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LAST REVIEW DATE:	REVIEW CYCLE:
7/14/11	5 Years

SPECIFICATION: **G-8096-8**

★ **TITLE:** **SEALING THE ANNULAR SPACE BETWEEN A GAS PIPE AND A WALL, CASING PIPE, OR SLEEVE**

★ **VOLUME:** **2 (Section 12.0) and Gas Blue Book**

PROFILE NO: **GAS0111**

★ **TARGET TRAINING GROUPS:** **Gas Construction, Pressure Control, Construction Management**

REVISIONS: (See ★)

1) Changed title of specification.

2) Cover Page - Added spec to the Gas Blue Book. Added Pressure Control to Target Training Groups.

3) Specification was entirely rewritten and has been combined with G-8210, "Sealing the Annular Space Between the Gas Main Pipe and the Casing Pipe or Manhole Wall Sleeve." G-8210 is now obsolete.

4) Section 6.4 - Revised model numbers for 1¼ ", 16" and 20" pipe. Revised sleeve size for 3" and 4" pipe.

5) Section 6.5 - Revised model numbers for 1¼", 16" and 20" pipe.

6) Section 9.0 - Added Attachment EO-6702 "Method of Sealing Gas Piping in Manhole Walls."

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Gas Operations Standards

TITLE: ★ SEALING THE ANNULAR SPACE BETWEEN A GAS PIPE AND A WALL, CASING, OR SLEEVE

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TITLE: ★ SEALING THE ANNULAR SPACE BETWEEN A GAS PIPE AND A WALL, CASING, OR SLEEVE

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TITLE: ★ SEALING THE ANNULAR SPACE BETWEEN A GAS PIPE AND A WALL, CASING, OR SLEEVE

1.0 SCOPE

This specification describes the construction requirements for sealing the annular space between the steel/copper/plastic service or main pipe and the wall, casing pipe, or sleeve to prevent entry of water and gas into the building, manhole, or casing pipe.

2.0 LEGAL REQUIREMENTS

This specification is in compliance with the applicable sections stipulated in:

2.1 Code of Federal Regulations, Title 49, Part 192, "Transportation of Natural and Other Gas By Pipeline: Minimum Federal Safety Standards".

2.2 Rules and Regulations of the State of New York, Public Service Commission, 16 NYCRR Part 255 "Transmission and Distribution of Gas".

2.3 New York City Fuel Gas Code, Section FGC 404, "Piping System Installation."

3.0 NEW SERVICE INSTALLATION AND GAS PIPING IN MANHOLE WALLS

3.1 New and replacement (relayed) services that enter a building (either above ground or underground) through the building's concrete/ masonry foundation/ vaulted wall, shall enter via a continuous steel or PVC sleeve. The annular space at each end (between the service pipe and the sleeve) shall be sealed with link-type seals (see Section 6.0).

NOTES: For up to 2" PE service, **seal the annular space inside the building with a service head adapter.**

For a 2" service through a 3" sleeve or a 3" service through a 4" sleeve, **use a 2" or 3" gasket accordingly with waterproof caulking material to seal the annular space.**

See G-8100, "General Specification for the Installation of Gas Distribution Services", EO-16546-B, "Installation of a Flexible Sleeve Elbow Unit Where Service Enters from Beneath Building, Pressure Not Exceeding 99 PSI", EO-4890-B, "Service Pipe/Tubing And Service Sleeve Through Vault, Open Areaway, Open Area Under Stairs, Under Enclosed Area, and Into Vaulted Basement."

3.0 **NEW SERVICE INSTALLATION & GAS PIPING IN MANHOLE WALLS**
(Continued)

3.2 New wall sleeves for gas services shall extend at least 4" beyond the outer side of the wall and at least 1" beyond the inner side of the wall. The sleeve shall be sealed at both ends. **For all new service installations, the properly sized wall sleeve shall be installed by the customer.**

3.3 New and replacement services that enter a building aboveground through the building's non-concrete/masonry foundation wall, do **not** require a wall sleeve. Seal the annular space (between the service pipe and the non concrete/masonry wall) with waterproof caulking material.

3.4 Gas mains entering a manhole (regulator or ROV) shall be sleeved and sealed with link-type seals at the manhole wall (see Section 6.0). After link-type seals have been properly installed, grout sleeve into wall. See EO-6702-D, "Method of Sealing Gas Piping in Manhole Walls."

4.0 **SERVICE INSERTION (REPLACEMENT)**

Service insertions do **not** require a wall sleeve, as the old service pipe (that the new service pipe is inserted through) will "act" as the wall sleeve.

