/mechanical
BM	bench mark	MET	metal
BOTT BRG	bottom bearing	MH	manhole
BSMT	basement	MIN	minimum
20		MISC	miscellaneous
		OM LOM	masonry opening masonry control joint
C/C	center to center	MT	metal threshold
CAB	cabinet	MULL	mullion
CB CEM	chalkboard/catch basin cement		
CER	ceramic	NIC	not in contract
CF	cubic foot	NO	number
CHMR	chilled water return	NOM NRC	nominal noise reduction coefficient
CHMS	chilled water supply	NTS	not to scale
CI.	cast iron		
CJ	control joint	0/0	out to out
CLG CMU	ceiling concrete masonry unit	OA	overall
CO	clean out	00	on center
COL	column	OD OPG	outside diameter opening
CONC	concrete	OPP	opposite
CONST	construction	011	3pp33136
CONT	continuous/continuing	PCF	pounds per cubic foot
CONTR CONV	contract/contractor convector	PLAS	plaster
CRS	course(s)	±	plus or minus
CT	ceramic tile	PLF BGE	pounds per lineal foot
CUH	cabinet unit ventilator	PSF PSI	pounds per square foot pounds per square inch
CM	domestic cold water	PART	partition
CY	cubic yard	PVC	polyvinyl chloride
0	dagraa	PMT	pavement
DET	degree detail		
DF	drinking fountain	R	riser/radius
DIAG	diagonal	RA	return air
DIA or Φ	diameter	RD	roof drain
DIM	dimension	RE:	reference
DIV	division	REF	refrigerator
DP DG	dampproofing	REINF RES	reinforce(d)/reinforcing resilient
DS DMG	downspout drawing	REV	revision(s)/revised
<i>57</i> 10	ar aw mg	RH	right hand
		RM	room
EA	each	RO	rough opening
EIFS	exterior insulation finish system	ROW	right of way
E1 E/	(synthetic plaster)	RS RNC	roof sump rainwater conductor
ELEC EQ	electric/electrical equal	RNC	rainwaler conductor
EQUIP	equipment	SAN	sanitary
ENC	electric water cooler	SD	storm drain
EXIST	existing	SECT	section
EXH	exhaust	SHT	sheet
EXT	exterior	SIM SPEC	similar
FA	fire alarm	SQ	specification(s) square
FAI	fresh air intake	55 55	service sink
FD	floor drain	SST	stainless steel
FE	fire extinguisher	STL	steel
FEC	fire extinguisher cabinet	STD	standard
FIN FL	finish(ed)	SUSP SYM	suspended
FOUND	floor(ing) foundation	51141	symmetry/symmetrical
FTR	fin tube radiation	T#G	tongue/groove
FTG	footing	Т	tread
	•	TB	tackboard
G	gas	TEL	telephone
GA GC	gage/gauge	TERR	terrazzo threshold
GC GI	general contractor galvanized iron	THR TV	threshold television
GL	glass/glazing	TYP	typical
GST	glazed structural tile		- 9F · - 50
GALY	galvanized	UΗ	unit heater
	(a 129)	UR	urinal
HB	hose bibb	υ∨	unit ventilator
HDM HM	hardware hollow metal	V	vent
HORIZ	horizontal	V VERT	vertical
HGT	height	. — 31	
HTG	heating	M	width/wide
HVAC	heating/ventilating/air conditioning	M/	with
HM	domestic hot water	NC	water closet
HMHR	hot water heating return	MD MH	wood water heater

