



STRUCTURAL DESIGN

FULLY OPEN (CARPORT) BUILDING

**MAXIMUM 30'- 0" WIDE X 14'- 0" HEIGHT-
BOX EAVE FRAME AND BOW FRAME**

2 June 2017

Revision 1

M&A Project No. 17062S

Prepared for:

Newmart Builders
1000 Cycle Lane
South Hill, VA 23970

Prepared by:

Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue
North Augusta, SC 29841

401 S. Main Street, Suite 200
Mt. Airy, NC 27030



MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG
CHECKED BY: PDM

NEWMART BUILDERS
30'x14' FULLY OPEN STRUCTURE
PE SEAL COVER SHEET

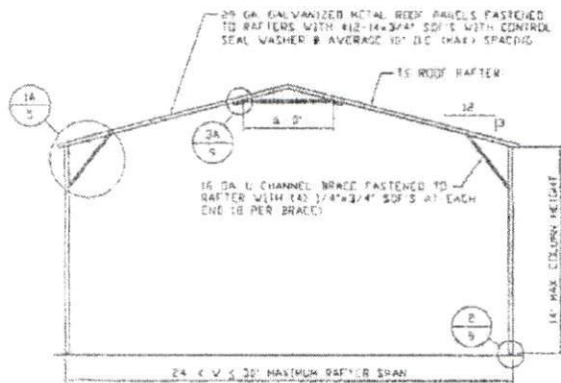
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

PROJECT MGR: VSM	DATE: 6-2-17	SCALE: NTS	JOB NO: 17062S
CLIENT: NEWMART BUILDERS	SHT. 1	DWG. NO: SK-1	REV: A

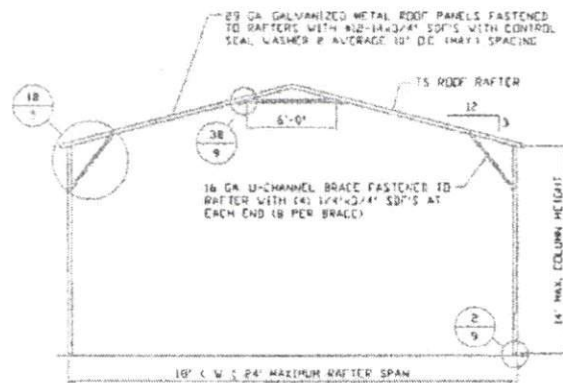
DRAWING INDEX

SHEET 1	PE SEAL COVER SHEET
SHEET 2	DRAWING INDEX
SHEET 3	INSTALLATION NOTES AND SPECIFICATIONS AND TYPICAL SIDE AND END ELEVATIONS
SHEET 4	TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTIONS (BOX EAVE RAFTER)
SHEET 5	TYPICAL RAFTER/COLUMN END AND SIDE FRAMING CONNECTION DETAILS (BOX EAVE RAFTER)
SHEET 6	TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTIONS DETAILS (BOW RAFTER)
SHEET 7	TYPICAL RAFTER/COLUMN END AND SIDE FRAMING CONNECTION DETAILS (BOW RAFTER)
SHEET 8	BASE RAIL ANCHORAGE OPTIONS
SHEET 9	CONNECTION DETAILS
SHEET 10	BOX EAVE RAFTER GABLE END OPTION
SHEET 11	BOW RAFTER GABLE END OPTION
SHEET 12	BOX EAVE RAFTER LEAN-TO OPTIONS
SHEET 13	BOW RAFTER LEAN-TO OPTION
SHEET 14	BOX RAFTER EXTRA SIDE PANEL OPTION
SHEET 15	BOW RAFTER EXTRA SIDE PANEL OPTION
SHEET 16	VERTICAL ROOF OPTION END AND SIDE ELEVATION AND SECTIONS

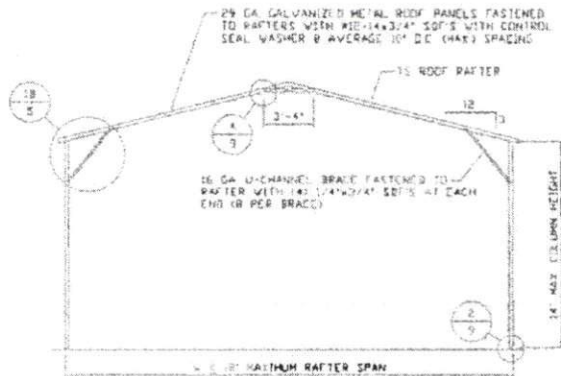
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	NEWMART BUILDERS 1000 CYCLE LANE SOUTH HILL, VA 23970 30'x14' FULLY OPEN STRUCTURE		
	CHECKED BY: PDM			
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	PROJECT MGR: VSM	DATE: 6-2-17	SCALE: NTS	JOB NO: 17062S
	CLIENT: NEWMART BUILDERS	SHT. 2	DWG. NO: SK-1	REV: 1