NOTE: For service insertions greater than 1 ¼", where the old service pipe is properly sized, **seal the annular spaces with link-type seals** (see Section 6.0).

For ½" CTS through 1 ¼" CTS/IPS copper/plastic service insertion through an existing 2" or smaller diameter service pipe, **seal the annular space inside the building with a service head adapter.** The recommended method to seal the outside annular space (curb valve/main excavation) is by using the 3M Cold Shrink (see Section 7.0).

For a 2" plastic pipe through a 3" pipe or a 3" plastic pipe through a 4" pipe service insertion, **seal the annular space with waterproof caulking material, Ductolox foam (class & stock #631-3373), or duct seal and tape.**

5.0 MAIN INSERTION

5.1 For large diameter main insertions (greater than 16") into a larger casing pipe, then consult Gas Distribution Engineering.

5.2 The annular space between the gas main pipe and the steel or cast iron casing (e.g. abandoned main) pipe shall be sealed at each and every casing end with link-type seals (see Section 6.0).

NOTE: For 1¼" IPS plastic mains inserted into a 2" casing pipe and 2" IPS plastic mains inserted into a 3" casing pipe, **seal the annular space at each casing end with 3M Cold Shrink.** If 3M Cold Shrink is unavailable, use a gasket with waterproof caulking material, Ductolox foam (Class & stock # 631-3373), or duct seal and tape.

5.3 For main insertions that preclude the use of link-type seals and/or 3M Cold Shrink, then Ductolox foam shall be used to seal the annular space at each casing end.

5.4 Steel main pipe installed inside a sleeve or casing for more than 10 feet, shall be supported by insulating skids. A skid shall be installed within 5 feet of each end of the sleeve and on 10 foot centers throughout the sleeve. See Specification G-100,280, "Pipeline Casing Insulating Skids" for the approved skids and EO-4890-B.

6.0 LINK-TYPE SEALS

6.1 Only approved link-type seals shall be used. See Specification G-100,237, "Link Seals For Sealing the Annular Space Between Pipe and Casing." The link-type seals are packaged ten (10) links to a set.

6.2 For proper link-type seal installation, see the manufacturer's installation instructions, which come with each package.

NOTE: Link-type seals are not intended to support the weight of the pipe.

6.3 Do not use an impact gun to install link-type seals. Use a socket or offset wrench. After tightening has been completed, all link-type seal bolt heads shall be coated with mastic.

6.0 **LINK-TYPE SEALS** (Continued)

★ 6.4 Table 1: **Link-Type Seals for Gas Services Inside Wall Sleeve (ST/PVC) and Gas Mains Inside Manhole Wall Sleeve (ST/PVC)**

Pipe Size Nominal Diameter	Sleeve Nominal Diameter	Link-type Seal Model #		# of Links Required	Class/ Stock #	# of Packages to Order
		Thunderline Model #	Advance Products & Systems #			
½"	2"	LS-200-C	IL-200	4	341-1048	1
1"	3"	LS-300-C	IL-300	4	341-0750	1
1 ¼"	3"	★LS-275-C	★IL-275	8	NON-STOCK	1
1 ½"	3"	★LS-200-C	★IL-200	6	341-1048	1
2"	4"	LS-300-C	IL-300	6	341-0750	1
3"	★5"	★LS-300-C	★IL-300	8	341-0750	1
4"	★6"	★LS-300-C	★IL-300	10	341-0750	1
6"	10"	LS-475-C	IL-475	10	341-1006	1
8"	12"	LS-475-C	IL-475	12	341-1006	2
10"	16"	LS-525-C	IL-525	10	341-1030	1
12"	16"	LS-425-C	IL-425	12	341-0776	2
16"	20"	LS-400-C	IL-400	15	341-0768	2
20"	24"	LS-400-C	IL-400	18	341-0768	2
24"	30"	LS-500-C	IL-500	21	341-1055	3
30"	36"	LS-500-C	IL-500	26	341-1055	3
36"	42"	LS-500-C	IL-500	36	NON-STOCK	4

6.0 **LINK-TYPE SEALS** (Continued)

★ 6.5 Table 2: **Link-Type Seals for Gas Mains Inserted Through a Casing (ST/CI) Pipe**