HATCHING PATTERN KEY

hot water heating supply

inside dimension

interior

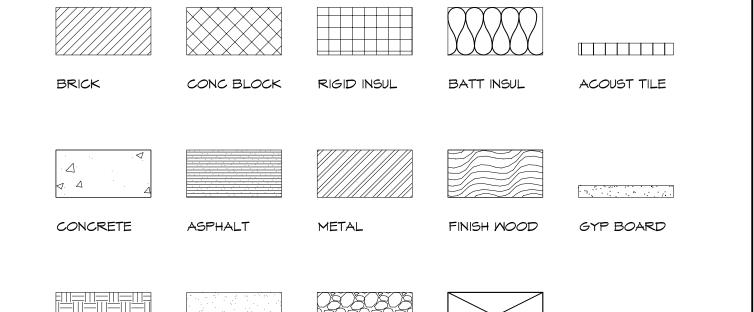
invert

domestic hot water return

HMHS

INV

EARTH



MH

M/M

MMR

LUMBER

water heater

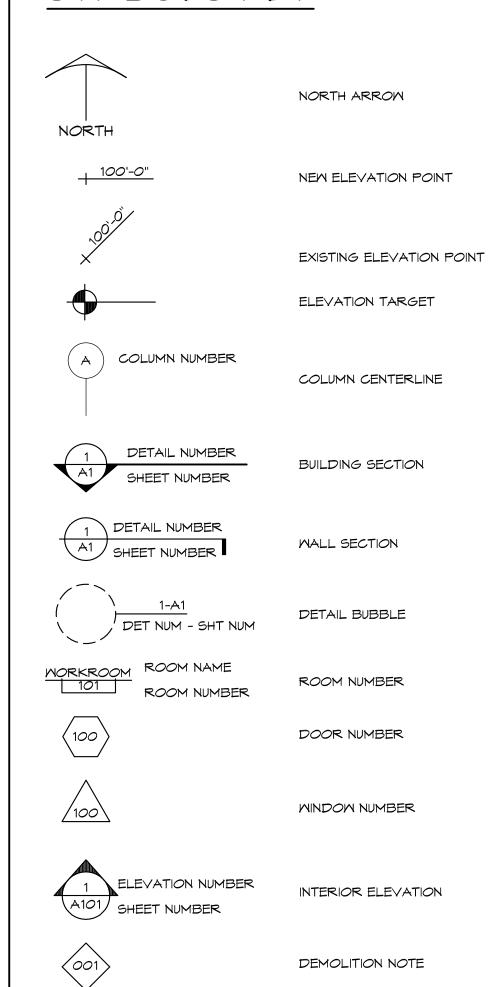
wrought iron

welded wire reinforcement

PLYMOOD

wall to wall

SYMBOLS KEY



DEVELOPMENT DATA

DEMOLITION NOTE

APPLICABLE CODES & ORDINANCES MICHIGAN BUILDING CODE 2009 MICHIGAN ELECTRIC CODE - 2011 OAKLAND COUNTY DRAIN COMMISSION

BUILDING AREA EXISTING GROSS = (1478) SF ADDITION GROSS = (998) SF (2476) SF

BUILDING USE EXISTING (STORAGE) S2 ADDITION (STORAGE) S2

BUILDING CONSTRUCTION TYPE

OCCUPANCY 1/500 = 4 OCCUPANTS

FIRE SUPPRESSION NON SPRINKLED

HEATING AND COOLING NONE

CITY OF ROCHESTER HILLS

1000 ROCHESTER HILLS DRIVE ROCHESTER HILLS, MI

ADDITION TO: SPENCER PARK STORAGE BUILDING

3701 JOHN R. ROCHESTER HILLS, MI 48304

INDEX OF DRAWINGS

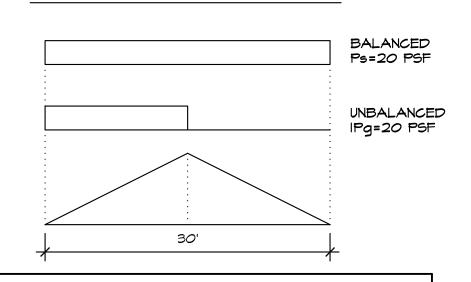
TITLE SHEET G001 G002 TYPICAL STRUCTURAL NOTES TYPICAL STRUCTURAL DETAILS 6003

SITE PLAN C101

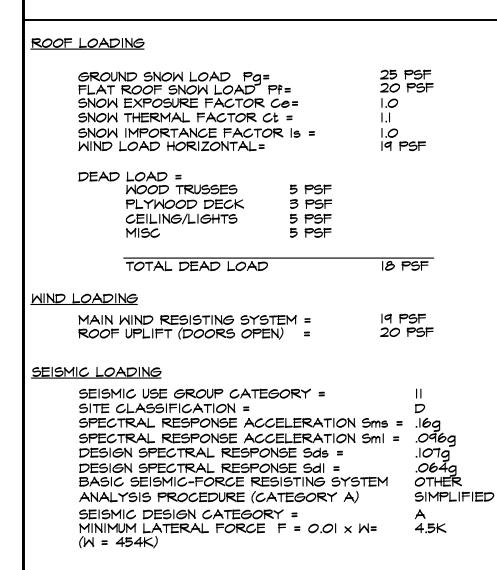
FOUNDATION PLAN, FLOOR PLAN, FRAMING PLAN AND ELECTRICAL PLAN A101

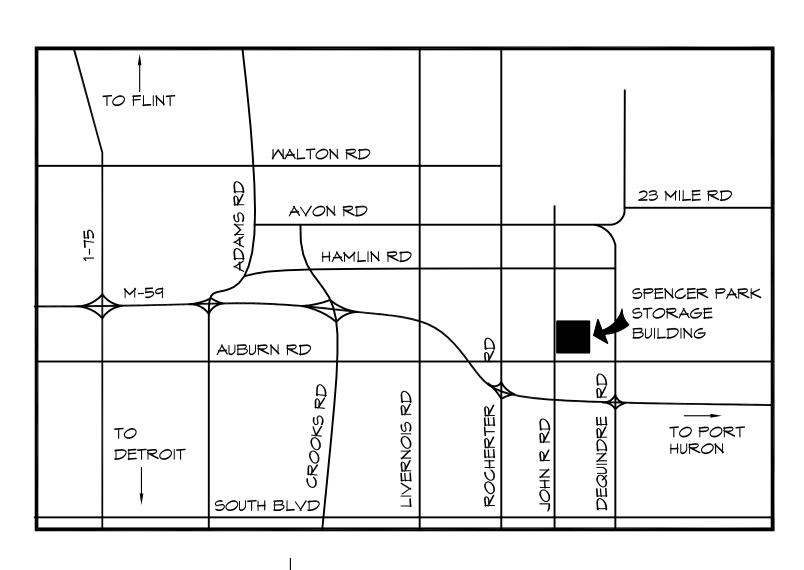
A102 EXTERIOR ELEVATIONS AND WALL SECTIONS

TRUSS SNOW LOADING



STRUCTURAL LOADS





LOCATION MAP NO SCALE



ARCHITECTS

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WWW.THA-FLINT.COM

NO. | REVISIONS / SUBMISSIONS DATE SEAL PROJECT NO. EHD 13-104 CHECKED CAD FILE NO. MLB REVIEWED DRAWING NO. DATE 12-20-2013 SHEET NO. SCALE OF

STRUCTURAL NOTES

- 1. THESE NOTES ARE TO BE READ IN CONJUNCTION WITH THE WRITTEN SPECIFICATIONS AND THESE DRAWINGS. IN THE EVENT OF CONFLICT BETWEEN THE INFORMATION ON THE DRAWINGS, THESE NOTES, AND THE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE NEW FOUNDATIONS WITH THE EXISTING UNDERGROUND UTILITIES IF ANY, AND FOR COORDINATING THE PRE-MANUFACTURED ENGINEERED ROOF TRUSS SYSTEM WITH THE MASONRY SUPPORTING WALLS. DISCREPANCIES AND/OR INTERFERENCES SHALL BE REPORTED TO THE ARCHITECT ENGINEER IMMEDIATELY.
- 3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, GRADE ELEVATIONS, EXISTENCE OF ANY BURIED UTILITIES AND OTHER RELEVANT CONDITIONS BEFORE BEGINNING WORK. THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS AND BE RESPONSIBLE FOR SAME.
- 4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE SHORING AND BRACING DURING CONSTRUCTION TO ACCOUNT FOR ALL FORCES, INCLUDING BUT NOT LIMITED TO; FORCES FROM GRAVITY, EARTH, WIND, LIQUID HEAD OF CONCRETE, AND UNBALANCED FORCES DUE TO CONSTRUCTION SEQUENCE.
- 5. FOR CONDITIONS NOT EXPRESSLY SHOWN USE DETAILS SHOWN FOR OBVIOUSLY SIMILAR CONDITIONS.
- 6. NO OPENINGS SHALL BE MADE IN ANY STRUCTURAL MEMBER UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS OR UNLESS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
- 7. UPLIFT ANCHORAGE FOR PRE-ENGINEERED ROOF TRUSSES SHALL BE CAPABLE OF RESISTING 600 LB UPLIFT FORCE AT EACH TRUSS TO WALL CONNECTION.
- 8. REPRODUCTIONS, IN WHOLE OR IN PART, OF ENGINEER'S DESIGN DOCUMENTS, SHALL NOT BE USED AS SHOP DRAWING PLANS AND/OR DETAILS. SHOP DRAWINGS THAT ARE PREPARED FROM ENGINEER'S DESIGN DOCUMENTS WILL BE REJECTED.

DESIGN

- 1. THE DESIGN OF THE ADDITION TO THE EXISTING STRUCTURE IS IN ACCORDANCE WITH STATE OF MICHIGAN BUILDING CODE 2009 EDITION, INCLUDING THE REFERENCED STANDARDS GIVEN IN CHAPTER 35. ADDITIONAL REFERENCED STANDARDS SHALL BE THE LATEST EDITION PUBLISHED BY THE NAMED ORGANIZATION.
- 2. WARNING: THE STRUCTURAL INTEGRITY OF THE BUILDING ADDITION SHOWN ON THESE PLANS IS DEPENDENT UPON COMPLETION ACCORDING TO PLANS AND SPECIFICATIONS. STRUCTURAL MEMBERS ARE NOT SELF-BRACING AND SHALL BE SHORED AND/OR BRACED BY THE CONTRACTOR AS NECESSARY UNTIL STABILIZED BY VIRTUE OF COMPLETED CONNECTIONS.

