

March 3, 2022

Mr. Cody Jackson
The Welding Machine, LLC
62 Judi Lee Road
Lillington, NC 27456



RE: Residential Garage – *Review of Plans and Recommendations*
MCA #2202

Dear Mr. Jackson:

McGee Consulting Associates, Inc. (MCA) was asked to review whether the Residential Garage plans prepared by you meet the requirements of the current North Carolina Building Code (2018 NCBC).

MCA determined that the columns and footings will need to support a load of 3,800 lbs based on the proposed layout. The HSS3x3x1/4 columns will support a load of 20,460 lbs, so the columns will sufficiently support the actual loads. The 18"x18"x14" footings will support a load of 4,500 lbs based on nominal 2,000 psf bearing capacity soil recommended in the 2018 NCBC, so the footings will support the actual loads.

MCA analyzed the proposed beams and determined that the beams have sufficient strength to support the loads, but the beams will over-deflect under the code prescribed loads. MCA has determined the beams must be an HSS4x3x1/4. See the attached sketch for beam size adjustments.

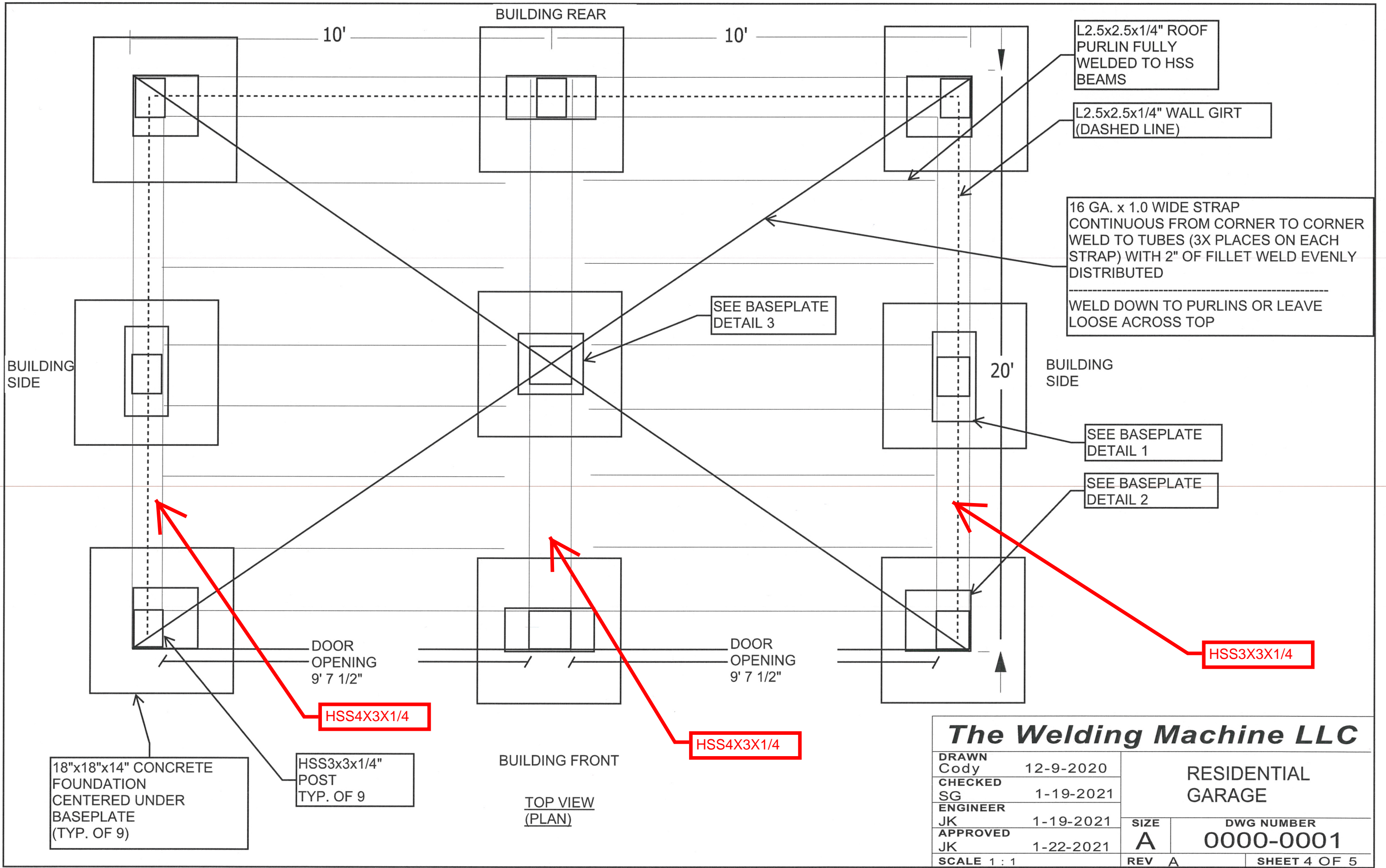
MCA approves of the overall design intent with the above-mentioned adjustments. No resubmission of the plans to MCA will be required.

