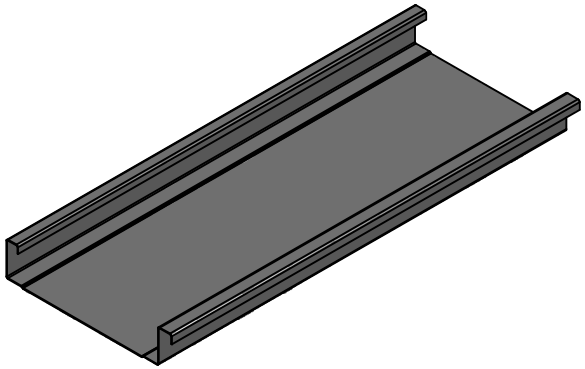
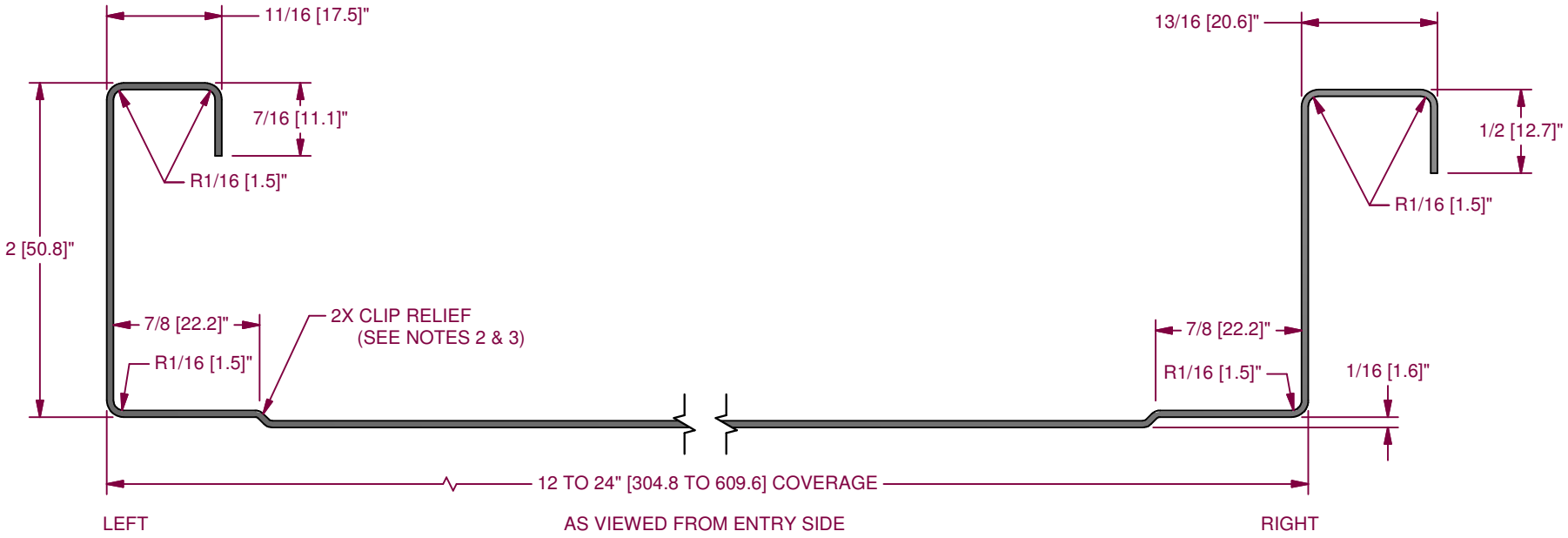




NOTES:
1. MATERIAL USAGE: APPROX. 6-1/8" [155.6]
2. CLIP RELIEF ROLLERS ARE STANDARD WITH THIS PANEL.
3. PANEL IS SHOWN WITH CLIP RELIEF ROLLERS ENGAGED.
4. DUAL DIMENSIONS: Inch [mm]

MATERIAL	PAINTED STEEL/PAINTED ALUMINUM/COPPER
FINISH	NONE

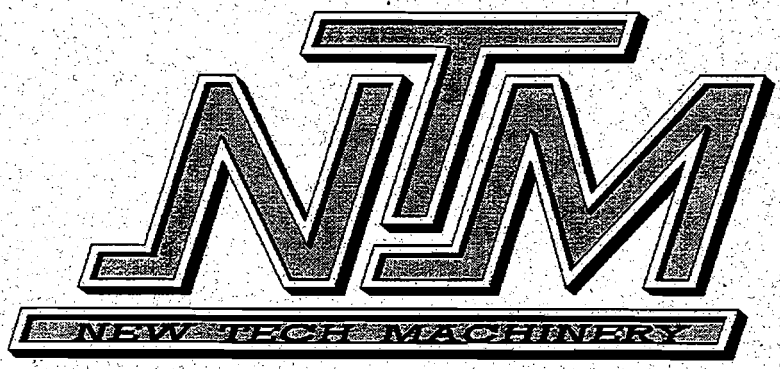
REVISION HISTORY

REV	ECR NO.	DATE	RELEASED BY
1	REDRAWN	01/17/2008	JD
2	ADDED R DIM	07/02/2009	JD
3	ADDED mm	05/02/2012	JD

TOLERANCES
.XX = ± .01
.XXX = ± .005
FRACTION = ± 1/32"
ANGLE = ± 1/2°

NEW TECH MACHINERY CORP.

DRAWN BY	SAWYER
DATE	09/15/2002
CHECK BY	JD
DATE	01/17/2008
PART NAME	SS210A PANEL PROFILE
PART NUMBER	SP2-210P
SHEET	1 OF 1
REVISION	3



SS 210A (ARMCO) PANEL

UL LISTED CONSTRUCTION NUMBERS

#90 #180 #176 #238 #238A

SECTION ANALYSIS REPORT
AND
SPAN LOAD TABLES

1300 40TH DENVER, CO 80205-3311

PH 303-294-0538 **** 800-574-1717 **** FAX 303-294-9407

DESCRIPTION

PRODUCT COVERED:

This section of the Procedure covers a coated steel roof panel which is identified as "Panel 210A". The panel is produced at job sites by portable rolling machines.

The panel is roll formed from No. 24 MSG minimum gauge coated steel to the configuration shown in ILL. 1. The panel may also have a paint finish over the coating.

*

SPECIFICATIONS OF FINISHED PRODUCT:

THICKNESS

The base metal thickness of the steel used in the fabrication of the panel shall be not less than .0225 in. (No. 24 MSG minimum gauge). This thickness shall not include the coating or any paint finish.

DIMENSIONS

The cross-section dimensions of the panel piece shall be in accordance with the cross-section shown in ILL. 1.

STRENGTH

The strength records of the steel shall be reviewed. The steel used shall conform to ASTM A653 Grade 50 specifications or the minimum yield point of the steel shall be 50,000 psi.

Underwriters Laboratories Inc.®

333 Pfingsten Road
Northbrook, Illinois 60062-2096
(847) 272-8800
FAX No. (847) 272-8129
MCI Mail No. 254-3343
Telex No. 6502543343

100 a century of public safety est. 1894

File R14692
Project 97NK2305

November 13, 1997

CLASSIFICATION BY REPORT

of

METAL ROOF DECK PANEL AND ROOF DECK FASTENERS
IN ROOF DECK CONSTRUCTIONS

New Tech Machinery Corp.
Denver, CO

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JH:tjm
NKDLS

A not-for-profit organization dedicated to public safety and committed to quality service

G E N E R A L

The subject of this Report is a Roof Deck Panel which is identified as "Panel 210A". The panel is used in Construction Nos. 90, 176, 180, 238 and 238A as described in UL's Roofing Materials and Systems Directory. In addition to the roof deck panels, all constructions utilized steel purlins, Classified panel clips and screw fasteners.

The panel in this Report was previously Classified for New Tech Machinery Corp. by Underwriters Laboratories Inc. for the same construction numbers. The panel was identified previously as "210 Panel". The panel in this Report is the same as previously Classified.

The roof deck panels are roll-formed at the construction site. Therefore, the information provided in this Report replaces the Laboratories' usual factory Follow-Up Service Program for metal roof deck panels for which Follow-Up Service is normally conducted at the point of manufacture. The program for companies that are "Classified by Report" consists of keeping supplies of up-to-date Reports that are to be distributed to any interested party and requiring the roll forming machines to be covered by the Underwriters Laboratories Inc. Certificate Service.

The roof deck panel clips are covered by the usual Follow-Up Service Program of Underwriters Laboratories Inc. with factory monitored quality control. The method of use and a description of the Classified panel clips are shown in the Roof Deck Constructions.

D E S C R I P T I O N

Metal Roof Deck Panels - The roof deck panel is 16 in. wide and 2 in. high at the female rib. The panel is fabricated from coated steel having a minimum thickness of 0.0225 in. (No. 24 MSG) and a minimum yield strength of 50,000 psi (ASTM A653, Grade 50). The panel will be Classified as "Metal Roof Deck Panels" in Underwriters Laboratories Inc.'s Roofing Materials and Systems Directory and will be covered under our Follow-Up Service. The panel is designated as "Panel 210A" by the manufacturer and is shown in ILL. 1.

JH:tjm
NKDLS

C O N C L U S I O N

The following conclusions represent the judgement of Underwriters Laboratories Inc., based upon the results of the examination presented in this Report as they relate to established principles and previously recorded data.

UPLIFT RESISTANCE:

The roof deck assemblies constructed of the materials and in the manner described in Roof Deck Construction Nos. 90, 176, 180, 238 and 238A will afford a Class 90 uplift resistance rating based on the method of test.

Secondary supports (beams, purlins, joists, bulb tees, lateral bracing, etc.), connections of these assemblies to the main structural members (girders, columns, etc.), and construction details along the edges of the roof or around roof openings (mechanical equipment, chimneys, etc.) have not been evaluated.

PRACTICABILITY:

The materials used in the assemblies can be readily installed by qualified workmen with tools and methods commonly used for construction work of a similar nature.

The materials and installation procedures for the original test assemblies described in these tests were judged to be significant factors in the uplift resistance of the constructions.

CONFORMITY:

The original assemblies were tested in accordance with the Standard UL 580, entitled "Tests For Uplift Resistance Of Roof Assemblies."

JH:tjm
NKDLS

CLASSIFICATION AND FOLLOW-UP SERVICE:

The roof deck panel, as described herein, is judged to be eligible for Classification and Follow-Up Service of Underwriters Laboratories Inc. Under the Service, the manufacturer is authorized to use the Laboratories' Certification of Classification on the forming machine to produce products which comply with the fabrication specifications in this Report, as shown by ILL. 1, and any other applicable requirements of Underwriters Laboratories Inc. Only those products which are produced with a Certified machine are considered as Classified by Underwriters Laboratories Inc.

In addition, UL Classification Report Reference No. R14692, Project 97NK2305, dated November 13, 1997, should be consulted for compliance with material specifications and metal panel design.

See UL Roofing Materials and Systems Directory

Report by:

James Hatcher (tjm)

JAMES HATCHER
Staff Engineer

Reviewed by:

Kenneth Rhodes (tjm)

KENNETH RHODES
Associate Managing Engineer

JH:tjm
NKDLS

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NEW TECH MACHINERY CORP
MR G BATTISTELL
1300 40TH ST
DENVER CO 80205

RE: Project Number(s) - 03NK22866

Your most recent Certification is shown below. You may also view this information, or a portion of this information (depending on the product category), on UL's Online Certifications Directory at www.ul.com/database. Please review the text and contact the Conformity Assessment Services staff member who handled your project if revisions are required. For instructions on placing an order for this information in a 3 x 5-inch format, you may refer to the enclosed order form for UL Card Service.

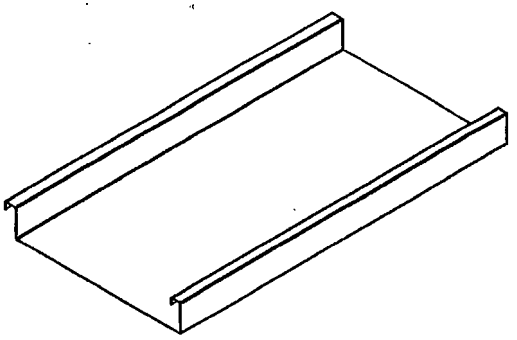
TJPV November 21, 2003
Metal Roof Deck Panels

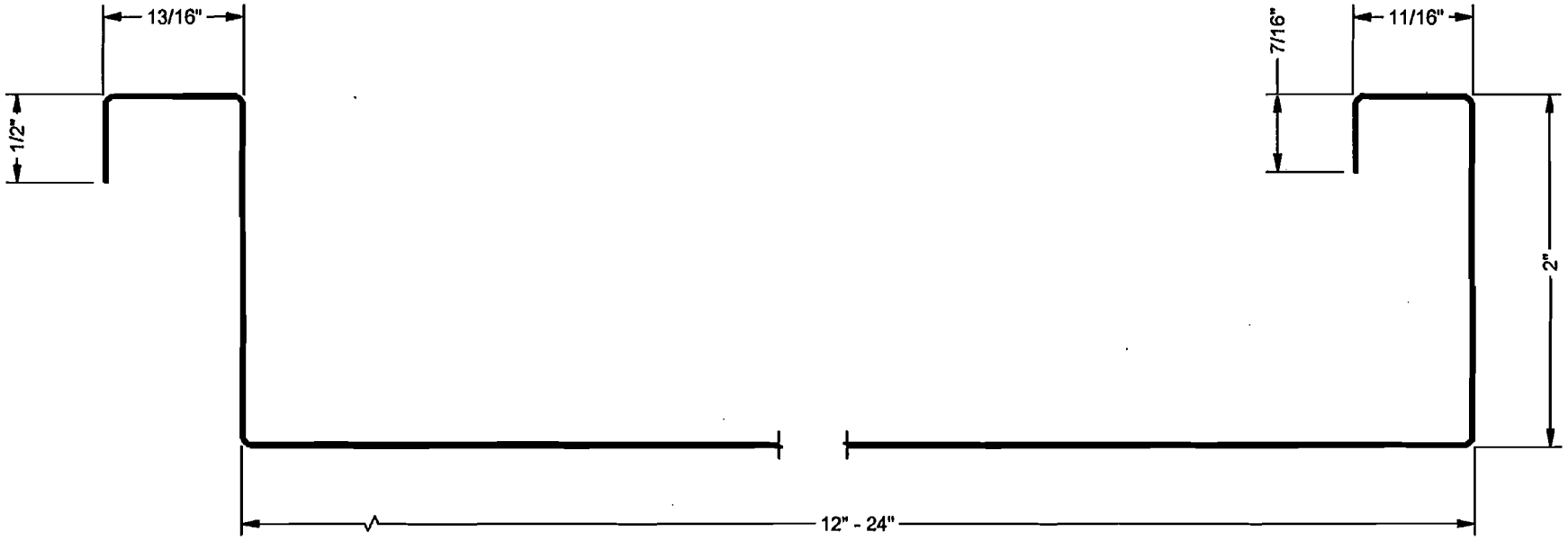
NEW TECH MACHINERY CORP **R14692**
1300 40TH ST, DENVER CO 80205

Coated steel panels, field – formed.
Underwriters Laboratories Inc. Metal Roof Deck Panels, Fabricated, installed and used in the following roof deck constructions with corresponding panel identifications:
Coated steel panels identified as "Snap Panel 550" for use in Construction No. 373 .
Coated steel panels identified as "Panel 210A" for use in Construction Nos. 90, 176, 180, 238, 238A.
Coated steel or aluminum panels identified as "Snap Panel 675" for use in Construction Nos 254, 255, 261, 303.
Coated steel panels identified as "SS675" for use in Construction Nos. 343, 508 and 508A.
Coated steel panels identified as "SS450" for use in Construction No. 370.
Coated steel panels identified as "SS150" for use in Construction No. 554.
Coated steel panels identified as "SS100" for use in Construction No. 575.
Coated steel panels identified as "FF100" for use in Construction No. 529.

See Roof Deck Construction for description of construction numbers.

LOOK FOR LISTING MARK ON PRODUCT





NOTE:
MATERIAL USAGE: 6 1/8"

MATERIAL	LENGTH	FINISH

REVISION HISTORY	REV	ECN NO.	DATE	RELEASED BY

TOLERANCES
.XX = ± .01
.XXX = ± .005
FRACTION = ± 1/32"
ANGLE = ± 1/2'

NEW TECH MACHINERY CORP.

DRAWN BY: SAWYER	PART NAME: SS210A PANEL PROFILE		
DATE: 9/16/2002			
CHECK BY:	SIZE: A	SHEET: 1 OF 1	REVISION: 0
DATE:	SCALE: NONE	PART NUMBER: SS210	

