

H & H ROOFING CO., INC.

"Since 1923" • License No. 444732

303 SOUTH MILPAS STREET

SANTA BARBARA, CALIFORNIA 93103

Telephone: (805) 962-7606

Jay Sullivan
University of California
Facilities Management
Santa Barbara, CA 93106

January 16, 1989

RE: Faculty Housing

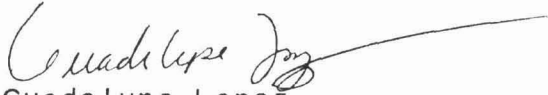
Dear Jay,

We propose to install Marathon Proliner Expansion Roof Drains over the existing drains. The new drains will be five-coursed with Tremco PolyRoof and BurMesh. Those areas around the drains which are excessively built-up will be removed and reroofed with PolyRoof and BurMesh to insure proper drainage.

Valleys leading to the drains will be coated with Tremco Emulsion. Low areas in the valleys will be leveled at this time with the emulsion. After the curing time has elapsed, the emulsion will be silver-coated with Tremco Double-duty Aluminum Roof Coating.

We feel this procedure will provide you with a watertight roof in which you can be confident. On previous occasions, we have found that 95% of all leak problems have been associated with the drains. We are so positive this is the correct diagnosis, we will back it with a two year warranty against leakage.