FOUNDATIONS:

- THE SLAB ON GRADE SHALL REST ON A MINIMUM OF SIX (6) INCHES GRANULAR FILL, COMPACTED TO AT LEAST 95% OF THE MAXIMUM DENSITY (AS DEFINED BY THE ASTM D 1557 MODIFIED PROCTOR TEST.)
- 2. ALL FOOTINGS SHALL BEAR ON UNDISTURBED SOIL, HAVING A MINIMUM SAFE BEARING CAPACITY OF 2500 PSF. THE TESTING AND INSPECTION AGENCY SHALL VERIFY SOIL BEARING CAPACITY AT EACH FOOTING PRIOR TO PLACEMENT OF CONCRETE. NOTIFY ARCHITECT OF ANY VARIATION FROM THE ANTICIPATED BEARING CAPACITY FOR APPROPRIATE REDESIGN OR LOWERING OF FOOTING.
- 3. FOOTINGS SHALL BE LOWERED, AND FOUNDATIONS INCREASED IN HEIGHT AS APPROVED BY THE ARCHITECT, WHERE SOIL OF THE SPECIFIED BEARING CAPACITY IS FOUND AT A LOWER ELEVATION THAN THE BOTTOM OF FOOTING ELEVATION SHOWN ON THE DRAWINGS.
- 4. THE BOTTOMS OF ALL FOOTINGS SHALL BE MINIMUM 3'-6" BELOW FINISHED GRADE.
- 5. EDGES OF FOOTINGS SHALL NOT BE PLACED AT A GREATER THAN 1 VERTICAL TO 2 HORIZONTAL SLOPE WITH RESPECT TO ANY ADJACENT FOOTING OR EXCAVATION, UNLESS UNDERPINNING OR SHORING AND BRACING OF EXISTING FOOTING OR EXCAVATION IS PROVIDED. UNDERPINNING SHALL BE DONE SO AS NOT TO CAUSE SETTLEMENTS OF EXISTING STRUCTURE AND SHALL BE SUCH THAT COMPLETE CONTACT IS ACHIEVED BETWEEN NEW UNDERPINNING AND EXISTING CONCRETE.
- 6. BACKFILLING AGAINST FOUNDATION WALLS SHALL NOT BE DONE UNTIL CONCRETE HAS BEEN CURED TO ATTAIN SUFFICIENT STRENGTH, 7 DAYS MINIMUM, AND WALLS ARE PROPERLY SHORED AND/OR BRACED. BACKFILL FOUNDATION WALLS WITH EARTH ON BOTH SIDES OF THE WALL BY ALTERNATELY PLACING BACKFILL ON EACH SIDE SO THAT HEIGHT OF BACKFILL DOES NOT DIFFER BY MORE THAN 1'-0" FROM OTHER SIDE.
- 7. ALL BACKFILL WITHIN BUILDING LINES SHALL BE ENGINEERED GRANULAR FILL PLACED UNDER THE FULL TIME SUPERVISION OF A SOIL ENGINEER AND SHALL BE COMPACTED TO ACHIEVE 95% MODIFIED PROCTOR DENSITY. FILL SHALL BE PLACED IN 9" MAXIMUM LIFTS.
- 8. THE CONTRACTOR SHALL SAFEGUARD AND PROTECT ALL EXCAVATIONS, AND ADJACENT STRUCTURES, PAVEMENTS, AND UTILITIES. ALL EXCAVATIONS SHALL BE KEPT FREE OF WATER. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN, INSTALLATION, MAINTENANCE, AND REMOVAL OF ALL SHORING, BRACING, AND DEWATERING REQUIRED TO PROPERLY CONSTRUCT THE FOUNDATIONS AND TO PROTECT ADJACENT STRUCTURES, PAVEMENTS AND UTILITIES. DO NOT REMOVE SHORING SUCH AS SHEET PILING IF IT WILL CAUSE SETTLEMENT OR DAMAGE TO EXISTING OR NEW STRUCTURES, PAVEMENT, AND/OR UTILITIES.
- 9. MAXIMUM LENGTH OF FOUNDATION PLACED IN ONE OPERATION SHALL NOT EXCEED 60 FEET.
- 10. THE FOUNDATION CONTRACTOR SHALL REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL LOCATIONS OF TRENCHES, PITS, CONDUITS, ETC. NOT SHOWN ON THE STRUCTURAL DRAWINGS.

FOUNDATION CONCRETE:

- ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE ACI 301, 318, AND SP-66 (315 INCLUDED AS A CHAPTER), LATEST EDITIONS.
- . ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS:
- A. FOOTINGS & UNDERPINNING 3000 PSI
- B. WALLS AND PIERS 4000 PSI AIR ENTRAINED
 C. SLAB ON GRADE 4000 PSI AIR ENTRAINED
- NO CONCRETE SHALL BE PLACED UNTIL CONCRETE DESIGN
 3. MIXES AND PREVIOUS TESTS HAVE BEEN SUBMITTED FOR
 EACH CLASS OF CONCRETE NOTED ABOVE AND HAVE BEEN
 APPROVED BY THE ENGINEER. CONCRETE PROPORTIONS
 SHALL BE BASED UPON FIELD EXPERIENCE AND/OR TRIAL
- 4. BATCHES PER ACI 301 AND ACI 318. THE CONTROLLED CONCRETE TO BE USED SHALL CONFORM TO THE APPROVED DESIGN MIX. THE USE OF ANY ADDITIVES NOT PRESENT IN THE DESIGN MIX IS PROHIBITED.
- REPRESENTATIVE TEST CYLINDERS WILL BE TAKEN FROM THE CONCRETE PLACED EACH DAY IN ACCORDANCE WITH CONCRETE SPECIFICATIONS.
- REINFORCING STEEL SHALL BE DEFORMED BARS OF

 5. INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO
 CURRENT REQUIREMENTS OF ASTM A 615 GRADE 60 OR
 ASTM A 706, GRADE 60. ALL HOOKS SHALL BE STANDARD
 HOOKS, UNLESS OTHERWISE NOTED. ALL LAPS SHALL BE

 6. CLASS 'B' LAPS EXCEPT THE MINIMUM LAP LENGTH SHALL
 BE 24" UNLESS NOTED OTHERWISE.
- WELDED WIRE REINFORCEMENT (WWR) SHALL CONFORM TO ASTM A 185.
- ALL WWR SHALL BE SPLICED SO THAT THE OVERLAP OF THE OUTERMOST CROSS WIRES OF EACH ADJOINING SHEET

 7. IS NOT LESS THAN THE SPACING OF THE CROSS WIRES PLUS TWO INCHES, UNLESS NOTED OTHERWISE.
- 8. FOR ALL SLABS ON GRADE, USE 6 X 6 W2.9 X W2.9 WWR LOCATED IN THE TOP 1/3 OF THE SLAB. PROVIDE CHAIRS WITH SAND PLATES TO HOLD THE WWR IN PLACE.
- 10. MINIMUM CONCRETE COVER OVER REINFORCING, UNLESS
 9. OTHERWISE SHOWN, SHALL BE 1" FOR INTERIOR FACE OF
 WALLS, 2" FOR EXTERIOR FACE OF WALLS, 3" FOR
 FOOTINGS AND OTHER STRUCTURAL CONCRETE DEPOSITED
 AGAINST GROUND, 2" FOR CONCRETE PERMANENTLY
 EXPOSED TO EARTH OR WEATHER, 1 ½" FOR PIER TIES AND
 BEAM STIRRUPS.
- 11. ALL CONCRETE STRUCTURAL MEMBERS SHALL BE PLACED FOR THEIR FULL DEPTHS IN ONE OPERATION.