Online Certifications Directory

TGKX.90
Roof Deck Constructions

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Roof Deck Constructions

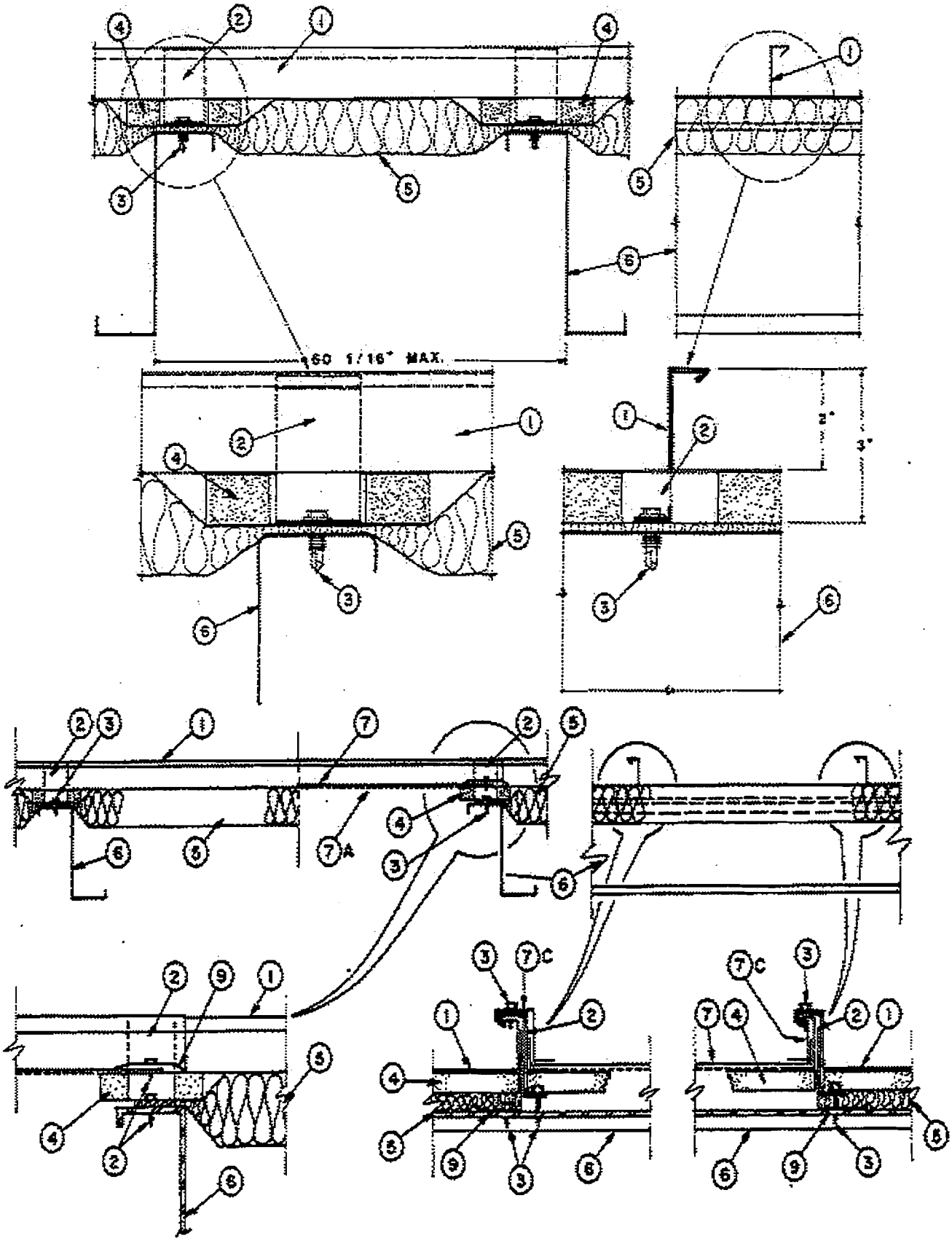
Guide Information

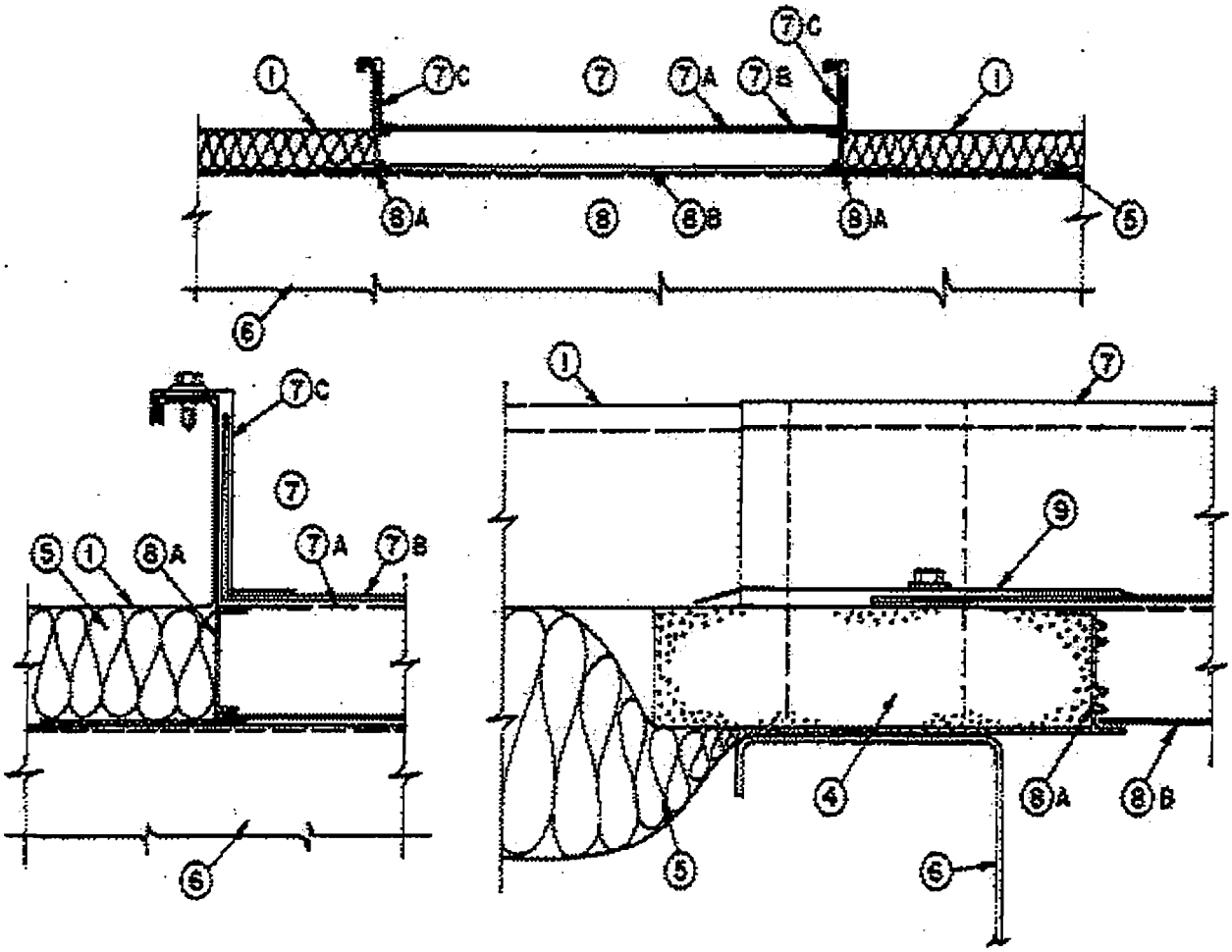
Construction No. 90

March 30, 2004

Uplift — Class 90

Fire Not Investigated


60 1/16" MAX.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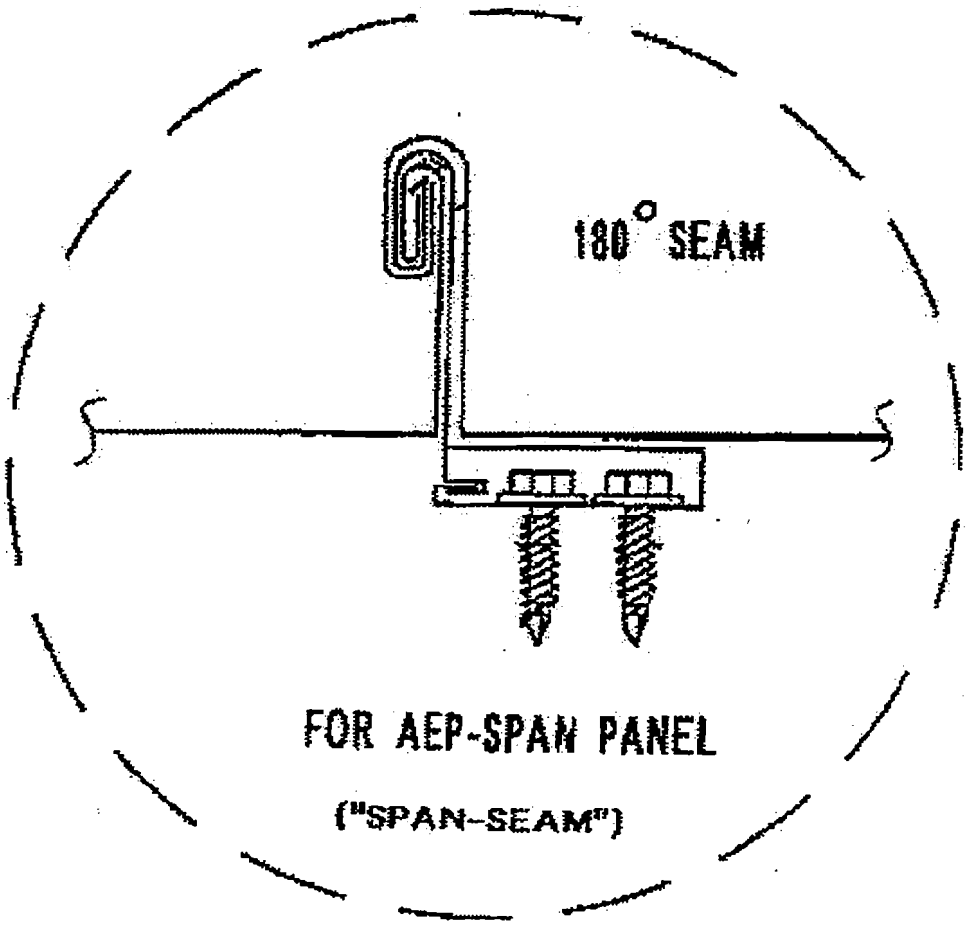

1. **Metal Roof Deck Panels*** — No. 24 MSG min gauge coated steel, max width 16 in. Panels continuous over two or more spans. End lap to occur over purlins and to include End Lap Back-up Plate (Item 2B or 2C.) Ends of panels overlapped 6 in. Side laps to be tightened and crimped with a special motorized crimping machine at a minimum 45 degree angle with crimping process to include tabs of Panel Clips (Item 2). A bead of sealing compound may be used at panel end and side laps.

A & M BUILDERS/ROOFING

TECHNOLOGIES L L C — "SS200"

A & S BUILDING SYSTEMS L P — "BattenLok " or "SuperLok"

A-LERT STANDING SEAM ROOF SYSTEMS — "A-Lert Loc"

AEP SPAN, DIV OF

ASC PROFILES — "SL-216" (90° Seam), "SPS-216" (180° Seam)

ALLWINE ROOFING & CONSTRUCTION INC — "A2-16", "A2-16 Fluted" and "A2-16 with Clip Offset"

ARCHITECTURAL BUILDING COMPONENTS INC — "JSM 200"

ARCHITECTURAL SHEETMETAL PRODUCTS INC — "ASP-2500"

CECO BUILDING SYSTEMS, DIV OF

ROBERTSON-CECO CORP — "CRP 16"

CENTURION INDUSTRIES INC, DBA

TFC CANOPY — "Centurion 1624M"

CONSOLIDATED METALS OF FLORIDA, DIV OF

ALUMINUM SERVICE INC — "CSS-210A"

CONSTRUCTION METAL PRODUCTS INC — "CMP Series 2500"

CSC SALES INC — "CSC-SS2000"

DALEY CONSTRUCTION & METAL ROOFING — "3D Forever Lock"

ENGLERT INC — "Series 2500"

HCI STEEL BUILDING SYSTEMS INC — "Mark 1622" and "Mark 1624"

HI-TEC ROOFING INC — "MRS 210A"

J M METALS ROOFING MFRS — "JM 2.0"

KNUDSON MFG INC — "ULTRALOK"

MBCI — "BattenLok" or "SuperLok"

MESCO METAL BUILDINGS — "BattenLok" or "SuperLok"

METAL-FAB MFG LLC — "Met-Fab III"

METAL PANEL SYSTEMS INC — "MP-200"

METAL SALES MFG CORP — "T-Span" or "T-Span 180" (180° Seam)

METAL WORX SYSTEMS INC — "SS 2000"

NCI BUILDING SYSTEMS L P — "BattenLok" or "SuperLok"

NEW TECH MACHINERY CORP — "Panel 210A"

NORTH COAST COMMERCIAL

ROOFING SYSTEM OF PA INC — "Series 2500"

PETERSEN ALUMINUM CORP — "Tite-Loc" and "Tite-Loc Plus"

ROL-TEC SYSTEMS INC — "UltraLok"

R S S P INC — "SS2000"

STEELOX SYSTEMS L L C — "Steelox LRX 262", "Steelox LRX 264", "Steelox PRX 262" or "Steelox PRX 264" (Fabricated from either coated or stainless steel)

SUPERIOR METAL SYSTEMS INC — "SMS 416"

UNITED STRUCTURES OF AMERICA INC — "Sure-Lok" or "Supreme-Lok"

ZIMMERMAN METALS INC — "SS2000"

2. **Roof Deck Fasteners* (Panel Clips)** — Two part assembly: Base, 1 in. wide approximately 1-1/4 in. long with upper segment folded over lower end of tab. Fabricated from 0.050 in. thick coated or stainless steel. Upper tab 3 in. wide, maximum tab height 3-1/2 in. with lower end formed to engage base. Fabricated from 0.023 in. thick coated or stainless steel.

STEELOX SYSTEMS L L C — "CF Sliding Clip"

Spacing for clip to be 5 ft 0-1/16 in. OC with clips located over purlins (Item 6).

2A. **Roof Deck Fasteners*** — (Panel Clips)(Not Shown) — No. 22 MSG min coated steel. Clips located at panel sides. Guide Holes in bottom of clip to accommodate two screw fasteners (Item 3).

ARCHITECTURAL BUILDING COMPONENTS INC — "JSM 200 Utility"

CECO BUILDING SYSTEMS, DIV OF

ROBERTSON-CECO CORP — "CL3, CL4, CL7, CL8 Series""CRP16 Panel Clips"

HCI STEEL BUILDING SYSTEMS INC — "SS16 High or Low Stationary Clip" or "SS16 High or Low Expansion Clip"

NCI BUILDING SYSTEMS L P — "BattenLok High or Low, Fixed or Floating Clip"; "BattenLok Utility Clip" — "SuperLok High or Low, Fixed or Floating Clip"; "SuperLok Utility Clip"

2B. **End Lap Back-Up Plate*** — (Not shown) — No. 18 MSG min gauge coated steel. Max length 48 in. Width varies with type of purlin with a max of 6-1/2 in.

STEELOX SYSTEMS L L C — "End Lap Backing Plate".

2C. **End Lap Back-Up Plate*** — (Not shown) — No. 16 MSG min coated steel.

NCI BUILDING SYSTEMS L P — "BattenLok Back-Up Plate" or "SuperLok Back-Up Plate".

2D. **End Lap Back up Plate** — (Not shown) — used with HCI Steel Products' Panels - 6 in. wide, 15-1/2 in. long, fabricated from 16 MSG min thick steel (50,000 psi min yield strength).

2E. **Roof Deck Fastener*** — (End Lap Back up Plate) — (Not Shown) — Used with AEP-Span "SL-216" panels. Length 10-1/2 in., width 15-3/4 in., No. 16 MSG min thick coated steel. Slipped under lower panel at end lap. Panels fastened together using four No. 1/4-14 by 1-1/8 in. long self-drilling, self-tapping, hex-washer head, plated steel screws with a 5/8 in. OD steel washer and a sealing washer. Screws spaced 4 in. OC beginning 2 in. from ribs.

AEP SPAN, DIV OF

ASC PROFILES — "SL-216 End-Lap Back-Up Plate"

2F. **Roof Deck Fasteners*** — (Panel Clip) — (Not Shown) — Two part assembly; A base fabricated from No. 16 MSG min coated steel and an upper tab fabricated from No. 22MSG min coated steel. Clips fastened to purlins with two fasteners per clip. See Item No. 3 for description of fasteners.

AEP SPAN, DIV OF

ASC PROFILES — "SL-2.5 in. Standard Clip"

2G **Roof Deck Fasteners*** — (Panel Clip) — (Not Shown) — Two part assembly; A base fabricated from No. 16 MSG min coated steel and upper tab fabricated from No. 22 MSG min coated steel. Clips fastened to purlins using two fasteners per clip. See Item No. 3 for description of fasteners.

METAL SALES MFG CORP — " T-Span Clip"

2H. **Roof Deck Fasteners*** — (Panel Clips) — (Not Shown) — Used with "Tite-Loc" or "Tite-Loc Plus" panels.

One piece assembly; 3 in. wide, approximately 2 in. high with two or three guide holes in base. Fabricated from No. 22 MSG coated steel.

PETERSEN ALUMINUM CORP — " Tite-Loc Utility Clip" and "Tite-Loc Plus Utility Clip"

One piece assembly; 3 in. wide, approximately 2-3/8 in. or 3 in. high, with three guide holes in base. Fabricated from No. 22 MSG coated steel.

PETERSEN ALUMINUM CORP — " Tite-Loc Low/High Fixed Clip" and "Tite-Loc Plus Low/High Fixed Clip"

Two piece assembly; base approximately 2 in. wide, 1-11/16 in. long formed to engage upper tab. Fabricated from No. 16 MSG coated steel. Tab approximately 4-5/16 in. wide; 2-3/8 in. or 2-7/8 in. high, formed to engage base. Fabricated from No.

22 MSG coated steel. Base to have two guide holes.

PETERSEN ALUMINUM CORP — " Tite-Loc Sliding Clip" and "Tite-Loc Plus Sliding Clip"

3. **Fasteners** — (Screws) — For attaching panel clips to purlins- 1/4 - 14 by 1 in. long shoulder or stand off type, self-drilling, self-tapping, hex-head plated steel screws. One screw per clip to be used. As an alternate fastener for panel clip to purlin attachment a No. 12-14 by 1 in. long self-drilling, self-tapping, hex-head plated steel screw may be used. Fasteners used at end laps-1/4 - 10 by 1 in. long self-drilling, self-tapping, hex-head plated steel screws with 1/2 in. OD metal backed sealing washer, spaced on a 1, 3, 3-1/2, 3-1/2, 3, 1 in. pattern.

For Building Unit-to-Panel side lap connections-No. 18-9 by 1 in. long self-drilling, self-tapping, hex-head plated steel screws with a separate 1/2 in. OD plated steel washer and a neoprene sealing washer. One fastener required at each end and one at midspan of each rib of the Building Unit.

For Reinforcing Plate-to-Building Unit end lap connection-No. 18-9 by 1 in. long self-drilling, self-tapping, hex-head plated steel screws with a separate 1/2 in. OD plated steel washer and a neoprene sealing washer. Spacing to be nom 2-1/2, 5-1/2, 5-1/2 in. beginning at the female rib of the Building Unit.

4. **Thermal Spacer Block** — Used over purlins. Expanded polystyrene 1 in. thick, 5 in. wide, 48 in. long with cutout to accommodate panel clips.

4A. **Thermal Spacer Block** — (Optional) — (Not Shown) — Used over purlins. Expanded polystyrene 1 in. thick max, 3 in. wide, cut to fit between panel clips (For use with Item 2A only.

5. **Insulation** — (Optional) — Any compressible blanket type 4 in. max thickness before compression. An additional 2 in. max thickness of compressible blanket insulation may be used between purlins. The additional insulation shall not be sandwiched between the upper flange of the Purlin and the Metal Roof Deck Panel.

As an alternate method of installation, a max of 6 in. of compressible blanket insulation may be used. The insulation is to be laid over the purlins and slit along the purlins to a depth of 5 in. (1 in. above the purlin) in such a manner that no material in excess of 4 in. is sandwiched between the purlins and the Roof Deck Panels.

6. **Purlins** — Z-shaped, 0.056 in. min thickness steel (40,000 psi min yield strength) or min "H" series open web steel joists. Maximum spacing 60-1/4 in.

7. **Building Units** — * (Optional) — Prefabricated assemblies of a Skylight Panel, (Item 7B), mounted in a Perforated Metal Roof Deck Panel, (Item 1), with Flashings, (Item 7C). Assembly continuous over two spans erected in the same manner as for Metal Roof Deck Panels.

STEELOX SYSTEMS L L C — "264 Steelox-Skylight".

NCI BUILDING SYSTEMS L P — "BattonLok Light Transmitting Panel" or "SuperLok Light Transmittting Panel".

7A. **Perforated Metal Roof Deck Panels** — No. 24 MSG min gauge coated steel perforated in the flat portion.

7B. **Plastic Skylight** — * (Translucent, glass fiber reinforced plastic panel) — Thickness 0.04 in. (nom) formed to fit the Perforated Metal Roof Deck Panel, (Item 7A).

7C. **Flashing** — No. 20 MSG min gauge coated steel. Attached to the Building Unit to retain and flash the Plastic Skylight to the Perforated Metal Roof Deck Panel.

8. **Insulating Units** — (Optional) — Prefabricated assemblies of a Plastic Insulating Skylight Pan, (Item 8B), mounted in an Aluminum Frame, (Item 8A). Assembly spans between adjacent Purlins beneath a Building Unit only.

8A. **Aluminum Frame** — Extruded aluminum alloy, 0.055 in. min thickness, shop assembled.

8B. **Plastic Insulating Skylight Pan** — (Translucent, glass fiber reinforced modified acrylic plastic panel). Shop assembled in Aluminum Frame, (Item 8A).

9. **Insulation Trim** — No. 24 MSG min gauge coated steel. Used at the sides of the Building Unit.

10. **Reinforcing Plate** — (Not Shown) — Min 0.05 in. thick coated steel. Max length 15-1/2 in., width 5-1/4 in. Used at downslope end lap of Building Unit to Metal Roof Deck Panel.

Refer to General Information, Roof Deck Constructions (Roofing Materials and Systems Directory) for items not evaluated.

*Bearing the UL Classification Mark

Page Top | Notice of Disclaimer | Questions? Previous Page

UL Listed and Classified Products | UL Recognized Components | Products Certified for Canada

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Online Certifications Directory

TGKX.176
Roof Deck Constructions

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Roof Deck Constructions

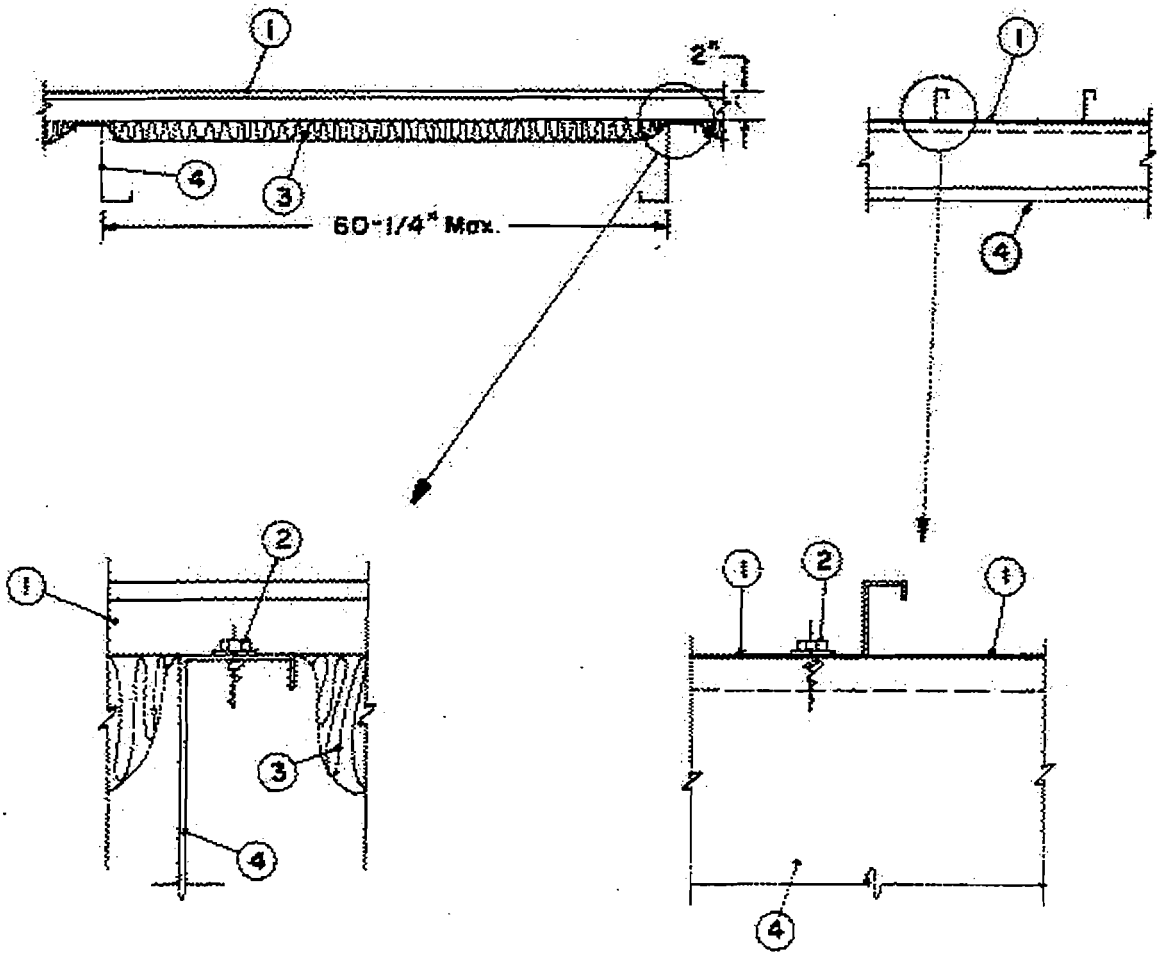
Guide Information

Construction No. 176

March 30, 2004

Uplift — Class 90

Fire Not Investigated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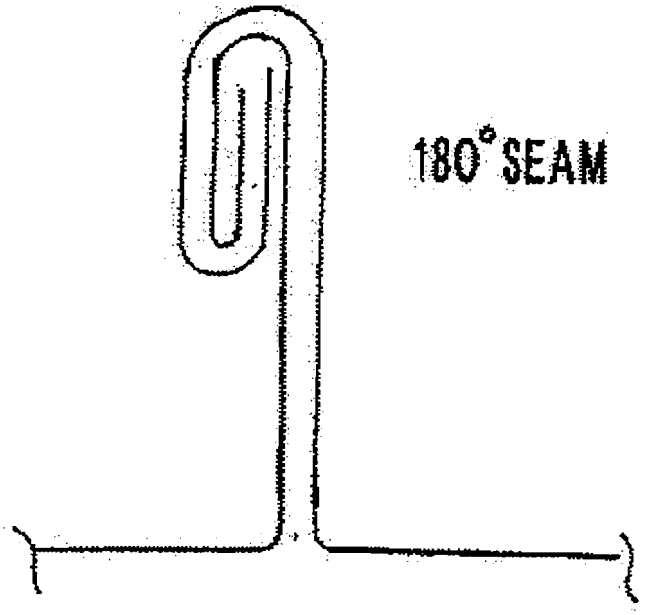

FOR AEP-SPAN PANEL

("SPAN-SEAM")

1. **Metal Roof Deck Panels*** — No. 24 MSG min gauge coated steel, 16 in. max width. Panels continuous over two or more spans. End lap to occur over purlins with panels overlapped 6 in. with lap beginning 1 in. from purlin rib and extending across purlin flange. Side joints to be crimped with a special motorized crimper to a minimum 45 degree angle. A bead of sealing compound may be used at panel end and side laps. For Morin Corp., seams may be 45°, 90°, or 180°.

