<table>
<thead>
<tr>
<th>PAGE NUMBER</th>
<th>DETAIL DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>TABLE OF CONTENTS</td>
</tr>
<tr>
<td>A-2</td>
<td>GENERAL NOTES</td>
</tr>
<tr>
<td>B-1</td>
<td>GENERAL INFORMATION</td>
</tr>
<tr>
<td>C-1</td>
<td>EAVE DRIP DETAIL</td>
</tr>
<tr>
<td>C-2</td>
<td>EAVE DRIP with GUTTER DETAIL</td>
</tr>
<tr>
<td>C-3 &amp; C-4</td>
<td>FIXED RIDGE DETAIL</td>
</tr>
<tr>
<td>C-5 &amp; C-6</td>
<td>FIXED HIGH-SIDE EAVE DETAIL</td>
</tr>
<tr>
<td>C-7 &amp; C-8</td>
<td>FIXED HIGH-SIDE TIE-IN DETAIL</td>
</tr>
<tr>
<td>C-9</td>
<td>FLOATING RAKE DETAIL</td>
</tr>
<tr>
<td>C-10</td>
<td>FLOATING RAKE DETAIL (ALTERNATE)</td>
</tr>
<tr>
<td>C-11</td>
<td>FLOATING SIDE-WALL TIE-IN DETAIL</td>
</tr>
<tr>
<td>C-12 &amp; C-13</td>
<td>VALLEY DETAIL</td>
</tr>
<tr>
<td>C-14 &amp; C-15</td>
<td>FIXED HIP DETAIL</td>
</tr>
<tr>
<td>C-16</td>
<td>DEKTITE DETAIL</td>
</tr>
<tr>
<td>C-17 thru C-21</td>
<td>CURB INSTALLATION DETAILS</td>
</tr>
<tr>
<td>C-22 &amp; C-23</td>
<td>TRIM LAP DETAILS</td>
</tr>
</tbody>
</table>
The details shown on the following pages are suggestions or guidelines for installing the 138T roof panel system. The installation details shown here are proven methods of construction, but they are not intended to cover all building requirements, designs or codes. The details may require changes or revisions due to individual project conditions. In addition, other details may be perfectly acceptable for use. Please contact McElroy Metal for assistance in determining if a detail is acceptable.

Installation procedures shall be in accordance with the manufacturer's printed instructions, details or approved shop drawings. Installers should thoroughly familiarize themselves with all instructions prior to beginning the installation process.

The designer/installer is responsible to ensure the following:

That the details here meet the particular building requirements.

Awareness of and allowance for expansion/contraction of the roof panels.

That adequate water tightness is maintained.

That a proper uniform substructure is used to avoid panel distortion and that the substructure meets necessary code requirements.

That all supporting members have been examined and are straight, level and plumb.

McElroy Metal can provide all flashings and accessories shown in the installation drawings unless noted otherwise. Panels, flashing and trim shall be installed true and in proper alignment with any exposed fasteners equally spaced for the best appearance. Sealant shall be field applied on a clean, dry surface.

Some field cutting and fitting of panels and flashings is to be expected and to be considered a part of normal installation work. Workmanship shall be of the best industry standards and with installation performed by experienced metal craftsmen.

Oil canning of metal panels is inherent in the product and is not a cause for rejection. Plank and Pencil Rib panels are recommended as to reduce the appearance of oil canning.

Contents of this manual are subject to change without notice. To confirm this book is the most current copy, please visit McElroy Metal's website at www.mcelroymetal.com.

Optional details can also be found on our website.
GENERAL INFORMATION

SEAM CAP WITH CONTINUOUS FACTORY SEALANT (2) BEADS

138T Clip
138T Panel

ATTENTION

READ THE SEAMER INFORMATION THOROUGHLY BEFORE STARTING THE SEAMING OPERATION.
FAILURE TO ADHERE TO THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY AND DAMAGE TO THE SEAMER AND/OR PANELS.
THE ERECTOR WILL BE HELD LIABLE FOR ANY COSTS INCURRED FOR REPLACEMENT OR REPAIR.

PRE-SEAMING INFORMATION

1. Locate seamer box. Check to make sure you received an electric seamer, parts box, return shipping label and an information booklet. If not, please call our Technical Services Department. (Hand Seamers must be rented.)

