



# GUTTER SYSTEMS

System Technology for Rainwater Goods

DESIGN AND APPLICATION



Private Residence, Des Moines, IA



RHEINZINK Leaf Guard



RHEINZINK Snap-Lock Bracket

**RHEINZINK Gutter Systems**

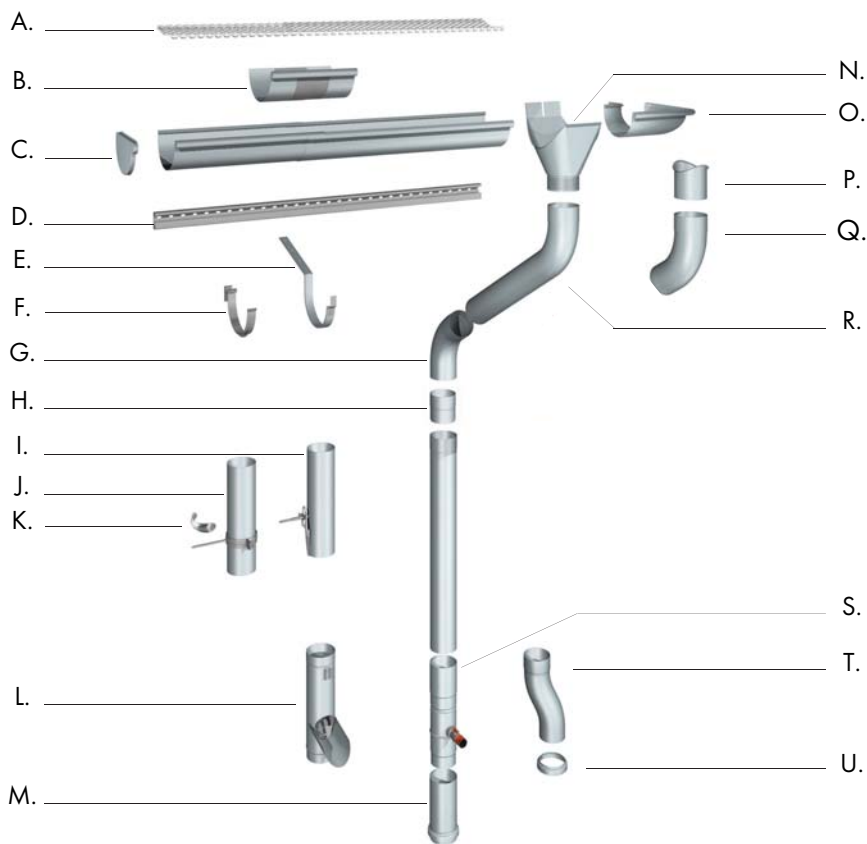
1. RHEINZINK gutters are available in the PATINA PRODUCT LINE only.
2. RHEINZINK Gutter Systems may be used with asphalt shingle roofing applications as well as many other roofing materials (Please refer to Chapter 1 - "Influences from other Building Materials" for the complete list of compatible roofing products)
3. Easy to install
4. Water diversion and collection parts available.
5. Economical and Environmentally Friendly
6. Water diversion and collection parts available.
7. ProRoofing recommended on all gutter flashings.
8. Available thicknesses:
  - 0.8 mm
  - 0.7 mm
9. Available Gutter lengths:
  - 3 meters (9.84 feet)
10. Available Gutter Sizes:
  - 5" (0.7 mm)
  - 6" (0.7 mm)
  - 7-1/2" (0.8 mm)
11. Precision-fitted pieces
12. Requires little or no maintenance



13. Refer to the RHEINZINK baseline details for design options. Consult the RHEINZINK technical department for customized applications as well as soldering and complete installation instructions.
14. RHEINZINK Gutter Systems can adapt to new or retrofit construction.



Photo on front page: Private Residence, MA



**Gutter Components:**

- A. Leaf Guard
- B. Expansion Joint
- C. Endcap (L&R)
- D. Snap-Lock Bracket Rail
- E. Gutter Bracket
- F. Snap-Lock Bracket
- G. Elbow
- H. Downspout Adapter
- I. Hidden Downspout Hanger
- J. Solid Zinc Downspout Bracket
- K. Downspout Wedge
- L. Leaf Collector
- M. Drantile Extension
- N. Plug In Outlet
- O. Miter
- P. Drop In Outlet
- Q. Elbow
- R. Extended Elbow
- S. Gardena
- T. Downspout Offset
- U. Downspout Skirt