A & M BUILDERS/ROOFING

TECHNOLOGIES L L C — "SS200"

A & S BUILDING SYSTEMS L P — "BattenLok" or "SuperLok"

A-LERT STANDING SEAM ROOF SYSTEMS — "A-Lert Loc"

AEP SPAN, DIV OF

ASC PROFILES — "SL 216" (90° Seam), "SPS-216" (180° Seam)

ALLWINE ROOFING & CONSTRUCTION INC — "A2-16", "A2-16 Fluted" and "A2-16 with Clip Offset"

ARCHITECTURAL BUILDING COMPONENTS INC — "JSM 200"

ARCHITECTURAL SHEETMETAL PRODUCTS INC — "ASP-2500"

CENTURION INDUSTRIES INC, DBA

TFC CANOPY — "Centurion 1624M"

CONSOLIDATED METALS OF FLORIDA, DIV OF

ALUMINUM SERVICE INC — "CSS-210A"

CONSTRUCTION METAL PRODUCTS INC — "CMP Series 2500"

CSC SALES INC — "CSC-SS2000"

DALEY CONSTRUCTION & METAL ROOFING — "3D Forever Lock"

ENGLERT INC — "Series 2500"

HCI STEEL BUILDING SYSTEMS INC — "Mark 1622", "Mark 1624"

HI-TEC ROOFING INC — "MRS 210A"

J M METALS ROOFING MFRS — "JM 2.0"

KNUDSON MFG INC — "ULTRALOK"

MBCI — "BattenLok" or "SuperLok"

MESCO METAL BUILDINGS — "BattenLok" or "SuperLok"

METAL-FAB MFG LLC — "Met-Fab III"

METAL PANEL SYSTEMS INC — "MP-200"

METAL SALES MFG CORP — "T-Span" or "T-Span 180" (180° Seam)

METAL WORX SYSTEMS INC — "SS 2000"

MORIN CORP — "SLR-12", "SLR-14", "SLR-16"

NCI BUILDING SYSTEMS L P — "BattenLok" or "SuperLok"

NEW TECH MACHINERY CORP — "Panel 210A"

NORTH COAST COMMERCIAL

ROOFING SYSTEM OF PA INC — "Series 2500"

PETERSEN ALUMINUM CORP — " Tite-Loc" and "Tite-Loc Plus"

ROL-TEC SYSTEMS INC — "ULTRALOK"

R S S P INC — "SS 2000"

STEELOX SYSTEMS L L C — "Steelox LRX 262", "Steelox LRX 264", "Steelox PRX 262" or "Steelox PRX 264" (Fabricated from either coated or stainless steel)

SUPERIOR METAL SYSTEMS INC — "SMS 416"

UNITED STRUCTURES OF AMERICA INC — "Sure-Lok" or "Supreme-Lok"

ZIMMERMAN METALS INC — "SS2000"

2. **Fasteners** — For panel to purlin connections to be No. 12-14 by 1 in. self-drilling,

self-tapping, hex-head plated steel screws with a separate 1/2 in. OD plated steel washer and a neoprene sealing washer. Spacing to be 16 in. OC with one fastener located 2 in. from the female side of each panel. Spacing at end lap to be in a 1-1/2, 3, 3-1/2, 3-1/2, 3-1/2, 1 in. pattern beginning from the female side rib.

3. **Insulation** — (Optional) — Any compressible blanket insulation, 4 in. max thickness before compression.

3A. **(Optional)** — An additional 2 in. max thickness of compressible blanket insulation may be used between purlins. The additional insulation shall not be sandwiched between the upper flange of the purlin and the roof deck panel.

4. **Purlins** — 0.056 in. min thickness steel (40,000 psi min yield strength).

Refer to General Information, Roof Deck Constructions (Roofing Materials and Systems Directory) for items not evaluated.

*Bearing the UL Classification Mark

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Roof Deck Constructions

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Roof Deck Constructions

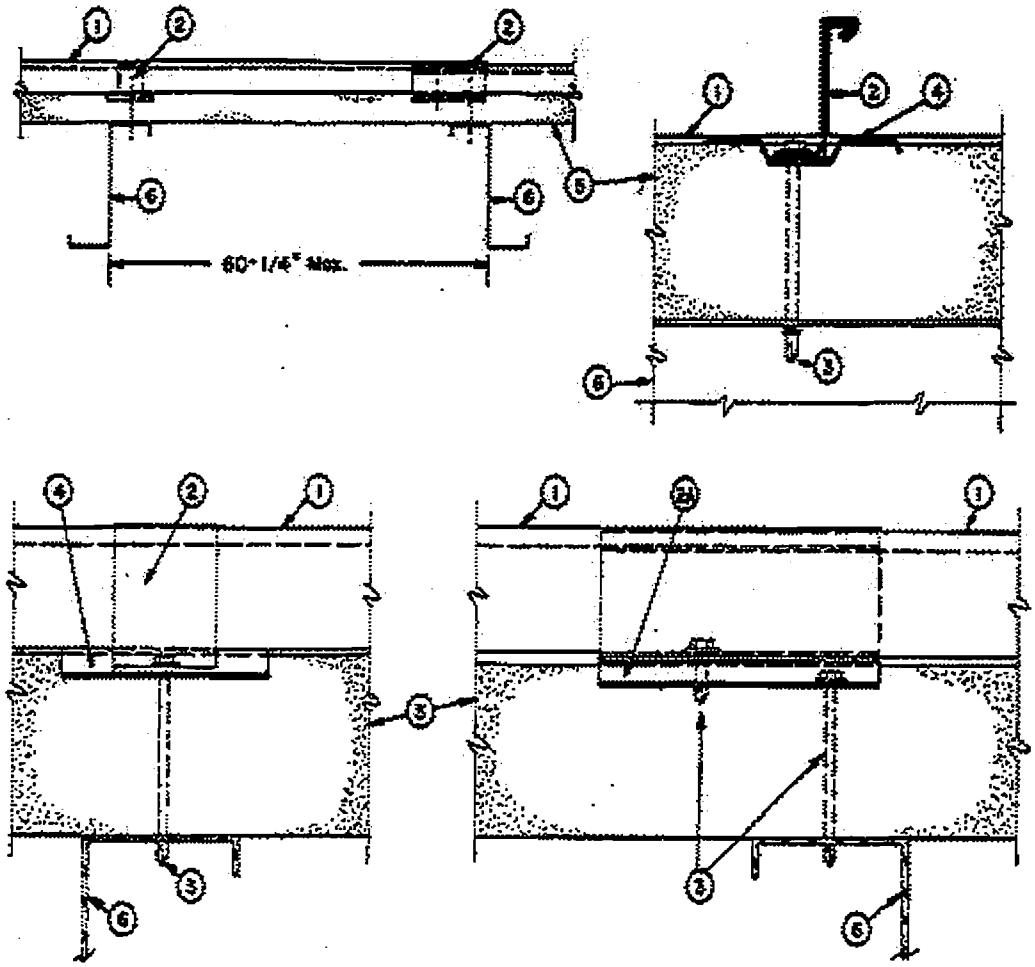
Guide Information

Construction No. 180

March 30, 2004

Uplift — Class 90

Fire Not Investigated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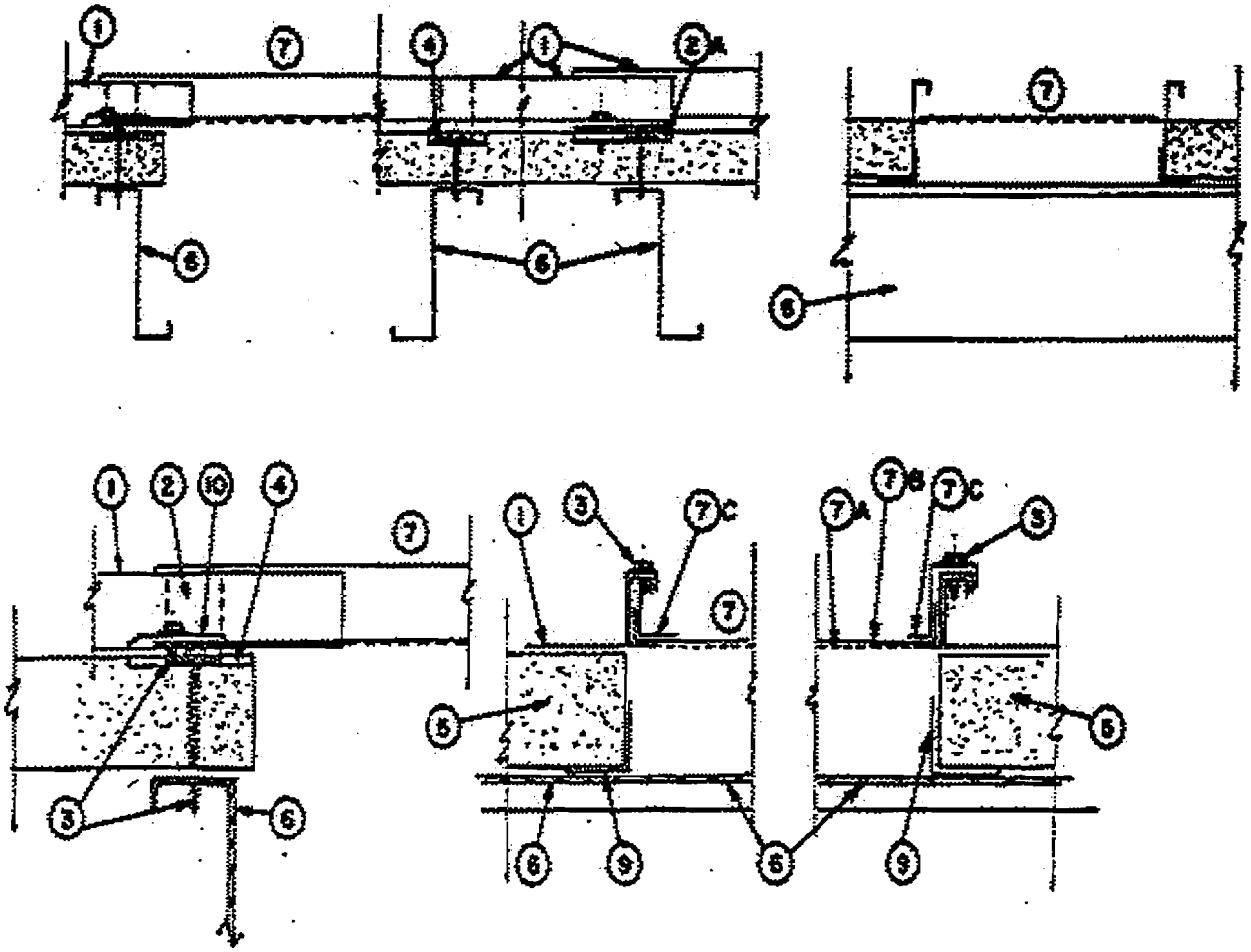

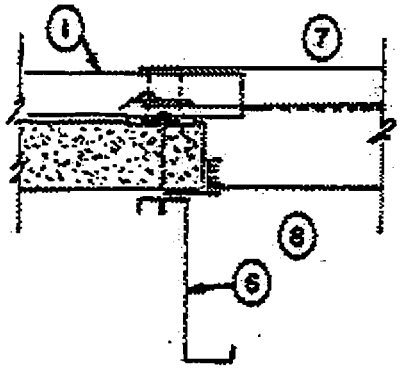
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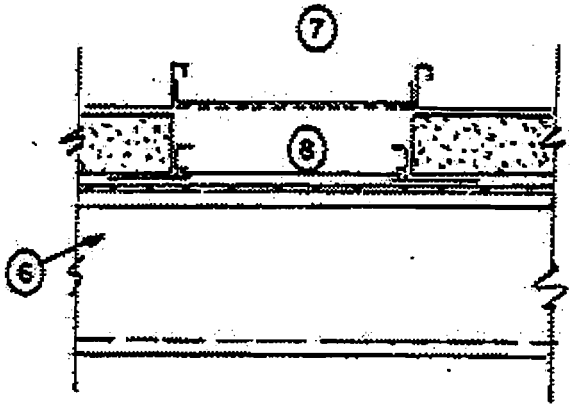
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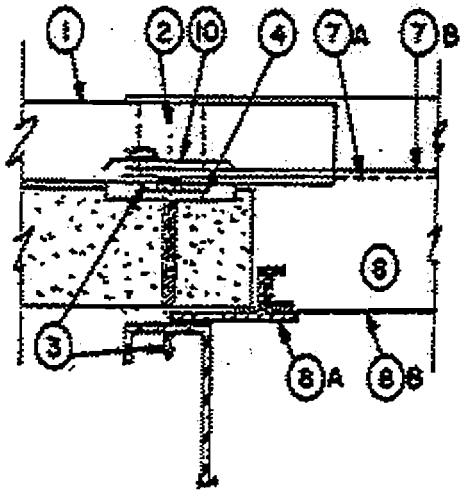
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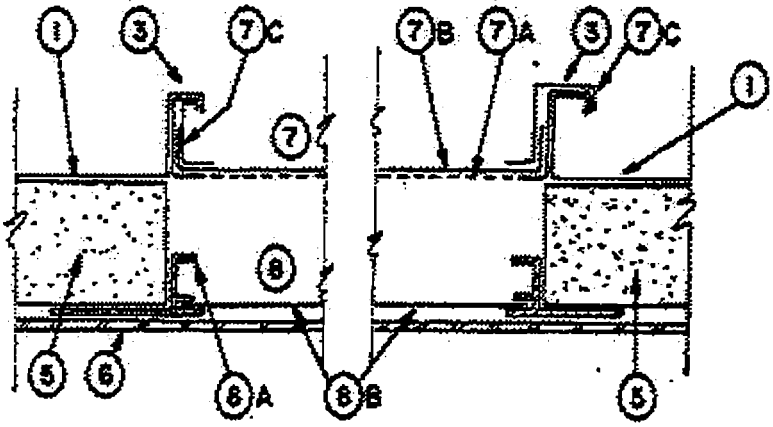
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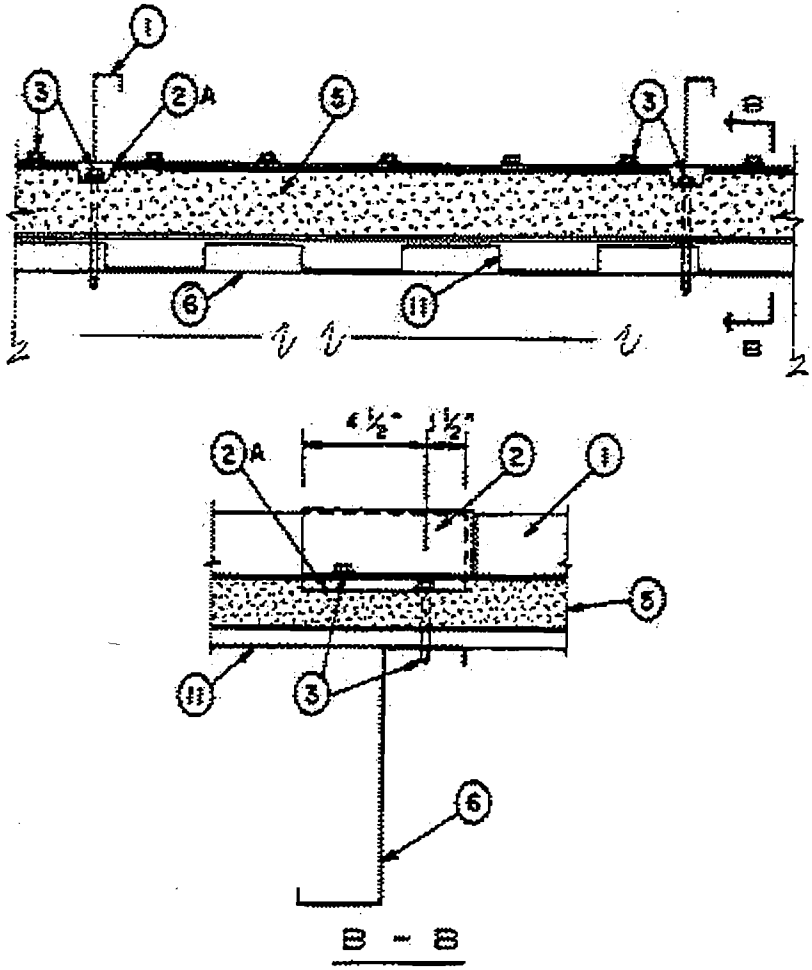

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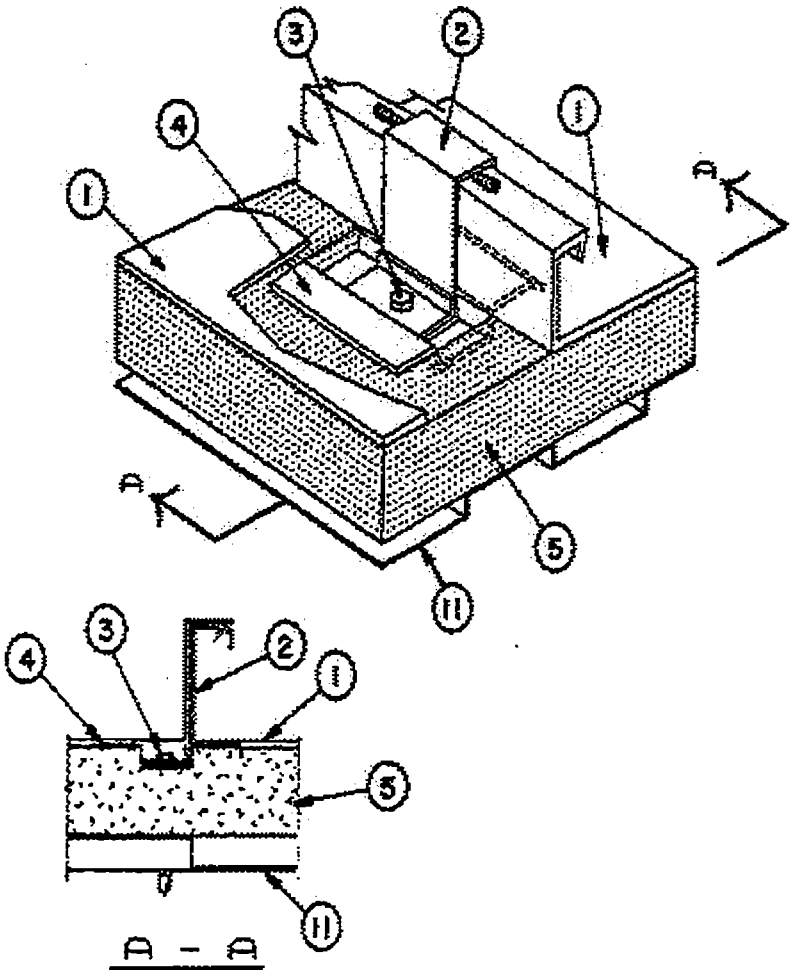
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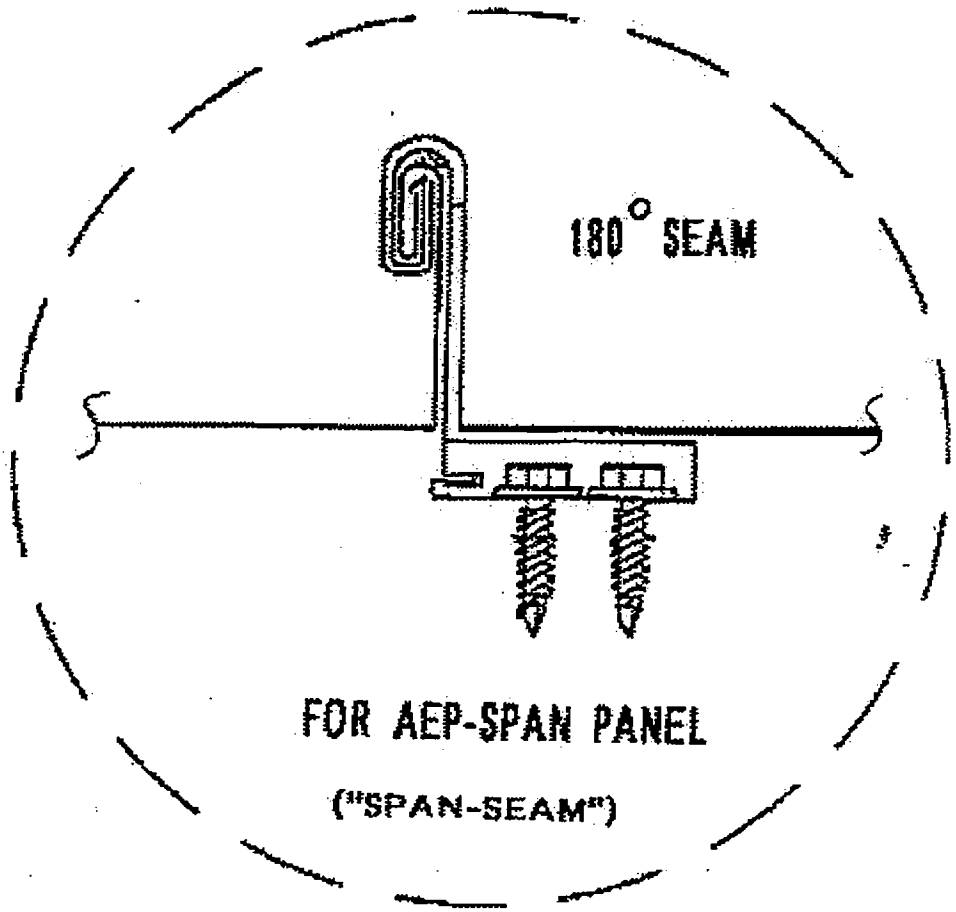

1. **Metal Roof Deck Panels** — * — No. 24 MSG min gauge coated steel, 16 in. max width. Panels continuous over two or more spans. End lap to occur over purlins and to include End Lap Back-Up Plate (Item 2A or 2B). Ends of panels overlapped 6 in. beginning 1 in. from purlin web and extending across purlin upper flange. Side laps to be tightened and crimped with special motorized crimping machine to a minimum 45 degree angle with crimping process to include tabs of panel clips (Item 2). A bead of sealing compound may be used at panel laps and side joints. For Morin Corp., seams may be 45°, 90°, or 180°.