 CONSTRUCTION JOINTS, SUCH AS DAY'S END PLACEMENT JOINTS, SHALL BE LOCATED IN THE MIDDLE THIRD OF THE SPAN, REINFORCING TO RUN THROUGH THE JOINT, BULKHEAD, KEY AND ROUGHEN JOINTS. REMOVE LAITANCE PRIOR TO NEXT POUR.
- 12. FOR ADDITIONAL CONCRETE WORK NOT SHOWN ON STRUCTURAL DRAWINGS, SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
- 13. PROVIDE ACCESSORIES AND BAR SUPPORTS IN ACCORDANCE WITH "ACI DETAILING MANUAL -2004" ACI SP-66, LATEST EDITION.
- 14. CONCRETE SHALL NOT BE PLACED UNTIL PREPARATIONS HAVE BEEN APPROVED BY THE TESTING AND INSPECTION AGENCY, INCLUDING FORMWORK, REINFORCEMENT, EMBEDMENTS, AND ACCESSORIES.
- 15. REPRODUCTIONS, IN WHOLE OR IN PART, OF ENGINEER'S DESIGN DOCUMENTS, SHALL NOT BE USED AS SHOP DRAWING PLANS AND/OR DETAILS.

MASONRY:

- I. CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT UNITS AND SHALL CONFORM TO ASTM C 90 WITH A MINIMUM DESIGN COMPRESSIVE UNIT STRENGTH OF 1900 PSI AND A PRISM STRENGTH OF 1500 PSI. CONCRETE MASONRY CONSTRUCTION SHALL CONFORM TO THE FOLLOWING STANDARDS:
- A. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, ACI 530/ASCE 5.
- B. SPECIFICATIONS FOR MASONRY STRUCTURES, ACI 530.1/ASCE 6.
- C. HOT AND COLD WEATHER MASONRY CONSTRUCTION BY THE MASONRY INDUSTRY COUNCIL.
- MORTAR FOR CONCRETE MASONRY SHALL CONFORM TO ASTM C 270, TYPE M FOR ALL BELOW GRADE CONCRETE MASONRY UNITS. AT ABOVE GRADE UNITS, USE TYPE S AT CONCRETE MASONRY UNITS. SOLID GROUT ALL HOLLOW CORES BELOW GRADE.
- 3. REINFORCING FOR CONCRETE MASONRY SHALL CONFORM TO ASTM A 615 GRADE 60. MINIMUM BAR LAP SHALL BE IN ACCORDANCE WITH THE ABOVE DESCRIBED STANDARDS OR 24", WHICHEVER IS GREATER.
- 4. GROUT FOR BOND BEAMS AND TO FILL CORES OF WALLS SHALL CONFORM TO ASTM C 476, WITH A MINIMUM COMPRESSIVE CYLINDER STRENGTH OF 3000 PSI AT 28 DAYS. GROUT SHALL BE VIBRATED AND RE-VIBRATED AFTER INITIAL WATER LOSS TO INSURE COMPLETE FILLING OF CORES.
- PLACE LADDER TYPE HORIZONTAL JOINT REINFORCING WITH PREFORMED LAPPED CORNER REINFORCING AT 16" O.C. VERTICALLY IN ALL MASONRY WALLS U.O.N.
- A. JOINT REINFORCING SHALL CONFORM TO ASTM A 951, BE GALVANIZED AND HAVE SIDE WIRES OF 9 GAGE MINIMUM CONFORMING TO ASTM A 82 U.O.N.
- B. ALL JOINT REINFORCING AND VENEER TIES SHALL BE HOT DIP GALVANIZED.
- 6. PROVIDE A CONTINUOUS 1'- 4" TALL BOND BEAM WITH 2-#5
 BARS CONTINUOUS IN THE TOP TWO COURSES OF ALL
 BLOCK WALLS, AT LOCATIONS WHERE FRAMING MEMBERS
 ARE BOLTED TO FACE OF CMU WALLS, BELOW BEAM
 BEARINGS, AND AT LOCATIONS INDICATED IN THE
 DRAWINGS. BOND BEAMS SHALL HAVE CORNER BARS
 AROUND CORNERS AND AT WALL INTERSECTIONS.
- 7. VERTICAL CONTROL JOINTS OF A KEY TYPE AS INDICATED ON THE PLANS ARE TO BE PLACED IN ALL MASONRY WALLS AT INTERVALS NOT TO EXCEED 24 FEET APART. THE CONTRACTOR SHALL FURNISH A CONTROL JOINT LOCATION PLAN FOR THE ARCHITECT'S APPROVAL IF THE PLANS DO NOT SUFFICIENTLY DESCRIBE THE LOCATION OF ALL REQUIRED CONTROL JOINTS.
- 8. ALL WALLS ARE TO HAVE ONE #4 VERTICAL REINFORCING BAR CENTERED IN A SOLID GROUTED CORE AT 24" C/C SPACING UNLESS NOTED OTHERWISE. AT JAMBS OF OPENINGS PROVIDE TWO SOLID GROUTED CORES AT EACH JAMB REINFORCED WITH 2 #4 VERTICAL REINFORCING BARS FULL HEIGHT OF THE WALL.
- 9. THE DISCONTINUOUS ENDS OF ALL MASONRY WALLS SHALL BE SOLIDLY GROUTED A MINIMUM OF 16" OR TWO BLOCK CELLS AND REINFORCED FOR THEIR FULL HEIGHT WITH TWO #4 BARS UNLESS OTHERWISE NOTED.

EXISTING MASONRY - PATCHING, FILLING-IN, REBUILDING, TUCK POINTING:

- . ALL MASONRY CONSTRUCTION SHALL CONFORM TO:
- A. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, ACI 530/ASCE 5.
- B. SPECIFICATIONS FOR MASONRY STRUCTURES, ACI 530.1/ASCE 6.
- C. TECHNICAL NOTES ON BRICK CONSTRUCTION, TECHNICAL NOTES 1-48, BIA.
 D. GUIDE SPECIFICATION FOR BRICK MASONRY, TECHNICAL
- NOTES 11A-E, BIA.