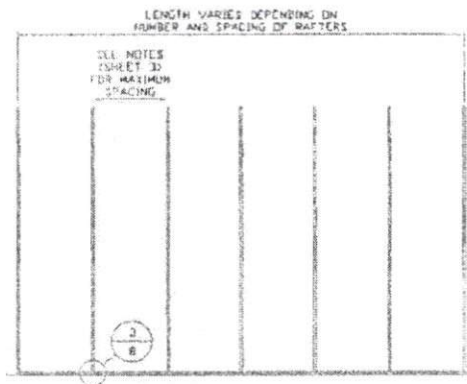
TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE NTS



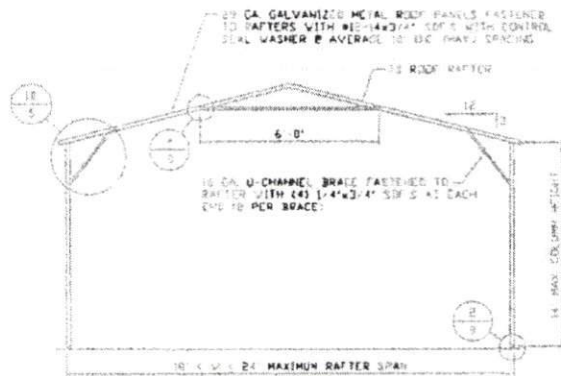
TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE NTS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG
CHECKED BY: PDM