2. Locate power source and check against power requirements in the information booklet.

3. Check seams for proper engagement.

4. Clean dirt, debris and excess sealant from seams and panel surfaces to avoid interfering with the seaming operation.

HAND SEAMING OPERATION

!!!ATTENTION!!!

It is critical that the panel seams are crimped and folded before using the electric seamer. Failure to follow these guidelines will result in damaged seams.

To begin seaming, set the hand seamer on the seam. Align the edge of the hand seamer about one to two inches pass the edge of the panel. Crimp the panel 3 to 4 times along the seam for a total of 12" at the eave and 5 or 6 times along the seam for a total of 18" at the ridge and then at every clip.

NOTE:

Mechanical seamers and hand seamers are available for rental through McElroy's approved seamer supplier at the following website.
Go to: http://www.mcelroyseamers.com

!!!ATTENTION!!!

If a panel or seam becomes damaged, the installer can rent a "de-seamer" through the same website listed above.

CAUTION: The use of any seaming machine or tools other than that recommended by the manufacturer, may damage the panels, void all warranties and will void all engineering data.
NOTES: 1. MT-26 (Standard Eave Trim) and MT-37 (Standard Cleat) to run from out of wall to out of wall.
2. Attach MT-37 (Standard Cleat) to wood fascia with #10-12 x 1" Type A Pancake Head Fasteners @ 1'-0" O.C.
3. Attach MT-26: (Standard Eave Trim) onto 24GA. MT-37 (Standard Cleat) and then attach to Plywood Decking with #10-12 x 1" Type A Pancake Head Fasteners @ 1'-0" O.C.
4. Trim pieces lap 2". Apply 3/32" x 3/8" Butyl Tape or Butyl Tube Sealant in trim laps.
5. Place a 3/16" Dia. Bead of Butyl Tube Sealant to leading edge of 138T panel.
6. Field Notch panel seam and fold over end tabs of panels.
EAVE DRIP w/ GUTTER DETAIL

NOTES:
1. MT-26 (Standard Eave Trim) and MT-61 (Gutter) to run from out of wall to out of wall.
2. Apply a continuous bead of 3/32" x 1" Roll Tape Sealant to the inside vertical leg of the Gutter. Attach MT-67 (Gutter Straps) and Gutter with (2) Pop Rivets as shown in detail.
3. Attach MT-26 (Standard Eave Trim) to decking with #10-12 x 1" Type A Pancake Head Fasteners @ 1'-0" O.C. Slide vertical leg of Gutter behind MT-26 (Standard Eave Trim) and fasten through Gutter Strap, Standard Eave Trim, Tape Sealant and Gutter with a #9-15 x 1" HWH Type A Fastener into Fascia Board per Gutter Strap spacing.
4. Trim pieces lap 2". Apply 3/32" x 3/8" Butyl Tape or Butyl Tube Sealant in trim laps.
5. Place a 3/16" Dia. Bead of Butyl Tube Sealant to leading edge of 138T panel.
6. Field Notch panel seam and fold over end tabs of panels.