Sincerely,


Guadalupe Lopez
President

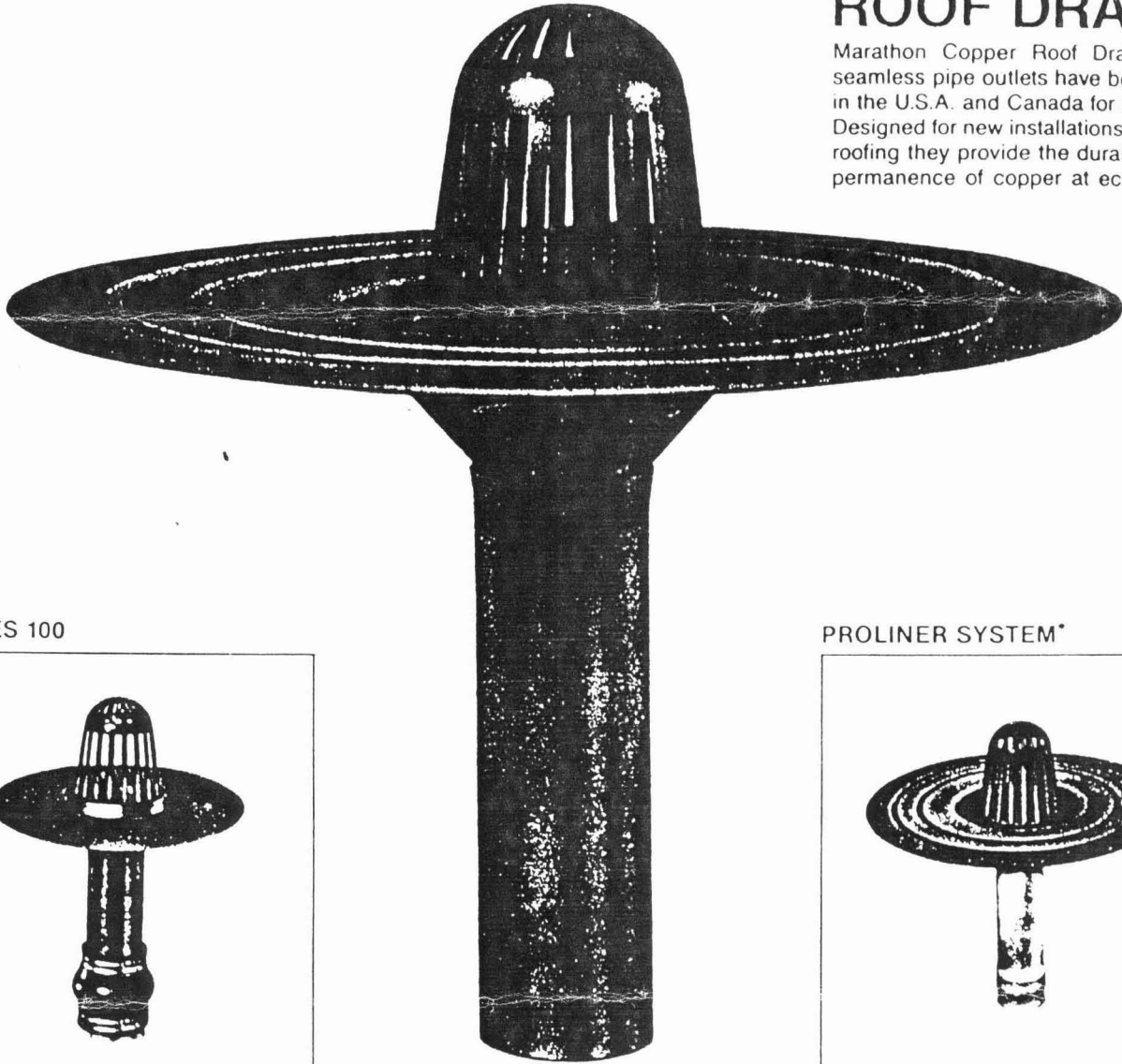
GL:ED

07710/MAR
BuyLine 0697



COPPER ROOF DRAINS

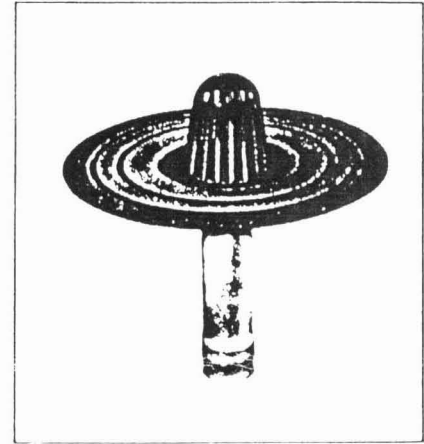
Marathon Copper Roof Drains with seamless pipe outlets have been used in the U.S.A. and Canada for 36 years. Designed for new installations or for re-roofing they provide the durability and permanence of copper at economical prices.



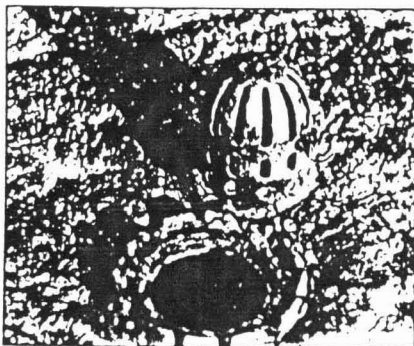
SERIES 100



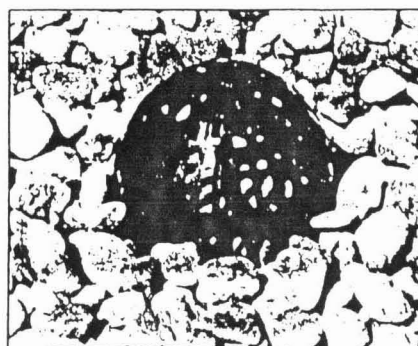
PROLINER SYSTEM*



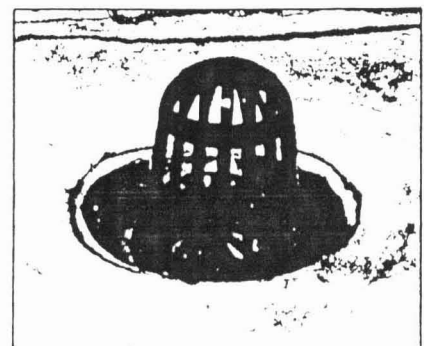
*Patent applied for



Existing Cast Iron Drain



Gravel Ballasted Installation



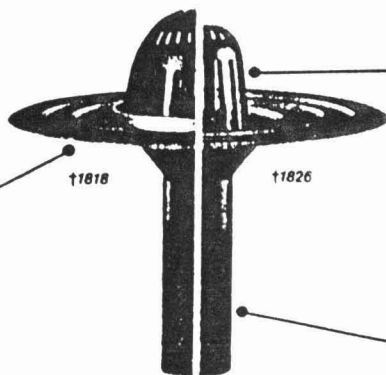
Single Ply Installation

SERIES 100 DRAINS

NEW INSTALLATIONS

FUNNEL PROFILE

Gravelled Roof Smooth Roof



STRAINER

- 8" diameter, high density polyethelene (plastic) is standard for gravelled roofs.
- 8" diameter aluminum alloy optional
- 5" diameter as above for smooth surfaced roofs. Exception: 8" for 5" & 6" drain.