A & M BUILDERS/ROOFING

TECHNOLOGIES L L C — "SS200"

A & S BUILDING SYSTEMS L P — "BattenLok" or "SuperLok"

A-LERT STANDING SEAM ROOF SYSTEMS — "A-Lert Loc"

AEP SPAN, DIV OF

ASC PROFILES — "SL-216" (90° Seam), "SPS-216" (180° Seam)

ALLWINE ROOFING & CONSTRUCTION INC — "A2-16", "A2-16 Fluted" and "A2-16 with Clip Offset"

ARCHITECTURAL BUILDING COMPONENTS INC — "JSM 200"

ARCHITECTURAL SHEETMETAL PRODUCTS INC — "ASP-2500"

CENTURION INDUSTRIES INC, DBA

TFC CANOPY — "Centurion 1624M"

CONSOLIDATED METALS OF FLORIDA, DIV OF

ALUMINUM SERVICE INC — "CSS-210A"

CONSTRUCTION METAL PRODUCTS INC — "CMP Series 2500"

CSC SALES INC — "CSC-SS2000"

DALEY CONSTRUCTION & METAL ROOFING — "3D Forever Lock"

ENGLERT INC — "Series 2500"

HI-TEC ROOFING INC — "MRS 210A"

J M METALS ROOFING MFRS — "JM 2.0"

KNUDSON MFG INC — "ULTRALOK"

MBCI — "BattenLok" or "SuperLok"

MESCO METAL BUILDINGS — "BattenLok" or "SuperLok"

METAL-FAB MFG LLC — "Met-Fab III"

METAL PANEL SYSTEMS INC — "MP-200"

METAL SALES MFG CORP — "T-Span" or "T-Span 180" (180° Seam)

METAL WORX SYSTEMS INC — "SS 2000"

MORIN CORP — "SLR-12", "SLR-14", "SLR-16"

NCI BUILDING SYSTEMS L P — "BattenLok" or "SuperLok"

NEW TECH MACHINERY CORP — "Panel 210A"

NORTH COAST COMMERCIAL

ROOFING SYSTEM OF PA INC — "Series 2500"

PETERSEN ALUMINUM CORP — " Tite-Loc" and "Tite-Loc Plus"

ROL-TEC SYSTEMS INC — "ULTRALOK"

R S S P INC — "SS 2000"

STEELOX SYSTEMS L L C — "Steelox LRX 262", "Steelox LRX 264", "Steelox PRX 262" or "Steelox PRX 264" (Fabricated from either coated or stainless steel)

UNITED STRUCTURES OF AMERICA INC — "Sure-Lok" or "Supreme-Lok"

ZIMMERMAN METALS INC — "SS2000"

2. **Roof Deck Fasteners* (Panel Clips)** — Two part assembly: Base, 1 in. wide approximately 1-1/4 in. long with upper segment folded over lower end of tab. Fabricated from 0.050 in. thick coated or stainless steel. Upper tab 3 in. wide, maximum tab height 3-1/2 in. with lower end formed to engage base. Fabricated from 0.023 in. thick coated or stainless steel.

Spacing for clip to be 5 ft 0-1/16 in. OC with clips located over purlins (Item 6).

STEELOX SYSTEMS L L C — "CF Sliding Clip"

2A. **Roof Deck Fasteners* (End Lap Back-Up Plate)** — (Not shown) — No. 18 MSG min gauge coated steel. Max length 48 in. Width varies with type of purlin with a max of 6-1/2 in.

STEELOX SYSTEMS L L C — "Backing Plate"

2B. **End Lap Back-Up Plate*** — (Not Shown) — No. 16 MSG min coated steel.

NCI BUILDING SYSTEMS L P — "BattenLok Back-Up Plate" or "SuperLok Back-Up Plate"

2C. **Roof Deck Fasteners*** — (Panel Clip) (Not Shown) — Either of the following: Fixed or Utility Clip-one piece assembly fabricated from No. 22 MSG min gauge steel, 3 in. wide. Floating Clip-two piece assembly with a base fabricated from No. 16 MSG min gauge steel, 1-5/8 in. wide, and a top fabricated from No. 22 MSG min gauge steel, 4-1/4 in. wide. One clip to be used per panel at each purlin location.

NCI BUILDING SYSTEMS L P — "BattenLok High or Low, Fixed or Floating Clip"; "BattenLok Utility Clip"--- "SuperLok High or Low, Fixed or Floating Clip"; "SuperLok Utility Clip"

ARCHITECTURAL BUILDING COMPONENTS INC — "JSM 200 Utility"

2D. **Roof Deck Fastener*** — (End Lap Back up Plate) — (Not Shown) — Used with AEP-Span "SL-216" (90° Seam), "SPS-216" (180° Seam) panels. Length 10-1/2 in., width 15-3/4 in., No. 16 MSG min thick coated steel. Slipped under lower panel at end lap. Panels fastened together using four No. 1/4-14 by 1-1/8 in. long self-drilling, self-tapping, hex-washer head, plated steel screws with a 5/8 in. OD steel washer and a sealing washer. Screws spaced 4 in. OC beginning 2 in. from ribs.

AEP SPAN, DIV OF

ASC PROFILES — "SL-216 End-Lap Back-Up Plate"

2E. **Roof Deck Fasteners*** — (Panel Clip) (Not Shown) — Two part assembly; A base fabricated from No. 16 MSG min coated steel and an upper tab fabricated from No. 22MSG min coated steel. Clips fastened to purlins with two fasteners per clip. See Item No. 3 for description of fasteners.

AEP SPAN, DIV OF

ASC PROFILES — "SL-2.5 in. Standard Clip"

2F. **Roof Deck Fasteners*** — (Panel Clip) (Not Shown) Used with "Tite-Loc" or "Tite-Loc Plus" Panels.

One piece assembly; 3 in. wide, approximately 2 in. high with two or three guide holes in base. Fabricated from No. 22 MSG coated steel.

PETERSEN ALUMINUM CORP — "Tite-Loc Utility Clip", "Tite-Loc Plus Utility Clip"

One piece assembly; 3 in. wide, approximately 2-3/8 in. or 3 in. high, with three guide holes in base. Fabricated from No. 22 MSG coated steel.

PETERSEN ALUMINUM CORP — "Tite-Loc Low/High Fixed Clip", "Tite-Loc Plus Low/High Fixed Clip"

Two piece assembly; base approximately 2 in. wide, 1-11/16 in. long formed to engage upper tab. Fabricated from No. 16 MSG coated steel. Tab approximately 4-5/16 in. wide; 2-3/8 in. or 2-7/8 in. high, formed to engage base. Fabricated from No. 22 MSG coated steel. Base to have two guide holes.

PETERSEN ALUMINUM CORP — "Tite-Loc Sliding Clip", "Tite-Loc Plus Sliding Clip"

2G. **Roof Desk Fasteners*** — (Panel Clip) (Not Shown) — Two part assembly; A base fabricated from No. 16 MSG min coated steel and upper tab fabricated from No. 22 MSG min coated steel. Clips fastened to purlins using two fasteners per clip. See Item No. 3 for description of fasteners.

METAL SALES MFG CORP — T-Span Clip

2H. **Roof Deck Fasteners** — (Panel Clips) - Two types, both two piece assemblies. Type 330 base approximately 1.88 in. by 1.70 in.; Type 330B base approximately 1.11 in. by 2.00 in. Both types fabricated from No. 16 MSG coated steel and formed to fold over upper tab. Type 330 upper tab 4.30 in. wide and 2.91 in. high max. Type 330B upper tab 4.30 in. wide and 3.34 in. high max. Both types formed to engage base. Clips spaced 5 ft, 0-1/16 in. maximum.

MORIN CORP — "SLR-330 Clip" (for 45° seam)

MORIN CORP — "SLR-330B Clip" (for 90° & 180° seam)

3. **Fasteners (Screws)** — For attaching panel clips to purlins-to be 1/4-14 shoulder or stand-off type; self-drilling, self-tapping, hex-head, plated steel screws. Fastener length to vary with thickness of insulation and to be min of 3/4 in. longer than nom thickness of rigid insulation. One fastener per clip to be used at each purlin. As an alternate fastener for panel clip to purlin attachment, a No. 12-14 self-drilling, self-tapping, hex-head plated steel screw may be used. Same length detail as for 1/4-14 screws to apply. Fasteners used at end laps to be 1/4-10 by 1 in. long self-drilling, self-tapping, hex-head plated steel screws with 1/2 in. OD metal backed sealing washers. Spaced in a 1, 3, 3-1/2, 3-1/2, 3, 1 in. pattern.

For Building Unit-to-Panel side lap connections — No. 18-9 by 1 in. long self-drilling, self-tapping, hex-head plated steel screws with a separate 1/2 in. OD plated steel washer and a neoprene sealing washer. One fastener required at each end and one at midspan of each rib of the Building Units.

For Reinforcing Plate-to-Building Unit end lap connection — No. 18-9 by 1 in. long self-drilling, self-tapping, hex-head plated steel screws with a separate 1/2 in. OD. plated steel washer and a neoprene sealing washer.

4. **Roof Deck Fastener * (Bearing Clip)** — No. 18 MSG min gauge coated steel; 3 in. wide by 3-1/4 in. long with 3/8 in. legs. Used under Panel Clips (Item 2) over purlins and rigid insulation. Three 1/4 in. dia guide holes located in base.

STEELOX SYSTEMS L L C — "Bearing Clip"

5. **Foamed Plastic*(Rigid insulation)** — Rigid type. Supplied in 4 ft wide sheets. Min thickness 1 in., max thickness 3 in. Butt joints to occur over purlins.

ATLAS ROOFING CORP — "Classic Shield".

6. **Purlins** — 0.056 in. min thickness steel (min yield strength 40,000 psi) or min "H" series open web steel joists. Maximum spacing 60-1/4 in.

7. **Building Units — *** — (Optional) — Prefabricated assemblies of a Skylight Panel, (Item 7B), mounted in a Perforated Metal Roof Deck Panel, (Item 7A), with Flashings, (Item 7C). Assembly continuous over two spans erected in the same manner as Metal Roof Deck Panels.

STEELOX SYSTEMS L L C — "264 Steelox-Skylight"

NCI BUILDING SYSTEMS L P — "BattonLok Light Transmitting Panel" or "SuperLok Light Transmittting Panel".

7A. **Perforated Metal Roof Deck Panels** — No. 24 MSG min gauge coated steel perforated in the flat portion.

7B. **Plastic Skylight* (Translucent, Glass Fiber Reinforced Plastic Panel)** — Thickness 0.04 in. (nom) formed to fit the Perforated Metal Roof Deck Panel, (Item 7A).

7C. **Flashing** — No. 20 MSG min gauge coated steel. Attached to the Building Unit to retain and flash the Plastic Skylight to the Perforated Metal Roof Deck Panel.

8. **Insulating Units** — (Optional) — Prefabricated assemblies of a Plastic Insulating Skylight Pan, (Item 8B), mounted in an Aluminum Frame, (Item 8A). Assembly spans between adjacent purlins beneath a Building Unit only.

8A. **Aluminum Frame** — Extruded aluminum alloy, 0.055 in. min thickness shop assembled.

8B. **Plastic Insulating Skylight Pan** — (Translucent, glass fiber reinforced modified acrylic plastic panel). Shop assembled in Aluminum Frame (Item 8A).

9. **Insulation Trim** — No. 24 MSG min gauge coated steel. Used at the sides of the Building Unit.

10. **Reinforcing Plate** — Min 0.05 in. thickness coated steel. Max length 15-1/2 in., width 5-1/4 in. Used at downslope end lap of Building Unit to Metal Roof Deck Panel.

Refer to General Information, Roof Deck Constructions (Roofing Materials and Systems Directory) for items not evaluated.

11. **Liner Panel** — (Optional) — The following liner panel types may be used:

A. No. 27 MSG min coated steel;.7 in. deep with major ribs having a 2 in. wide crest and spaced 8 in. O.C. cover width 32 in. Panel to be installed with major ribs down. (Min. yield strength to be 40,000 psi.)

B. No. 29 MSG min coated steel; 9/16 in. deep with ribs having a 3/4 in. wide crest and spaced 2.667 in. O.C. (Min. yield strength to be 80,000 psi.)

C. 0.018 in. min thickness aluminum (3105 H 194 alloy). 9/16 in. deep with ribs having a 3/4 in. wide crest and spaced 2.667 in. O.C. (Min. yield strength 30,000 psi)

All types to have adjacent widths overlapped min. of one corrugation at sides. End laps to be located over purlins with min. overlap to be 3 in. Liner panels to be fastened to purlins using No. 18-9 by 1 in. self-drilling, self-tapping, hex-head plated steel screws with an optional 1/2 in. O.D. plated steel washer and a neoprene sealing washer. Fasteners to be located one at each side lap and one in the approximate center of each panel width.

Refer to General Information, Roof Deck Constructions (Roofing Materials and Systems Directory) for items not evaluated.