## **GUTTER DETAILS**

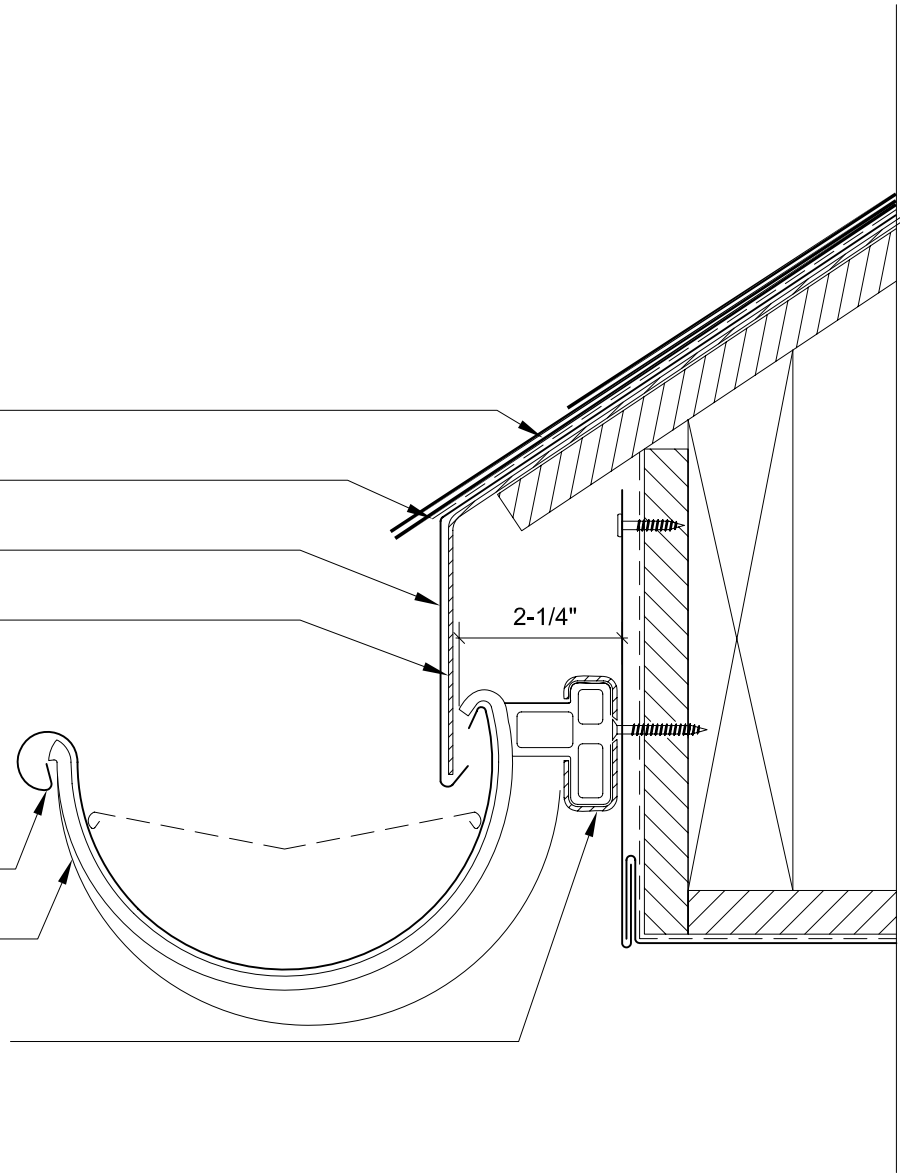
### INDEX OF DRAWINGS

- RZG-1 - SNAP-LOCK BRACKET & GUTTER - SLATE / SHINGLE ROOF
- RZG-2 - SNAP-LOCK BRACKET & GUTTER - STANDING SEAM ROOF
- RZG-3 - SNAP-LOCK BRACKET & GUTTER - EXISTING ASPHALT SHINGLE ROOF
- RZG-4 - SNAP-LOCK BRACKET WITH RAIL & STRAP - TILE ROOF
- RZG-5 - RHEINZINK SHEATHED FASCIA HANGER - EXISTING ASPHALT SHINGLE ROOF
- RZG-6 - RHEINZINK GUTTER WITH GALVANIZED FASCIA HANGER - EXISTING ASPHALT SHINGLE ROOF
- RZG-7 - RHEINZINK GUTTER WITH GALVANIZED FASCIA HANGER - EXISTING SLATE / SHINGLE ROOF
- RZG-8 - RHEINZINK GUTTER WITH SHEATHED FASCIA HANGER - TILE ROOF
- RZG-9 - RHEINZINK GUTTER WITH ZINC SHEATHED HANGER - SLATE / SHINGLE ROOF
- RZG-10 - RHEINZINK GUTTER WITH GALV. FASCIA HANGER
- RZG-11 - RHEINZINK GUTTER WITH SNAP-LOCK BRACKET AND SHIM

SLATE SHINGLES  
 UNDERLAYMENT  
 RHEINZINK STARTER FLASHING  
 CONTINUOUS SUPPORT

RHEINZINK HALF ROUND GUTTER  
 RHEINZINK SNAP LOCK GUTTER  
 BRACKET @ 32" O.C. MAX.

RHEINZINK CONTINUOUS SNAP LOCK  
 MOUNTING RAIL. SLOPE @  $\frac{1}{16}$ " PER  
 FOOT TO ALLOW GUTTER TO  
 PROPERLY DRAIN



96F Commerce Way Woburn, MA 01801 T: 781.729.0812  
 Website: www.rheinzink.com E-mail: info@rheinzink.com

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PROJECT:	<b>SNAP-LOCK BRACKET &amp; GUTTER</b>	DATE:	<b>10-2011</b>
DRAWING TITLE:	<b>SLATE / SHINGLE ROOF</b>	SCALE:	<b>N.T.S.</b>
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RHEINZINK STANDING SEAM PANEL

AIR Z or ENKAMAT (7008 or 7010)

UNDERLAYMENT

RHEINZINK STARTER FLASHING

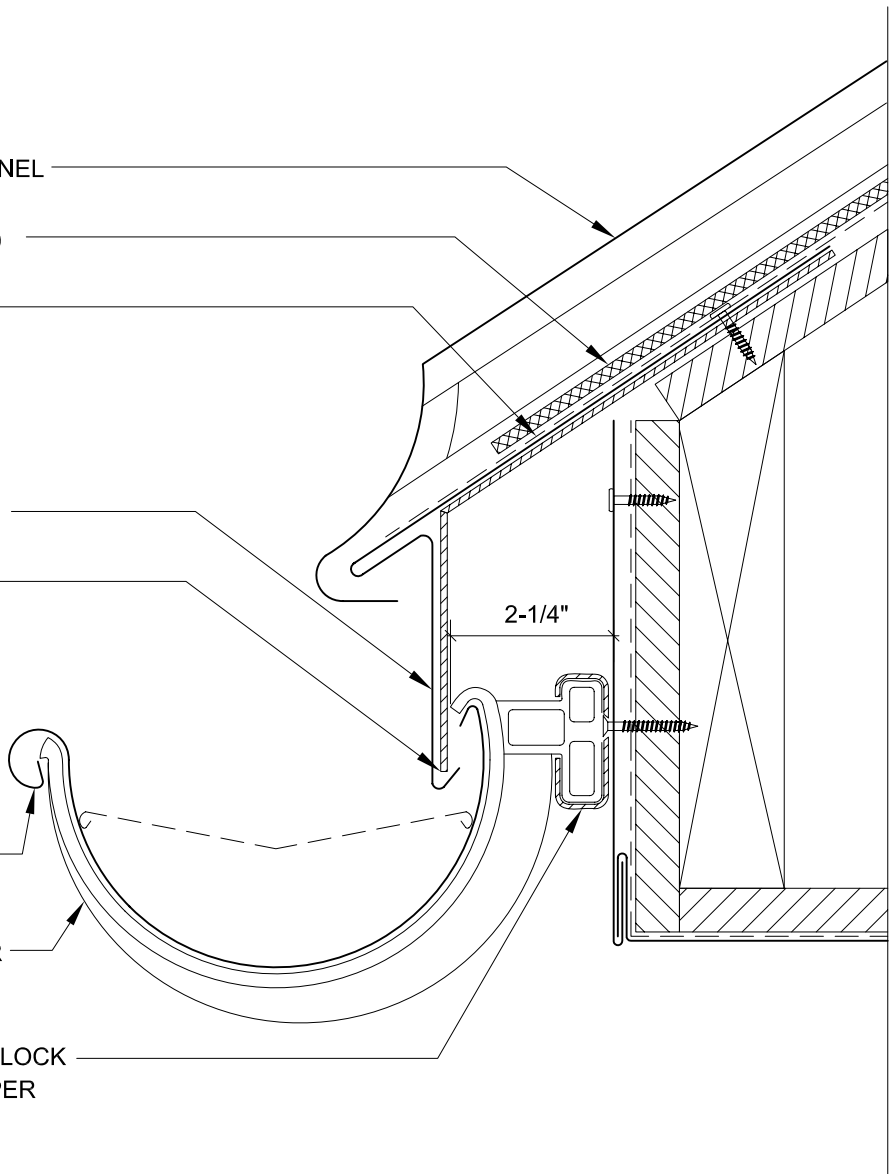
CONTINUOUS SUPPORT

2-1/4"

RHEINZINK HALF ROUND GUTTER

RHEINZINK SNAP LOCK GUTTER BRACKET @ 32" O.C. MAX.