NEWMART BUILDERS
1000 CYCLE LANE
SOUTH HILL, VA 23970
30'x14' FULLY OPEN STRUCTURE

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

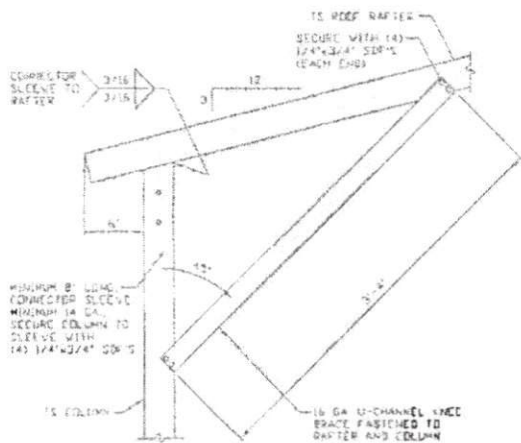
PROJECT MGR: WSH
CLIENT: NEWMART BUILDERS

DATE: 6-2-17
SHT. 4

SCALE: NTS
DWG. NO. SK-1

JOB NO. 170625
REV.1

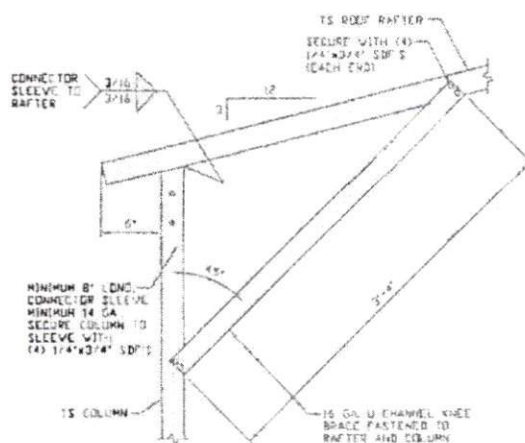
CONNECTION DETAILS



**BOX EAVE RAFTER COLUMN
CONNECTION DETAIL FOR $24' < w \leq 30'$
AND HEIGHTS $\leq 14'$**

1A

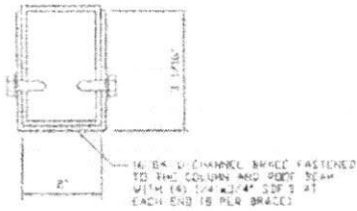
SCALE: NTS



**BOX EAVE RAFTER COLUMN
CONNECTION DETAIL FOR $w \leq 24'$
AND HEIGHTS $\leq 14'$**

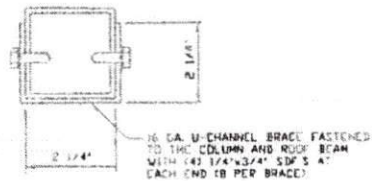
1B

SCALE: NTS



BRACE SECTION

SCALE: NTS



BRACE SECTION

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: NEWMART
BUILDERS

NEWMART BUILDERS
1000 CYCLE LANE
SOUTH HILL, VA 23970
30'x14' FULLY OPEN STRUCTURE

DATE: 6-2-17

SHT. 5

SCALE: NTS

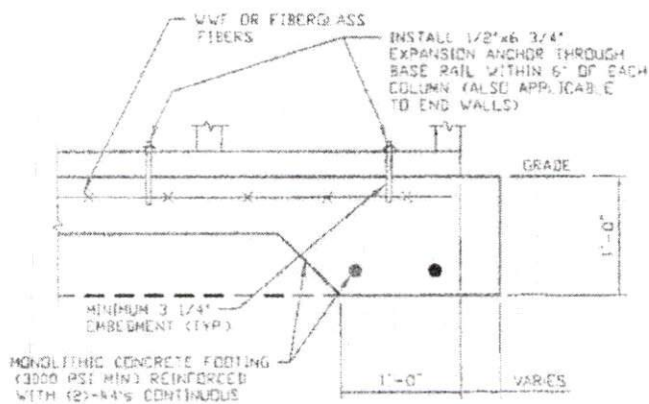
DWG. NO: SK-1

JOB NO: 170625

REV:1

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

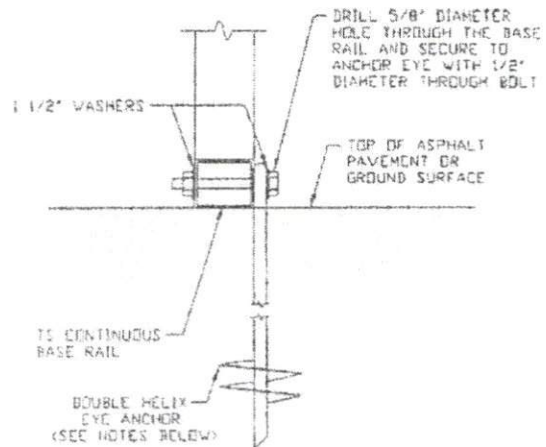
BASE RAIL ANCHORAGE OPTIONS FOR LOW WIND SPEEDS



3A

CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS
NOTE: MIN ANCHOR EDGE DISTANCE IS 4"



3B

GROUND BASE HELIX ANCHORAGE

SCALE: NTS (CAN BE USED FOR ASPHALT)

GENERAL NOTES

CONCRETE:

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS

COVER OVER REINFORCING STEEL:

FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318
3" IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2" ELSEWHERE

REINFORCING STEEL:

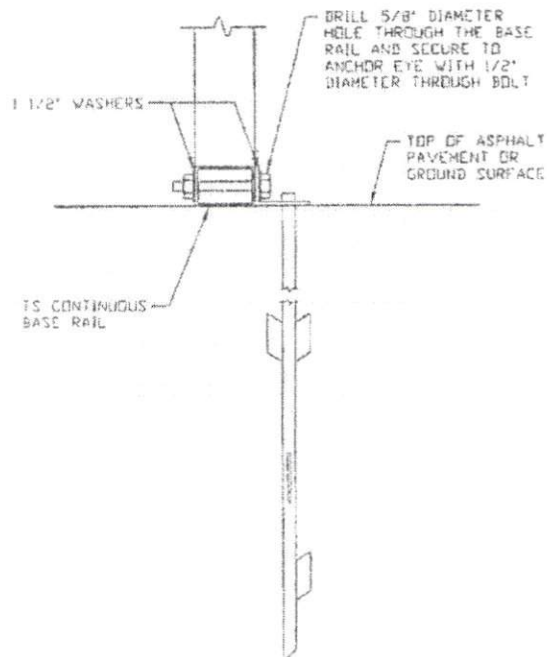
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT

REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

- 1 REINFORCEMENT IS BENT COLD
- 2 THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS
- 3 REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT

HELIX ANCHOR NOTES:

- 1 FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
- 2 FOR CORAL USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
- 3 FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS, AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
- 4 FOR LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL, USE MINIMUM (2) 6" HELICES WITH MINIMUM 50" EMBEDMENT
- 5 FOR VERY LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8" HELICES WITH MINIMUM 60" EMBEDMENT