*NOTE: SOME TRIM ITEMS AND FASTENERS HAVE BEEN REMOVED FOR CLARITY OF ISOMETRIC DETAIL.
NOTES:
1. MT-2 (Ridge Cap) to run from out of wall to out of wall.
2. Using a panning tool, fold up the pan of the panel at the ridge.
3. Install 138T panels and apply a line of 3/16" x 7/8" Double Bead Sealant in the pan of the panel.
4. Install MT-14N-16 (Zee Closure) and seal vertical legs of closure and panel with Urethane Tube Sealant. Fix panels to clips with (1) 1/4-14 x 1 1/4" HWH Tek2 or ZAC Fastener, making sure to fasten through the clip.
5. MT-2 (Ridge Cap) laps 2". Apply 3/32" x 1" Butyl Tape and Pop Rivet trims to MT-14 (Zee Closure) with Pop Rivets at Laps.
NOTES: 1. MT-2 (Ridge Cap) to run from out of wall to out of wall.
2. Using a panning tool, fold up the pan of the panel at the ridge.
3. Install 138T panels and apply a line of 3/16" x 7/8" Double Bead Sealant in the pan of the panel.
4. Install MT-14N-16 (Zee Closure) and seal vertical legs of closure and panel with Urethane Tube Sealant. Fix panels to clips with (1) 1/4-14 x 1 1/4" HWH Tek2 or ZAC Fastener, making sure to fasten through the clip.
5. MT-2 (Ridge Cap) laps 2". Apply 3/32" x 1" Butyl Tape and Pop Rivet trims to MT-14 (Zee Closure) with Pop Rivets at Laps.
1. MT-25 (High Eave Trim), MT-156 (Rake Support Cleat) and MT-38 (Standard Offset Cleat) to run from out to out of building.
2. Using a panning tool, fold up the pan of the panel at the high eave.
3. Attach MT-156 (Rake Support Cleat) to fascia board with #10-12 x 1" Type A Pancake Head Fasteners at 1'-0" O.C.
4. Install 138T panels and apply a line of 3/16" x 7/8" Double Bead Sealant in the pan and vertical legs of the panel.
5. Install MT-14N-16 (Zee Closure) and seal vertical legs of closure and panel with Urethane Tube Sealant. Fix panels to clips with (1) 1/4-14 x 1 1/4" HWH Tek2 or ZAC Fastener, making sure to fasten through the clip.
6. MT-25 (High Eave Flashing) laps 2". Apply 3/32" x 1" Butyl Tape and Pop Rivet trims to Zee Closure with Pop Rivets at 0'-6" O.C.
1. MT-25 (High Eave Trim), MT-156 (Rake Support Cleat) and MT-38 (Standard Offset Cleat) to run from out to out of building.
2. Using a panning tool, fold up the pan of the panel at the high eave.
3. Attach MT-156 (Rake Support Cleat) to fascia board with #10-12 x 1" Type A Pancake Head Fasteners at 1'-0" O.C.
4. Install 138T panels and apply a line of 3/16" x 7/8" Double Bead Sealant in the pan and vertical legs of the panel.
5. Install MT-14N-16 (Zee Closure) and seal vertical legs of closure and panel with Urethane Tube Sealant. Fix panels to clips with (1) 1/4-14 x 1 1/4" HWH Tek2 or ZAC Fastener, making sure to fasten through the clip.
6. MT-25 (High Eave Trim) laps 2". Apply 3/32" x 1" Butyl Tape and Pop Rivet trims to MT-14N-16 (Zee Closure) with Pop Rivets at 0'-6" O.C.
NOTES: 1. MT-35 (Standard Headwall Trim) to run from out to out of building.
2. Using a panning tool, fold up the pan of the panel at the high eave.
3. Install 138T panels and apply a line of 3/16" x 7/8" Double Bead Sealant in the pan of the panel.
4. Install MT-14N-16 (Zee Closure) and seal vertical legs of closure and panel with Urethane Tube Sealant.
   Fix panels to clips with (1) 1/4-14 x 1 1/4" HWH Tek2 or ZAC Fastener, making sure to fasten through the clip.
5. MT-35 (Standard Headwall Trim) to lap 2". Apply 3/32" x 3/8" Butyl Tape or Butyl Tube Sealant in trim laps and attach to Zee Closure with Pop Rivets. MT-38 (Standard Offset Cleat) will butt joint.
NOTES: 1. MT-35 (Standard Headwall Trim) to run from out to out of building.
2. Using a panning tool, fold up the pan of the panel at the high eave.
3. Install 138T panels and apply a line of 3/16" x 7/8" Double Bead Sealant in the pan of the panel.
4. Install MT-14N-16 (Zee Closure) and seal vertical legs of closure and panel with Urethane Tube Sealant. Fix panels to clips with (1) 1/4-14 x 1 1/4" HWH Tek2 or ZAC Fastener, making sure to fasten through the clip.
5. MT-35 (Standard Headwall Trim) to lap 2". Apply 3/32" x 3/8" Butyl Tape or Butyl Tube Sealant in trim laps and attach to trim with Pop Rivets. MT-38 (Standard Offset Cleat) will butt joint.
**FLOATING RAKE DETAIL**