Pipe Size Nominal Diameter	Casing Pipe Nominal Diameter	Link-Type Seal Model #		# of Links Required	Class/ Stock #	# of Packages to Order
		Thunderline Model #	Advance Products & Systems #			
1 ¼"	3" ST/CI	★LS-275-C	★IL-275	8	NON-STOCK	1
2"	4" ST/CI	LS-300-C	IL-300	6	341-0750	1
2"	6" ST/CI	LS-475-C	IL-475	5	341-1006	1
2"	8" ST/CI	LS-500-C	IL-500	4	341-1055	1
3"	6" ST/CI	LS-425-C	IL-425	4	341-0776	1
4"	6" ST/CI	LS-300-C	IL-300	10	341-0750	1
4"	8" ST/CI	LS-475-C	IL-475	7	341-1006	1
4"	10" ST/CI	LS-500-C	IL-500	6	341-1055	1
6"	8" ST/CI	LS-300-C	IL-300	15	341-0750	2
6"	10" ST/CI	LS-475-C	IL-475	10	341-1006	1
8"	10" ST/CI	LS-300-C	IL-300	19	341-0750	2
8"	12" ST	LS-475-C	IL-475	12	341-1006	2
8"	12" CI	LS-400-C	IL-400	9	341-0768	1
10"	16" ST	LS-525-C	IL-525	10	341-1030	1
10"	16" CI	LS-500-C	IL-500	10	341-1055	1
12"	16" ST	LS-425-C	IL-425	12	341-0776	2
12"	16" CI	LS-400-C	IL-400	12	341-0768	2
12"	18" ST	LS-525-C	IL-525	12	341-1030	2
12"	18" CI	LS-500-C	IL-500	12	341-1055	2
16"	20" ST	LS-400-C	IL-400	15	341-0768	2
16"	20" CI	★LS-575-C	★IL-575	18	NON-STOCK	2
20"	24" ST	LS-400-C	IL-400	18	341-0768	2
20"	24" CI	★LS-575-C	★IL-575	22	NON-STOCK	3
24"	30" ST	LS-500-C	IL-500	21	341-1055	3
30"	36" ST	LS-500-C	IL-500	26	341-1055	3

7.0 3M COLD SHRINK SEALS

7.1 When using 3M Cold Shrink, the new main or services has to first be "inserted through" the 3M Cold Shrink. The 3M Cold Shrink cannot be installed after the service or main has been inserted into the casing pipe.

7.2 For proper 3M Cold Shrink installation, see the manufacturer's installation instructions, which come with each package.

7.3 Table 3: **3M Cold Shrink for Gas Service and Main Insertions**

3M Cold Shrink Description	Class/ Stock #
1" x ¾"	341-5676
1" x ½"	341-5676
1 ½" x 1 ¼"	341-5684
1 ½" x 1 ¼"	341-5684
2" x 1 ½"	341-5692
2" x 1 ¼"	341-5692
3" x 2"	341-5700
3" x 1 ½"	341-5700

8.0 ASSOCIATED SPECIFICATIONS

G-8005 - General Specification for the Installation of Gas Distribution Mains

G-8100 - General Specification for the Installation of Gas Services

G-8205 - Corrosion Control of Steel Gas Distribution Mains and Services

G-8209 - Field Coating of Steel Pipe and Fittings Installed Underground and in Subsurface Structures

G-100,237 - Link-Type Seals for Sealing the Annular Space Between Pipe and Casing

8.0 **ASSOCIATED SPECIFICATIONS** (Continued)

G-100,280	-	Pipeline Casing Insulating Skids
EO-4890-A	-	Service Pipe/Tubing and Service Sleeve Through Vault, Open Areaway, Open Area Under Stairs, Under Enclosed Areas, and Into Vaulted Basement
EO-6702-D	-	Method of Sealing Gas Piping in Manhole Walls
EO-16546-B	-	Installation of Flexible Sleeve Elbow Unit Where Service Enters From Beneath Building. Pressure Not Exceeding 99 PSIG