3C

ASPHALT BASE ANCHORAGE

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDM

PROJECT MGR: WSH

CLIENT: NEWMART BUILDERS

NEWMART BUILDERS
1000 CYCLE LANE
SOUTH HILL, VA 23970
30'x14' FULLY OPEN STRUCTURE

DATE: 6-2-17

SHT. 8

SCALE: NTS

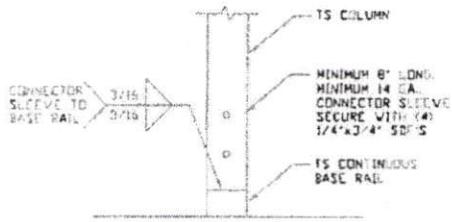
DWG. NO: SK-1

JOB NO: 179625

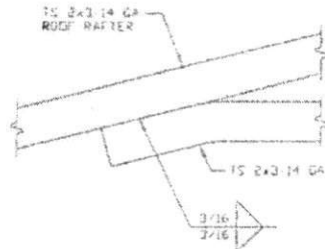
REV: 1

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

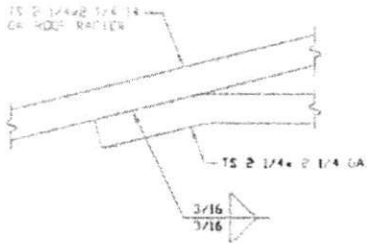
CONNECTION DETAILS



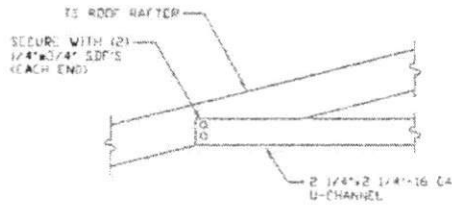
2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



3A 6' ROOF RAFTER TIE CONNECTION DETAIL
SCALE: NTS



3B 6' ROOF RAFTER TIE CONNECTION DETAIL
SCALE: NTS



4 3'-4' ROOF RAFTER TIE CONNECTION DETAIL
SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: NEWMART BUILDERS

NEWMART BUILDERS
1000 CYCLE LANE
SOUTH HILL, VA 23970
30'x14' FULLY OPEN STRUCTURE

DATE: 6-2-17

SHT. 9

SCALE: NTS

DWG. NO. SK-1

JOB NO. 17062S

REV: 1

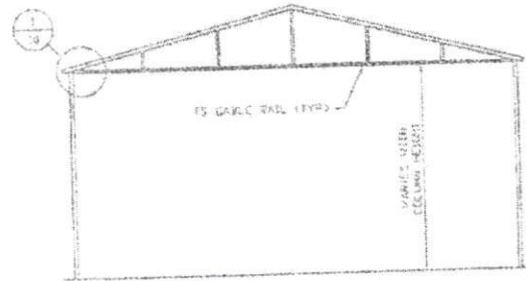
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