OUTLET

- Copper DWV pipe 2", 3", 4", 5", 6".
- Direct connection to cast iron, PVC, ABS or copper drain pipe using Fernco® flexible coupling for straight line or 90° drainage.
- Direct connection to PVC or ABS pipe with a Conectite® fitting (copper pipe hermetically sealed to PVC or ABS pipe) as an integral part of the drain for straight line or 90° drainage.

FLANGE

- 18" dia. 20 oz. copper for gravelled or smooth roofs.
- Unfinished surfaces for adhesive type attachments, asphalt prime coated for Modified Bitumen and B.U.R. membrane, or plastisol coatings for thermoplastic membranes.
- Deck opening 8".



X.J. Coupling



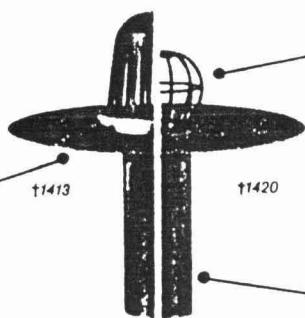
X.J. 90° Coupling



Conectite® Fitting

STRAIGHT PROFILE

Gravelled Roof Smooth Roof



STRAINER

- 5" diameter, high density polyethelene (plastic) is standard for gravelled roofs.
- 5" diameter cast aluminum alloy optional.
- Wire of 10ga; diameter relative to outlet size supplied for smooth surfaced roofs.

OUTLET

- Copper DWV pipe 2", 3", 4" sizes only.
- Direct connection to cast iron, PVC, ABS or copper drain pipe using Fernco® flexible coupling for straight line or 90° drainage.
- Direct connection to PVC or ABS pipe with a Conectite® fitting (copper pipe hermetically sealed to PVC or ABS pipe) as an integral part of the drain for straight line or 90° drainage. (90° not illustrated)

FLANGE

- 14" dia. 16 oz. copper for gravelled or smooth roofs.
- Unfinished surfaces for adhesive type attachments, asphalt prime coated for Modified Bitumen & B.U.R. membranes or plastisol coatings for thermoplastic membranes.
- Deck opening 1" larger than diameter of outlet.



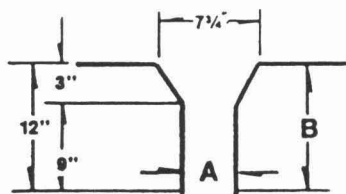
X.J. Coupling



X.J. 90° Coupling



Conectite® Fitting



Series 100

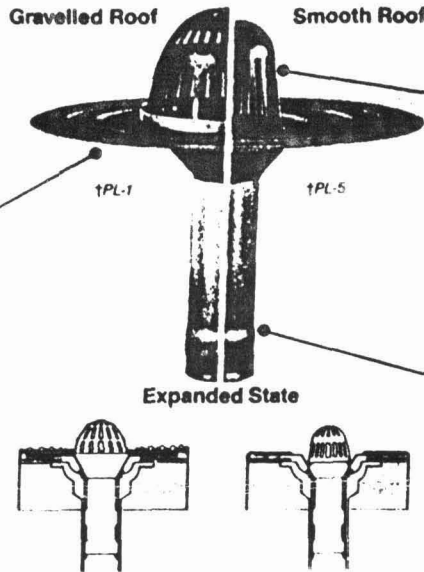
Drain Code Explanation For Smooth Roof
1820F 200 x 12 SPD5 (Cat # 1825)

- 18 = Flange diameter in inches
- 20 = Flange weight in ounces
- F = Funnel type flange
- 200 = Drain outlet O.D. diameter (in inches)
- Dim. "A" above
- 12 = Flange to bottom of outlet
- Dim. "B" above
- S = Smooth - roof surface
- P = Poly - strainer material (for aluminum dome change letter to A)
- D = Dome
- 5 = Dome diameter in inches