RHEINZINK CONTINUOUS SNAP LOCK MOUNTING RAIL. SLOPE @ 1/16" PER FOOT TOWARD OUTLET



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EXISTING ASPHALT SHINGLES

UNDERLAYMENT

EXISTING EAVE FLASHING

RHEINZINK STARTER FLASHING

CONTINUOUS SUPPORT

2-1/4"

RHEINZINK HALF ROUND GUTTER

RHEINZINK SNAP LOCK GUTTER BRACKET @ 32" O.C. MAX.

RHEINZINK CONTINUOUS SNAP LOCK MOUNTING RAIL. SLOPE @ 1/16" PER FOOT TO ALLOW GUTTER TO PROPERLY DRAIN



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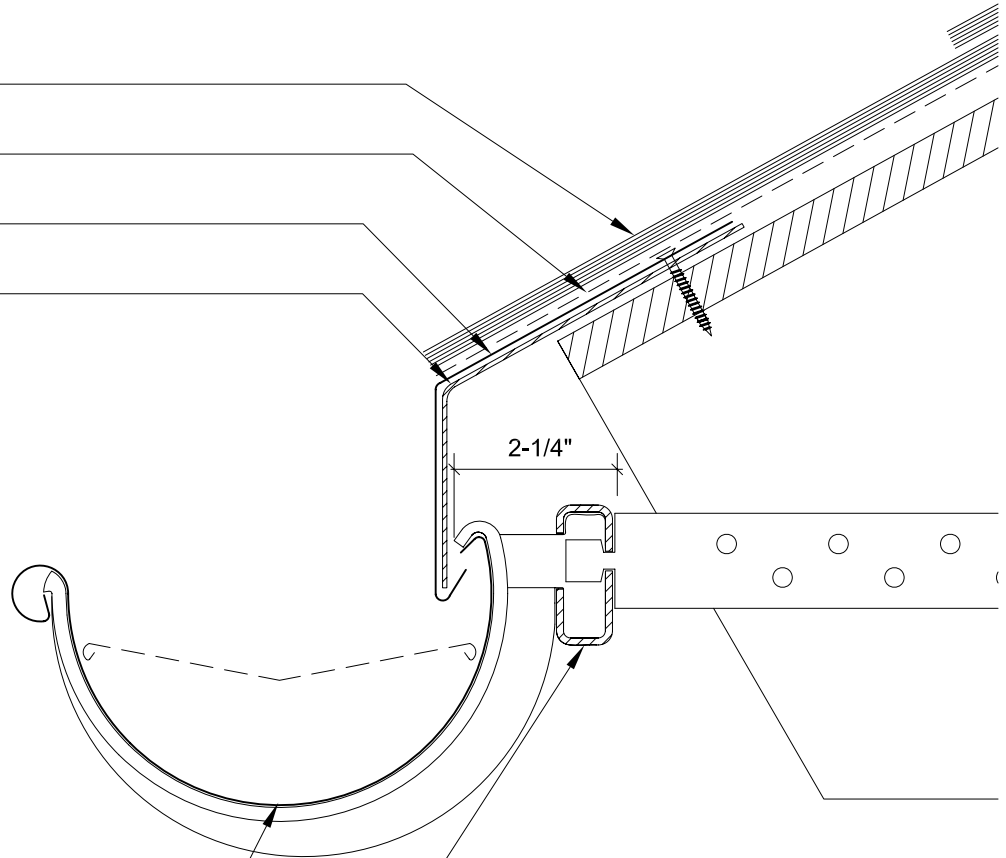
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DRAWING TITLE:	<b>EXISTING ASPHALT SHINGLE ROOF</b>	SCALE:	N.T.S.
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TILE SHINGLES

UNDERLAYMENT

RHEINZINK STARTER FLASHING

CONTINUOUS SUPPORT



2-1/4"

RHEINZINK HALF ROUND GUTTER

RHEINZINK CONTINUOUS SNAP LOCK

MOUNTING RAIL. SLOPE @ 1/16" PER FOOT TO ALLOW GUTTER TO PROPERLY DRAIN



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PROJECT:	<b>SNAP-LOCK RAIL &amp; STRAP</b>	DATE:	11-2011
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ASPHAT SHINGLES