*Bearing the UL Classification Mark

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Roof Deck Constructions

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Roof Deck Constructions

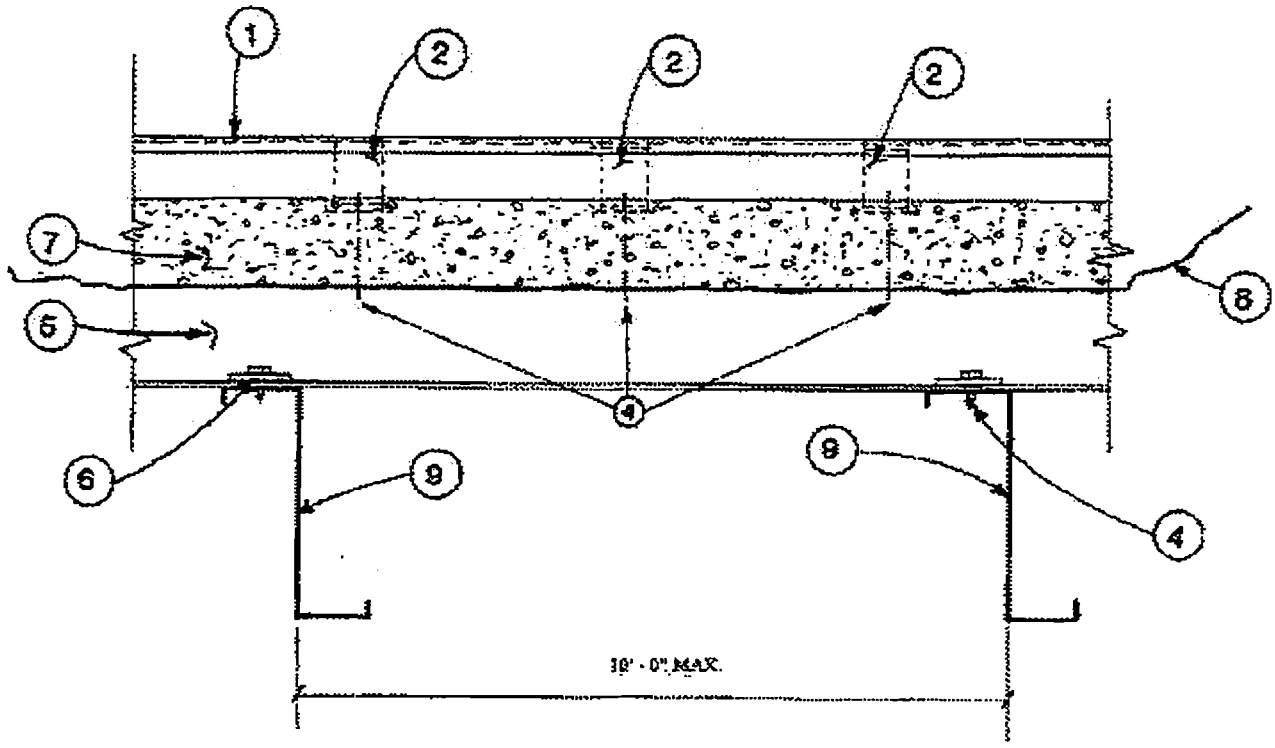
Guide Information

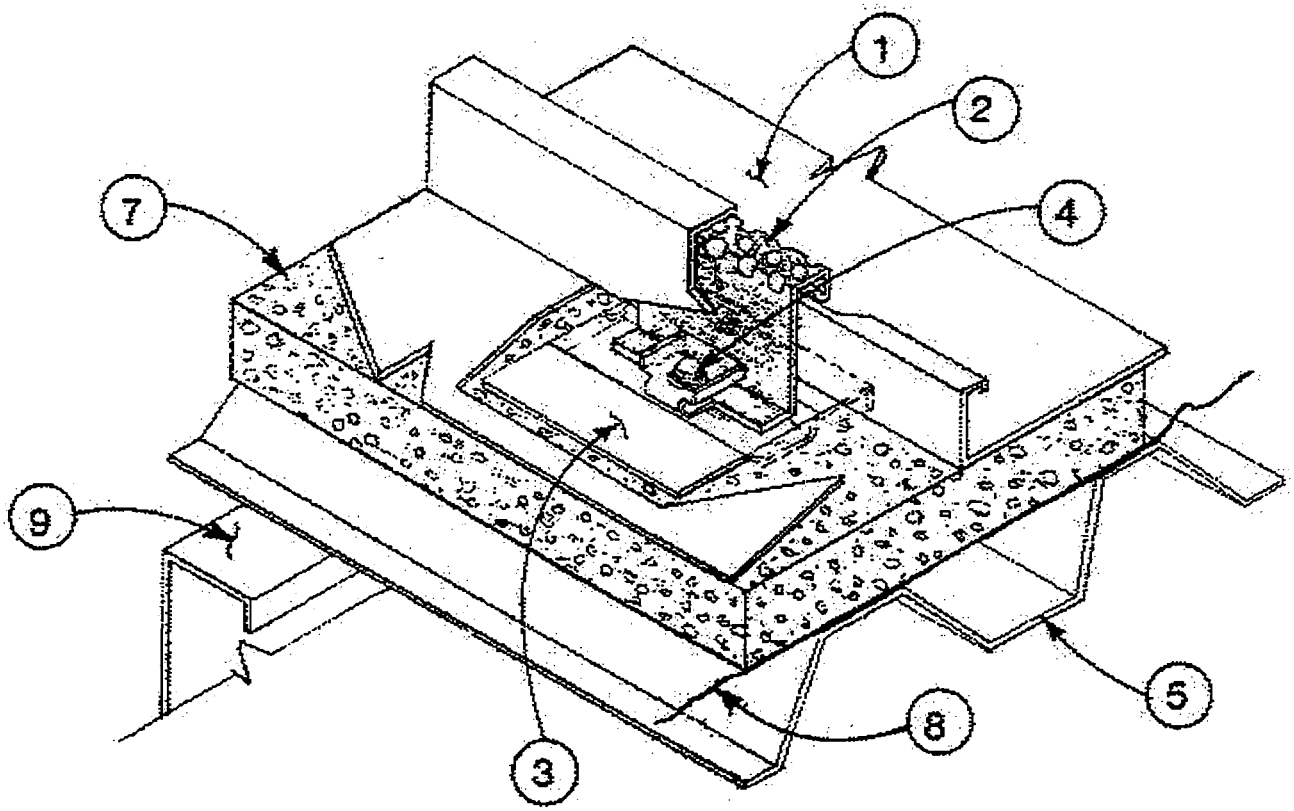
Construction No. 238

March 30, 2004

Uplift — Class 90

Fire Not Investigated

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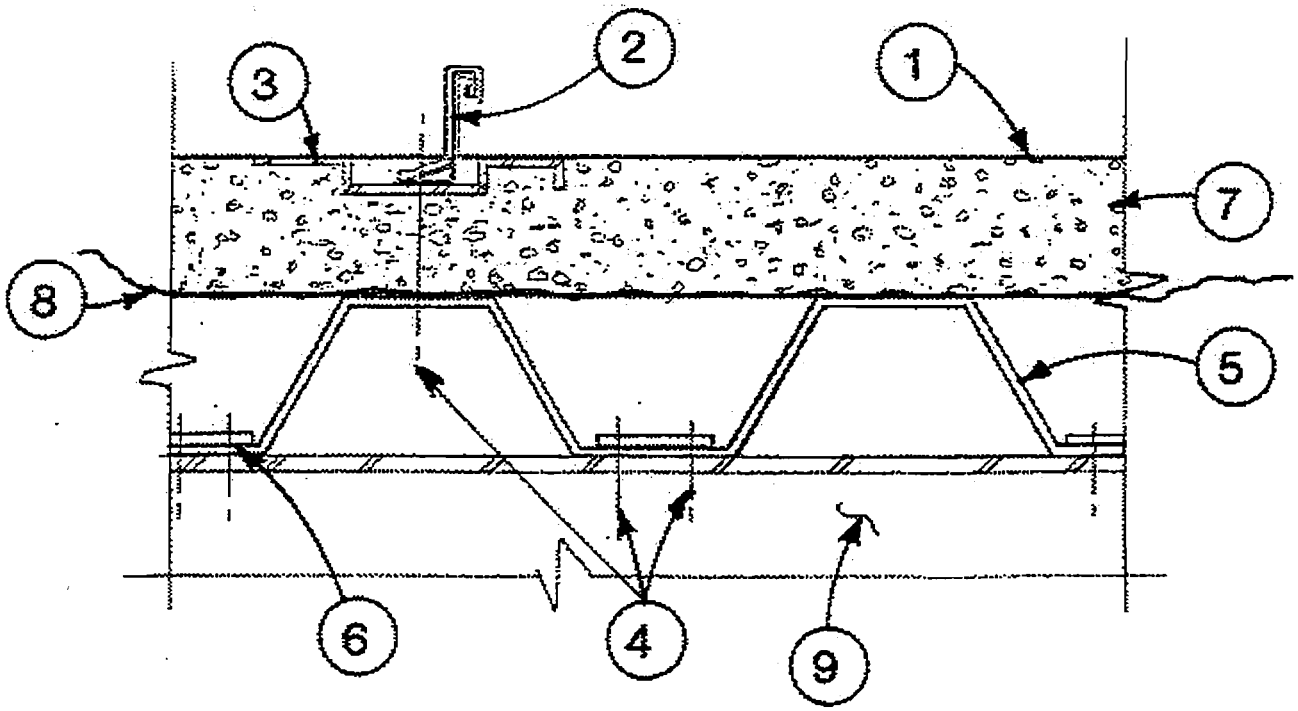
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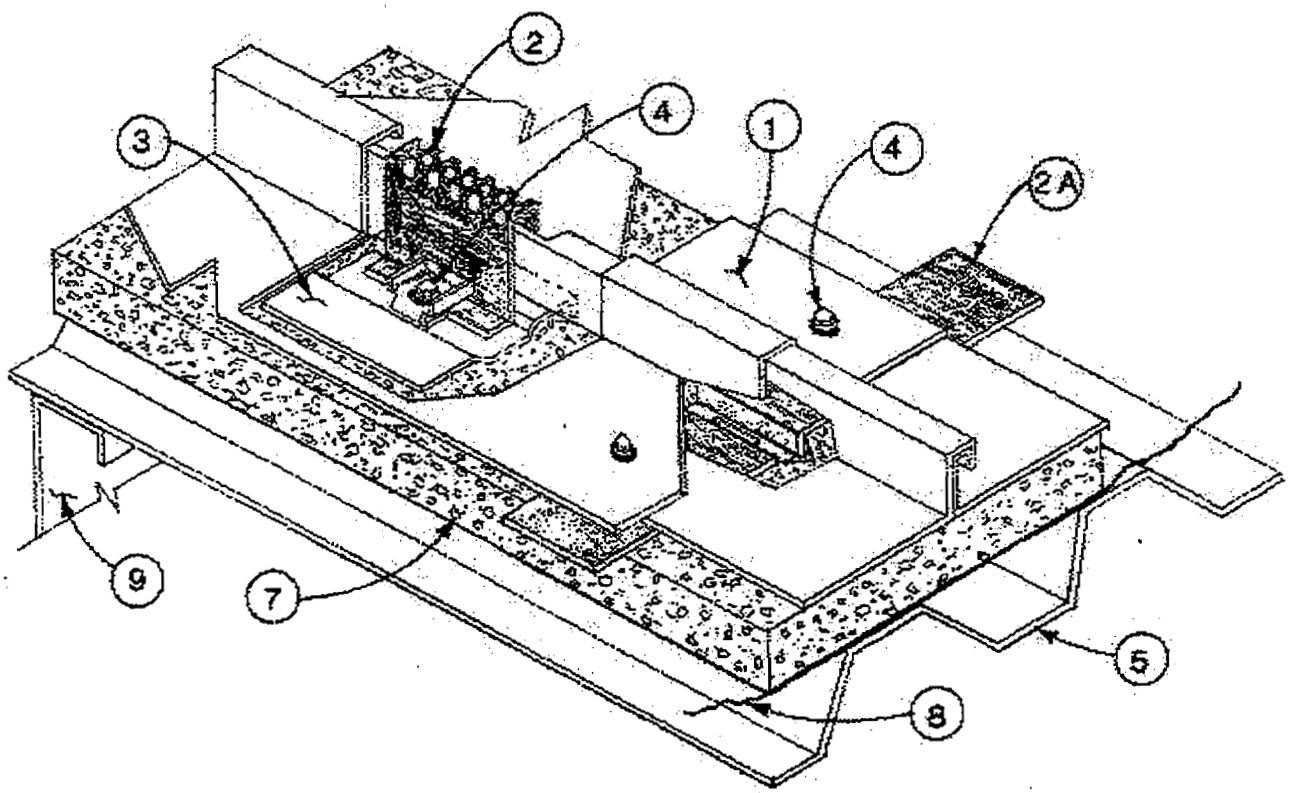
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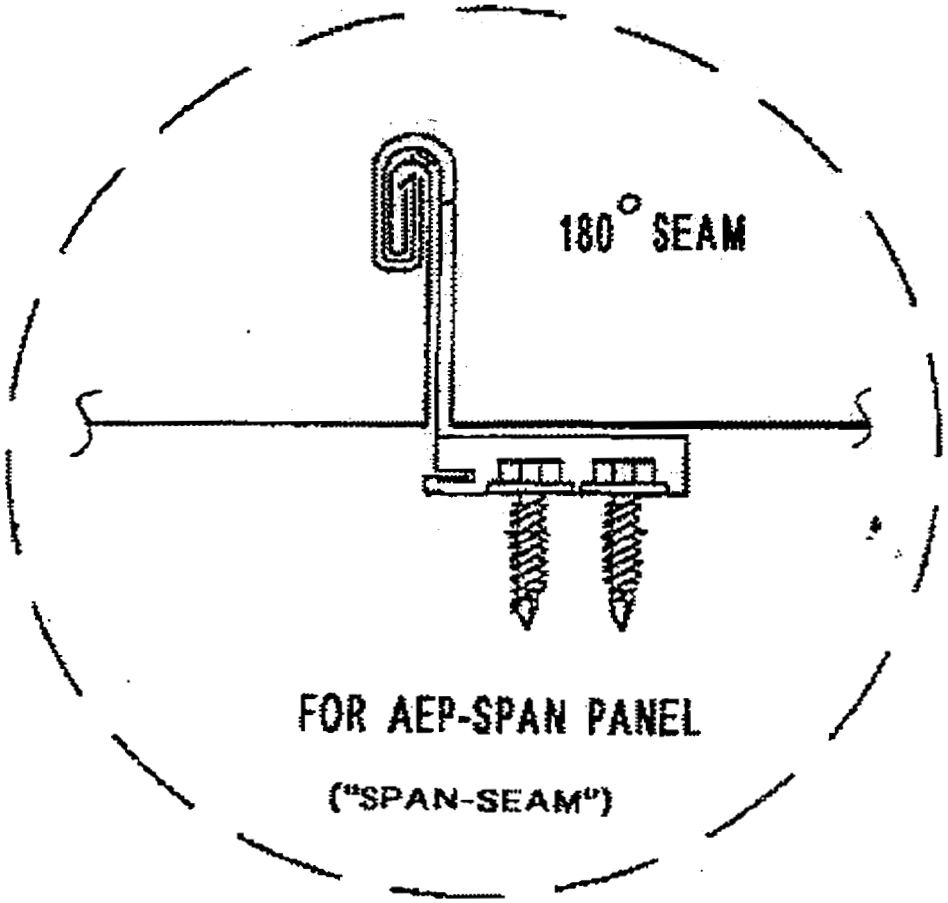
180° SEAM
FOR AEP-SPAN PANEL
("SPAN-SEAM")

1. **Metal Roof Deck Panels*** — No. 24 MSG min coated steel. Panels 16 in. wide, 2 in. high at side ribs. Panels continuous over two or more spans. End laps to occur near panel clip locations and to include end lap back up plate (Item 2A). Ends of panels overlapped 6 in. Side laps to be tightened and crimped with a special motorized crimping machined at an approximate 45 degree angle with crimping process to include tabs of panel clips (Item 2). A bead of sealing compound may be used at panel end laps and side joints. For Morin Corp., seams may be 45°, 90°, or 180°.

A & M BUILDERS/ROOFING

TECHNOLOGIES L L C — "SS200"

A-LERT STANDING SEAM ROOF SYSTEMS — "A-Lert Loc"

AEP SPAN, DIV OF

ASC PROFILES — " SL-216" (90° Seam), "Span-Seam" (180° Seam)

ALLWINE ROOFING & CONSTRUCTION INC — "A2-16", "A2-16 Fluted" and "A2-16 with Clip Offset"

AMERICAN BUILDINGS CO — "Loc-Seam,""Loc-Seam 360."

ARCHITECTURAL SHEETMETAL PRODUCTS INC — "ASP-2500"

CENTURION INDUSTRIES INC, DBA

TFC CANOPY — "Centurion 1624M"

CONSOLIDATED METALS OF FLORIDA, DIV OF

ALUMINUM SERVICE INC — "CSS-210A"

CONSTRUCTION METAL PRODUCTS INC — "CMP Series 2500"

CSC SALES INC — "CSC-SS2000"

DALEY CONSTRUCTION & METAL ROOFING — "3D Forever Lock"

ENGLERT INC — "Series 2500"

HI-TEC ROOFING INC — "MRS 210A"

J M METALS ROOFING MFRS — "JM 2.0"

KNUDSON MFG INC — "ULTRALOK"

METAL-FAB MFG LLC — "Met-Fab III"

METAL PANEL SYSTEMS INC — "MP-200"

METAL SALES MFG CORP — "T-Span" or "T-Span 180" (180° Seam)

METAL WORX SYSTEMS INC — "SS 2000"

MORIN CORP — "SLR-12", "SLR-14", "SLR-16"

NEW TECH MACHINERY CORP — "Panel 210A"

NORTH COAST COMMERCIAL

ROOFING SYSTEM OF PA INC — "Series 2500"

ROL-TEC SYSTEMS INC — "ULTRALOK"

R S S P INC — "SS 2000"

STEELOX SYSTEMS L L C — "Steelox LRX 262", "Steelox LRX 264", "Steelox PRX 262" or "Steelox PRX 264" (Fabricated from either coated or stainless steel)

SUPERIOR METAL SYSTEMS INC — "SMS 416"

ZIMMERMAN METALS INC — "SS2000"

2. **Roof Deck Fasteners (Panel Clips)** — Two part assembly: Base, 1 in. wide approximately 1-1/4 in. long with upper segment folded over lower end of tab. Fabricated from 0.050 in. thick coated or stainless steel. Upper tab 3 in. wide, maximum tab height 3-1/2 in. with lower end formed to engage base. Fabricated from 0.023 in. thick coated or stainless steel.

STEELOX SYSTEMS L L C — "CF Sliding Clip"

2A. **Roof Deck Fasteners (End Lap Back-Up Plate)** — (Not Shown) — No. 18 MSG min gauge coated steel. Max length 48 in., width 6-1/2 in.

METAL SALES MFG CORP — "T-Span Clip"

STEELOX SYSTEMS L L C — "Backing Plate"

2B. **Roof Deck Fasteners** — (Panel Clips) - Two types, both two piece assemblies. Type 330 base approximately 1.88 in. by 1.70 in.; Type 330B base approximately 1.11 in. by 2.00 in. Both types fabricated from No. 16 MSG coated steel and formed to fold over upper tab. Type 330 upper tab 4.30 in. wide and 2.91 in. high max. Type 330B upper tab 4.30 in. wide and 3.34 in. high max. Both types formed to engage base. Clips spaced 48 in. maximum.

MORIN CORP — "SLR-330 Clip" (for 45° seam)

MORIN CORP — "SLR-330B Clip" (for 90° & 180° seam)

3. **Roof Deck Fastener* (Bearing Clip)** — No. 18 MSG min gauge coated steel; 3 in. wide by 3-1/4 in. long with 3/8 in. legs. Used under Panel Clips (Item 2) over purlins and rigid insulation. Three 1/4 in. dia guide holes located in base.

STEELOX SYSTEMS L L C — "Bearing Clip"

4. **Fasteners (screws)** — Fasteners used to attach the bearing plates to the liner panels to be No. 11 by 3-3/4 in. long self-drilling, stand-off plated steel, flat torx-head screws. Three fasteners per bearing plate used, driven into liner panel. Fasteners used to attach panel clips (Item No. 2) to the bearing plates (Item 3) to be No. 18 by 1 in. long self-drilling, self-tapping, hex-washer-head, plated steel screws. One screw used for each panel clip. Fasteners used to attach the liner panels to the purlin supports to be No. 12-14 by 1-1/4 in. self-drilling, self-tapping, hex-head, plated steel screws with a separate 5/8 in. diameter steel washer and a neoprene sealing washer. Two fasteners to be used at each support with fasteners located in every valley. Fasteners used at liner panel side laps to be the same type as liner panel screws and spaced 20 in. OC. Fasteners used at end laps to be 1/4-10 by 1 in. long self-drilling, self-tapping,

hex-head, plated steel screws with 1/2 in. OD. metal backed sealing washers. Spacing to be in a 1, 3, 3-1/2, 3-1/2, 3, 1 in. pattern.

5. **Liner Panel** — The liner panel to be 3 in. deep and fabricated from No. 22 MSG min steel. Top of crests to be 5-1/2 in. wide, valleys to be 2-1/2 in. wide at top. Yield strength to be min 33,000 psi. Liner panel to be fastened to supports with screws indicated under Item 4 or with welds and weld washers of type indicated by manufacturer of liner panel. Welds to be located in every valley.

6. **Fastener Reinforcement (Bearing Plate)** — The reinforcements used with the screws attaching the liner panels to the purlins to be 0.125 in. min thick and to have an area of approximately 2 sq in.

7. **Foamed Plastic** — (Rigid Insulation) — Supplied in 4 ft wide sheets. Min thickness to be 1 in. Density to be min of 2.0 PCF or see products Classified under TJBX.

8. **Vapor Barrier** — Used between the liner panel and the foamed plastic to be a 6 mil plastic sheeting.

9. **Purlins** — No. 12 MSG min gauge steel (min yield strength 40,000 psi) or min type H open web joists.

Refer to General Information, Roof Deck Construction, (Roofing Materials and Systems Directory) for Items not evaluated.

*Bearing the UL Classification Mark

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Online Certifications Directory