 E. HOT AND COLD WEATHER MASONRY CONSTRUCTION BY THE MASONRY INDUSTRY COUNCIL.
- 2. SALVAGED MASONRY UNITS SHALL BE USED WITH CAUTION, ESPECIALLY IF THE UNITS TO BE REUSED ARE COMMON BUILDING BRICKS. THE MASONRY CONTRACTOR SHALL READ "TECHNICAL NOTE 15- SALVAGED BRICK" PUBLISHED BY THE BRICK INDUSTRY ASSOCIATION, (BIA). CARE SHALL BE TAKEN TO NOT RE-USE ANY SOFT UNDER BURNED UNITS FROM INTERIOR MYTHE BRICK. THE MASON CONTRACTOR SHALL COORDINATE ALL ACTIVITIES AND METHODS THROUGH THE ARCHITECT.
- 3. NEW MASONRY CONSTRUCTION SHALL BE SOLIDLY TOOTHED INTO EXISTING MASONRY TO THE FULL THICKNESS OF THE EXISTING CONSTRUCTION. SEE DETAILING THIS SHEET FOR FURTHER NOTES AND DETAILS.
- 4. MORTAR FOR TOOTHING IN, REPAIRING AND TUCK POINTING SHALL CONFORM TO ASTM C 270, TYPE N WITH THE HIGHEST PERMISSIBLE LIME CONTENT FOR TYPE N.
- 5. TUCK POINTING SHALL BE PERFORMED IN ACCORDANCE WITH INSTRUCTIONS FOUND IN "TECHNICAL NOTE 46 MAINTENANCE OF BRICK MASONRY" PUBLISHED BY THE BRICK INDUSTRY ASSOCIATION. ALL TUCK POINTING MORTAR SHALL BE PRE-HYDRATED, PER TECHNICAL. NOTE
 - "ALL DRY INGREDIENTS SHOULD BE THOROUGHLY MIXED. ONLY ENOUGH CLEAN WATER SHOULD BE ADDED TO THE DRY MIX TO PRODUCE A DAMP CONSISTENCY WHICH WILL RETAIN ITS SHAPE WHEN FORMED INTO A BALL. THE MORTAR SHOULD BE MIXED TO THIS DAMPENED CONDITION FOR 1 TO 1½ HR BEFORE ADDING WATER FOR PLACEMENT.... WATER SHOULD BE ADDED TO THE PRE-HYDRATED MORTAR TO BRING IT TO A WORKABLE CONSISTENCY; (SOMEWHAT DRIER THAN CONVENTIONAL MORTAR)."
- 6. NEW MULTI-WYTHE MASONRY WALL SECTIONS SHALL BE CONSTRUCTED SIMILAR TO THE EXISTING CONSTRUCTION. BOND IN MULTI WYTHE BRICK WALLS SHALL BE ACCOMPLISHED THROUGH THE USE OF MASONRY HEADER COURSES BETWEEN WYTHES AT EVERY SIXTH COURSE. THE COLLAR JOINTS OF ALL WALLS SHALL BE FILLED SOLIDLY WITH MORTAR AS THE WALL IS BUILT UP. BOND BETWEEN WYTHES IN BRICK AND BLOCK WALLS SHALL BE ACCOMPLISHED THROUGH THE USE OF METAL TIES OF SIMILAR DESIGN TO THE EXISTING TIES. FREQUENCY OF METAL TIES SHALL BE ONE PER 1.77 SQUARE FOOT OF WALL TYPICALLY AND ONE PER .88 SQUARE FOOT AT HEADS, JAMBS, AND SILLS OF OPENINGS.

SAW CUTTING EXISTING CONCRETE AND OR MASONRY:

1. SAW CUTTING OF NEW OPENINGS IN EXISTING CONCRETE AND/OR MASONRY WALLS SHALL BE DONE WITHOUT OVERCUTTING BEYOND THE BOUNDARIES OF THE INTENDED OPENING. ANY STRUCTURAL REPAIRS REQUIRED BY THE STRUCTURAL ENGINEER AS A RESULT OF OVERCUTTING BEYOND THE BOUNDARIES OF AN OPENING SHALL BE PAID FOR BY THE SAW CUTTING CONTRACTOR. SEE DRAWINGS FOR ADDITIONAL INFORMATION.

FIELD DRILLED ADHESIVE ANCHORS:

- . FIELD DRILLED ADHESIVE BOLTS SHALL BE HILTI HVA OR H.I.T. SYSTEM ADHESIVE ANCHORS AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC., OR ITW RAMSET/REDHEAD, POWERS FASTENERS, OR SIMPSON STRONG-TIE ANCHOR SYSTEMS EQUIVALENTS. SUBMIT I.C.C. ES REPORT OR SIMILAR DATA FOR EACH TYPE OF ANCHOR PROPOSED FOR USE. DO NOT INSTALL ANCHORS UNTIL SUBMITTAL IS RETURNED "APPROVED".
- 2. ANCHORS SHALL BE INSTALLED PER CONTRACT DOCUMENTS AND PER MANUFACTURER'S RECOMMENDATIONS UNDER THE CONTINUOUS SUPERVISION OF AN INDEPENDENT TESTING AGENCY. WHERE THE PROVISIONS OF THE ABOVE REFERENCED DOCUMENTS ARE IN CONFLICT, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN.
- 3. DO NOT DRILL THROUGH EXISTING EMBEDDED
 REINFORCING STEEL. LOCATE EXISTING REINFORCING
 STEEL, CREATE TEMPLATES AND ADJUST LOCATIONS OF
 HOLES IN MEMBERS BEING ATTACHED TO CLEAR EXISTING
 EMBEDDED REINFORCING.
- 4. DO NOT EXCEED MINIMUM OR MAXIMUM BOLT SPACINGS OR EDGE DISTANCE SHOWN ON THE MANUFACTURER'S LITERATURE.
- 5. ALL ABANDONED HOLES DRILLED IN THE CONCRETE SHALL
- BE COMPLETELY FILLED WITH EPOXY.

 6. TYPICALLY, HOLES IN CONNECTION PLATES SHALL BE NO MORE THAN 1/16" LARGER THAN THE ADHESIVE ANCHOR
- MORE THAN 1/16" LARGER THAN THE ADHESIVE ANCHOR ROD DIAMETER. IF LARGER DIAMETER HOLES ARE USED FOR ERECTION PURPOSES THE CONTRACTOR MUST PROVIDE PLATE WASHERS. PLATE WASHERS MUST BE WELDED TO THE CONNECTION PLATE TO TRANSFER THE LOAD. WELDING MUST TAKE PLACE AFTER HOLES ARE DRILLED, BUT PRIOR TO ADHESIVE INSTALLATION TO AVOID BURNING THE ADHESIVE.