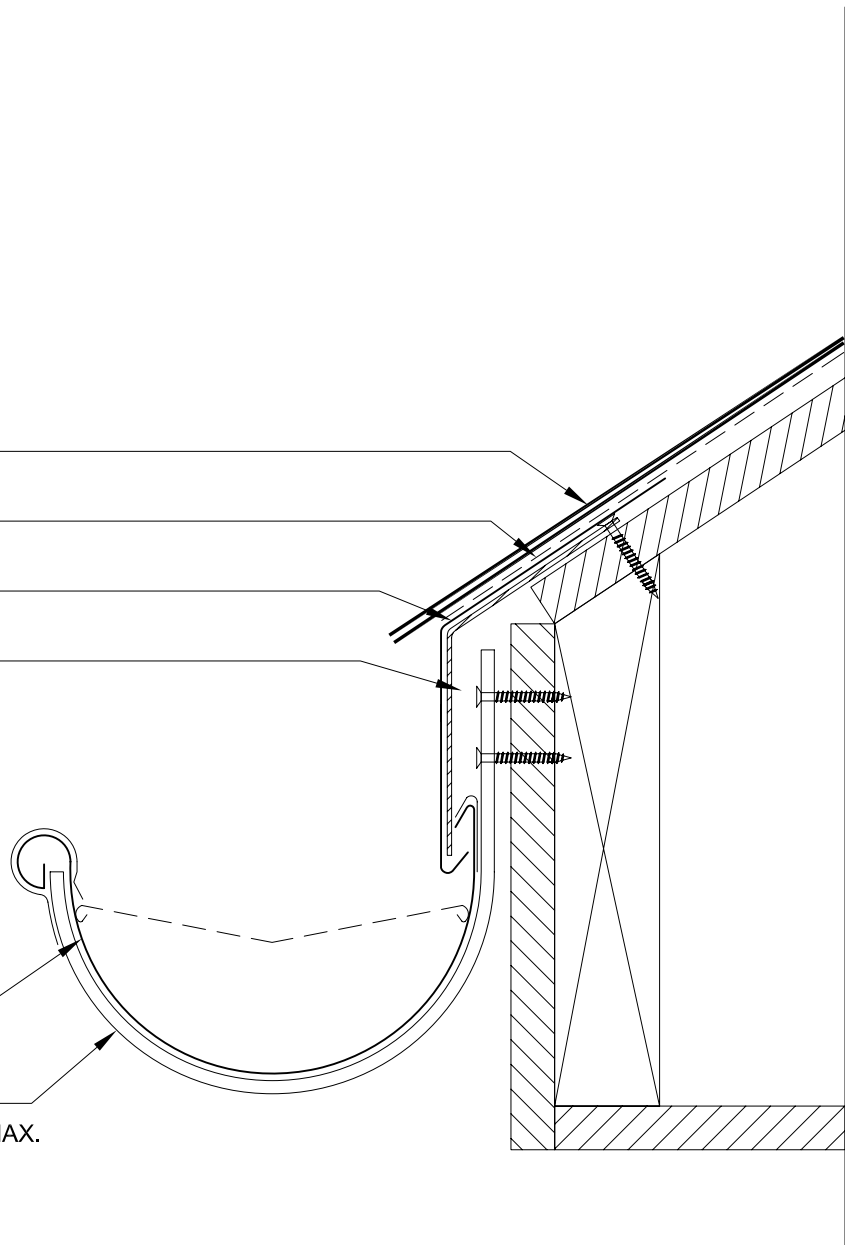
UNDERLAYMENT

RHEINZINK DRIP EDGE

CONTINUOUS SUPPORT

RHEINZINK HALF ROUND GUTTER

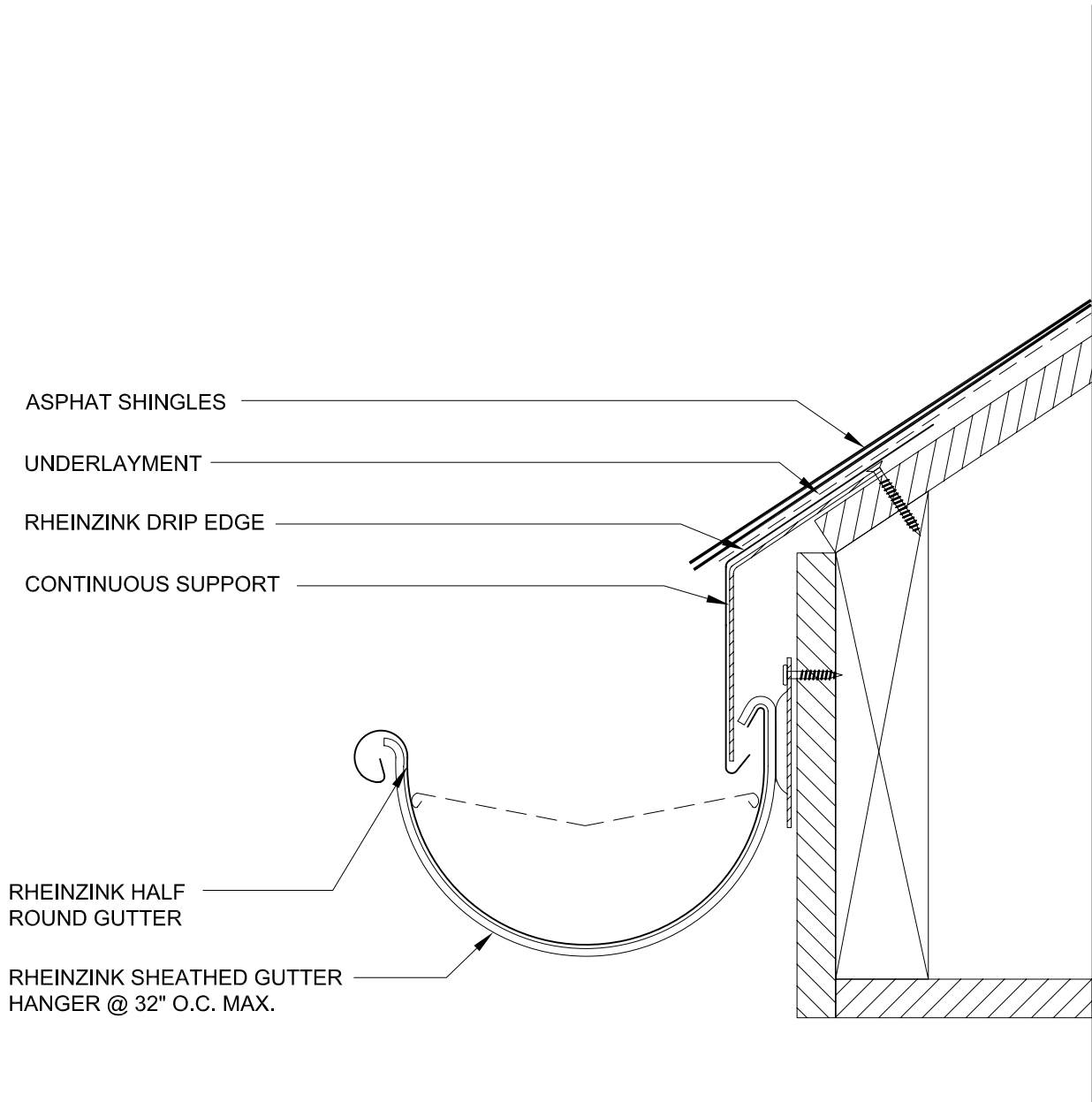
RHEINZINK SHEATHED GUTTER HANGER @ 32" O.C. MAX.