TGKX.238A
Roof Deck Constructions

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Roof Deck Constructions

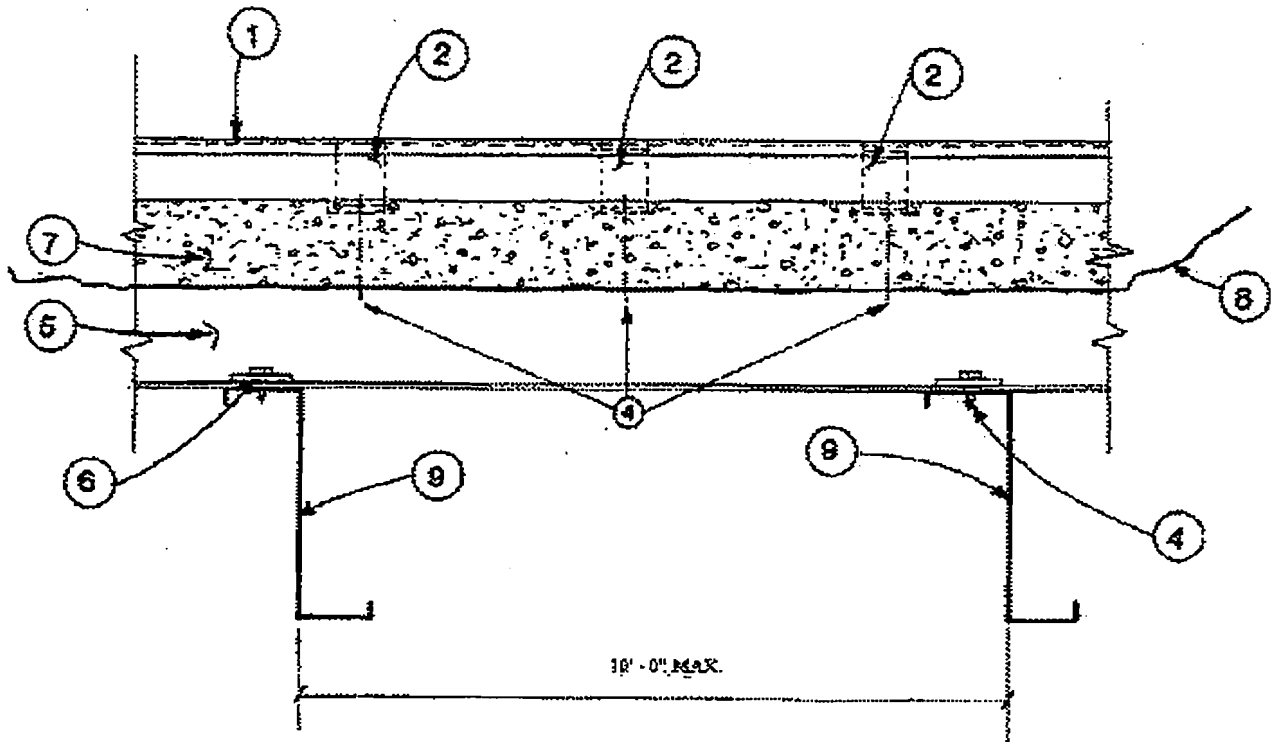
Guide Information

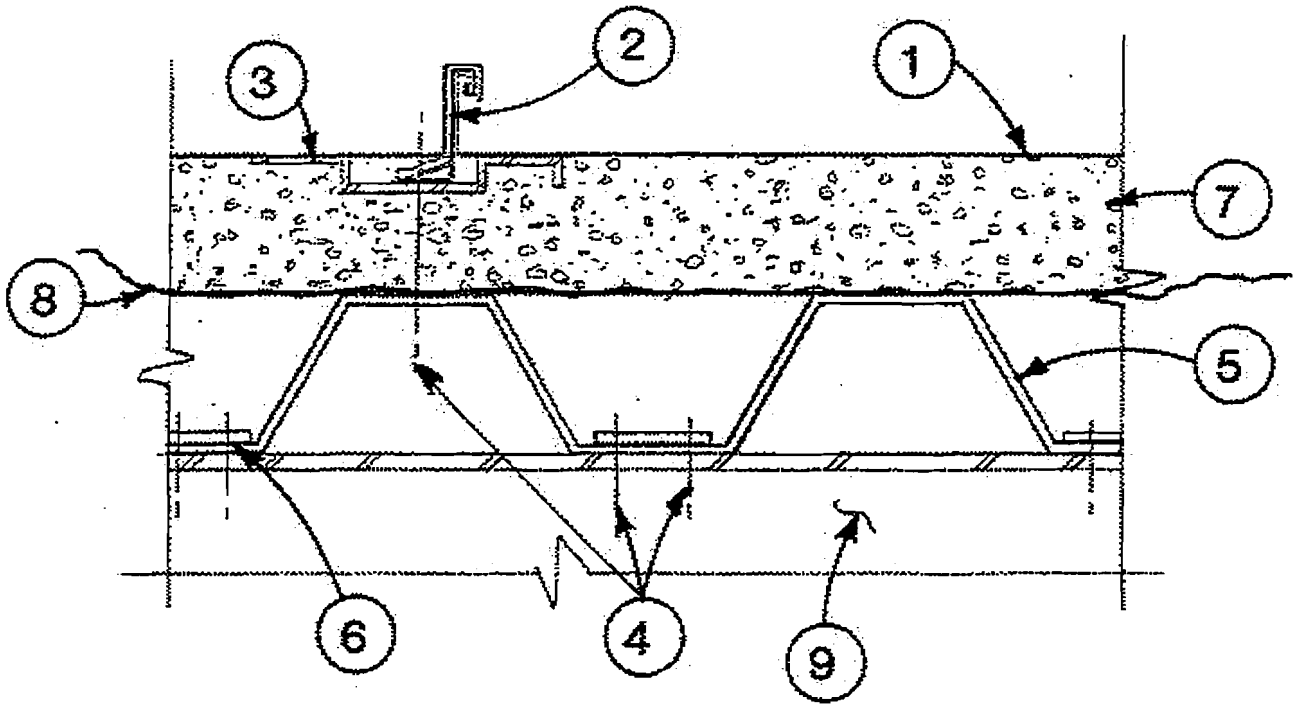
Construction No. 238A

March 30, 2004

Uplift — Class 90

Fire Not Investigated

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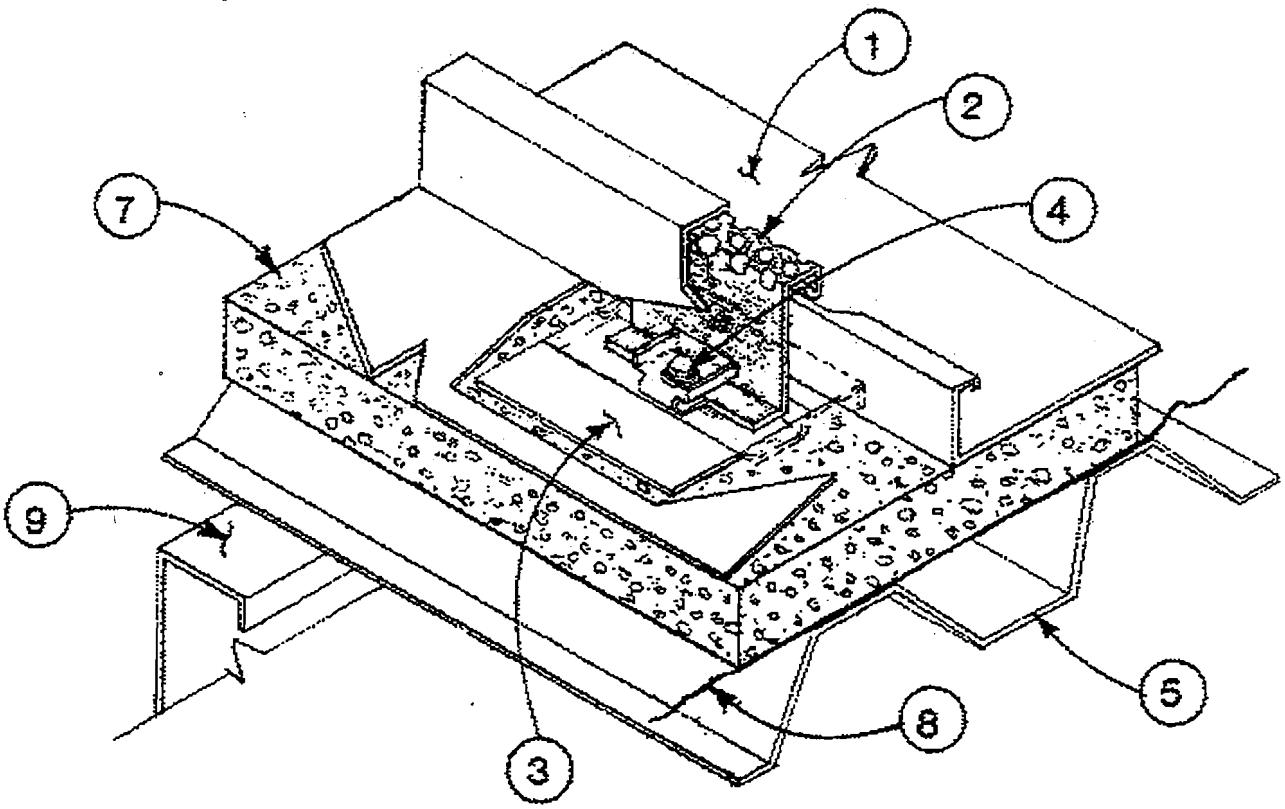
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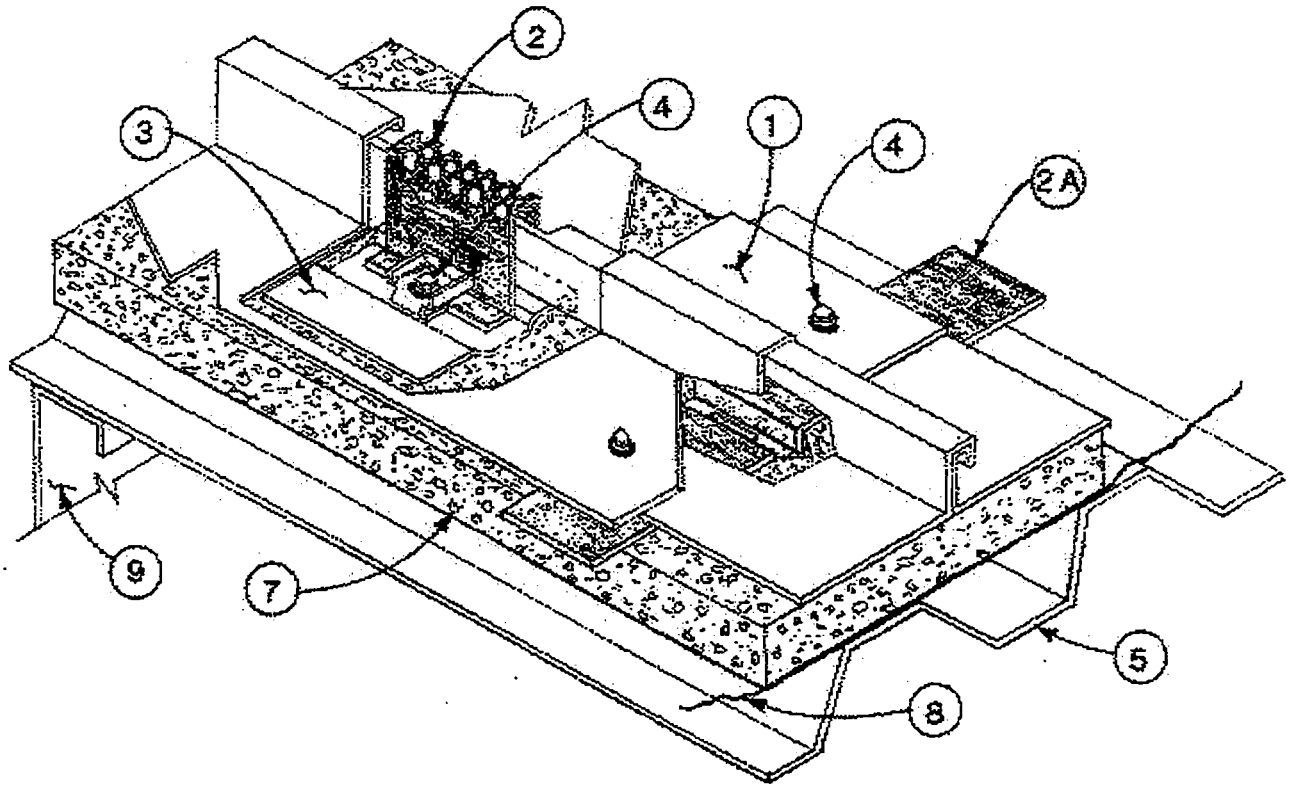
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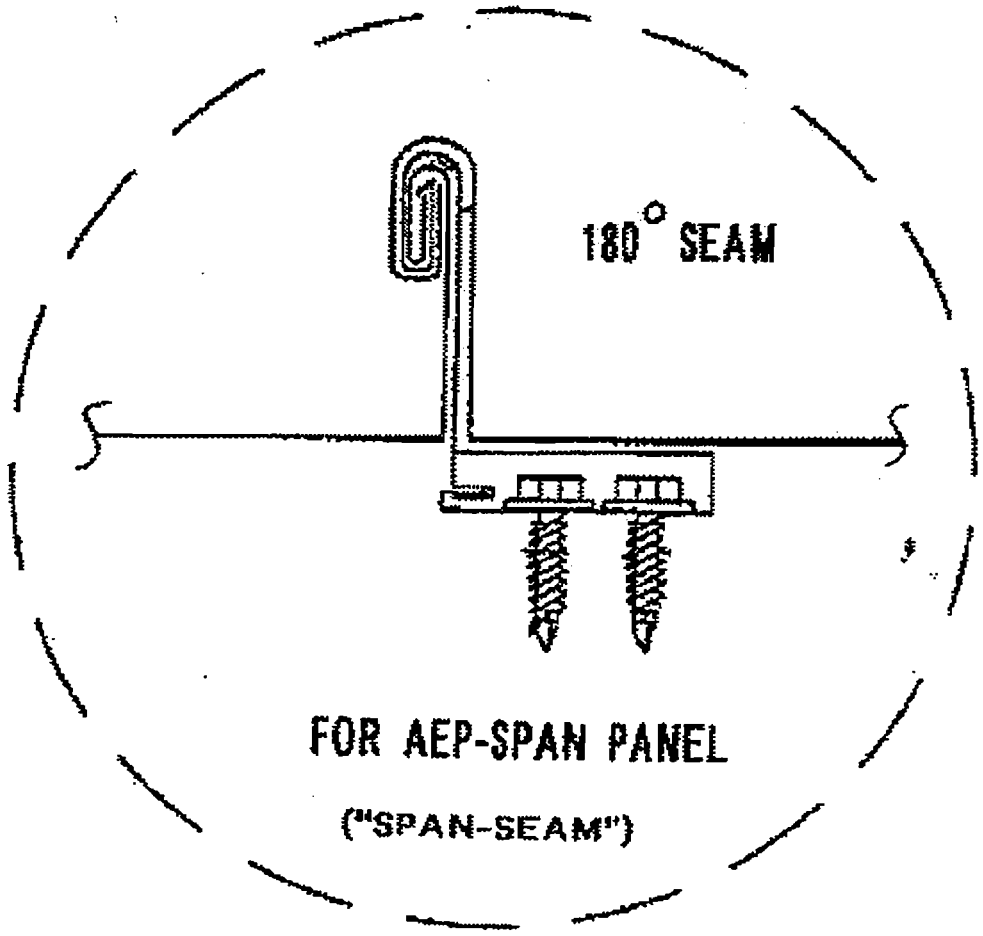
180° SEAM
FOR AEP-SPAN PANEL
("SPAN-SEAM")

1. **Metal Roof Deck Panels*** — No. 24 MSG min coated steel. Panels 16 in. wide, 2 in. high at side ribs. Panels continuous over two or more spans. End laps to occur near panel clip locations and to include end lap back-up plate (Item 2A). Ends of panels overlapped 6 in. Side laps to be tightened and crimped with a special motorized crimping machine at an approximate 45 degree angle with crimping process to include tabs of panel clips (Item 2). A bead of sealing compound may be used at panel end laps and side joints. For Morin Corp., seams may be 45°, 90°, or 180°.

A & M BUILDERS/ROOFING

TECHNOLOGIES L L C — "SS200"

A-LERT STANDING SEAM ROOF SYSTEMS — "A-Lert Loc"

AEP SPAN, DIV OF

ASC PROFILES — "SL-216" (90° Seam), "SPS-216" (180° Seam)

ALLWINE ROOFING & CONSTRUCTION INC — "A2-16", "A2-16 Fluted" and "A2-16 with Clip Offset"

AMERICAN BUILDINGS CO — "Loc-Seam,""Loc-Seam 360."

CONSOLIDATED METALS OF FLORIDA, DIV OF

ALUMINUM SERVICE INC — "CSS-210A"

ARCHITECTURAL BUILDING COMPONENTS INC — "JSM 200"

CONSTRUCTION METAL PRODUCTS INC — "CMP Series 2500"

CSC SALES INC — "CSC-SS2000"

DALEY CONSTRUCTION & METAL ROOFING — "3D Forever Lock"

ENGLERT INC — "Series 2500"

HI-TEC ROOFING INC — "MRS 210A"

J M METALS ROOFING MFRS — "JM 2.0"

KNUDSON MFG INC — "ULTRALOK"

METAL-FAB MFG LLC — "Met-Fab III"

METAL PANEL SYSTEMS INC — "MP-200"

METAL SALES MFG CORP — T-Span or "T-Span 180" (180° Seam)

METAL WORX SYSTEMS INC — "SS 2000"

MORIN CORP — "SLR-12", "SLR-14", "SLR-16"

NEW TECH MACHINERY CORP — "Panel 210A"

NORTH COAST COMMERCIAL

ROOFING SYSTEM OF PA INC — "Series 2500"

ROL-TEC SYSTEMS INC — "ULTRALOK"

R S S P INC — "SS 2000"

STEELOX SYSTEMS L L C — "Steelox LRX 262", "Steelox LRX 264", "Steelox PRX 262" or "Steelox PRX 264" (Fabricated from either coated or stainless steel)

SUPERIOR METAL SYSTEMS INC — "SMS 416"

CENTURION INDUSTRIES INC, DBA

TFC CANOPY — "Centurion 1624M"

ZIMMERMAN METALS INC — "SS2000"

2. **Roof Deck Fasteners* (Panel Clips)** — Two part assembly: Base, 1 in. wide approximately 1-1/4 in. long with upper segment folded over lower end of tab. Fabricated from 0.050 in. thick coated or stainless steel. Upper tab 3 in. wide, maximum tab height 3-1/2 in. with lower end formed to engage base. Fabricated from 0.023 in. thick coated or stainless steel. Clips spaced 30 in. OC.

ARCHITECTURAL BUILDING COMPONENTS INC — "JSM 200 Utility"

STEELOX SYSTEMS L L C — "CF Sliding Clip"

SUPERIOR METAL SYSTEMS INC — "SMS-24SCC"

2A. **Roof Deck Fasteners* (End Lap Back-Up Plate)** — No. 18 MSG min gauge coated steel. Max length 48 in., width 6-1/2 in.

STEELOX SYSTEMS L L C — "Backing Plate"

2B. **Roof Deck Fasteners* (Panel Clips)** — (Not Shown) — Two part assembly. A base fabricated from No. 16 MSG min thick coated steel and a tab fabricated from No. 22 MSG min thick coated steel. Clips spaced 30 in. OC maximum. Clips fastened to liner panel (Item 5). Two screws used per clip. (See Item 4 for description of screws).

As an alternate the following described clip may be used: Two part assembly consisting of a base with a vertical leg 5 in. long and either 2 in. or 3 in. high and a tapered upper tab maximum 3 in. long formed to interlock with the base. Base fabricated from No. 18 MSC coated steel and to have two 1/4 in. guide holes. Upper tab fabricated from No. 24 MSC coated steel.

AEP SPAN, DIV OF

ASC PROFILES — "SL-2.5 in. Standard Clip", "SL-2 in. Profile Clip"

2C. **Roof Deck Fasteners* (Back-Up Plates)** — (Not Shown) — Used with AEP-Span "SL-216" panels. No. 16 MSG coated steel length 10-1/2 in., width 15-3/4 in. slipped under lower panel at end-lap. Panels fastened together at end-lap using four No. 1/4 - 14 by 1-1/8 in. long self-drilling self-tapping, hex-washer-head, plated steel screws with a 5/8 OD steel washer and a sealing washer. Screws spaced 4 in. OC beginning 2 in. from ribs.

AEP SPAN, DIV OF

ASC PROFILES — "SL-216 End-Lap Back-Up Plate"

2D. **Roof Deck Fasteners* (Panel Clip)** — (Not Shown) — Two part assembly; A base fabricated from No. 16 MSG min coated steel and an upper tab fabricated from No. 22 MSG min coated steel. Clips fastened to purlins using two fasteners per clip. See Item No. 3 for description of fasteners.

METAL SALES MFG CORP — "T-Span Clip"

3. **Roof Deck Fastener* (Bearing Clip)** — No. 18 MSG min gauge coated steel; 3 in. wide by 3-1/4 in. long with 3/8 in. legs. Used under Panel Clips (Item 2) over purlins and rigid insulation. Three 1/4 in. dia guide holes located in base.

STEELOX SYSTEMS L L C — "Bearing Clip"

3A. **Roof Deck Fasteners* (Bearing Plate)** — (Not Shown) — No. 18 MSG min gauge coated steel. 4 in. wide, 8 in. long used under each panel clip (Item 2B).

AEP SPAN, DIV OF

ASC PROFILES — "SL Bearing Plate"

4. **Fasteners (Screws)** — Fasteners used to attach panel clips (Item No. 2) to the liner panels (Item No. 5) to be No. 11 by min 3-3/4 in. long self-drilling, plated steel flat Phillips head screws. One screw used for each panel clip. Fasteners used to be No. 12-14 by 1-1/4 in. self-drilling, self-tapping, hex-head, plated steel screws with a separate 5/8 in. diameter steel washer and a neoprene sealing washer. Two fasteners to be used at each support with fasteners located in every valley. Fasteners used at liner panel side laps to be the same type as liner panel screws and spaced 20 in. OC. Fasteners used at metal roof deck panel end laps to be 1/4-10 by 1 in. long self-drilling, self-tapping, hex-head, plated steel screws with 1/2 in. OD metal backed sealing washers. Spacing to be in a 1, 3, 3-1/2, 3-1/2, 2, 1 in. pattern.

5. **Liner Panel** — The liner panel to be min 1-1/2 in. deep Type A, B, F, or N Deck fabricated from No. 22 MSG min gauge steel. Yield strength to be min 33,000 psi. Liner panel to be fastened to supports with screws indicated under Item 4 or with welds and weld washers of type indicated by manufacturer of liner panel. Welds to be located in every valley.

6. **Fastener Reinforcement (Bearing Plate)** — The reinforcements used with the screws attaching the liner panels to the purlins to be 0.125 in. thick and to have an area of approximately 2 sq/in.

7. **Foamed Plastic (Rigid Insulation)** — Supplied in 4 ft wide sheets. Min thickness to be 1 in. Density to be min of 2.0 lb/cu ft or see products Classified under TJBX.

8. **Vapor Barrier** — Used between the liner panel and the foamed plastic to be a 6 mil plastic sheeting.

9. **Purlins** — No. 12 MSG min gauge steel (min yield strength 40,000 psi) or min Type H Open web joists.

Refer to General Information, Roof Deck Construction, (Roofing Materials and Systems Directory) for Items not evaluated.

*Bearing the UL Classification Mark

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UL Listed and Classified Products **UL Recognized Components** **Products Certified for Canada**

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JFBA

JOHN F. BUTTS & ASSOC., INC.

CONSULTING ENGINEERS
2480 VANTAGE DRIVE COLORADO SPRINGS, CO 80919
(719) 598-7666 FAX (719) 598-0258

April 22, 1999

New Tech Machinery Corporation
1300 40th Street
Denver, CO 80205-3311

Re: Panel Analysis Report
New Tech SS150 Panel
New Tech SS200 Panel
New Tech SS210-A Panel
New Tech SS550 Panel
New Tech SS675 Panel
JFBA Job No. 183-04

Gentlemen:

Per your request, we have completed an analysis of the above referenced panels. The panels, with the structural properties indicated in this report, is certified to meet or exceed the requirements of the following design specifications:

> American Iron and Steel Institute, *Specifications for the Design of Cold-Formed Steel Structural Members,* 1996 edition.

The following documents are enclosed for your records:

> Panel cross-section
> Panel analysis, pages 1 to 183
> Panel Span Load tables, pages S1 to S71

Panels widths greater than 14 inches exceed the AISI allowable ratios for the panel width element. The AISI specifications, Section B1.1(a) states:

> "...stiffened elements having w/t ratios larger than 500 can be used with adequate design strength to sustain the required loads; however; substantial deformations of such elements usually will invalidate the design equations of this specification."

Before using the enclosed panel span tables, you will need to review the analysis reports for each panel. It is our opinion that the panels with w/t ratio elements exceeding 500 should be verified by testing before using the respective panel span tables.

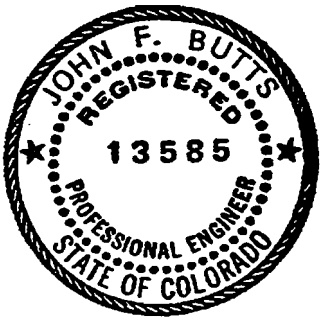
Please note that the panel analysis and Load Tables have been evaluated based on the assumption that the proper bearing, side laps, end laps, bracing, anchorage and structural supports are being utilized in the member's installation. We do not certify the installation method, attachment and supporting materials.

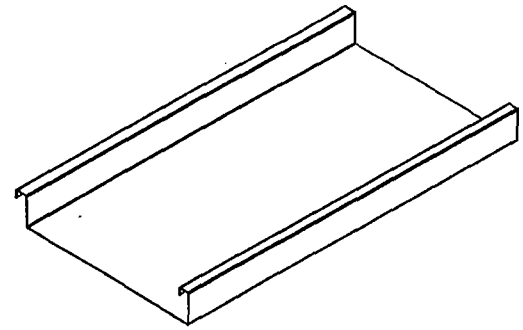
If you have any questions, please call or write the undersigned.

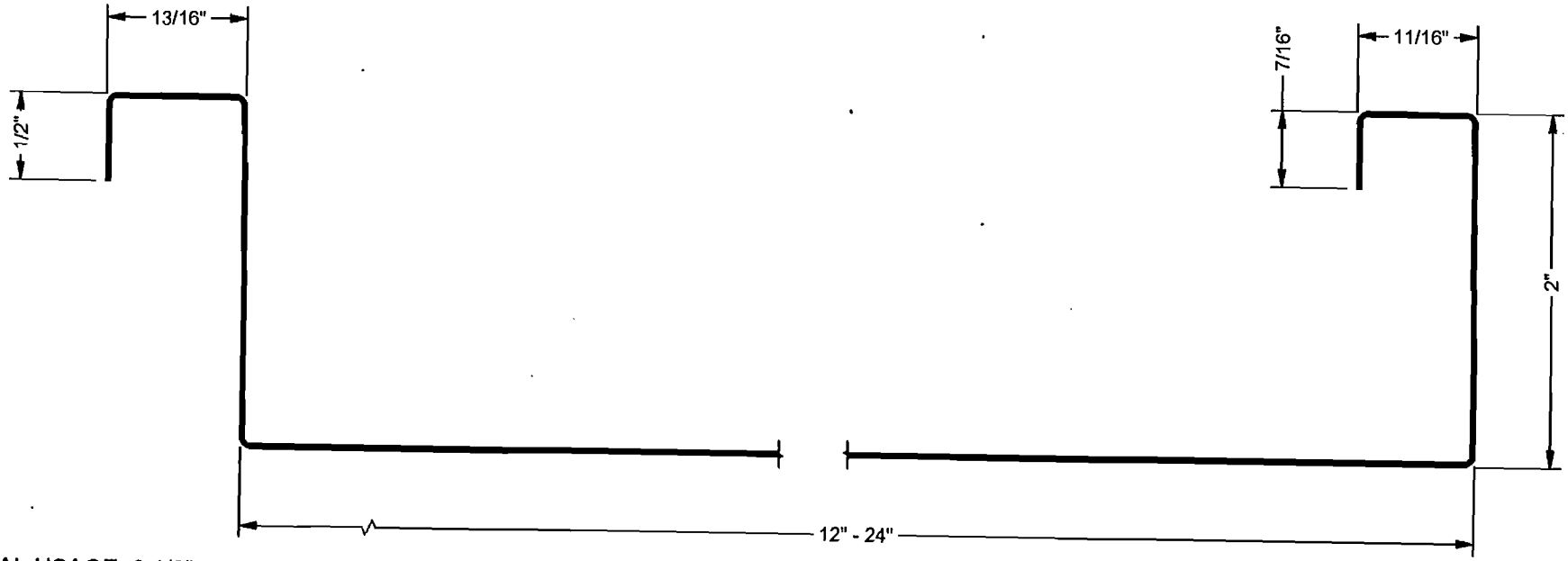
Sincerely,

John F. Butts

John F. Butts, PE
President







NOTE:
MATERIAL USAGE: 6 1/8"

MATERIAL	LENGTH	FINISH

REVISION HISTORY	REV	ECN NO.	DATE	RELEASED BY

TOLERANCES
.XX = ± .01
.XXX = ± .005
FRACTION = ± 1/32"
ANGLE = ± 1/2°

NEW TECH MACHINERY CORP.

DRAWN BY	PART NAME			
SAWYER	SS210A PANEL PROFILE			
DATE 9/16/2002				
CHECK BY	SIZE A	SHEET 1 OF 1	REVISION 0	
DATE	SCALE NONE	PART NUMBER SS210		

John F. Butts & Associates, Inc.
2480 Vantage Drive
Colorado Springs, CO 80919
(719) 598-7666

PROFILE ANALYSIS & DESIGN

Per AISI Cold-Formed Steel
Design Manual, 1996 Edition

New Tech SS210-A Panel

FILE NAME: NT210

DIMENSIONS

Line # 1	Angle (R) =	-90.000	deg	Line # 1	Angle (L) =	90.000	deg
	Radius (R) =	0.040	in		Radius (L) =	0.040	in
	Length (R) =	1.872	in		Length (L) =	1.872	in
Line # 2	Angle (R) =	90.000	deg	Line # 2	Angle (L) =	90.000	deg
	Radius (R) =	0.040	in		Radius (L) =	0.040	in
	Length (R) =	0.671	in		Length (L) =	0.546	in
Line # 3	Angle (R) =	90.000	deg	Line # 3	Angle (L) =	90.000	deg
	Radius (R) =	0.070	in		Radius (L) =	0.070	in
	Length (R) =	0.406	in		Length (L) =	0.174	in

Panel Bottom Width = 11.872 in
Panel Overall Width = 12.000 in
Panel Overall Height= 2.000 in

SPECIAL CONDITIONS

Seam Rotation : 90 deg.