NOTES: 1. MT-183 (Rake Trim), MT-156 (Rake Support Cleat) and MT-SLOT-Z138 (16ga. Slotted Zee) to run from eave to ridge.
2. Attach MT-SLOT-Z138 (16ga. Slotted Zee) to decking with #14-10 x 1 1/2" HWH Type A Fasteners at 1'-0" O.C.
3. Apply a continuous bead of 3/16" x 7/8" Double Bead Tape Sealant to the vertical leg of the 138T panel. Install 138T panel and hold in place on the Slotted Zee with clamps. Fasten panel to Slotted Zee with 1/4-14 x 1 1/4" Tek2 ZAC Fasteners at 1'-0" O.C.
4. Apply a continuous bead of 3/32" x 1" Roll Tape Sealant to the top of the Slotted Zee and attach MT-183 (Rake Trim) with 1/4-14 x 1 1/4" Tek2 ZAC Fasteners at 1'-0" O.C.
5. Trim pieces lap 2". Apply 3/32" x 3/8" Butyl Tape or Butyl Tube Sealant in trim laps.

*NOTE: SOME TRIM ITEMS AND FASTENERS HAVE BEEN REMOVED FOR CLARITY OF ISOMETRIC DETAIL.*

---

PLYWOOD DECKING (NOT BY MCELROY)

MT-SLOT-Z138: 16GA. SLOTTED ZEE

1/4-14 X 1 1/4" TEK2 ZAC FASTENER (@ 1'-0" O.C.)

MT-183: RAKE TRIM

#10-12 X 1" TYPE A PANCAKE HEAD FASTENER (@ 1'-0" O.C.)

#14-10 X 1 1/2" TYPE A FASTENER (@ 1'-0" O.C.)

#30 PAPER FELT (NOT BY MCELROY)

WOOD FASCIA (NOT BY MCELROY)
NOTES: 1. MT-31 (Rake Trim) and MT-37 (Standard Cleat) to run from eave to ridge.
   2. Attach MT-37 (Standard Cleat) to Fascia Board with #10-12 x 1" Type A Pancake Head Fasteners at 1'-0" O.C.
   3. Attach MT-31 (Rake Trim) to MT-37 (Standard Cleat) and fasten to Plywood Decking with #10-12 x 1" Type A Pancake Head Fasteners at 1'-0" O.C.
   4. Field cut leading edge of panel and fold panel down 180°.
NOTES:

1. MT-34 (Standard Side-Wall Trim) to run from Eave to Ridge.

2. Attach MT-SLOT-Z138 (16ga. Slotted Zee) to decking with #14-10 x 1 1/2" HWH Type A Fasteners at 1'-0" O.C.

3. Apply a continuous run of 3/16" x 7/8" Double Bead Tape Sealant to the vertical leg of the 138T panel. Install 138T panel and hold in place on the Slotted Zee with clamps. Fasten panel to Slotted Zee with 1/4-14 x 1 1/4" Tek2 Zac Fasteners at 1'-0" O.C.

4. Apply a continuous run of 3/32" x 1" Roll Tape Sealant to the top of the Slotted Zee and attach MT-34 (Standard Side-Wall Trim) with 1/4-14 x 1 1/4" Tek2 ZAC Fasteners at 1'-0" O.C.