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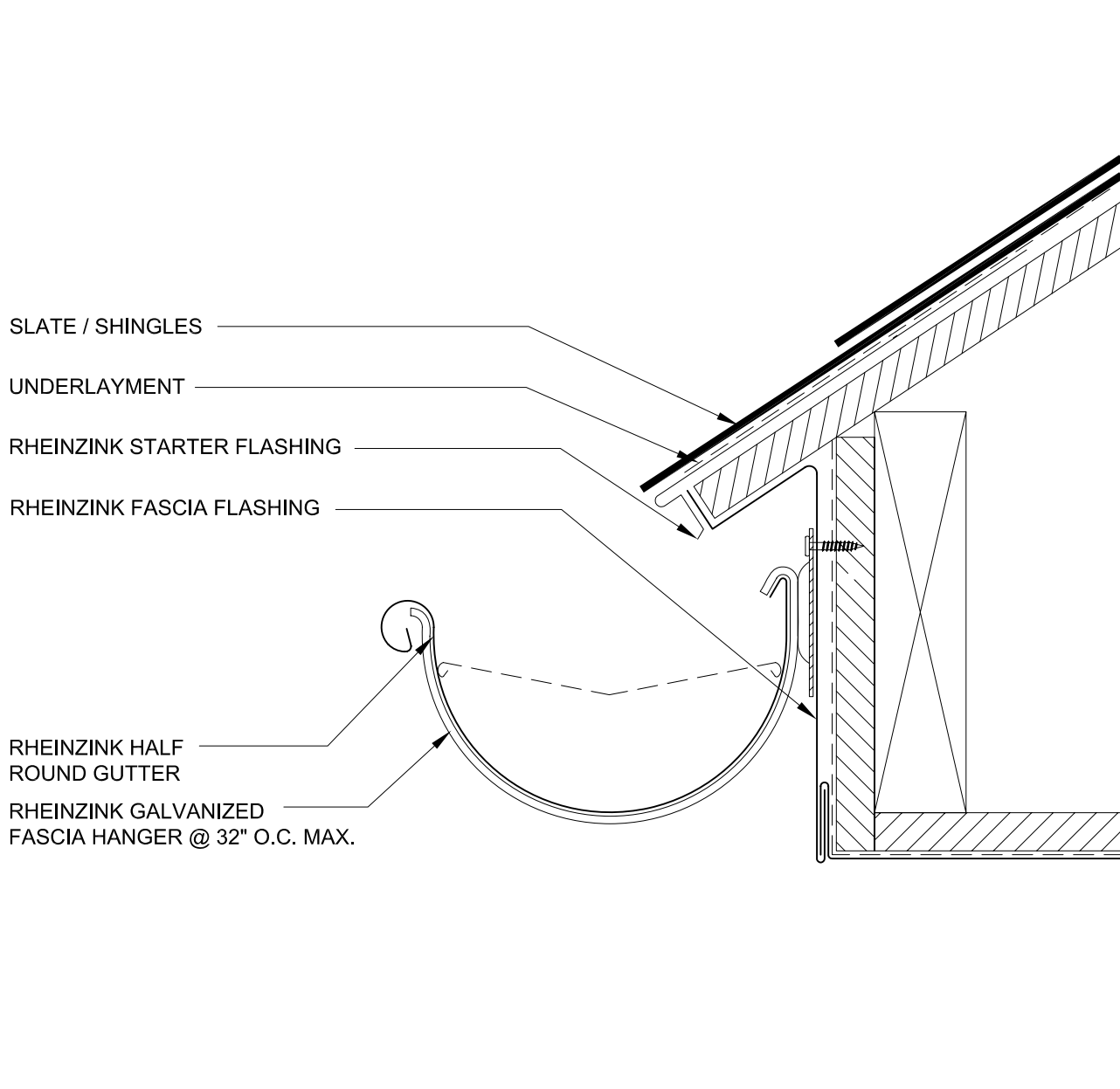
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DRAWING TITLE:	<b>EXISTING ASPHALT SHINGLE ROOF</b>	SCALE:	<b>N.T.S.</b>
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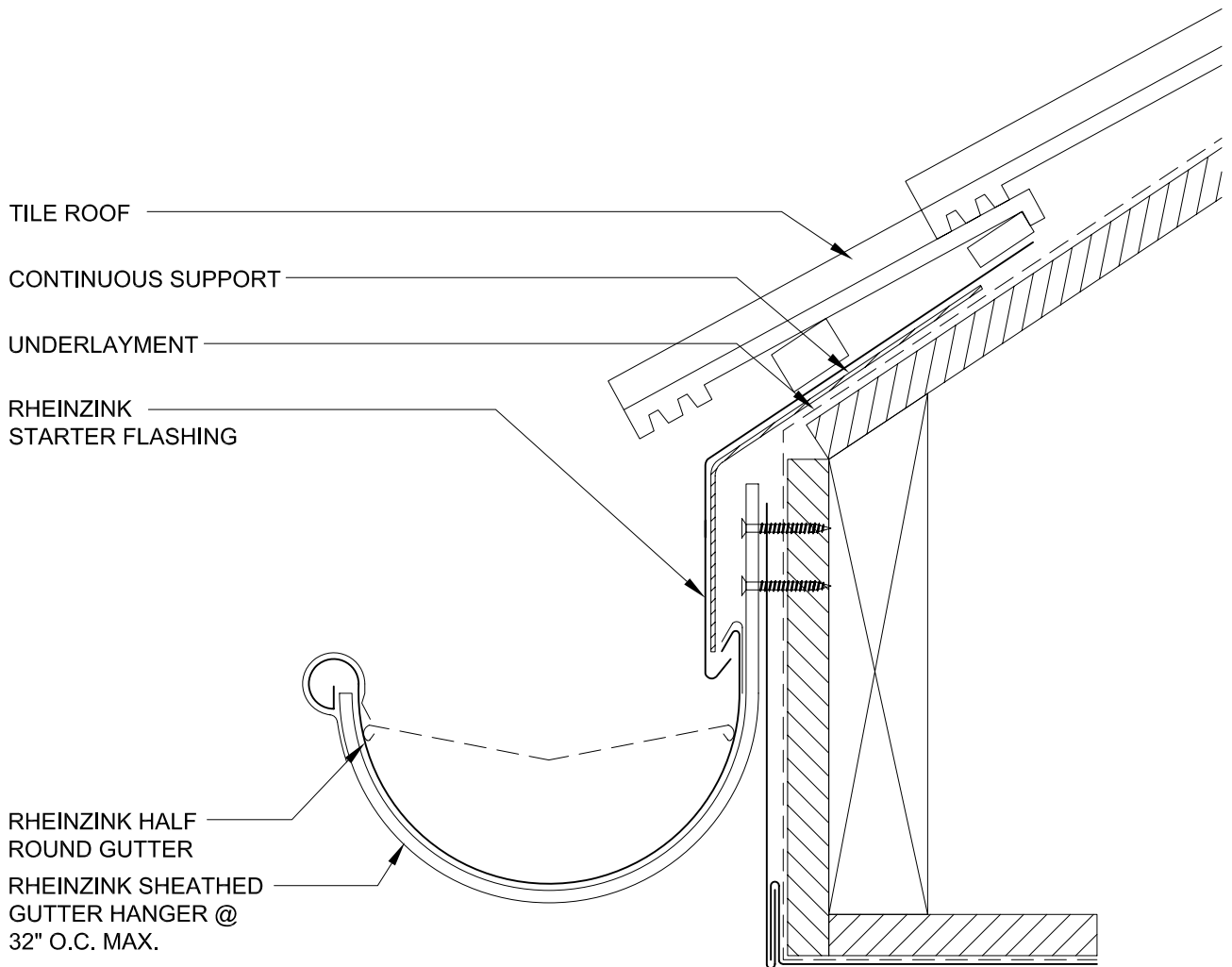
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DRAWING TITLE:	<b>EXISTING ASPHALT SHINGLE ROOF</b>	SCALE:	<b>N.T.S.</b>
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SLATE / SHINGLES