BOX EAVE RAFTER GABLE END OPTION



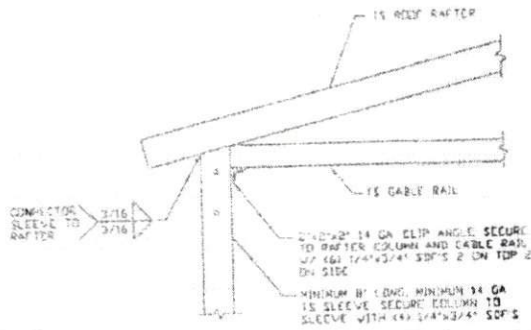
**TYPICAL BOX EAVE RAFTER
GABLE END ELEVATION**

SCALE: NTS



**TYPICAL BOX EAVE RAFTER
GABLE END FRAMING SECTION**

SCALE: NTS



**BOX EAVE RAFTER GABLE RAIL TO
RAFTER COLUMN CONNECTION DETAIL**

1

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT NO: VSM

CLIENT: NEWMART
BUILDERS

NEWMART BUILDERS
1000 CYCLE LANE
SOUTH HILL, VA 23970
30'x14' FULLY OPEN STRUCTURE

DATE: 6-2-17

SHT. 10

SCALE: NTS

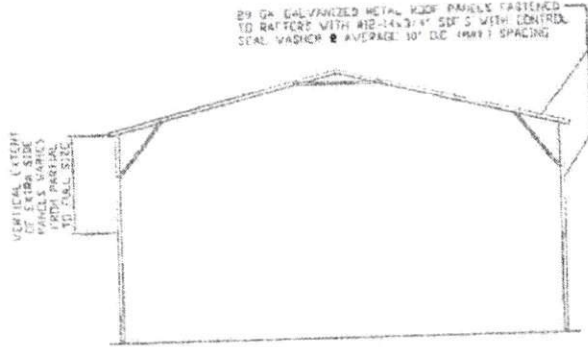
DWG. NO: SK-1

JOB NO: 170625

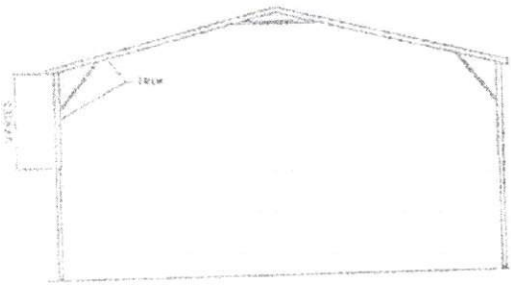
REV: 1

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

BOX EAVE RAFTER EXTRA SIDE PANEL OPTION



TYPICAL RAFTER/COLUMN FRAME SECTION - EXTRA SIDE PANELS
SCALE: NTS



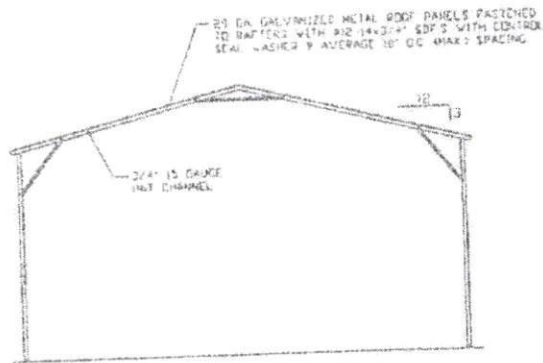
TYPICAL END ELEVATION
EXTRA SIDE PANELS
SCALE: NTS



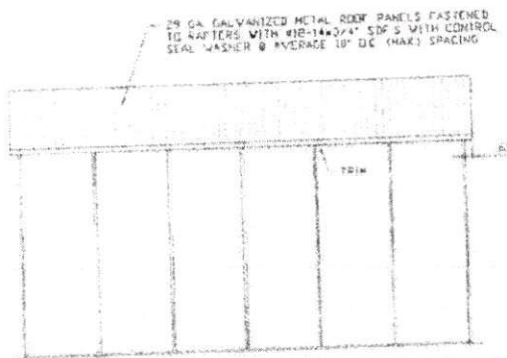
TYPICAL SIDE ELEVATION
EXTRA SIDE PANELS
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	NEWMART BUILDERS 1000 CYCLE LANE SOUTH HILL, VA 23970 30'x14' FULLY OPEN STRUCTURE		
	CHECKED BY: PDM	DATE: 6-2-17	SCALE: NTS	JOB NO: 170625
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	PROJECT MGR: WSH	SHT. 14	DWG. NO: SK-1	REV: 1
	CLIENT: NEWMART BUILDERS			

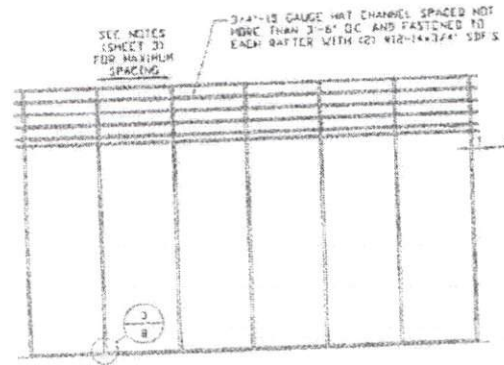
BOX EAVE RAFTER VERTICAL ROOF OPTION



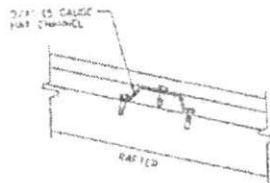
TYPICAL SECTION VERTICAL ROOF OPTION
SCALE: NTS



TYPICAL SIDE ELEVATION VERTICAL ROOF
SCALE: NTS



TYPICAL FRAMING SECTION VERTICAL ROOF OPTION
SCALE: NTS



ROOF PANEL ATTACHMENT
(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: NEWMART BUILDERS

NEWMART BUILDERS
1000 CYCLE LANE
SOUTH HILL, VA 23970
30'x14' FULLY OPEN STRUCTURE

DATE: 6-2-17

SHT. 16

SCALE: NTS

DWG. NO. SK-1

JOB NO. 17062S

REV: J

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.