Please review this information and let me know if there are any questions or concerns.

Cordially,

Frank E. Henry, PE
MCA COA #C-2716





10'

10'

BUILDING REAR

L2.5x2.5x1/4" ROOF PURLIN FULLY WELDED TO HSS BEAMS

L2.5x2.5x1/4" WALL GIRT (DASHED LINE)

16 GA. x 1.0 WIDE STRAP CONTINUOUS FROM CORNER TO CORNER WELD TO TUBES (3X PLACES ON EACH STRAP) WITH 2" OF FILLET WELD EVENLY DISTRIBUTED

WELD DOWN TO PURLINS OR LEAVE LOOSE ACROSS TOP

SEE BASEPLATE DETAIL 3

20'

BUILDING SIDE

SEE BASEPLATE DETAIL 1

SEE BASEPLATE DETAIL 2

BUILDING SIDE

DOOR OPENING 9' 7 1/2"

DOOR OPENING 9' 7 1/2"

HSS3X3X1/4

HSS4X3X1/4

HSS4X3X1/4

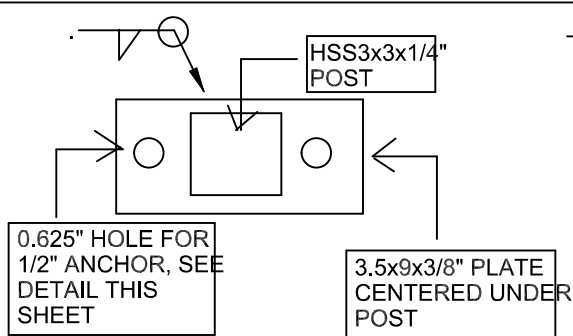
18"x18"x14" CONCRETE FOUNDATION CENTERED UNDER BASEPLATE (TYP. OF 9)

HSS3x3x1/4" POST TYP. OF 9

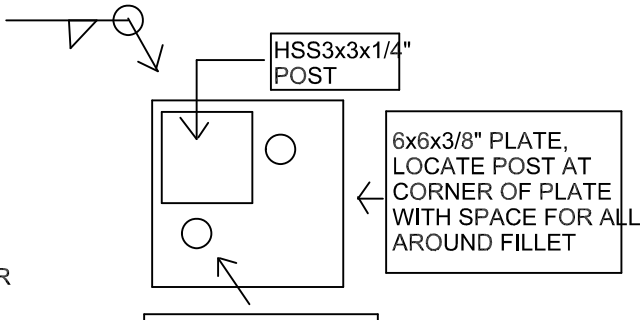
BUILDING FRONT

TOP VIEW (PLAN)

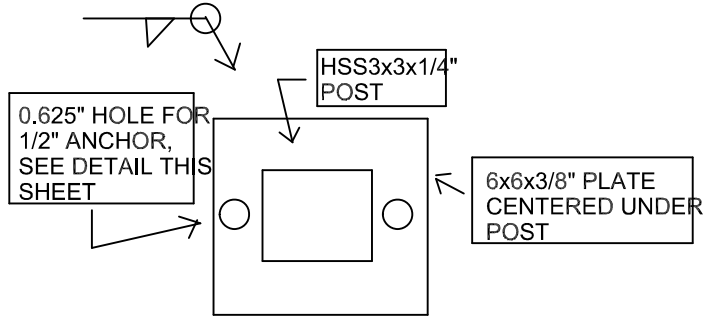
The Welding Machine LLC			
DRAWN	Cody	12-9-2020	RESIDENTIAL GARAGE
CHECKED	SG	1-19-2021	
ENGINEER	JK	1-19-2021	SIZE
APPROVED	JK	1-22-2021	A
SCALE	1 : 1		DWG NUMBER
			0000-0001
		REV	A
			SHEET 4 OF 5