FIELD DRILLED EXPANSION BOLTS:

- . FIELD DRILLED EXPANSION BOLTS SHALL BE HILTI KWIK BOLT 3 ANCHOR BOLTS AS MANUFACTURED BY THE HILTI CORP., OR ITM, POWERS FASTENERS, SIMPSON-TIE ANCHOR SYSTEMS EQUIVALENTS. SUBMIT I.C.C. ES REPORT OR SIMILAR DATA FOR EACH TYPE OF ANCHOR PROPOSED FOR USE. DO NOT INSTALL ANCHORS UNTIL SUBMITTAL IS RETURNED "APPROVED".
- 2. ONLY ONE LENGTH BOLT SHALL BE PRESENT ON THE JOB SITE FOR A GIVEN BOLT DIAMETER, UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.
- 3. EXPANSION BOLTS OF THE DIAMETER AND EMBEDMENT SHOWN ON THE DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE RECOMMENDATIONS OF THE MANUFACTURER. WHERE PROVISIONS OF THE ABOVE REFERENCED DOCUMENTS ARE IN CONFLICT, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN.
- 4. EXPANSION BOLTS SHALL BE INSTALLED PERPENDICULAR TO THE FACE OF THE CONCRETE BEING DRILLED. THE MAXIMUM TOLERANCE FOR DEVIATION FROM PERPENDICULAR SHALL BE 10 DEGREES. ALL EXPANSION BOLTS INSTALLED OUTSIDE OF THE SPECIFIED TOLERANCE SHALL BE CONSIDERED UNACCEPTABLE.
- 5. THE CONTRACTOR SHALL CREATE A TEMPLATE AT EACH EXPANSION BOLT CONNECTION LOCATION PRIOR TO FABRICATING HOLES IN CONNECTING PLATES OR ROLLED SHAPES. TEMPLATES SHALL BE MADE BY FIRST LOCATING EXISTING REINFORCING STEEL WITH A PACHOMETER AND THEN DRILLING BOLT HOLES SUCH THAT NO CONFLICT EXISTS WITH THE EXISTING REINFORCING. BOLT LOCATIONS IN THE FIELD MAY BE RELOCATED A MAXIMUM OF 1 ½" FROM THE DIMENSIONS SHOWN ON THE DRAWINGS TO AVOID CONFLICTS WITH THE EXISTING REINFORCING STEEL. HOMEVER, DO NOT EXCEED MINIMUM OR MAXIMUM BOLT SPACINGS OR EDGE DISTANCES SHOWN ON THE DRAWINGS.
- 6. SUBMIT DRAWINGS OF TEMPLATES SHOWING HOLE LOCATIONS PRIOR TO FABRICATION OF CONNECTING PLATES OR ROLLED SHAPES.
- . HOLES DRILLED IN THE CONCRETE SHALL BE THE DIAMETER AS RECOMMENDED BY THE MANUFACTURER. THE HOLE DIAMETER SHALL NOT EXCEED THE MAXIMUM DIAMETER AT ANY LOCATION ALONG THE LENGTH OF THE BOLT.
- 8. FOREIGN MATERIAL SHALL NOT BE PLACED IN THE HOLES THAT RECEIVE EXPANSION BOLTS.
- 9. ALL ABANDONED HOLES DRILLED IN THE CONCRETE SHALL BE COMPLETELY FILLED WITH EPOXY.
- 10. FOLLOW MANUFACTURER'S REQUIREMENTS FOR MINIMUM EDGE DISTANCE AND SPACING TO OBTAIN FULL ANCHOR CAPACITY.
- 11. INSTALLATION OF EXPANSION BOLTS SHALL BE MONITORED BY THE TESTING LABORATORY TO INSURE BOLTS ARE INSTALLED CORRECTLY AND THAT MANUFACTURER'S REQUIRED INSTALLATION TORQUES ARE OBTAINED.
- 12. TYPICALLY HOLES IN CONNECTION PLATES SHALL BE NO MORE THAN 1/16" LARGER THAN THE EXPANSION BOLT DIAMETER. IF LARGER DIAMETER HOLES ARE USED FOR ERECTION PURPOSES THE CONTRACTOR MUST PROVIDE PLATE WASHERS. PLATE WASHERS MUST BE WELDED TO THE CONNECTION PLATE OR ROLLED SHAPE TO TRANSFER THE LOAD.

MOOD FRAMING:

- 1. ALL WOOD FRAMING SHALL CONFORM TO THE "TIMBER CONSTRUCTION MANUAL" BY THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" BY THE AMERICAN FOREST & PAPER ASSOCIATION AMERICAN WOOD COUNCIL.
- 2. WOOD FOR FLOOR AND ROOF FRAMING SHALL CONFORM TO THE FOLLOWING:
- A. JOISTS, BEAMS, AND LINTELS/DIMENSION LUMBER

DOUGLAS FIR-LARCH (DF) SELECT STRUCTURAL (MWPA/NLGA)

- a. BENDING FB [1,350] PSI b. SHEAR FV[180] PSI
- b. SHEAR FY [180] PSIc. MOD. ELAS. E= [1,900,000] PSI

OR

- SOUTHERN PINE (SP) NO. 1 (SPIB)
- a. BENDING FB [1250] PSI
- b. SHEAR FV[175] PSIc. MOD. ELAS. E= [1,700,000] PSI
- A. LAMINATED VENEER LUMBER BEAMS (LVL):
- a. BENDING FB= [2600] PSI
- b. SHEAR FV= [285] PSI
- c. E= [1,900,000] PSI

DRAWINGS.

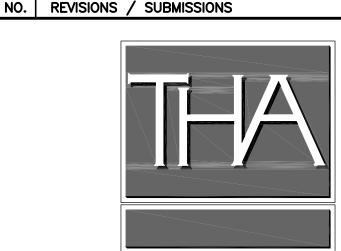
TRUSS END.