PROFILE Cat. No.	Specification Identification Flange, Size, Pipe Depth, Strainer Type	A Drain O.D. (Inches)	B Flange to Bottom of Pipe (Inches)	Drain Pipe Size (Inches)	Type of Roof (S = Smooth, A = Strainer)	Strainer Size (Inches)	Deck Opening (In.)
FUNNEL	GRAVELLED ROOFS	POLYDOME STANDARD - ALUMINUM OPTIONAL					
1817	1820F200 x 12GPD6	2½	12	2	G	8	8
11818	1820F300 x 12GPD6	3½	12	3	G	8	8
1819	1820F400 x 12GPD6	4½	12	4	G	8	8
1820	1820F600 x 12GPD6	6½	12	6	G	8	8
FUNNEL	SMOOTH ROOFS	POLYDOME STANDARD - ALUMINUM OPTIONAL					
1825	1820F200 x 12SPD5	2½	12	2	S	5	8
11826	1820F300 x 12SPD5	3½	12	3	S	5	8
1827	1820F400 x 12SPD5	4½	12	4	S	5	8
1828	1820F600 x 12SPD6	6½	12	6	S	5	8
STRAIGHT	GRAVELLED ROOFS	POLYDOME STANDARD - ALUMINUM OPTIONAL					
1412	1416S200 x 9GPD5	2½	9	2	G	5	3
11413	1416S300 x 9GPD5	3½	9	3	G	5	4
1414	1416S400 x 9GPD5	4½	9	4	G	5	5
STRAIGHT	SMOOTH ROOFS	WIRE STRAINERS ONLY					
1419	1416S200 x 9SWS	2½	9	2	S	2	3
11420	1416S300 x 9SWS	3½	9	3	S	3	4
1421	1416S400 x 9SWS	4½	9	4	S	4	5
1829*	1820S600 x 9SWS	6½	9	6	S	6	7

Select Proliner Drains to solve many problems associated with identifying & locating replacement drains & parts.

FUNNEL PROFILE



STRAINER

- 8" diameter, high density polyethelene is standard for gravelled roofs.
- 8" diameter cast aluminum alloy optional.
- 5" as above for smooth surfaced roofs.
- Exception: 8" for 5" & 6" drain.

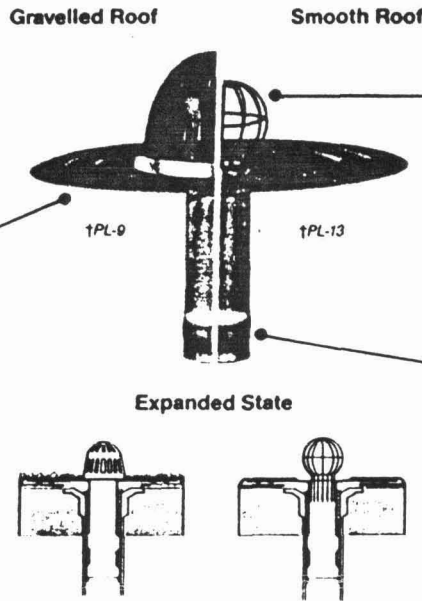
OUTLET

- Malleable lead alloy outlet fits inside existing drain pipe, minimally reducing the diameter of the original drain size. Use PROLINER EXPANDER TOOL with sealant provided to prevent damage by water back-up. Available in 4 sizes for 3", 4", 5" or 6" drain pipe.

FLANGE

- 18" dia. 20 oz. copper for gravelled or smooth roofs.
- Unfinished surfaces for adhesive type attachments, asphalt prime coated for Modified Bitumen & B.U.R. membranes, or plastisol coatings for thermoplastic membranes.
- Deck opening 8".

STRAIGHT PROFILE



STRAINER

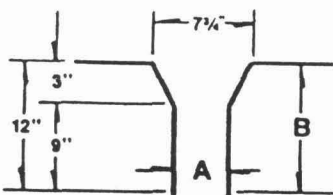
- 8" diameter, high density polyethelene is standard for gravelled roofs.
- 8" diameter, cast aluminum alloy optional.
- Wire of 10 ga; diameter relative to outlet size supplied for smooth surfaced roofs.

OUTLET

- Malleable lead alloy outlet fits inside existing drain pipe, minimally reducing the diameter of the original drain size. Use PROLINER EXPANDER TOOL with sealant provided to prevent damage by water back-up. Available in 4 sizes for 3", 4", 5" or 6" drain pipe.

FLANGE

- 18" dia. 20 oz. copper for gravelled or smooth roofs.
- Unfinished surface for adhesive type attachments, asphalt prime coated for Modified Bitumen & B.U.R. membranes, or plastisol coatings for thermoplastic membranes.
- Use when drain bowl is of smaller dimension peculiar to older style cast iron drains. Also for conditions where only a leader pipe exists.