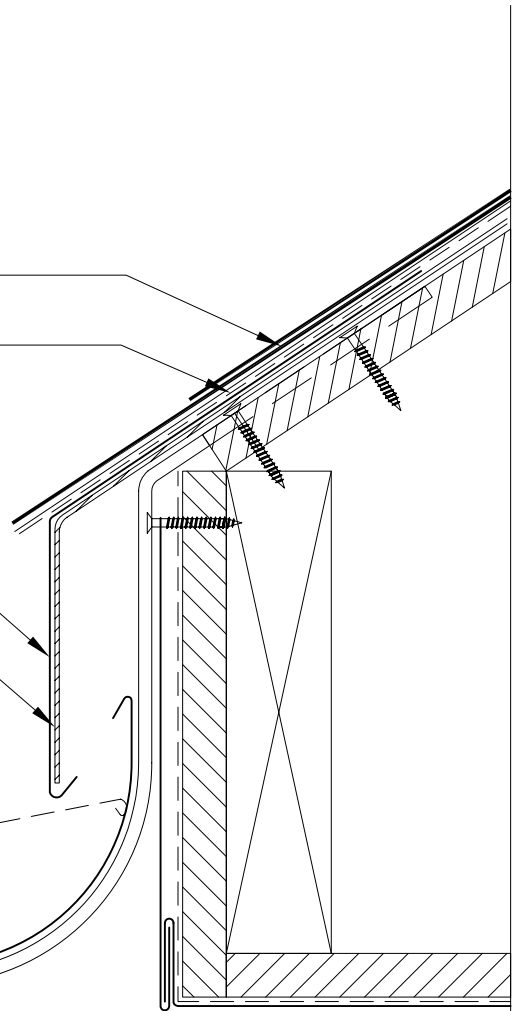
UNDERLAYMENT

RHEINZINK STARTER  
FLASHING

CONTINUOUS SUPPORT

RHEINZINK HALF  
ROUND GUTTER

RHEINZINK SHEATHED  
GUTTER HANGER @  
32" O.C. MAX.



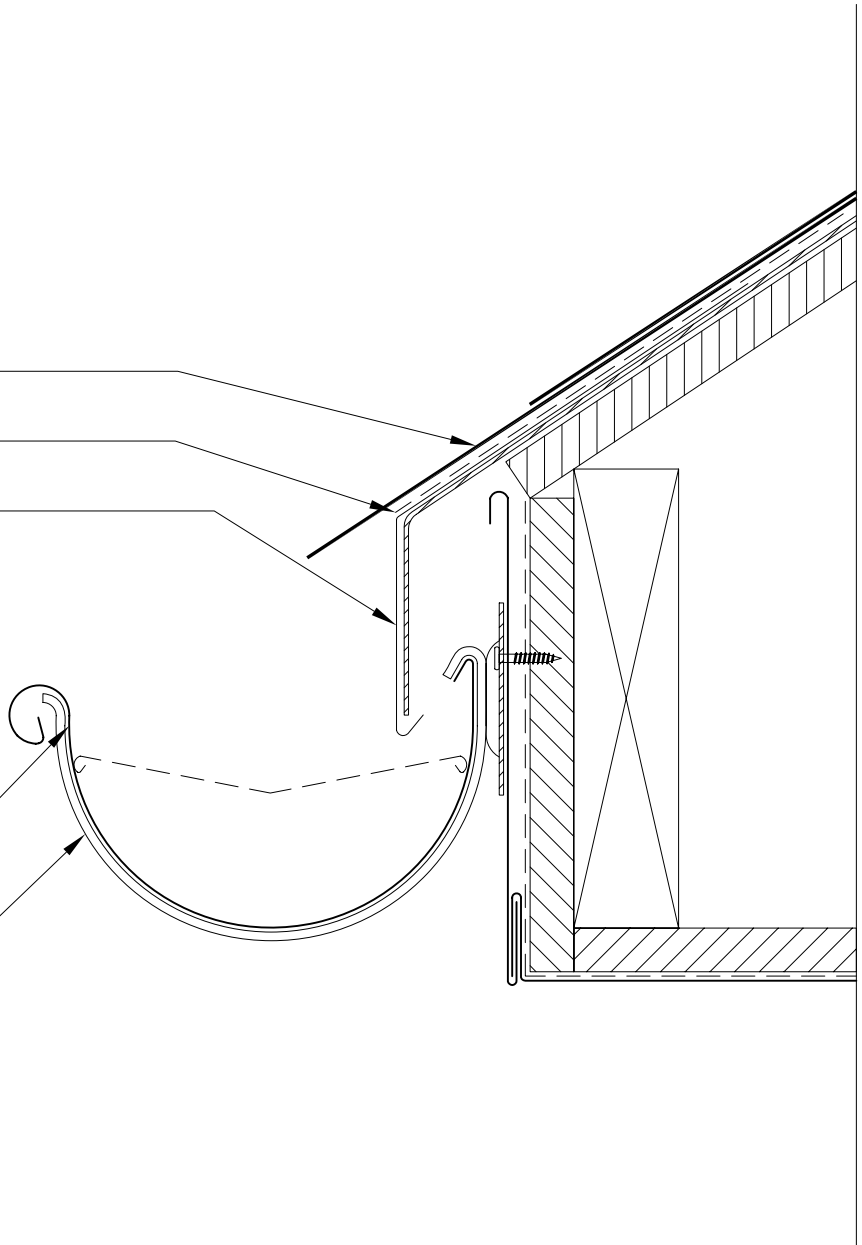
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SLATE / SHINGLES  
 UNDERLAYMENT  
 RHEINZINK STARTER FLASHING

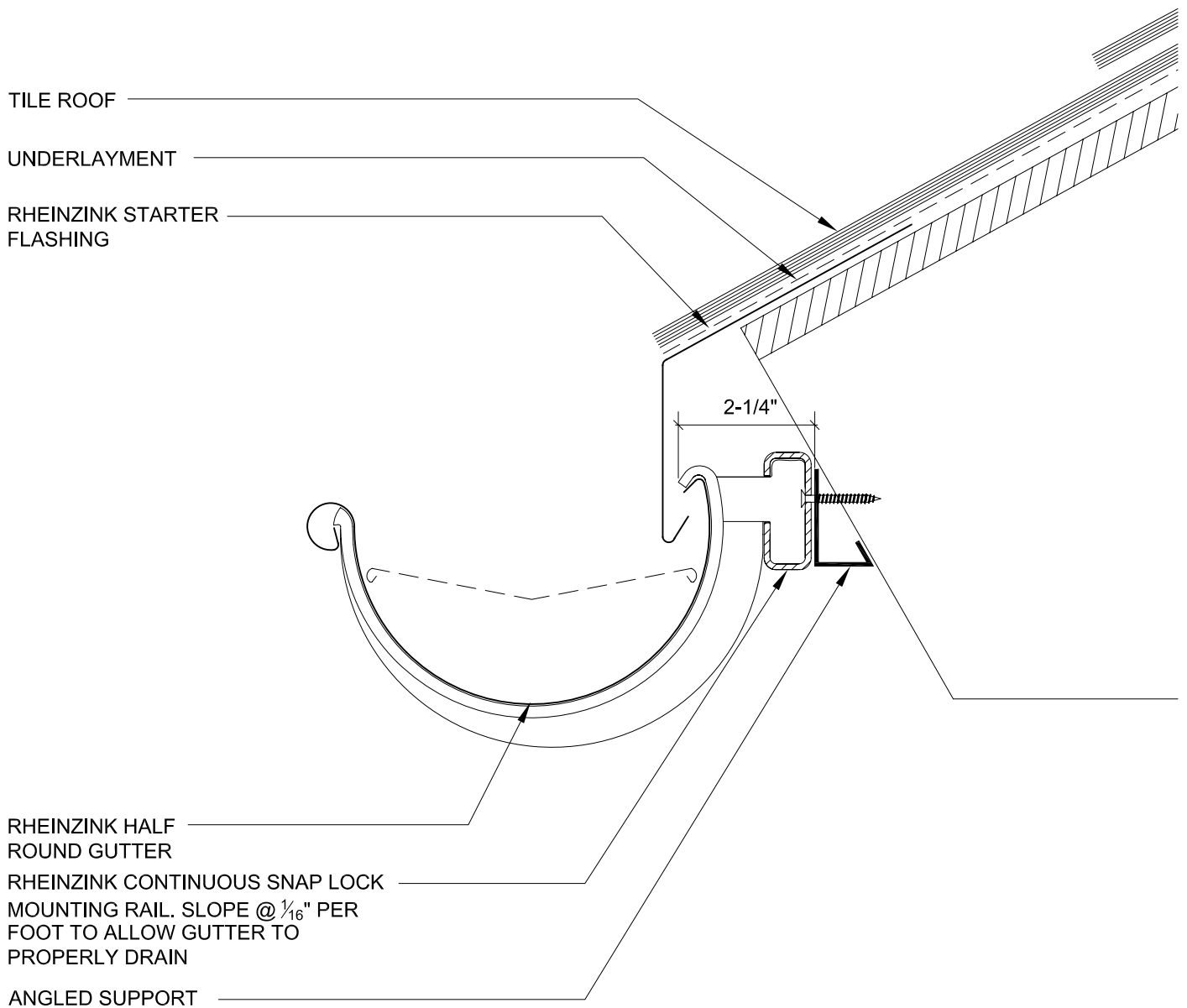
RHEINZINK HALF ROUND GUTTER  
 RHEINZINK GALVANIZED FASCIA HANGER @ 32" O.C. MAX.