a. BENDING FB= [2900] PSI

B. PARALLEL STRAND LUMBER (PSL):

- b. SHEAR FV= [290] PSI c. E= [2,000,000] PSI
- 3. ROOF DECK SHALL BE IDENTIFIED WITH THE
 APPROPRIATE GRADE TRADEMARK OF THE APA THE
 ENGINEERED WOOD ASSOCIATION AND SHALL MEET THE
 REQUIREMENTS OF THE LATEST EDITION OF "U.S. PRODUCT
 STANDARDS, PS 1 FOR CONSTRUCTION AND INDUSTRIAL
 PLYWOOD". PLYWOOD THICKNESS IS SHOWN ON THE
- GLUE FOR MOOD CONSTRUCTION SHALL COMPLY WITH SPECIFICATION AFG-01 OF THE APA THE ENGINEERED MOOD ASSOCIATION.
- 5. ALL WOOD ROOF TRUSSES SHALL BE SHOP FABRICATED TO THE REQUIRED DIMENSIONS AND SHALL BE CAPABLE OF SUPPORTING ALL SUPERIMPOSED DEAD LOADS PLUS SNOW AND/OR LIVE LOAD AS SPECIFIED IN THE STATE OF MICHIGAN BUILDING CODE.
- A. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL AND SHALL BEAR THE SEAL OF A P.E. REGISTERED IN THE STATE OF MICHIGAN.
- 3. THE TRUSS MANUFACTURER IS TO ENGINEER AND PROVIDE ALL HEADERS AND GIRDER TRUSSES FOR FLUSH FRAMED TRUSS SUPPORT CONDITIONS.
- C. ALL TRUSSES WHICH FLUSH FRAME INTO HEADERS OR GIRDER TRUSSES SHALL BE CONNECTED WITH METAL HANGERS DESIGNED BY A MICHIGAN P. E. AND SUPPLIED BY THE TRUSS MANUFACTURER. TRUSS HANGERS ARE TO INCLUDE PROPER NAILS OR BOLTS AS REQUIRED BY THEIR DESIGN. PRE-ENGINEERED TRUSS HANGERS BY "SIMPSON" WILL BE ACCEPTABLE. SIZE AND CAPACITY OF TRUSS HANGERS IS TO BE SHOWN ON THE SHOP DRAWINGS. UPLIFT ANCHORS ARE TO BE PROVIDED AT EACH END OF EACH TRUSS TO RESIST 600 LB UPLIFT PER

DATE



ENGINEERS

ARCHITECTS

817 E. KEARSLEY ST. FLINT, MI 48503 PH 810·767·5600 FX 810·767·1650 WWW.THA-FLINT.COM

ADDITION TO:

SPENCER PARK STORAGE BUILDING

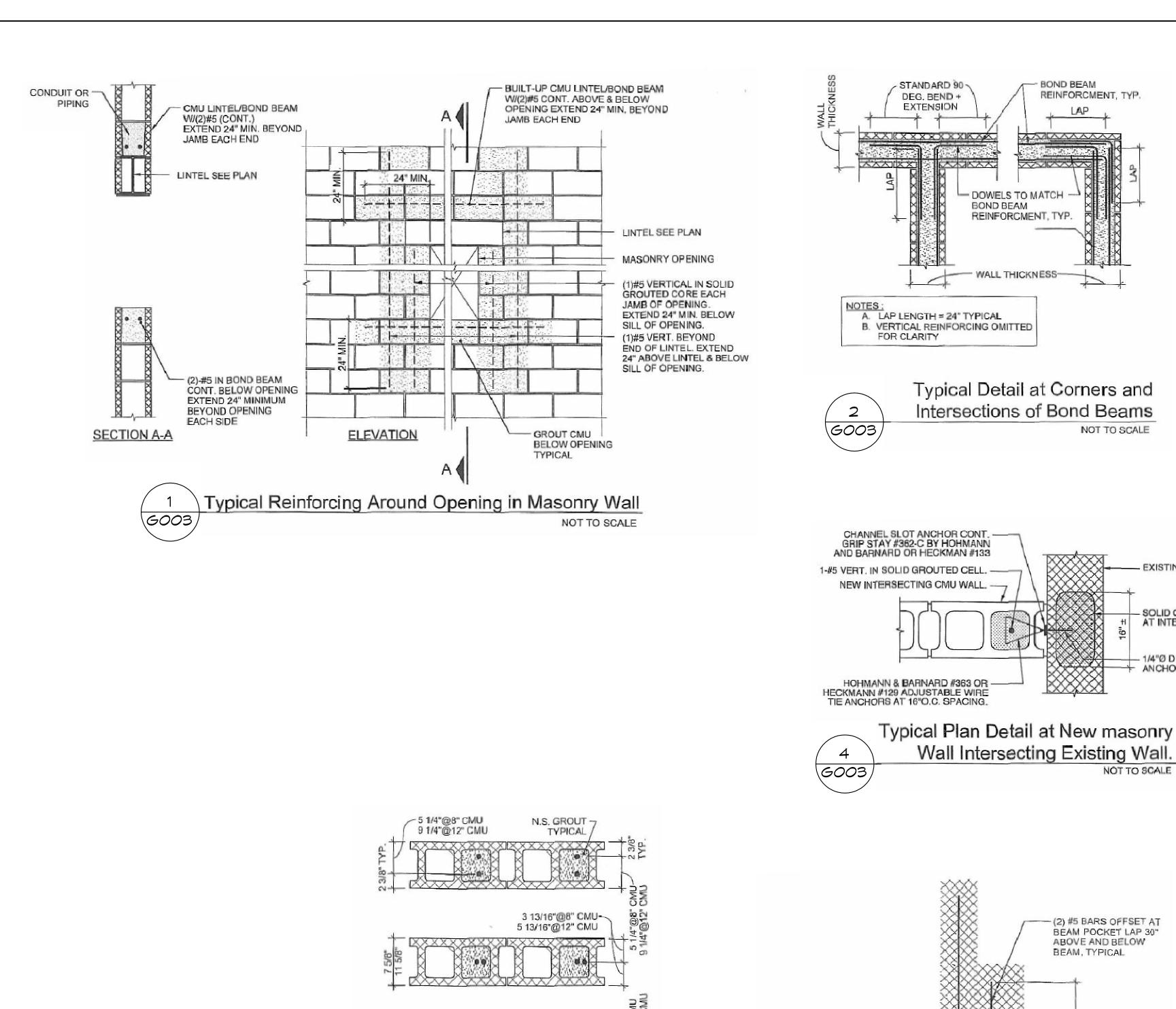
ROCHESTER HILLS, MICHIGAN

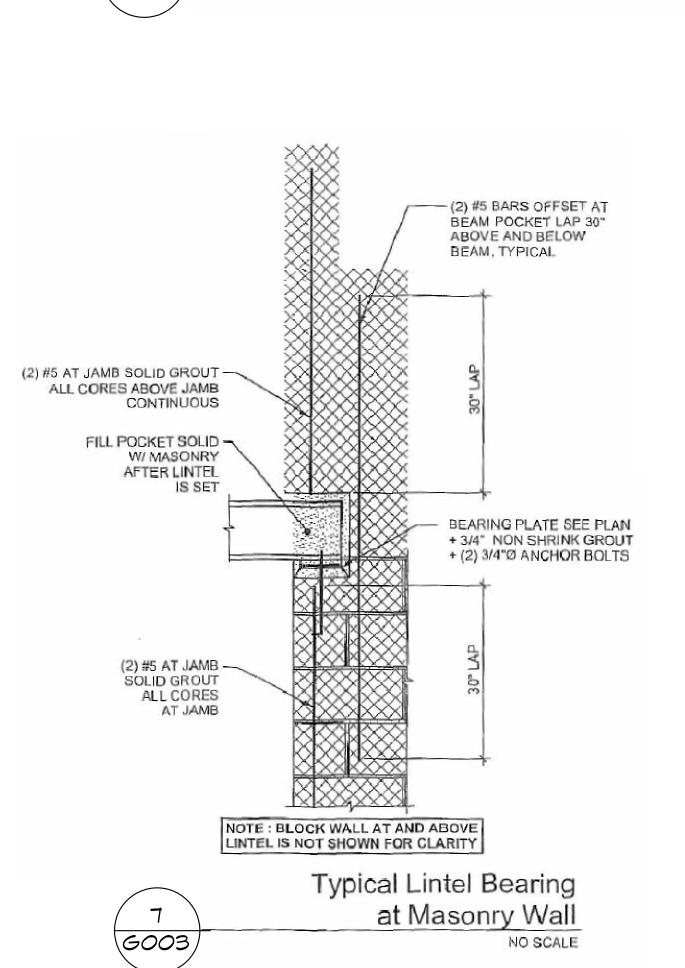
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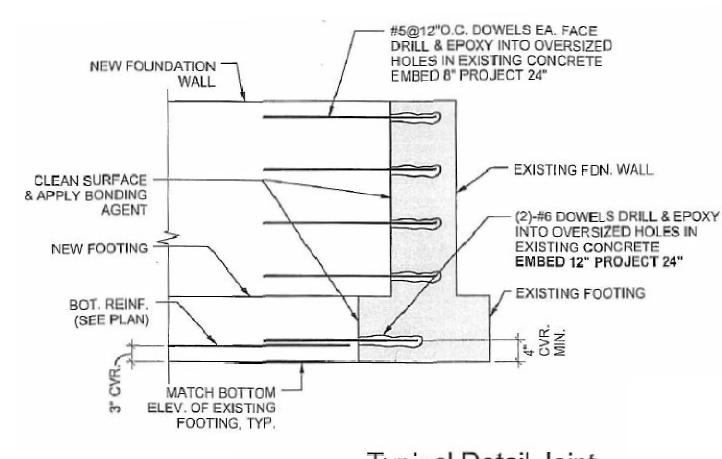
TYPICAL STRUCTURAL NOTES

SEAL	DRAWN EHD	PROJECT NO. 13-104
	CHECKED MLB	CAD FILE NO. 6002
	REVIEWED JSH	DRAWING NO.
	DATE 12-20-2013	6002
	SCALE FULL	SHEET NO. _2_ OF _6_

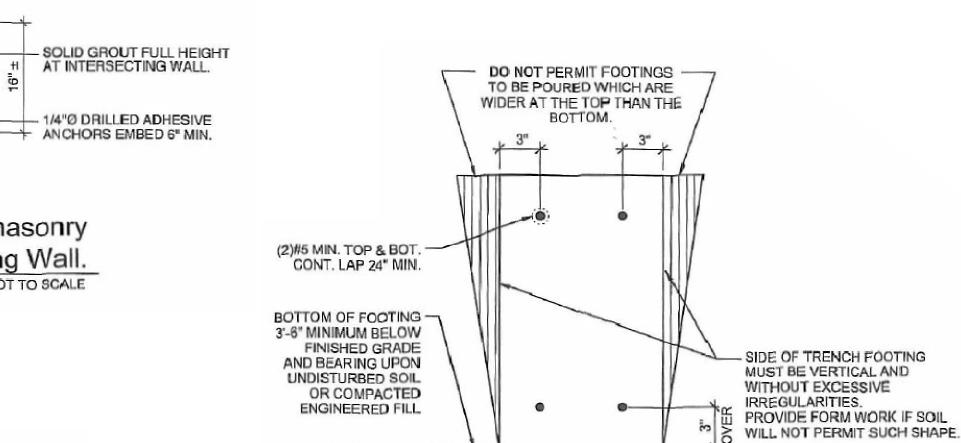
3 4 5 6 7 8 9 1 10 12 1 13 1 14 Plot date: 12/20/2013 8:43 AM







Typical Detail Joint New to Existing Footing 3 G003



THE USE OF TRENCH FOUNDATIONS WILL ONLY BE PERMITTED IF SOIL CONDITIONS ARE SUCH THAT VERTICAL SIDES OF EXCAVATIONS CAN BE MAINTAINED. FOUNDATIONS WITH IRREGULAR SIDES OR WITH TOP WIDER THAN BOTTOM ARE NOT TO BE USED.

SAME WIDTH AS FDN.

DETAILED ON FDN. PLANS

Trench Footing GOO3 THIS DETAIL IS TO BE USED NOT TO SCALE IN UNHEATED SPACE ONLY.

 CONTINUOUS BACKER ROD & SEALANT AT EXTERIOR SIDE GROUT THIS CORE SOLID ----FULL HEIGHT OF WALL - LINE ONE SIDE OF CORE WITH BUILDING PAPER GROUT ALL CORES SOLID -BELOW GRADE TYPICAL BEFORE FILLING CORE VERT. REINFORCING STOP JOINT REINFORCEMENT AS REQUIRED AT CONTROL JOINT

Typical Masonry Wall Control Joint GOO3 LOCATE JOINTS AT 24'-0" O/C MAX. SPACING UNLESS NOTED OTHERWISE ON THE DRAWINGS

NO. | REVISIONS / SUBMISSIONS DATE



ARCHITECTS ENGINEERS

817 E. KEARSLEY ST. FLINT, MI 48503 PH 810·767·5600 FX 810·767·1650 WWW.THA-FLINT.COM

ADDITION TO:

SPENCER PARK STORAGE BUILDING

ROCHESTER HILLS, MICHIGAN

DRAWING TITLE

TYPICAL STRUCTURAL DETAILS

PROJECT NO. EHD 13-104 CHECKED CAD FILE NO. MLB 6002 REVIEWED DRAWING NO. DATE 12-20-2013 SCALE

8" & 12" CMU Walls 6 6003 NOT TO SCALE

2-#5 BOND BEAM

STRENGTH OF f'm=1500 PSI.

Typical Reinforcing for

3 1/8"@8" CMU~

3 1/2"@12" CMU

LOCATION OF BOND BEAM BARS AT 8" AND 12" CMU WALLS

NOTES ON REINFORCING OF 8"&12" CMU WALLS:

CONSTRUCTABILITY BUT ARE NOT SHOWN FOR

CLARITY. LAPS IN VERTICAL BARS AT #5 BARS SHALL

VERTICAL BARS ARE TO BE MADE BY PLACING BARS

BOND BEAM BARS ARE TO BE CONTINUOUS WITH

SIDE BY SIDE WITHIN CORES SO DISTANCE FROM

FACE OF CMU TO CENTER OF BAR IS MAINTAINED.

4. SHADING ON DRAWINGS REPRESENTS SOLID

BE 30" IN LENGTH. LAPS IN VERTICAL BARS AT #4

BARS SHALL BE 24" IN LENGTH. LAP SPLICES IN

AND SHALL HAVE A MINIMUM COMPRESSIVE

2. LAP SPLICES WILL BE REQUIRED FOR

CORNER BARS LAPPED 24" MINIMUM.

GROUTING.

1. ALL CMU WALLS SHALL BE NORMAL WEIGHT CMU

14

Plot date: 12/20/2013 8:44 AM

NOT TO SCALE

EXISTING MASONRY WALL