5. Trim pieces lap 2". Apply 3/32" x 3/8" Butyl Tape or Butyl Tube Sealant in trim laps.
NOTES:
1. Install MT-8 (Valley w/o Cleat) from eave to ridge. Valley Trim pieces lap 6". Place 3/32" x 1" Butyl Tape or a 3/16" Dia. bead of Butyl Tube Sealant in laps.
2. Cut panels at required bevel for valley condition.
3. Apply a continuous line of 3/32" x 1" Roll Tape Sealant up both sides of MT-8 (Valley Trim w/o Cleat).
4. Attach MT-38 (Standard Offset Cleat) with #10-12 x 1" Type A Pancake Head Fasteners at 1'-0" O.C.
NOTES: 1. Install MT-8 (Valley w/o Cleat) from eave to ridge. Valley Trim pieces lap 6". Place 3/32" x 1" Butyl Tape or a 3/16" Dia. bead of Butyl Tube Sealant in laps.
2. Cut panels at required bevel for valley condition.
3. Apply a continuous line of 3/32" x 1" Roll Tape Sealant up both sides of MT-8 (Valley Trim w/o Cleat).
4. Attach MT-38 (Standard Offset Cleat) with #10-12 x 1" Type A Pancake Head fasteners at 1'-0" O.C.
NOTES: 1. MT-5 (Hip Cap) to run from Eave to Ridge.
2. Using a panning tool, fold up the pan of the panel at the hip.
3. Install 138T panels and apply a line of 3/16" x 7/8" Double Bead Sealant in the pan of the panels.
4. Install MT-14N-16 (Zee Closure) and seal vertical legs of closure and panel with Urethane Tube Sealant.
   Fix panels to clips with (1) 1/4-14 x 1 1/4" HWH Tek2 or ZAC Fastener, making sure to fasten through the clip.
5. MT-5 (Hip Cap) laps 2". Apply 3/32" x 1" Butyl Tape and attach to MT-14 (Zee Closure) with Pop Rivets at Laps.
NOTES: 1. MT-5 (Hip Cap) to run from Eave to Ridge.
2. Using a panning tool, fold up the pan of the panel at the hip.
3. Install 138T panels and apply a line of 3/16" x 7/8" Double Bead Sealant in the pan of the panels.
4. Install MT-14N-16 (Zee Closure) and seal vertical legs of closure and panel with Urethane Tube Sealant. Fix panels to clips with (1) 1/4-14 x 1 1/4" HWH Tek2 or ZAC Fastener, making sure to fasten through the clip.
5. MT-5 (Hip Cap) laps 2". Apply 3/32" x 1" Butyl Tape and attach to MT-14 (Zee Closure) with Pop Rivets at Laps.
NOTES: 1. Cut hole in panel 1" larger than pipe diameter. If installing over a solid substrate, over-cut hole in substrate larger than fastener pattern of Dekrite so fasteners do not pin system from thermal movement.
2. Cut hole in top of Dekrite Boot so that it fits snugly around pipe. Apply a 3/16" Dia. bead of Tube Butyl sealant around the base flange of boot. Secure to panel with 1/4-14 x 7/8" Lap Tek ZAC fasteners 2" O.C.
3. Dekrite boot MUST fit in pan of panel. Do not fasten to standing seams.
STEP #1

138T ROOF PANEL
138T CLIP

#30 PAPER FELT
(NOT BY MCELROY)

PLYWOOD DECKING
(NOT BY MCELROY)

*NOTE: SOME TRIM ITEMS AND
FASTENERS HAVE BEEN REMOVED
FOR CLARITY OF ISOMETRIC
DETAIL.
STEP #2

138T ROOF CURB DETAIL

138T ROOF PANEL

3/16" X 7/8" DOUBLE BEAD TAPE SEALANT

0.080 ALL-WELDED ALUMINUM CURB (NOT BY MCELROY)

#30 PAPER FELT (NOT BY MCELROY)

PLYWOOD DECKING (NOT BY MCELROY)

BACK-UP CHANNEL

138T CLIP

#10-12 X 1" TYPE A PANCAKE HEAD FASTENER (2 PER CLIP)

*NOTE: SOME TRIM ITEMS AND FASTENERS HAVE BEEN REMOVED FOR CLARITY OF ISOMETRIC DETAIL.
**STEP #3**

**ROOF CURB DETAIL**

- **138T CLIP**
  - #10-12 x 1" TYPE A PANCAKE HEAD FASTENER (2 PER CLIP)

- **BACK-UP CHANNEL**
  - 0.080 ALL-WELDED ALUMINUM CURB (NOT BY MCELROY)
  - 3/16" x 7/8" DOUBLE BEAD TAPE SEALANT

- **138T ROOF PANEL**
  - 0.080 ALL-WELDED ALUMINUM CURB (NOT BY MCELROY)

- **CLAMPS**
  - (NOT BY MCELROY)

- **#30 PAPER FELT**
  - (NOT BY MCELROY)

- **PLYWOOD DECKING**
  - (NOT BY MCELROY)

---

*NOTE: SOME TRIM ITEMS AND FASTENERS HAVE BEEN REMOVED FOR CLARITY OF ISOMETRIC DETAIL.*

---

TECHNICAL SERVICE
1-800-950-9082
STEP #4

0.080 ALL-WELDED ALUMINUM CURB (NOT BY MCCELROY)
FIELD NOTCH PANEL SEAMS AND FOLD OVER END TABS
1/4-14 X 1 1/4" TEK2 ZAC FASTENERS (@ 0'-4" O.C.)
3/16" X 7/8" DOUBLE BEAD TAPE SEALANT