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PROJECT:	<b>SNAP-LOCK BRACKET &amp; SHIM</b>	DATE:	<b>10-2011</b>
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## **SECTION 07 71 23 - MANUFACTURED GUTTERS AND DOWNSPOUTS**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

- A. RHEINZINK [Snap-Lock] [Fascia Hanger] [Zinc Sheathed Hanger] gutters and downspouts.

#### **1.02 RELATED SECTIONS**

- A. Section 07 61 00 - Sheet Metal Roofing.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim.
- C. Section 07 31 13 - Asphalt Shingles
- D. Section 07 32 00 - Roof Tiles

#### **1.03 DESIGN REQUIREMENTS**

- A. Conform to SMACNA - Architectural Sheet Metal Manual; latest edition for sizing components for rainfall intensity determined by a storm occurrence of 1 in \_\_\_ years and as required by local building code.

#### **1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Provide roof plan and roof eave wall sections. Indicate perimeter drain upstand locations, plug-in outlet and downspout locations, configurations, jointing methods, fastening methods, special component locations and installation details.
- C. Samples: Submit one [snap lock mounting rail and bracket] [fascia bracket] [zinc sheathed bracket], one gutter, and one downspout sample, each 12" long where applicable, illustrating component design, finish, color, size, and configuration.

#### **1.05 DELIVERY, STORAGE, AND PROTECTION**

- A. Stack material restrained vertically. Prevent twisting, bending, or abrasion. Keep dry and provide ventilation.
- B. Prevent contact with materials during storage and installation which may cause discoloration, staining or damage.

#### **1.06 PROJECT CONDITIONS**

- A. Coordinate the work with perimeter drain tile upstand pipe location.

#### **1.05 WARRANTY**

- A. Material Only Warranty: provide X-year limited warranty for Titanium-Zinc alloy from original rolling mill manufacturer. Warranty to cover the material quality of the sheet/ coil material used to fabricate sheet metal flashing & trim profiles appropriate for zinc installation.
- B. Installation Warranty: provide X-year guarantee covering the proper material or product application preventing failure due to hot-water corrosion, damage due to inappropriate slip sheet, absorptive separation material, or other installer induced failure.



## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Gutters and Downspouts:
1. RHEINZINK (5" or 6") Preweathered Half-round [Snap-Lock Gutter System with powder coated aluminum fascia mounting rail and snap-lock brackets] [Gutter System with galvanized steel fascia brackets] [Gutter System with zinc sheathed gutter hangers].
    - a. prePATINA blue-grey: 5" and 6".
    - b. prePATINA graphite-grey: 6" only.
  2. RHEINZINK blue-grey (3-1/8") or graphite -grey (4" only) round downspouts. Standard downspout profile to be smooth (without corrugations) with expanded hub ends for clean, tight, friction fit connections.
  3. Titanium Zinc Alloy: RHEINZINK 99.995% pure electrolytic high-grade zinc alloyed with titanium and copper in accordance with ASTM B69-16 (or latest edition) Type 1 and Type 2.
  4. Surface: Standard Pre-weathered RHEINZINK (prePATINA Blue-Gray or prePATINA Graphite Gray) "Pro" coated material for gutters, downspouts and prefabricated accessories unless noted otherwise.
  5. Substitutions: Not permitted.

### **2.02 COMPONENTS**

- A. RHEINZINK Gutters: (5" or 6") Half-round Profile as indicated on drawings.
- B. RHEINZINK Downspouts: (3-1/8" or 4") smooth plain round profile to fit corresponding gutter size. All downspouts, elbows, offsets and downspout accessories must be high frequency welded.
- C. RHEINZINK Plug in Outlets: Funnel inlets at transition between half-round gutter and downspouts.
- D. RHEINZINK Smooth Round Elbows (60° or 72°) without corrugations.
- E. RHEINZINK prefabricated roof drainage accessories:
1. RHEINZINK Leaf Collector and Rainwater Diverter (3-1/8" or 4")
  2. RHEINZINK Rainwater Collector w/ Garden Hose Connector (3-1/8" or 4")
  3. RHEINZINK 90° Miters: Preformed seamless, inside corner & outside corner (5" or 6")
  4. RHEINZINK Half-round Leaf Guard (5" or 6")
  5. RHEINZINK Half-round gutter expansion joint (5" or 6")
  6. RHEINZINK Leader Head (w/ 3-1/8" or 4" round outlet)
  7. RHEINZINK Gutter End Caps (5" or 6")
  8. RHEINZINK Spherical End Caps (5" or 6")
  9. RHEINZINK Drain Tile Extension (3-1/8" or 4")
  10. RHEINZINK Offset (3-1/8" or 4")
  11. RHEINZINK Wire Strainer
- F. Anchors and Supports: Sized to suit gutters and downspouts.
1. Anchoring Devices: In accordance with RHEINZINK and SMACNA requirements.
  2. Gutter Supports: [RHEINZINK Extruded Aluminum Snap-Lock Mounting Rail, RHEINZINK Mounting Rail Straps, and RHEINZINK Cast Aluminum Snap-Lock Brackets] [RHEINZINK galvanized steel fascia brackets] [RHEINZINK sheathed gutter hangers].