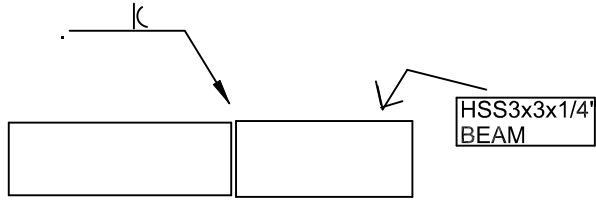
BASEPLATE DETAIL 1
(PLAN VIEW)
(TYP. OF 4)



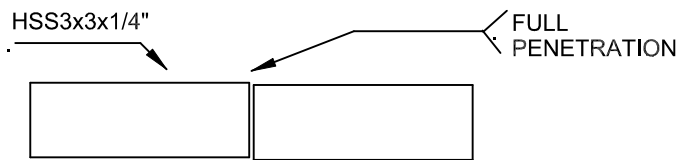
BASEPLATE DETAIL 2
(PLAN VIEW)
(TYP. OF 4)



BASEPLATE DETAIL 3
(PLAN VIEW)
(TYP. OF 1)

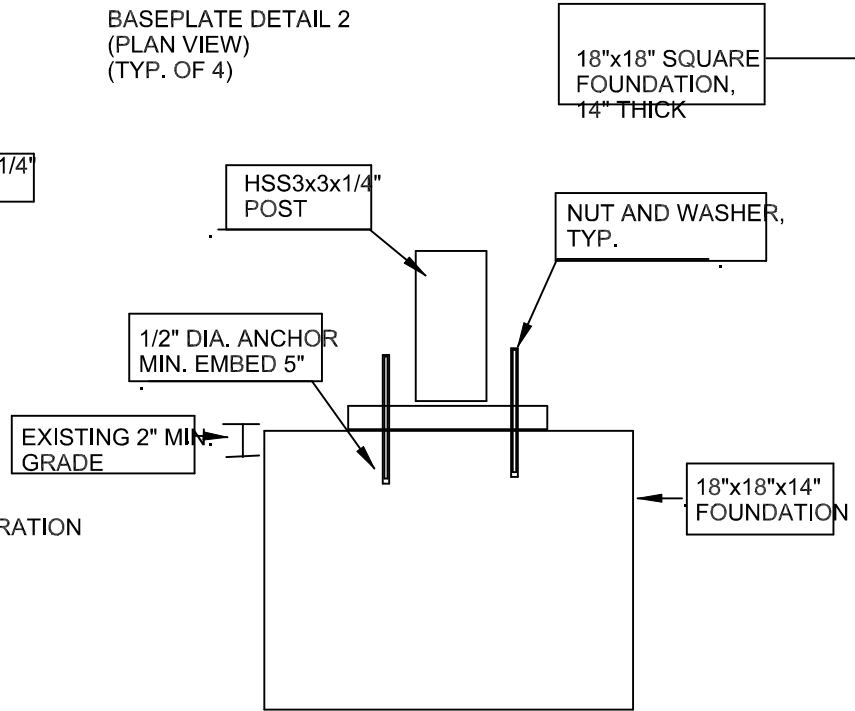


TYPICAL TUBE-END WELDING
(USE FILLET OR FLARE-BEVEL WELDS
AS APPROPRIATE FOR EACH JOINT)

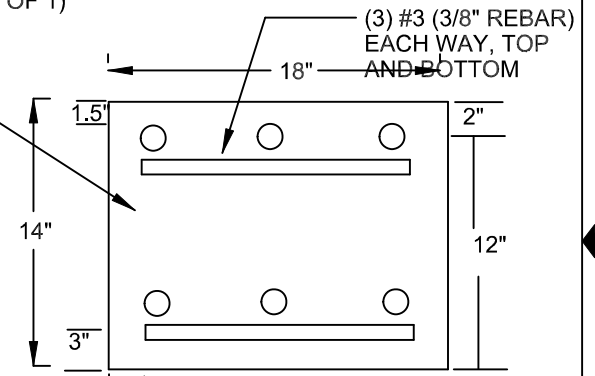


FULL-STRENGTH TUBE SPLICE (AS REQUIRED)
SPLICES ONLY TO OCCUR OVER POST

NOTE: CENTER BASEPLATE ON FOUNDATION, TYP. OF 9



FOUNDATION
(ELEVATION VIEW)