138T ROOF PANEL
3/32" X 1" X 2" LONG PIECE OF ROLL TAPE SEALANT

0.080 ALL-WELDED ALUMINUM RIB CAP (NOT BY MCCELROY)
(FILL CAP 2/3's FULL WITH BUTYL TUBE SEALANT)
3/16" X 7/8" DOUBLE BEAD ROLL TAPE SEALANT

BACK-UP CHANNEL
138T CLIP
#10-12 X 1" TYPE A PANCAKE HEAD FASTENER (2 PER CLIP)

3/16" DIA. BEAD OF BUTYL TUBE SEALANT

#30 PAPER FELT (NOT BY MCCELROY)
PLYWOOD DECKING (NOT BY MCCELROY)

3/16" X 1" X 2" LONG PIECE OF ROLL TAPE SEALANT

*NOTE: SOME TRIM ITEMS AND FASTENERS HAVE BEEN REMOVED FOR CLARITY OF ISOMETRIC DETAIL.
STEP #5

0.080 ALL-WELDED ALUMINUM CURB (NOT BY MCELROY)

1/4-14 X 1 1/4" TEK2 ZAC FASTENERS (@ 0'-4" O.C.)

0.080 ALL-WELDED ALUMINUM RIB CAP (NOT BY MCELROY)
(FILL CAP 2/3's FULL WITH BUTYL TUBE SEALANT)

#30 PAPER FELT (NOT BY MCELROY)

PLYWOOD DECKING (NOT BY MCELROY)

SEAM CAP

138T ROOF PANEL

138T CLIP

BACK-UP CHANNEL

#10-12 X 1" TYPE A PANCAKE HEAD FASTENER (2 PER CLIP)

*NOTE: SOME TRIM ITEMS AND FASTENERS HAVE BEEN REMOVED FOR CLARITY OF ISOMETRIC DETAIL.*
NOTE:  
1. Apply 3/32" x 3/8" Roll Tape Sealant or a 3/16" Dia. bead of Tube Butyl 1 1/2" back from the edge of the trim. Also, apply a piece of tape sealant or bead of Tube Butyl as a Pigtail to completely seal joint.
2. Notch the hems on the upper trim piece 2" so that the trim will fit flat in the lap joint.
3. Secure trim laps with Pop Rivets as shown above.
NOTE: 1. Apply 3/32" x 1" Roll Tape Sealant or a 3/16" Dia. bead of Tube Butyl 1 1/2" back from the edge of the trim.
2. Notch the hems on the upper trim piece 2" so that the trim will fit flat in the lap joint.
3. Secure trim laps with Pop Rivets as shown above.
CORPORATE OFFICE
1500 HAMILTON RD.
BOSSIER CITY, LA 71111

MANUFACTURING LOCATIONS

ADELANTO, CA
ASHBURN, GA
BOSSIER CITY, LA
CLINTON, IL
HOUSTON, TX
LEWISPORT, KY
MARSHALL, MI
MAUSTON, WI
MERKEL, TX
PEACHTREE CITY, GA
SUNNYVALE, TX
WINCHESTER, VA

SERVICE CENTER

5215 Leo St.
Alexandria, LA 71301
1007 Wilso Dr,
Baltimore, MD 21223
1500 Hamilton Rd.
Bossier City, LA 71111
3052 Yadkin Road
Chesapeake, VA 23323
9476 Meadowbrook Rd.
Clinton, IL 61727
3215 Highway 59
Diamond, MO 64840
390 N. Valley Dell Dr.
Fenton, MO 63026
409 Lovejoy Road
Ft. Walton Beach, FL 32548
3014 Lincoln Court
Garland, TX 75041
1440 Aldine Bender Road
Houston, TX 77032
10504 E. 59th Street
Indianapolis, IN 46236
9435 US Hwy. 60 W.
Lewisport, KY 42351
5123 Terminal Dr.
Mcfarland, WI 53558
514 Cave Road
Nashville, TN 37210
8304 Hwy. 70 E.
North Little Rock, AR 72117
613 North Bierdenman Rd.
Pearl, MS 39208

Website: www.mcelroymetal.com · E-mail: info@mcelroymetal.com

Rev. 07-17