9.0 **ATTACHMENT**

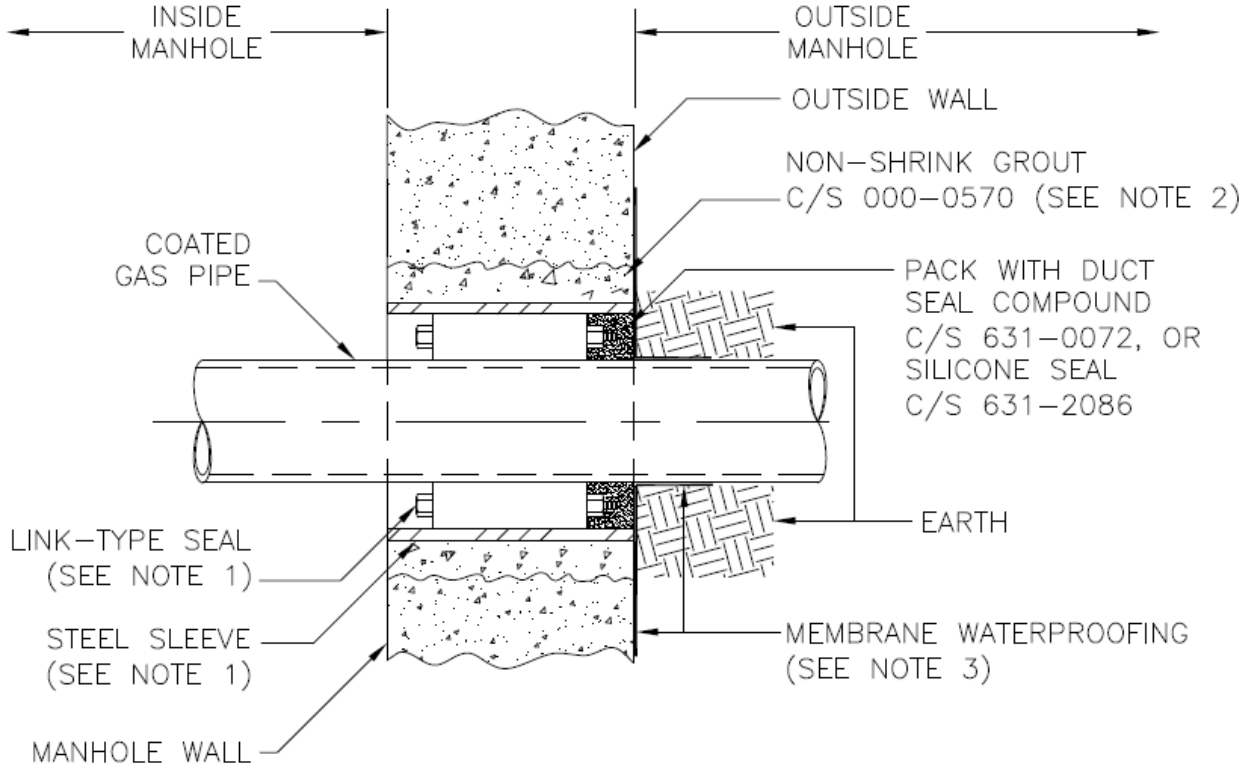
EO-6702-D	-	Method of Sealing Gas Piping in Manhole Walls

EO-6702-D

REVISIONS

P. YAP 1/24/02	5
UPDATED DRAWING REDRAWN TO AUTOCAD, CHG,D. TABLE AND DELETED NOTE 2 C.W. 1/24/02	
P. YAP 1/31/02	6
UPDATED DRAWING, C.W. 1/31/02	
M. J. BALDOVIN 1/5/07	7
UPDATED DRAWING. ADDED CARRIER SIZES TO TABLE "A" REVISED NOTE 2 P.S. 1/5/07	
M. BALDOVIN 7/11/11	7
UPDATED DRAWING. REMOVED TABLE "A". REVISED NOTES. D.J. 7/11/11	

GAS OPERATIONS CONSTRUCTION STANDARDS VOLUME 2



NOTES:

1. FOR PROPER SLEEVE SIZE AND LINK-TYPE SEAL MODEL NUMBER, SEE G-8096 "SEALING THE ANNULAR SPACE BETWEEN A GAS PIPE AND A WALL, CASING, OR SLEEVE" AND G100,237 "LINK-TYPE SEALS FOR SEALING THE ANNULAR SPACE BETWEEN PIPE AND CASING."
2. GROUT SLEEVE INTO WALL ONLY AFTER LINK-TYPE SEALS HAVE BEEN PROPERLY INSTALLED.
3. INSTALL MEMBRANE WATERPROOFING PER DISTRIBUTION ENGINEERING SPECIFICATIONS EO-1007 "MEMBRANE METHOD OF WATERPROOFING ELECTRICAL DISTRIBUTION STRUCTURES" AND EO-100,642 "PURCHASE RECOMMENDATION FOR MEMBRANE WATERPROOFING SYSTEMS FOR ELECTRIC DISTRIBUTION STRUCTURES." IF REQUIRED, GAS ENGINEERING MAY SUBSTITUTE THE MEMBRANE SPECIFIED WITH AN APPROVED MEMBRANE.

METHOD OF SEALING GAS PIPING IN MANHOLE WALLS

CONSOLIDATED EDISON COMPANY OF N.Y., INC.
GAS ENGINEERING DEPT

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DWG. NO. EO-6702-D REV. 8

TITLE: ★ SEALING THE ANNULAR SPACE BETWEEN A GAS PIPE AND A WALL, CASING, OR SLEEVE

G-8096-8