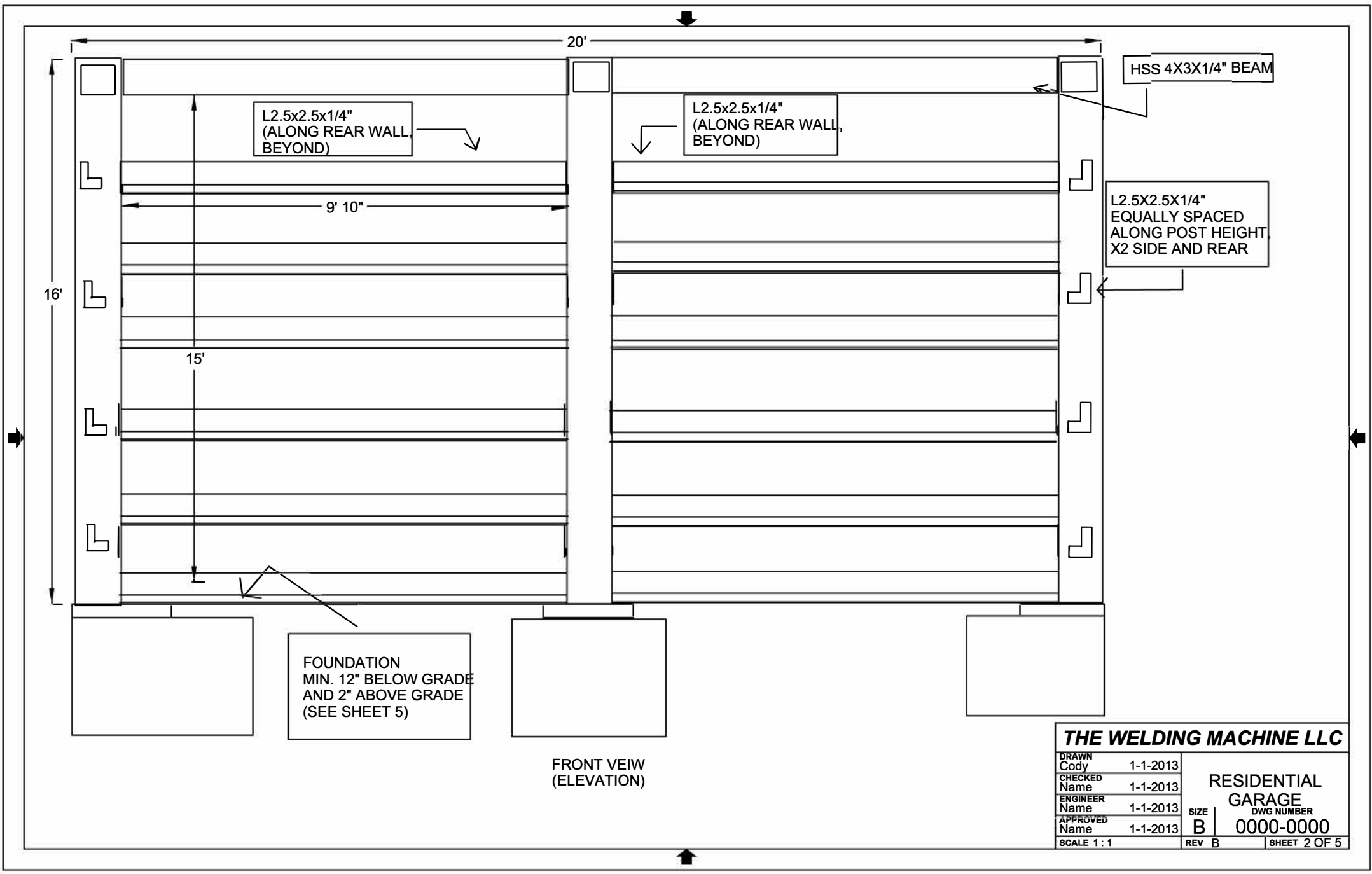
FOUNDATION DETAIL
(SECTION VIEW)
(TYP. OF 9)

THE WELDING MACHINE LLC			
DRAWN Cody	1-1-2013	RESIDENTIAL GARAGE DWG NUMBER 0000-0000	SIZE B
CHECKED Name	1-1-2013		
ENGINEER Name	1-1-2013		
APPROVED Name	1-1-2013		
SCALE 1:1	REV B	SHEET 5 OF 5	

NOTES:

1. DRAWINGS ARE FOR A STANDALONE GARAGE TO BE CONSTRUCTED AT A RESIDENTIAL PROPERTY LOCATED AT:
62 JUDI LEE ROAD
LILLINGTON, NC 27546
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH 2018 NCBC (2015 IBC WITH NC AMENDMENTS)
3. SCOPE: FRAME AND FOUNDATION DESIGN ARE INCLUDED -- WALLS, ROOFS, DOORS, AND OTHER COMPONENTS ARE BY OTHERS
4. LOADS
 - 4.1 DEAD, ROOF = 3 PSF
 - 4.2 LIVE, ROOF = 20 PSF
 - 4.3 WIND, V = 117 MPH, RISK CATEGORY = 2
 - 4.4 SNOW = 10 PSF
 - 4.5 SEISMIC DESIGN CATEGORY =C , SITE CLASS = D, Sds = 0.211, Sd1 = 0.145,
 - 4.6 LOCATION IS NOT IN A FLOOD HAZARD ZONE
5. FOUNDATIONS AND ANCHORS
 - 5.1 USE NORMAL WEIGHT CONCRETE, f_c = MINIMUM 2,500 PSI @ 28 DAYS
 - 5.2 MIX CONCRETE IN ACCORDANCE WITH ASTM C-94
 - 5.2.1 CALCIUM CHLORIDE ADMIXTURES ARE PROHIBITED
 - 5.2.2 PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE 1
 - 5.2.3 CONCRETE AGGREGATES SHALL CONFORM TO ASTM C-33
 - 5.3 SUBGRADE SOILS ARE TO BE UNIFORM, DENSE, WELL-DRAINED, AND FREE OF FOREIGN OBJECTS AND DELETERIOUS MATERIALS
SUBGRADE PREPARATION IS AS REQUIRED BY THE JURISDICTION OR A GEOTECHNICAL ENGINEER, AS NEEDED
 - 5.3.1 ALLOWABLE SOIL BEARING PRESSURE = 2000 PSF (ASSUMED), MODULUS OF SUBGRADE REACTION = 90 PCI
 - 5.4 POST BASEPLATES TO BE CENTERED ON FOUNDATIONS
 - 5.5 ANCHORS TO BE CAST IN PLACE OR POST INSTALLED, MIN. 5" EMBED, INSTALL PER MANUFACTURER'S INSTRUCTIONS
 - 5.5.1 CAST IN PLACE = 1/2" DIA. HEX HEAD, F 1554 GR. 36
 - 5.5.2 POST-INSTALLED = 1/2" DIA. A36 THREADED ROD WITH HILTI HIT-HY 200 EPOXY (OR SIMILAR)
6. STEEL
 - 6.1 HSS = A500 GR C, F_y = 50 KSI MIN
 - 6.2 PLATES, ANGLES, STRAPS / FLAT STOCK = A36, F_y = 36 KSI
7. WELDING
 - 7.1 WELDING TO BE IN ACCORDANCE WITH AWS D1.1
 - 7.2 FILLER MATERIAL TO BE 70 KSI MIN
 - 7.3 ALL JOINTS TO BE FULLY WELDED
 - 7.4 MIN WELD SIZE = THICKNESS OF STEEL FOR ROOF STRAP AND FLAT STOCK, MIN WELD SIZE = 3/16"
FOR ALL TUBES,
PLATES, AND ANGLES

THE WELDING MACHINE LLC			
DRAWN By	1-1-2013	RESIDENTIAL GARAGE DWG NUMBER	SIZE B
CHECKED Name	1-1-2013		
ENGINEER Name	1-1-2013		
APPROVED Name	1-1-2013	0000-0000	
SCALE 1:1	REV B	SHEET 1 OF 5	



L2.5x2.5x1/4"
(ALONG REAR WALL,
BEYOND)

L2.5x2.5x1/4"
(ALONG REAR WALL,
BEYOND)