Proliner Drain
 Drain Code Explanation For Gravel Roof
 Funnel Profile
 1820PF 281 x 12 GPD8 (Cat # PL-1)

- 18 = Flange diameter in inches
- 20 = Flange weight in ounces
- F = Funnel type flange
- 2.81 = Drain outlet O.D. diameter (in inches) Dim. "A" above
- 12 = Flange to bottom of outlet Dim. "B" above
- G = Gravel - roof surface
- P = Poly - strainer material (for aluminum dome change letter to A)
- D = Dome
- 8 = Dome diameter in inches

PROFILE Cat. No.	Specification Identification Flange, Size, Pipe Depth, Strainer Type	A Drain D.D. (Inches)	B Flange to Bottom of Pipe (Inches)	Drain Pipe Size (Inches)	Type of Roof Gravel or Smooth	Strainer Size (Inches)	Deck Opening (In.)
FUNNEL GRAVELLED ROOFS		POLYDOME STANDARD - ALUMINUM OPTIONAL					
1PL-1	1820PF281 x 12GPD8	2.812	12	3	G	8	8
PL-2	1820PF381 x 12GPD8	3.812	12	4	G	8	8
PL-3	1820PF481 x 12GPD8	4.812	12	5	G	8	8
PL-4	1820PF581 x 12GPD8	5.812	12	6	G	8	8
FUNNEL SMOOTH ROOFS		POLYDOME STANDARD - ALUMINUM OPTIONAL					
1PL-5	1820PF281 x 12SPD8	2.812	12	3	S	5	8
PL-6	1820PF381 x 12SPD8	3.812	12	4	S	5	8
PL-7	1820PF481 x 12SPD8	4.812	12	5	S	5	8
PL-8	1820PF581 x 12SPD8	5.812	12	6	S	5	8
STRAIGHT GRAVELLED ROOFS		POLYDOME STANDARD - ALUMINUM OPTIONAL					
1PL-9	1820PS281 x 9GPD8	2.812	9	2	G	8	4
PL-10	1820PS381 x 9GPD8	3.812	9	3	G	8	5
PL-11	1820PS481 x 9GPD8	4.812	9	4	G	8	6
PL-12	1820PS581 x 9GPD8	5.812	9	6	G	8	7
STRAIGHT SMOOTH ROOFS		WIRE STRAINERS ONLY					
1PL-13	1820PS281 x 9SWS	2.812	9	3	S	3	4
PL-14	1820PS381 x 9SWS	3.812	9	4	S	4	5
PL-15	1820PS481 x 9SWS	4.812	9	5	S	5	6
PL-16	1820PS581 x 9SWS	5.812	9	6	S	6	7

SERIES 100

Funnel Profile Drain

- Install on a new roof or existing roof requiring additional drainage or relocation of drains. Tapered insulation 24" to the drain is best or other positive drainage allowance should be provided.
- Flanges are adaptable to all membranes.
- Minimum deck opening is 8".
- Secure flange by setting in mastic or adhesive, mechanically fastened to deck.
- Flash drain flange according to membrane system manufacturer's instructions.
- Outlets are of DWV Copper Pipe providing straight line drainage or 90° flow with optional accessories. Sizes are 2" 3/4"-6". Longer outlets available to connect to random position of drain pipe.
- Connection to PVC, ABS, Copper or Cast Iron drain pipe with FERNCO® flexible coupling using 80 inch-lb. torque wrench. Conectite® fitting connects directly to schedule 40 PVC or ABS pipe using appropriate cement.
- Combination gravel stop and receptacle for strainer for gravelled roof.
- Countersunk receptacle for strainer for smooth roof.
- Strainer is plastic, or aluminum optional.

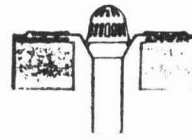
Straight Profile (1416S)

- Install in similar fashion to above funnel profiled drains except that deck opening requirement is only 1" larger than nominal pipe size. Also, give attention to flange and outlet treatment.

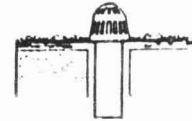
(Clamping ring available for single ply roof)



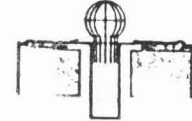
#1818
1820F-300 x 12GPD8



#1826
1820F-300 x 12SPD5

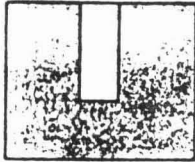


#1413
1416S-300 x 9GPD5

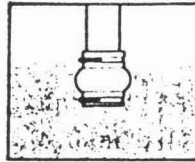


#1420
1416S-300 x 9SWS

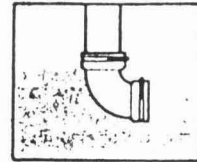
OPTIONS 100 SERIES



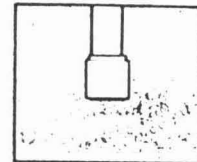
PLAIN
Plain End
For Copper
Coupling
Connection