Alloy: ASTM A653, G50
Fy = 50.00 ksi
Fv = 21.18 ksi

QUALIFICATIONS PER AISI SPECIFICATIONS

(a) Maximum w/t Ratio's Exceeded [SEC. B1.1(a)]	No
(b) Maximum h/t Ratio's Exceeded [SEC. B1.2(a)]	No

PROPERTIES FOR LOAD/SPAN TABLES

Aweb=	0.098	in2			
Sxp =	0.123	in3	Sxp (per ft. of width) =	0.123	in3
Sxn =	0.078	in3	Sxn (per ft. of width) =	0.078	in3
Ixp =	0.214	in4	Ixp (per ft. of width) =	0.214	in4
Ixn =	0.115	in4	Ixn (per ft. of width) =	0.115	in4
Weight=	1.47	lb/lf			

New Tech SS210-A Panel

Member - New Tech SS210-A Panel								
Type	Name	Gage	Hgt (in)	Width (in)	Lip (in)	t (in)	Weight lb/ft	Coil Width (in)
Panel	PNL	24	2.000	12.000	0.000	0.0240	1.470	18.00

Gross Section Properties								
Area (in2)	Ix (in4)	Sx (in3)	Rx (in)	Ycg (in)	Iy (in4)	Sy (in3)	Ry (in)	Xcg (in)
0.432	0.226	0.146	0.723	0.454	8.707	1.316	4.490	6.166

Effective Properties								
							End Bearing	
Ix (in4)	Sx (in3)	Iy (in4)	Sy (in3)	Mnx (in-k)	Mny (in-k)	Vnx (kip)	Pne (kip)	Pnei (k/in)
0.214	0.123	0.000	0.000	3.92	0.00	2.069	0.181	0.159

Torsional Properties								
Xo (in)	Ro (in)	Beta	Cw (in6)	Jv*1000 (in4)	Fy (ksi)	Fu (ksi)	E (ksi)	G (ksi)
-1.198	4.703	0.935	6.00	0.083	50	65	29500	11300

Shear, moment and bearing values shown are nominal values and must be modified by the appropriate factors of safety (ASD) or resistance factors (LRFD).

Factors of Safety (ASD)		Resistance Factors (LRFD)	
Ω (Compression)	= 1.80	ϕ (Compression)	= 0.85
Ω (Tension)	= 1.67	ϕ (Tension)	= 0.95
Ω (Web Crippling)	= 1.85	ϕ (Web Crippling)	= 0.75
Ω (Bending)	= 1.67	ϕ (Bending)	= 1.11
Ω (Shear)	= 1.67	ϕ (Shear)	= 0.90

New Tech SS210-A Panel

Moment of Inertia @ 90 degree Rotation

ELEMENT	L	Y	LY	LYY	Io
1	0.082	11.969	0.978	11.702	0.0000
2	1.872	11.988	22.442	269.029	0.0000
3	0.082	12.007	0.981	11.776	0.0000
4	0.671	12.375	8.304	102.766	0.0252
5	0.129	12.763	1.644	20.982	0.0001
6	0.406	12.793	5.194	66.446	0.0000
14	11.872	6.000	71.232	427.392	139.4410
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	0.012	0.022	0.000	0.0000
23	0.082	0.031	0.003	0.000	0.0000
24	0.546	0.337	0.184	0.062	0.0136
25	0.075	0.662	0.050	0.033	0.0001
26	0.227	0.692	0.157	0.109	0.0000
	17.997		111.193	910.297	139.4800

Ix = 8.707 in4
Ycg= 6.178 in

New Tech SS210-A Panel

LOAD

ELEMENT VALUES FOR POSITIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.580	1.340	-0.777	-1.041	-0.0163
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.292	1.760	0.514	0.904	0.0056
14	11.872	0.012	0.142	0.002	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.580	1.340	-0.777	-1.041	-0.0163
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	16.723		6.439	9.672	1.0667

Sx = 0.123 in3
Ix = 0.198 in4
Ycg= 0.385 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

DEFLECTION

ELEMENT VALUES FOR POSITIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.235	1.417	-0.333	-0.472	-0.0011
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.369	1.721	0.636	1.095	0.0056
14	11.872	0.012	0.142	0.002	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.235	1.417	-0.333	-0.472	-0.0011
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	17.491		7.449	10.999	1.0970

Sx = 0.136 in3
Ix = 0.214 in4
Ycg= 0.426 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

LOAD

ELEMENT VALUES FOR NEGATIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.355	0.510	-0.181	-0.092	-0.0037
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.406	1.703	0.691	1.177	0.0056
14	1.086	0.012	0.013	0.000	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.355	0.510	-0.181	-0.092	-0.0037
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	6.501		7.679	11.840	1.0917

Sx = 0.078 in3
Ix = 0.093 in4
Ycg= 1.181 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

DEFLECTION

ELEMENT VALUES FOR NEGATIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.406	1.703	0.691	1.177	0.0056
14	1.652	0.012	0.020	0.000	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	7.777		8.048	12.025	1.0992

Sx = 0.111 in3
Ix = 0.115 in4
Ycg= 1.035 in

Webs Fully Effective [SEC. B2.3(a)] | Yes

New Tech SS210-A Panel

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MAXIMUM NOMINAL MOMENTS - [Section C3.1.1(a)]

Mnx [positive bending] = +6.137 k-in
Mnx [negative bending] = -3.923 k-in

MAXIMUM ALLOWABLE REACTIONS - [Table C3.4-1]

N/t= 83.33
k = 1.515
C1 = 0.887
C2 = 0.960
C3 = 0.830
C4 = 0.900
C9 = 1.000
C0 = 1.000 - Element 2, 22

Pend= t^2*k*C3*C4*C9*C0[217 - 0.28(h/t)][0.71 + 0.015(N/t)]
h/t = 78.00 | Pe(2)= 1 * 0.249 kips = 0.249 kips
h/t = 78.00 | Pe(22)= 1 * 0.249 kips = 0.249 kips
Pend= 0.499 kips

Pint= t^2*k*C1*C2*C9*C0[538 - 0.74(h/t)][0.75 + 0.011(N/t)]
h/t = 78.00 | Pi(2)= 1 * 0.595 kips = 0.595 kips
h/t = 78.00 | Pi(22)= 1 * 0.595 kips = 0.595 kips
Pint= 1.189 kips

MAXIMUM NOMINAL SHEAR - [Section C3.2]

E = 29,500 ksi
Fy = 50.00 ksi
kv = 5.34 - for unreinforced webs
0.960*Sqr(Ekv/Fy) = 53.88
1.415*Sqr(Ekv/Fy) = 79.42

h/t = 78.00 | V(2) = 1 * 1.035 kips = 1.035 kips (Eq. C3.2-2)
h/t = 78.00 | V(22) = 1 * 1.035 kips = 1.035 kips (Eq. C3.2-2)

Vn = 2.069 kips

New Tech SS210-A Panel

Sheet Gauge = 0.0240 in, 24 gauge

PANEL ELEMENTS EXCEEDING AISI ALLOWABLE RATIOS

Element No. 14 : w/t>250 -Actual w/t = 495

NOTE: AISI Specifications, Section B1.1(a) states ....

stiffened compression elements that have w/t ratios exceeding approximately 250 are likely to develop noticeable deformation at the full design strength, without affecting the ability of the member to develop the required strength.

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PROFILE ANALYSIS & DESIGN

Per AISI Cold-Formed Steel
Design Manual, 1996 Edition

New Tech SS210-A Panel

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FILE NAME: NT210

DIMENSIONS

Line # 1	Angle (R) =	-90.000 deg	Line # 1	Angle (L) =	90.000 deg
	Radius (R) =	0.040 in		Radius (L) =	0.040 in
	Length (R) =	1.872 in		Length (L) =	1.872 in
Line # 2	Angle (R) =	90.000 deg	Line # 2	Angle (L) =	90.000 deg
	Radius (R) =	0.040 in		Radius (L) =	0.040 in
	Length (R) =	0.671 in		Length (L) =	0.546 in
Line # 3	Angle (R) =	90.000 deg	Line # 3	Angle (L) =	90.000 deg
	Radius (R) =	0.070 in		Radius (L) =	0.070 in
	Length (R) =	0.406 in		Length (L) =	0.174 in

Panel Bottom Width = 13.872 in
Panel Overall Width = 14.000 in
Panel Overall Height= 2.000 in

SPECIAL CONDITIONS

Seam Rotation : 90 deg.

Alloy: ASTM A653, G50
Fy = 50.00 ksi
Fv = 21.18 ksi

QUALIFICATIONS PER AISI SPECIFICATIONS

(a) Maximum w/t Ratio's Exceeded [SEC. B1.1(a)]	No
(b) Maximum h/t Ratio's Exceeded [SEC. B1.2(a)]	No

PROPERTIES FOR LOAD/SPAN TABLES

Aweb=	0.098 in2		
Sxp =	0.123 in3	Sxp (per ft. of width) =	0.105 in3
Sxn =	0.079 in3	Sxn (per ft. of width) =	0.067 in3
Ixp =	0.221 in4	Ixp (per ft. of width) =	0.189 in4
Ixn =	0.115 in4	Ixn (per ft. of width) =	0.099 in4
Weight=	1.63 lb/lf		

New Tech SS210-A Panel

Member - New Tech SS210-A Panel								
Type	Name	Gage	Hgt (in)	Width (in)	Lip (in)	t (in)	Weight lb/ft	Coil Width (in)
Panel	PNL	24	2.000	14.000	0.000	0.0240	1.633	20.00

Gross Section Properties								
Area (in2)	Ix (in4)	Sx (in3)	Rx (in)	Ycg (in)	Iy (in4)	Sy (in3)	Ry (in)	Xcg (in)
0.480	0.234	0.147	0.699	0.410	12.620	1.657	5.128	7.166

Effective Properties								
							End Bearing	
Ix (in4)	Sx (in3)	Iy (in4)	Sy (in3)	Mnx (in-k)	Mny (in-k)	Vnx (kip)	Pne (kip)	Pnei (k/in)
0.221	0.123	0.000	0.000	3.93	0.00	2.069	0.181	0.159

Torsional Properties								
Xo (in)	Ro (in)	Beta	Cw (in6)	Jv*1000 (in4)	Fy (ksi)	Fu (ksi)	E (ksi)	G (ksi)
-1.102	5.291	0.957	8.44	0.092	50	65	29500	11300

Shear, moment and bearing values shown are nominal values and must be modified by the appropriate factors of safety (ASD) or resistance factors (LRFD).

Factors of Safety (ASD)		Resistance Factors (LRFD)	
Ω (Compression)	= 1.80	ϕ (Compression)	= 0.85
Ω (Tension)	= 1.67	ϕ (Tension)	= 0.95
Ω (Web Crippling)	= 1.85	ϕ (Web Crippling)	= 0.75
Ω (Bending)	= 1.67	ϕ (Bending)	= 1.11
Ω (Shear)	= 1.67	ϕ (Shear)	= 0.90

New Tech SS210-A Panel

Moment of Inertia @ 90 degree Rotation

ELEMENT	L	Y	LY	LYY	Io
1	0.082	13.969	1.141	15.939	0.0000
2	1.872	13.988	26.186	366.283	0.0000
3	0.082	14.007	1.144	16.025	0.0000
4	0.671	14.375	9.646	138.665	0.0252
5	0.129	14.763	1.902	28.073	0.0001
6	0.406	14.793	6.006	88.846	0.0000
14	13.872	7.000	97.104	679.728	222.4518
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	0.012	0.022	0.000	0.0000
23	0.082	0.031	0.003	0.000	0.0000
24	0.546	0.337	0.184	0.062	0.0136
25	0.075	0.662	0.050	0.033	0.0001
26	0.227	0.692	0.157	0.109	0.0000
	19.997		143.547	1333.765	222.4908

Ix = 12.620 in4
Ycg= 7.178 in

New Tech SS210-A Panel

LOAD

ELEMENT VALUES FOR POSITIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.613	1.321	-0.810	-1.069	-0.0192
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.292	1.760	0.514	0.904	0.0056
14	13.872	0.012	0.166	0.002	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.613	1.321	-0.810	-1.069	-0.0192
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	18.657		6.397	9.615	1.0608

Sx = 0.123 in3
Ix = 0.204 in4
Ycg= 0.343 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

DEFLECTION

ELEMENT VALUES FOR POSITIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.258	1.402	-0.362	-0.507	-0.0014
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.370	1.721	0.637	1.097	0.0056
14	13.872	0.012	0.166	0.002	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.258	1.402	-0.362	-0.507	-0.0014
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	19.446		7.417	10.931	1.0963

Sx = 0.136 in3
Ix = 0.221 in4
Ycg= 0.381 in

Webs Fully Effective [SEC. B2.3(a)] No

New Tech SS210-A Panel

LOAD

ELEMENT VALUES FOR NEGATIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.355	0.510	-0.181	-0.092	-0.0037
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.406	1.703	0.691	1.177	0.0056
14	1.089	0.012	0.013	0.000	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.355	0.510	-0.181	-0.092	-0.0037
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	6.504		7.679	11.841	1.0917

Sx = 0.079 in3
Ix = 0.093 in4
Ycg= 1.181 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

DEFLECTION

ELEMENT VALUES FOR NEGATIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.406	1.703	0.691	1.177	0.0056
14	1.660	0.012	0.020	0.000	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	7.785		8.048	12.025	1.0992

Sx = 0.112 in3
Ix = 0.115 in4
Ycg= 1.034 in

Webs Fully Effective [SEC. B2.3(a)] | Yes

New Tech SS210-A Panel

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MAXIMUM NOMINAL MOMENTS - [Section C3.1.1(a)]

Mnx [positive bending] = +6.142 k-in
Mnx [negative bending] = -3.930 k-in

MAXIMUM ALLOWABLE REACTIONS - [Table C3.4-1]

N/t= 83.33
k = 1.515
C1 = 0.887
C2 = 0.960
C3 = 0.830
C4 = 0.900
C9 = 1.000
C0 = 1.000 - Element 2, 22

Pend= t^2*k*C3*C4*C9*C0[217 - 0.28(h/t)][0.71 + 0.015(N/t)]
h/t = 78.00 | Pe(2)= 1 * 0.249 kips = 0.249 kips
h/t = 78.00 | Pe(22)= 1 * 0.249 kips = 0.249 kips
Pend= 0.499 kips

Pint= t^2*k*C1*C2*C9*C0[538 - 0.74(h/t)][0.75 + 0.011(N/t)]
h/t = 78.00 | Pi(2)= 1 * 0.595 kips = 0.595 kips
h/t = 78.00 | Pi(22)= 1 * 0.595 kips = 0.595 kips
Pint= 1.189 kips

MAXIMUM NOMINAL SHEAR - [Section C3.2]

E = 29,500 ksi
Fy = 50.00 ksi
kv = 5.34 - for unreinforced webs
0.960*Sqr(Ekv/Fy) = 53.88
1.415*Sqr(Ekv/Fy) = 79.42

h/t = 78.00 | V(2) = 1 * 1.035 kips = 1.035 kips (Eq. C3.2-2)
h/t = 78.00 | V(22) = 1 * 1.035 kips = 1.035 kips (Eq. C3.2-2)

Vn = 2.069 kips

New Tech SS210-A Panel

Sheet Gauge = 0.0240 in, 24 gauge

PANEL ELEMENTS EXCEEDING AISI ALLOWABLE RATIOS

Element No. 14 : w/t>500 -Actual w/t = 578

NOTE: AISI Specifications, Section B1.1(a) states ....

stiffened elements having w/t ratios larger than 500 can be used with adequate design strength to sustain the required loads; however; substantial deformations of such elements usually will invalidate the design equations of this Specification.

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PROFILE ANALYSIS & DESIGN

Per AISI Cold-Formed Steel
Design Manual, 1996 Edition

New Tech SS210-A Panel

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FILE NAME: NT210

DIMENSIONS

Line # 1	Angle (R) =	-90.000	deg	Line # 1	Angle (L) =	90.000	deg
	Radius (R) =	0.040	in		Radius (L) =	0.040	in
	Length (R) =	1.872	in		Length (L) =	1.872	in
Line # 2	Angle (R) =	90.000	deg	Line # 2	Angle (L) =	90.000	deg
	Radius (R) =	0.040	in		Radius (L) =	0.040	in
	Length (R) =	0.671	in		Length (L) =	0.546	in
Line # 3	Angle (R) =	90.000	deg	Line # 3	Angle (L) =	90.000	deg
	Radius (R) =	0.070	in		Radius (L) =	0.070	in
	Length (R) =	0.406	in		Length (L) =	0.174	in

Panel Bottom Width = 15.872 in
Panel Overall Width = 16.000 in
Panel Overall Height= 2.000 in

SPECIAL CONDITIONS

Seam Rotation : 90 deg.

Alloy: ASTM A653, G50
Fy = 50.00 ksi
Fv = 21.18 ksi

QUALIFICATIONS PER AISI SPECIFICATIONS

(a) Maximum w/t Ratio's Exceeded [SEC. B1.1(a)]	No
(b) Maximum h/t Ratio's Exceeded [SEC. B1.2(a)]	No

PROPERTIES FOR LOAD/SPAN TABLES

Aweb=	0.098 in2		
Sxp =	0.123 in3	Sxp (per ft. of width) =	0.092 in3
Sxn =	0.079 in3	Sxn (per ft. of width) =	0.059 in3
Ixp =	0.226 in4	Ixp (per ft. of width) =	0.169 in4
Ixn =	0.115 in4	Ixn (per ft. of width) =	0.087 in4
Weight=	1.80 lb/lf		

New Tech SS210-A Panel

Member - New Tech SS210-A Panel								
Type	Name	Gage	Hgt (in)	Width (in)	Lip (in)	t (in)	Weight lb/ft	Coil Width (in)
Panel	PNL	24	2.000	16.000	0.000	0.0240	1.796	22.00

Gross Section Properties								
Area (in2)	Ix (in4)	Sx (in3)	Rx (in)	Ycg (in)	Iy (in4)	Sy (in3)	Ry (in)	Xcg (in)
0.528	0.241	0.148	0.676	0.374	17.493	2.031	5.756	8.166

Effective Properties								
							End Bearing	
Ix (in4)	Sx (in3)	Iy (in4)	Sy (in3)	Mnx (in-k)	Mny (in-k)	Vnx (kip)	Pne (kip)	Pnei (k/in)
0.226	0.123	0.000	0.000	3.93	0.00	2.069	0.181	0.159

Torsional Properties								
Xo (in)	Ro (in)	Beta	Cw (in6)	Jv*1000 (in4)	Fy (ksi)	Fu (ksi)	E (ksi)	G (ksi)
-1.021	5.885	0.970	11.36	0.101	50	65	29500	11300

Shear, moment and bearing values shown are nominal values and must be modified by the appropriate factors of safety (ASD) or resistance factors (LRFD).

Factors of Safety (ASD)		Resistance Factors (LRFD)	
Ω (Compression)	= 1.80	ϕ (Compression)	= 0.85
Ω (Tension)	= 1.67	ϕ (Tension)	= 0.95
Ω (Web Crippling)	= 1.85	ϕ (Web Crippling)	= 0.75
Ω (Bending)	= 1.67	ϕ (Bending)	= 1.11
Ω (Shear)	= 1.67	ϕ (Shear)	= 0.90

New Tech SS210-A Panel

Moment of Inertia @ 90 degree Rotation

ELEMENT	L	Y	LY	LYY	Io
1	0.082	15.969	1.304	20.830	0.0000
2	1.872	15.988	29.930	478.513	0.0000
3	0.082	16.007	1.307	20.928	0.0000
4	0.671	16.375	10.988	179.933	0.0252
5	0.129	16.763	2.159	36.195	0.0001
6	0.406	16.793	6.818	114.494	0.0000
14	15.872	8.000	126.976	1015.808	333.2067
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	0.012	0.022	0.000	0.0000
23	0.082	0.031	0.003	0.000	0.0000
24	0.546	0.337	0.184	0.062	0.0136
25	0.075	0.662	0.050	0.033	0.0001
26	0.227	0.692	0.157	0.109	0.0000
	21.997		179.901	1866.906	333.2457

Ix = 17.493 in4
Ycg= 8.178 in

New Tech SS210-A Panel

LOAD

ELEMENT VALUES FOR POSITIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.648	1.301	-0.843	-1.097	-0.0227
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.292	1.760	0.514	0.904	0.0056
14	15.872	0.012	0.190	0.002	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.648	1.301	-0.843	-1.097	-0.0227
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	20.587		6.355	9.560	1.0538

Sx = 0.123 in3
Ix = 0.208 in4
Ycg= 0.309 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

DEFLECTION

ELEMENT VALUES FOR POSITIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.291	1.381	-0.402	-0.555	-0.0021
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.371	1.720	0.639	1.099	0.0056
14	15.872	0.012	0.190	0.002	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.291	1.381	-0.402	-0.555	-0.0021
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	21.381		7.362	10.838	1.0951

Sx = 0.136 in3
Ix = 0.226 in4
Ycg= 0.344 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

LOAD

ELEMENT VALUES FOR NEGATIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.355	0.510	-0.181	-0.092	-0.0037
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.406	1.703	0.691	1.177	0.0056
14	1.091	0.012	0.013	0.000	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.355	0.510	-0.181	-0.092	-0.0037
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	6.507		7.679	11.841	1.0917

Sx = 0.079 in3
Ix = 0.093 in4
Ycg= 1.180 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

DEFLECTION

ELEMENT VALUES FOR NEGATIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.406	1.703	0.691	1.177	0.0056
14	1.666	0.012	0.020	0.000	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	7.791		8.048	12.025	1.0992

Sx = 0.112 in3
Ix = 0.115 in4
Ycg= 1.033 in

Webs Fully Effective [SEC. B2.3(a)] | Yes

New Tech SS210-A Panel

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MAXIMUM NOMINAL MOMENTS - [Section C3.1.1(a)]

Mnx [positive bending] = +6.139 k-in
Mnx [negative bending] = -3.934 k-in

MAXIMUM ALLOWABLE REACTIONS - [Table C3.4-1]

N/t= 83.33
k = 1.515
C1 = 0.887
C2 = 0.960
C3 = 0.830
C4 = 0.900
C9 = 1.000
C0 = 1.000 - Element 2, 22

Pend= t^2*k*C3*C4*C9*C0[217 - 0.28(h/t)][0.71 + 0.015(N/t)]
h/t = 78.00 | Pe(2)= 1 * 0.249 kips = 0.249 kips
h/t = 78.00 | Pe(22)= 1 * 0.249 kips = 0.249 kips
Pend= 0.499 kips

Pint= t^2*k*C1*C2*C9*C0[538 - 0.74(h/t)][0.75 + 0.011(N/t)]
h/t = 78.00 | Pi(2)= 1 * 0.595 kips = 0.595 kips
h/t = 78.00 | Pi(22)= 1 * 0.595 kips = 0.595 kips
Pint= 1.189 kips

MAXIMUM NOMINAL SHEAR - [Section C3.2]

E = 29,500 ksi
Fy = 50.00 ksi
kv = 5.34 - for unreinforced webs
0.960*Sqr(Ekv/Fy) = 53.88
1.415*Sqr(Ekv/Fy) = 79.42

h/t = 78.00 | V(2) = 1 * 1.035 kips = 1.035 kips (Eq. C3.2-2)
h/t = 78.00 | V(22) = 1 * 1.035 kips = 1.035 kips (Eq. C3.2-2)

Vn = 2.069 kips

New Tech SS210-A Panel

Sheet Gauge = 0.0240 in, 24 gauge

PANEL ELEMENTS EXCEEDING AISI ALLOWABLE RATIOS

Element No. 14 : w/t>500 -Actual w/t = 661

NOTE: AISI Specifications, Section B1.1(a) states ....

stiffened elements having w/t ratios larger than 500 can be used with adequate design strength to sustain the required loads; however; substantial deformations of such elements usually will invalidate the design equations of this Specification.