HSS 4X3X1/4" BEAM

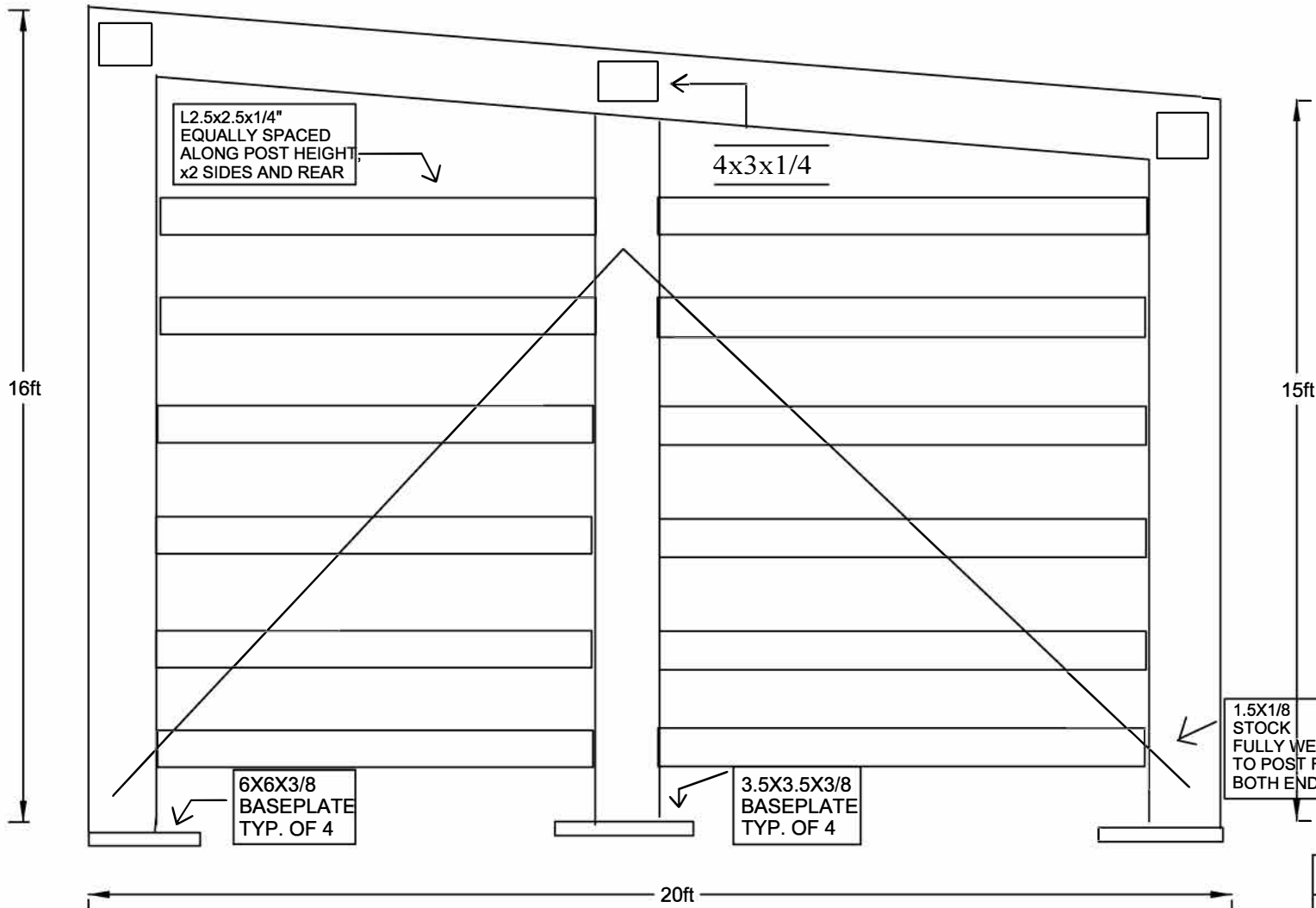
L2.5X2.5X1/4"
EQUALLY SPACED
ALONG POST HEIGHT
X2 SIDE AND REAR

FOUNDATION
MIN. 12" BELOW GRADE
AND 2" ABOVE GRADE
(SEE SHEET 5)

FRONT VEIW
(ELEVATION)

THE WELDING MACHINE LLC

DRAWN Cody	1-1-2013	RESIDENTIAL GARAGE DWG NUMBER 0000-0000
CHECKED Name	1-1-2013	
ENGINEER Name	1-1-2013	
APPROVED Name	1-1-2013	
SCALE 1 : 1	REV B	SHEET 2 OF 5



L2.5x2.5x1/4"
EQUALLY SPACED
ALONG POST HEIGHT,
x2 SIDES AND REAR

4x3x1/4

6X6X3/8
BASEPLATE
TYP. OF 4

3.5X3.5X3/8
BASEPLATE
TYP. OF 4

1.5X1/8
STOCK
FULLY WELDED
TO POST FACE,
BOTH ENDS

SIDE VEIW
(ELEVATION)

THE WELDING MACHINE LLC			
DRAWN Cody	1-1-2013	SIZE B	RESIDENTIAL GARAGE DWG NUMBER 0000-0000
CHECKED Name	1-1-2013		
ENGINEER Name	1-1-2013		
APPROVED Name	1-1-2013		
SCALE 1 : 1	REV B	SHEET 3 OF 5	