XJ FERNCO®
XJ Fernco
Coupling
for Direct
Connection to
PVC, Cast Iron
or Copper Pipe



XJ FERNCO 90°®
XJ Fernco
90° Elbow
Fitting
for Connection
to PVC or
ABS Pipe



CONECTITE‡
Straight
Conectite
Fitting
for Connection
to PVC or
ABS Pipe

PROLINER SYSTEM

Funnel Profile Drain

- Proliner funnel drain will rest inside the drain bowl which should be at least 8" in diameter.
- Flanges are adaptable to all membranes.
- Clean inside drain and pipe with wire brush and breaking tool. Check for cracks or breaks in pipe.
- Apply sealant to outside of outlet within 3" from bottom. Sealant is compatible with all drain pipes.
- Set drain inside the existing drain or pipe.
- Secure flange by setting in mastic or adhesive, mechanically fastened to deck.
- Flash drain flange according to membrane system manufacturer's instructions.
- Use tool with correct sized donut to expand the malleable lead alloy outlet in accordance with instructions.
- Proper installation is dependent upon the correct sizing of drain outlet OD to existing pipe ID.

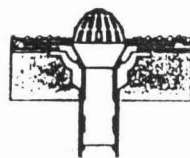
Straight Profile Drain

- Used when smaller bowl dimensions exist or when only a leader pipe may be present.
- Install in similar fashion to above funnel profiled drains giving attention to flange and outlet treatments.

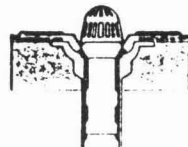
Proliner Expander Tool

Following the placement of a PROLINER DRAIN a PROLINER EXPANDER TOOL is required to create the seal between the drain outlet and the drain pipe.

(Clamping ring available for single ply roof)



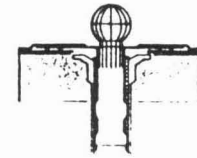
#PL-1
1820PF-281 x 12GPD8



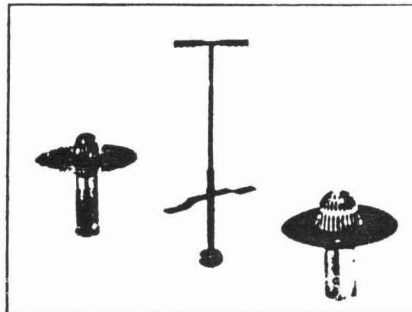
#PL-5
1820PF-281 x 12SPD5



#PL-9
1820PS-281 x 9GPD8



#PL-13
1820PS-281 x 9SWS



EXPANDED - TOOL - UNEXPANDED



TOOL OPERATION

Limitations: For Series 100 & Proliner Drains

- While installing torch applied modified bitumen flame must not come in direct contact with copper flange. Membrane only should be heated and applied to metal surface.
- Special Caution - Pre 1951 cast iron pipe may have irregular wall thickness due to hand rammed fabrication.
- Drain size should be verified by installer before ordering.
- Expansion of malleable alloy outlet must be within existing drain leader area, a minimum of 3" below soldered joint of PROLINER drain.
- Minimum existing pipe ID - 2-13/16, 3-13/16, 4-13/16, 5-13/16
Maximum existing pipe ID - 3-1/16, 4-1/16, 5-1/16, 6-1/16.

Design specifications subject to change.

WARRANTY

Marathon products are inspected and warranted. Any product proven to be defective within 90 days after installation will be replaced or cost price refunded, at the Company's option, excluding the following:

- Damage caused in transit;
- Flange coatings, adhesives or cements used to seal the drain to membrane or drain pipe.
- Damage to contents of building or building components or consequential damage of any kind.
- Failure caused by other than ordinary drain usage from a roof, i.e. damage by workmen, falling objects, caustic or acidic conditions.

There are no warranties, expressed or implied including any implied warranty of merchantability or fitness for a particular purpose, which extends beyond the description of the face hereof.

Distributors in major cities of the United States & Canada.

3057 7 86

M Marathon
Roofing Products Inc

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Phone: (716) 885-3340 Telex: 00646214

For Further Technical Information
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* Patent applied for