3. Downspout Supports: Prefabricated two piece RHEINZINK Downspout Brackets or RHEINZINK Hidden Downspout Hangers.

G. Fasteners:

1. Galvanized steel or stainless steel wood screws [or lag bolts with flat washer for attaching Snap-Lock Mounting Rail] [for attaching fascia bracket] [for attaching zinc sheathed gutter hangers].
2. RHEINZINK galvanized steel lag bolt for Hidden Downspout Hangers

## 2.03 ACCESSORIES

- A. Solder: 50-50 (lead-tin) low antimony solder.
- B. Soldering Flux: ZD-pro by Felder

## PART 3 EXECUTION

### 3.01 INSPECTION

- A. Verify existing conditions before starting work. Notify General Contractor of any conditions unsuitable for gutter installation.
- B. Examine fascia board to ensure that substrate alignment is straight, level, & plumb and adequate for fastening to transfer structural loads. Determine if sloped gutter installation is required. Otherwise, provide level or minimal pitch to drain (1/16" per foot) unless otherwise directed by General Contractor.

### 3.02 GUTTER and OUTLET INSTALLATION

#### [SNAP-LOCK BRACKET SYSTEM]

- A. Assemble gutter, bracket and mounting rail to mock-up installation. Adjust gutter height to locate mounting rail so top of gutter bead aligns with the extension of top of [sheathing] [roof system] projected roof plane so that snow (where applicable) will slide past the installed gutter system.
- B. Adequately screw [mounting rail with its long leg up, through fascia board and into rafter tail framing or blocking. Provide 0.25" space (for thermal expansion) at alignment clips between adjacent mounting rails. For non-fascia installations: Insert mounting rail straps into holes at mounting rail and twist and lock straps to mounting rail. Screw straps to sides of exposed rafter tails. Ensure that rail is level or slightly sloped downward toward drainage outlet.
- C. Insert and Twist RHEINZINK Snap-Lock gutter brackets into position at spacing not to exceed 32" O.C. or lesser spacing as determined by project gutter load requirements.
- D. Place half-round gutter into bracket supports, nest water check into bracket heel, and snap gutter bead into place. Shingle lap adjacent gutter sections 3/8" (10mm) to drain and solder additional sections of half-round gutter up to a maximum of 49' of straight unrestrained runs. Provide expansion capability within 25' of any fixed end using expansion joints or sliding joint centered over plug-in outlet locations.
- E. Solder prefabricated gutter corners as required by roof geometry and drawings. Conceal gutter joints at gutter brackets.
- F. Mark plug-in outlet locations of downspouts. Cut elongated oval hole in gutter at gutter low point, slightly smaller than required funnel opening. Bend cut zinc outlet edges down with mallet to provide drip edge transition from gutter to plug-in outlet. Allow space for gutter to move relative to outlet top due to thermal changes.
- G. Fit prefabricated gutter plug-in outlet onto gutter at round cut opening. Bend back flanges over watercheck to fit half-round gutter and support plug-in unit. Friction fit installation suggested.]

### **[FASCIA HANGER SYSTEM]**

- A. Assemble gutter and bracket to mock-up installation. Adjust gutter height to locate bracket so top of gutter bead aligns with the extension of top of sheathing (projected roof plane) so that snow (where applicable) will slide past the installed gutter system.
- B. Adequately screw fascia bracket through fascia board and similarly attach subsequent brackets at spacing not to exceed 32" O.C. or lesser spacing as determined by project architect.
- C. Place half-round gutter into bracket supports and snap gutter bead into place. Shingle lap adjacent gutter sections 3/8" (10mm) to drain and solder additional sections of half-round gutter up to a maximum of 49' of straight unrestrained runs. Provide expansion capability within 25' of any fixed end using expansion joints or sliding joint centered over plug-in outlet locations.
- D. Solder prefabricated gutter corners as required by roof geometry and drawings. Conceal gutter joints at gutter brackets.
- E. Mark plug-in outlet locations of downspouts. Cut elongated oval hole in gutter at gutter low point, slightly smaller than required funnel opening. Bend cut zinc outlet edges down with mallet to provide drip edge transition from gutter to plug-in outlet. Allow space for gutter to move relative to outlet top due to thermal changes.
- F. Fit prefabricated gutter plug-in outlet onto gutter at round cut opening. Bend back flanges over watercheck to fit half-round gutter and support plug-in unit. Friction fit installation suggested.

### **[ZINC SHEATHED HANGER SYSTEM]**

- A. Insert gutter into zinc clad gutter hanger and mark the height of the back of the gutter on the hanger. This hanger will be used for the highest point of the gutter. Similarly mark all hangers that will be used to locate the high and low points of the gutter run.
- B. On the low point hangers put a mark above the first mark to establish the amount of pitch that is to be used (1/4" in 10') to the outlet locations on the gutter run.
- C. Bend high and low point hangers to the pitch of the roof with the gutter hanger bender at appropriate locations on each hanger's attachment strap.
- D. Attach bent hangers to roof substrate at appropriate locations for the high and low points of the gutter run. Wrap a brick layers line 1/4" below the front of the hanger, pull tight and connect similarly to the remaining hangers. Wrap the brick layers line around the center of the hanger pull tight and connect similarly to the remaining hangers to establish a guideline for intermediate hanger placement.
- E. Hold each remaining intermediate hanger up to the line at the appropriate points, and with a pencil laying flat on the roof, mark the back of the hanger. Transfer the line to the front of the hanger and then bend it and install it, minding that when finished the hanger should just be touching the line.
- F. Attach remaining intermediate hangers in the same manner to the roof substrate with appropriate fasteners at spacing not to exceed 36" O.C. or as determined by project gutter load requirements.
- G. Place half-round gutter into hangers and bend attachment clips to secure gutter. Solder additional sections of half-round gutter up to maximum 49' of straight runs. Provide expansion capability within 25' of restrained end caps or inside or outside miters.

### **3.03 DOWNSPOUT INSTALLATION**

- A. Attach elbows beginning at gutter plug-in outlet. Friction fit connections without use of rivets, screws, solder, sealant, or adhesive. Install hanger at offset elbow at wall if concealed hanger is used, otherwise shim clamp below expanded portion of topmost downspout run using half bead. Install all hangers at same height on building. Vary heights at grade location only. Use continuous long lengths. For partial downspout sections, utilize downspout expanding tool attachment with electric drill to form female hub connection.
- B. Connect downspouts to perimeter drains and storm sewer system where applicable.
- C. For surface drainage, install prefabricated elbow 6" above finish grade for splash block installation by landscape contractor.

### **3.04 ACCESSORIES INSTALLATION**

- A. Provide leaf guard accessories to gutter systems as loose fit installations.
- B. Provide leaf collector to downspouts on main runs connected to perimeter drains with clean-out height at 4'0" above grade or to fit rain barrel height.
- C. Provide Rainwater diverter to accommodate remote rain barrel location where specified.

### **3.05 RECYCLING**

- A. Collect all zinc drop-offs (scrap) and return to local scrap metal recycling facility for current market cash return.

**-END OF SECTION-**