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Colorado Springs, CO 80919
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PROFILE ANALYSIS & DESIGN

Per AISI Cold-Formed Steel
Design Manual, 1996 Edition

New Tech SS210-A Panel

==========

FILE NAME: NT210

DIMENSIONS

Line # 1	Angle (R) =	-90.000 deg	Line # 1	Angle (L) =	90.000 deg
	Radius (R) =	0.040 in		Radius (L) =	0.040 in
	Length (R) =	1.872 in		Length (L) =	1.872 in
Line # 2	Angle (R) =	90.000 deg	Line # 2	Angle (L) =	90.000 deg
	Radius (R) =	0.040 in		Radius (L) =	0.040 in
	Length (R) =	0.671 in		Length (L) =	0.546 in
Line # 3	Angle (R) =	90.000 deg	Line # 3	Angle (L) =	90.000 deg
	Radius (R) =	0.070 in		Radius (L) =	0.070 in
	Length (R) =	0.406 in		Length (L) =	0.174 in

Panel Bottom Width = 17.872 in
Panel Overall Width = 18.000 in
Panel Overall Height= 2.000 in

SPECIAL CONDITIONS

Seam Rotation : 90 deg.

Alloy: ASTM A653, G50
Fy = 50.00 ksi
Fv = 21.18 ksi

QUALIFICATIONS PER AISI SPECIFICATIONS

(a) Maximum w/t Ratio's Exceeded [SEC. B1.1(a)]	No
(b) Maximum h/t Ratio's Exceeded [SEC. B1.2(a)]	No

PROPERTIES FOR LOAD/SPAN TABLES

Aweb=	0.098 in2		
Sxp =	0.123 in3	Sxp (per ft. of width) =	0.082 in3
Sxn =	0.079 in3	Sxn (per ft. of width) =	0.053 in3
Ixp =	0.229 in4	Ixp (per ft. of width) =	0.153 in4
Ixn =	0.116 in4	Ixn (per ft. of width) =	0.077 in4
Weight=	1.96 lb/lf		

New Tech SS210-A Panel

Member - New Tech SS210-A Panel								
Type	Name	Gage	Hgt (in)	Width (in)	Lip (in)	t (in)	Weight lb/ft	Coil Width (in)
Panel	PNL	24	2.000	18.000	0.000	0.0240	1.960	24.00

Gross Section Properties								
Area (in2)	Ix (in4)	Sx (in3)	Rx (in)	Ycg (in)	Iy (in4)	Sy (in3)	Ry (in)	Xcg (in)
0.576	0.247	0.149	0.655	0.343	23.421	2.436	6.377	9.166

Effective Properties								
							End Bearing	
Ix (in4)	Sx (in3)	Iy (in4)	Sy (in3)	Mnx (in-k)	Mny (in-k)	Vnx (kip)	Pne (kip)	Pnei (k/in)
0.229	0.123	0.000	0.000	3.94	0.00	2.069	0.181	0.159

Torsional Properties								
Xo (in)	Ro (in)	Beta	Cw (in6)	Jv*1000 (in4)	Fy (ksi)	Fu (ksi)	E (ksi)	G (ksi)
-0.952	6.481	0.978	14.78	0.111	50	65	29500	11300

Shear, moment and bearing values shown are nominal values and must be modified by the appropriate factors of safety (ASD) or resistance factors (LRFD).

Factors of Safety (ASD)		Resistance Factors (LRFD)	
Ω (Compression)	= 1.80	ϕ (Compression)	= 0.85
Ω (Tension)	= 1.67	ϕ (Tension)	= 0.95
Ω (Web Crippling)	= 1.85	ϕ (Web Crippling)	= 0.75
Ω (Bending)	= 1.67	ϕ (Bending)	= 1.11
Ω (Shear)	= 1.67	ϕ (Shear)	= 0.90

New Tech SS210-A Panel

Moment of Inertia @ 90 degree Rotation

ELEMENT	L	Y	LY	LYY	Io
1	0.082	17.969	1.468	26.374	0.0000
2	1.872	17.988	33.674	605.719	0.0000
3	0.082	18.007	1.471	26.485	0.0000
4	0.671	18.375	12.330	226.569	0.0252
5	0.129	18.763	2.417	45.347	0.0001
6	0.406	18.793	7.630	143.390	0.0000
14	17.872	9.000	160.848	1447.632	475.7055
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	0.012	0.022	0.000	0.0000
23	0.082	0.031	0.003	0.000	0.0000
24	0.546	0.337	0.184	0.062	0.0136
25	0.075	0.662	0.050	0.033	0.0001
26	0.227	0.692	0.157	0.109	0.0000
	23.997		220.256	2521.720	475.7445

Ix = 23.421 in4
Ycg= 9.178 in

New Tech SS210-A Panel

LOAD

ELEMENT VALUES FOR POSITIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.676	1.285	-0.869	-1.116	-0.0257
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.292	1.760	0.514	0.904	0.0056
14	17.872	0.012	0.214	0.003	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.676	1.285	-0.869	-1.116	-0.0257
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	22.531		6.327	9.521	1.0477

Sx = 0.123 in3
Ix = 0.211 in4
Ycg= 0.281 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

DEFLECTION

ELEMENT VALUES FOR POSITIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.321	1.363	-0.437	-0.596	-0.0028
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.372	1.720	0.639	1.100	0.0056
14	17.872	0.012	0.214	0.003	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.321	1.363	-0.437	-0.596	-0.0028
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	23.321		7.316	10.758	1.0937

Sx = 0.136 in3
Ix = 0.229 in4
Ycg= 0.314 in

Webs Fully Effective [SEC. B2.3(a)] No

New Tech SS210-A Panel

LOAD

ELEMENT VALUES FOR NEGATIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
2a	-0.354	0.509	-0.180	-0.092	-0.0037
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.406	1.703	0.691	1.177	0.0056
14	1.093	0.012	0.013	0.000	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
22a	-0.354	0.509	-0.180	-0.092	-0.0037
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	6.511		7.681	11.842	1.0918

Sx = 0.079 in3
Ix = 0.093 in4
Ycg= 1.180 in

Webs Fully Effective [SEC. B2.3(a)] | No

New Tech SS210-A Panel

DEFLECTION

ELEMENT VALUES FOR NEGATIVE BENDING

ELEMENT	L	Y	LY	LYY	Io
1	0.082	0.031	0.003	0.000	0.0000
2	1.872	1.000	1.872	1.872	0.5467
3	0.082	1.969	0.161	0.317	0.0000
4	0.671	1.988	1.334	2.652	0.0000
5	0.129	1.958	0.252	0.494	0.0001
6	0.406	1.703	0.691	1.177	0.0056
14	1.670	0.012	0.020	0.000	0.0000
21	0.082	0.031	0.003	0.000	0.0000
22	1.872	1.000	1.872	1.872	0.5467
23	0.082	1.969	0.161	0.317	0.0000
24	0.546	1.988	1.085	2.158	0.0000
25	0.075	1.958	0.148	0.289	0.0001
26	0.227	1.964	0.447	0.877	0.0000
	7.796		8.048	12.025	1.0992

Sx = 0.112 in3
Ix = 0.116 in4
Ycg= 1.032 in

Webs Fully Effective [SEC. B2.3(a)] | Yes

New Tech SS210-A Panel

MAXIMUM NOMINAL MOMENTS - [Section C3.1.1(a)]

Mnx [positive bending] = +6.137 k-in
Mnx [negative bending] = -3.939 k-in

MAXIMUM ALLOWABLE REACTIONS - [Table C3.4-1]

N/t= 83.33
k = 1.515
C1 = 0.887
C2 = 0.960
C3 = 0.830
C4 = 0.900
C9 = 1.000
C0 = 1.000 - Element 2, 22

Pend= t^2*k*C3*C4*C9*C0[217 - 0.28(h/t)][0.71 + 0.015(N/t)]
h/t = 78.00 | Pe(2)= 1 * 0.249 kips = 0.249 kips
h/t = 78.00 | Pe(22)= 1 * 0.249 kips = 0.249 kips
Pend= 0.499 kips

Pint= t^2*k*C1*C2*C9*C0[538 - 0.74(h/t)][0.75 + 0.011(N/t)]
h/t = 78.00 | Pi(2)= 1 * 0.595 kips = 0.595 kips
h/t = 78.00 | Pi(22)= 1 * 0.595 kips = 0.595 kips
Pint= 1.189 kips

MAXIMUM NOMINAL SHEAR - [Section C3.2]

E = 29,500 ksi
Fy = 50.00 ksi
kv = 5.34 - for unreinforced webs
0.960*Sqr(Ekv/Fy) = 53.88
1.415*Sqr(Ekv/Fy) = 79.42

h/t = 78.00 | V(2) = 1 * 1.035 kips = 1.035 kips (Eq. C3.2-2)
h/t = 78.00 | V(22) = 1 * 1.035 kips = 1.035 kips (Eq. C3.2-2)

Vn = 2.069 kips

New Tech SS210-A Panel

==========

Sheet Gauge = 0.0240 in, 24 gauge

PANEL ELEMENTS EXCEEDING AISI ALLOWABLE RATIOS

Element No. 14 : w/t>500 -Actual w/t = 745

NOTE: AISI Specifications, Section B1.1(a) states ....

stiffened elements having w/t ratios larger than 500 can be used with adequate design strength to sustain the required loads; however; substantial deformations of such elements usually will invalidate the design equations of this Specification.

New Tech SS210-A Panel

Width	12.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)

SPAN	DEFLECTION	SPAN LENGTH (Feet)								
		2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
1	L/180	268	238	214	195	173	147	126	110	96
	L/240	268	238	214	195	173	147	126	110	96
	L/360	268	238	214	195	173	147	126	110	96
2	L/180	336	286	234	195	173	147	126	110	96
	L/240	336	286	234	195	173	147	126	110	96
	L/360	336	286	234	195	173	147	126	110	96
3	L/180	336	298	268	225	191	163	142	124	109
	L/240	336	298	268	225	191	163	142	124	109
	L/360	336	298	268	225	191	163	142	124	109

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 8.666 ft (L/180)
   Two Span : Max. Span = 10.411 ft (L/180)
   Three Span +: Max. Span = 10.666 ft (L/180)

New Tech SS210-A Panel

Width	12.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)

SPAN	DEFLECTION	SPAN LENGTH (Feet) 4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25
1	L/180	85	76	68	61	55	50	46	42	39
	L/240	85	76	68	61	55	50	46	42	39
	L/360	85	76	68	61	55	50	46	42	38
2	L/180	85	76	68	61	55	50	46	42	39
	L/240	85	76	68	61	55	50	46	42	39
	L/360	85	76	68	61	55	50	46	42	39
3	L/180	97	86	78	70	64	58	53	49	45
	L/240	97	86	78	70	64	58	53	49	45
	L/360	97	86	78	70	64	58	53	49	45

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 8.666 ft (L/180)
   Two Span : Max. Span = 10.411 ft (L/180)
   Three Span +: Max. Span = 10.666 ft (L/180)

New Tech SS210-A Panel

Width	12.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)
SPAN LENGTH (Feet)

SPAN	DEFLECTION	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50
1	L/180	36	33	30	28	26	25	23	22	20
	L/240	36	33	30	28	26	25	23	22	20
	L/360	34	30	27	25	22	20	18	17	15
2	L/180	36	33	30	28	26	25	23	22	20
	L/240	36	33	30	28	26	25	23	22	20
	L/360	36	33	30	28	26	25	23	22	20
3	L/180	41	38	35	33	31	29	27	25	24
	L/240	41	38	35	33	31	29	27	25	24
	L/360	41	38	35	33	31	29	27	25	24

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 8.666 ft (L/180)
   Two Span : Max. Span = 10.411 ft (L/180)
   Three Span +: Max. Span = 10.666 ft (L/180)

New Tech SS210-A Panel

Width	12.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)

SPAN	DEFLECTION	SPAN LENGTH (Feet) 8.75	9.00	9.25	9.50	9.75	10.00	10.25	10.50	10.75
1	L/180	19	18	17	16	15	14	13	13	12
	L/240	19	18	17	16	15	14	13	12	11
	L/360	14	13	12	11	10	9	9	8	8
2	L/180	19	18	17	16	15	14	13	13	12
	L/240	19	18	17	16	15	14	13	13	12
	L/360	19	18	17	15	14	13	12	11	11
3	L/180	22	21	20	19	18	17	16	15	14
	L/240	22	21	20	19	18	17	16	15	14
	L/360	22	21	20	19	18	17	16	15	14

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 8.666 ft (L/180)
   Two Span : Max. Span = 10.411 ft (L/180)
   Three Span +: Max. Span = 10.666 ft (L/180)

New Tech SS210-A Panel

Width	14.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)
SPAN LENGTH (Feet)

SPAN	DEFLECTION	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
1	L/180	230	204	183	167	148	126	108	94	83
	L/240	230	204	183	167	148	126	108	94	83
	L/360	230	204	183	167	148	126	108	94	83
2	L/180	287	245	201	167	148	126	108	94	83
	L/240	287	245	201	167	148	126	108	94	83
	L/360	287	245	201	167	148	126	108	94	83
3	L/180	287	255	230	193	164	140	121	106	94
	L/240	287	255	230	193	164	140	121	106	94
	L/360	287	255	230	193	164	140	121	106	94

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 8.302 ft (L/180)
   Two Span : Max. Span = 9.786 ft (L/180)
   Three Span +: Max. Span = 10.025 ft (L/180)

New Tech SS210-A Panel

Width	14.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)
SPAN LENGTH (Feet)

SPAN	DEFLECTION	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25
1	L/180	73	65	58	52	47	43	39	36	33
	L/240	73	65	58	52	47	43	39	36	33
	L/360	73	65	58	52	47	43	39	36	33
2	L/180	73	65	58	52	47	43	39	36	33
	L/240	73	65	58	52	47	43	39	36	33
	L/360	73	65	58	52	47	43	39	36	33
3	L/180	83	74	67	60	54	50	45	42	38
	L/240	83	74	67	60	54	50	45	42	38
	L/360	83	74	67	60	54	50	45	42	38

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 8.302 ft (L/180)
   Two Span : Max. Span = 9.786 ft (L/180)
   Three Span +: Max. Span = 10.025 ft (L/180)

New Tech SS210-A Panel

Width	14.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)
SPAN LENGTH (Feet)

SPAN	DEFLECTION	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50
1	L/180	30	28	26	24	23	21	20	18	17
	L/240	30	28	26	24	23	21	20	18	17
	L/360	30	27	24	22	20	18	16	15	13
2	L/180	30	28	26	24	23	21	20	18	17
	L/240	30	28	26	24	23	21	20	18	17
	L/360	30	28	26	24	23	21	20	18	17
3	L/180	35	33	30	28	26	24	23	21	20
	L/240	35	33	30	28	26	24	23	21	20
	L/360	35	33	30	28	26	24	23	21	20

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 8.302 ft (L/180)
   Two Span : Max. Span = 9.786 ft (L/180)
   Three Span +: Max. Span = 10.025 ft (L/180)

New Tech SS210-A Panel

Width	14.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)

SPAN	DEFLECTION	SPAN LENGTH (Feet) 8.75	9.00	9.25	9.50	9.75	10.00	10.25	10.50	10.75
1	L/180	16	15	14	13	13	12	11	11	10
	L/240	16	15	14	13	13	12	11	11	10
	L/360	12	11	10	10	9	8	8	7	7
2	L/180	16	15	14	13	13	12	11	11	10
	L/240	16	15	14	13	13	12	11	11	10
	L/360	16	15	14	13	13	12	11	10	9
3	L/180	19	18	17	16	15	14	13	13	12
	L/240	19	18	17	16	15	14	13	13	12
	L/360	19	18	17	16	15	14	13	13	12

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 8.302 ft (L/180)
   Two Span : Max. Span = 9.786 ft (L/180)
   Three Span +: Max. Span = 10.025 ft (L/180)

New Tech SS210-A Panel

Width	16.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)

SPAN	DEFLECTION	SPAN LENGTH (Feet) 2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
1	L/180	201	178	160	146	130	110	95	82	72
	L/240	201	178	160	146	130	110	95	82	72
	L/360	201	178	160	146	130	110	95	82	72
2	L/180	251	215	176	147	130	110	95	82	72
	L/240	251	215	176	147	130	110	95	82	72
	L/360	251	215	176	147	130	110	95	82	72
3	L/180	251	223	201	169	143	123	106	93	82
	L/240	251	223	201	169	143	123	106	93	82
	L/360	251	223	201	169	143	123	106	93	82

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 7.849 ft (L/180)
   Two Span : Max. Span = 9.253 ft (L/180)
   Three Span +: Max. Span = 9.479 ft (L/180)

New Tech SS210-A Panel

Width	16.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)
SPAN LENGTH (Feet)

SPAN	DEFLECTION	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25
1	L/180	64	57	51	46	41	38	34	31	29
	L/240	64	57	51	46	41	38	34	31	29
	L/360	64	57	51	46	41	38	34	31	29
2	L/180	64	57	51	46	41	38	34	31	29
	L/240	64	57	51	46	41	38	34	31	29
	L/360	64	57	51	46	41	38	34	31	29
3	L/180	73	65	58	52	48	43	40	36	33
	L/240	73	65	58	52	48	43	40	36	33
	L/360	73	65	58	52	48	43	40	36	33

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 7.849 ft (L/180)
   Two Span : Max. Span = 9.253 ft (L/180)
   Three Span +: Max. Span = 9.479 ft (L/180)

New Tech SS210-A Panel

Width	16.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)
SPAN LENGTH (Feet)

SPAN	DEFLECTION	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50
1	L/180	27	25	23	21	20	18	17	16	15
	L/240	27	25	23	21	20	18	17	16	15
	L/360	27	24	22	19	18	16	14	13	12
2	L/180	27	25	23	21	20	18	17	16	15
	L/240	27	25	23	21	20	18	17	16	15
	L/360	27	25	23	21	20	18	17	16	15
3	L/180	31	28	26	25	23	21	20	19	18
	L/240	31	28	26	25	23	21	20	19	18
	L/360	31	28	26	25	23	21	20	19	18

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi.

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 7.849 ft (L/180)
   Two Span : Max. Span = 9.253 ft (L/180)
   Three Span +: Max. Span = 9.479 ft (L/180)

New Tech SS210-A Panel

Width	16.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)

SPAN	DEFLECTION	SPAN LENGTH (Feet) 8.75	9.00	9.25	9.50	9.75	10.00	10.25	10.50	10.75
1	L/180	14	13	12	12	11	10	10	9	9
	L/240	14	13	12	12	11	10	10	9	9
	L/360	11	10	9	9	8	7	7	6	6
2	L/180	14	13	12	12	11	10	10	9	9
	L/240	14	13	12	12	11	10	10	9	9
	L/360	14	13	12	12	11	10	10	9	8
3	L/180	16	16	15	14	13	12	12	11	10
	L/240	16	16	15	14	13	12	12	11	10
	L/360	16	16	15	14	13	12	12	11	10

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 7.849 ft (L/180)
   Two Span : Max. Span = 9.253 ft (L/180)
   Three Span +: Max. Span = 9.479 ft (L/180)

New Tech SS210-A Panel

Width	18.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)
SPAN LENGTH (Feet)

SPAN	DEFLECTION	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
1	L/180	178	158	142	129	115	98	84	73	64
	L/240	178	158	142	129	115	98	84	73	64
	L/360	178	158	142	129	115	98	84	73	64
2	L/180	223	191	156	130	115	98	84	73	64
	L/240	223	191	156	130	115	98	84	73	64
	L/360	223	191	156	130	115	98	84	73	64
3	L/180	223	198	178	150	127	109	94	83	73
	L/240	223	198	178	150	127	109	94	83	73
	L/360	223	198	178	150	127	109	94	83	73

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 7.462 ft (L/180)
   Two Span : Max. Span = 8.797 ft (L/180)
   Three Span +: Max. Span = 9.012 ft (L/180)

New Tech SS210-A Panel

Width	18.00 in
Alloy	ASTM A653, G50 (Fy= 50 ksi)
Gauge	24 (0.024 in)

Seam Rotation : 90 deg.

ALLOWABLE STRENGTH DESIGN (ASD)
Wind Load Factor = 1.0
ALLOWABLE UNIFORM LOAD (PSF)
SPAN LENGTH (Feet)

SPAN	DEFLECTION	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25
1	L/180	57	50	45	41	37	33	30	28	26
	L/240	57	50	45	41	37	33	30	28	26
	L/360	57	50	45	41	37	33	30	28	26
2	L/180	57	50	45	41	37	33	30	28	26
	L/240	57	50	45	41	37	33	30	28	26
	L/360	57	50	45	41	37	33	30	28	26
3	L/180	64	58	52	47	42	38	35	32	30
	L/240	64	58	52	47	42	38	35	32	30
	L/360	64	58	52	47	42	38	35	32	30

1. Formula's used in Load Tables for FLEXURE and DEFLECTION are:
   One Span - Mp= .125wl², Mn= .125wl², x= .0130wl^4/EI
   Two Span - Mp= .125wl², Mn= .096wl², x= .0092wl^4/EI
   Three Span - Mp= .080wl², Mn= .107wl², x= .0069wl^4/EI
   Modulas of Elasticity (E) = 29,500 ksi

2. Allowable uniform loads are determined per the following:
   a) Allowable Shear Stress (Fv) [AISI C3.2]
   b) Combined Bending and Shear [AISI C3.3]
   c) Combined Bending & Web Crippling [AISI C3.5]

3. Factors of Safety used to determine uniform loads:
   Ω (Bending) = 1.67
   Ω (Shear) = 1.67
   Ω (Web Crippling) = 1.85

4. Allowance has been made for member Dead Weight.

5. Minimum panel support bearing length = 2.00 in

6. Concentrated load = 150 lb at mid-span, load width = 4 in
   Simple Span : Max. Span = 7.462 ft (L/180)
   Two Span : Max. Span = 8.797 ft (L/180)
   Three Span +: Max. Span = 9.012 ft (L/180)