S·C·U·D
SEVIERCOUNTYUTILITYDISTRICT

CODES & AMMENDMENTS

SEVIER COUNTY UTILITY DISTRICT
January 22, 2020

SCUD adopts the latest edition of the **International Fuel Gas Code (IFGC)** for gas inspections. The following pages contain frequently used codes and our amendments.

The **"Amendments"** are regulations that are to be enforced that may not be specifically addressed by or may be enforced differently from the **International Fuel Gas Code (IFGC)**.

The **"Amendments"** are to be used along with the International Fuel Gas Code (IFGC).

Listed below is information for purchasing an International Fuel Gas Code book:

INTERNATIONAL CODE COUNCIL
Phone 1-800-786-4452

S·C·U·D
SEVIERCOUNTYUTILITYDISTRICT

CODES & AMMENDMENTS

FREQUENTLY USED CODES

1. A rough-in inspection is required on all plumbing and venting that is to be concealed or buried. This includes any firebox or insert stubbed for gas. Framing must be in place! **See Section 107 IFGC**

2. In townhouses, gas plumbing must not pass thru, under or above any portion of any other townhouse unit than the unit to be served by the gas plumbing. **See Section 404 IFGC**.

3. Anyone welding or brazing gas piping must do so in accordance with **Section 403 IFGC**. All welding and brazing (soldering) material must have a melting point above 1000 degrees Fahrenheit.

4. Copper may be flared if the flare fittings are above ground and accessible or it must be brazed with material having a melting point above 1000 degrees Fahrenheit. **See Section 404 IFGC**

5. Copper must be marked with yellow every 5 feet. **See Section 401 IFGC**

6. Copper must be Type K or Type L. **See Section 403 IFGC**

7. Flex connectors can only be used for appliance hook up. They can be no longer than 6 feet and must be accessible in the room of the appliance. **See Section 411 IFGC**

8. Mechanical fittings **cannot** be concealed above ground unless written permission is provided from the manufacturer. **See Section 404 IFGC**

9. Gas piping **shall not** penetrate a building foundation wall at any point below grade. Piping must enter and exit a building at a point above grade. **See Section 404 IFGC**

10. Anywhere copper, flex connectors, or CSST passes through the wall of a motorized piece of equipment, it must be sleeved. **See Section 411 IFGC**

11. Underground piping must be a minimum of 12" deep. **See Section 404 IFGC.** For exception see Section **404 IFGC**

P.O. Box 4398
Sevierville, TN 37864-4398

865.453.3272
888.811.SCUD (7283)

scudgas.org
questions@scudgas.org

CODES & AMMENDMENTS

12. Manuals must be left with the appliances. See Section 305 IFGC

13. For garage installations **see Section 305 IFGC**. The burners must be a minimum of 18 inches off of the garage floor unless stated otherwise by the manufacturer. Equipment must be protected from vehicles.

14. Fresh air for appliances must be obtained in accordance with **section 304 of the IFGC**. If a residential dryer (gas or electric) is in the room 100sq. inches must be added to a fresh air vent.

15. Clothes dryers must be installed in accordance with **section 613 and 614 of the IFGC**. The exhaust duct for residential dryers must be 4 inches hard metal vent pipe with a maximum length of 25 feet. Each 45-degree bend accounts for 2 ½ feet and each 90 degree bend accounts for 5 feet of the total length. **If the manufacture's specifications are different, they must be used.** The vent must not be penetrated with screws or rivets that will obstruct the flow and must terminate outside with a backdraft damper, not a screen. The dryer must connect to the vent with a metal transition duct no longer than 8 feet. The transition duct cannot be concealed and can't leave the room of the dryer.

16. Unvented logs or heaters cannot be larger than 40,000 BTU's. **See Section 621 IFGC**

17. Unvented heaters or logs greater than 10,000 BTU's cannot be installed in a bedroom or any room open to a bed. Fresh air may have to be brought in to support the heater. **See Section 303 IFGC**

18. Unvented heaters greater than 6000 BTU's cannot be installed in a bathroom. Fresh air may have to be brought in to support the heater. **See Section 303 IFGC**

19. Power vent systems must be sealed air tight and installed according to the manufacturer's specifications. When adding an external power vent fan, the proper vent clearances must be maintained. The metal vent must be sealed with high temp. caulk or metal tape. The appliance must not fire if the fan does not operate. **See Section 503 IFGC**

SEVIER COUNTY UTILITY DISTRICT AMENDMENTS

1. A. A 911 address is **required** to get a rough-in or final inspection or to establish service for natural gas.
   B. **A final inspect cannot be done until a meter has been set and you have installed your appliance(s).** SCUD **does not** hook up the customer's plumbing to the meter.
   C. The trunk line must run to within 2ft of the meter outlet before reducing the size to tie to the meter.

2. **Amending Section 406 IFGC:** SCUD requires the pressure test at the final inspect. **The pressure test must be done by the customer/plumber and inspected by SCUD.**
   A. A 30 lb. gauge is the largest size allowed for testing systems using up to ½ lb. gas pressure. **The test must be at least half the maximum gauge reading or 3 lbs., whichever is larger**. We prefer a 5 lb. gauge on systems up to a ½lb. working pressure.
   B. For systems using a gas pressure above ½ lb., and up to 15lb., **use a** minimum test pressure of 15 lbs. or twice the working gas pressure, whichever is greater. A 30lb. gauge is the largest size allowed.
   C. For systems using a gas pressure above 15lb., contact **SCUD's** service department for pressure test instructions.

3. Gas piping must be pressure tested into the firebox or insert.

4. **Amending Section 404 IFGC**: ***No*** mechanical fittings are allowed underground.

5. **Amending Section 403 IFGC:** No bushings are allowed in customer's plumbing.

6. Thread protectors **cannot** be used as couplings. See page 15 of this packet.

7. **Amending Section 404 IFGC:** Black iron or galvanized pipe ***shall not*** be underground (even if it is sleeved or coated) or in contact with the ground or standing water. No gas piping of any kind can be in contact with chemicals that may cause corrosion.

CODES & AMMENDMENTS

8. **Amending Section 403 IFGC:** Black iron pipe larger than 3" must be welded. Pipe that is to have a pressure above 2 LB must be welded. Approved fittings for welding must be used. Threaded pipe cannot be welded. The contractor must provide up to date pipe welding certification of the welder (WPQR- Welding Performance Qualification Report). Just having a welding certificate from a school will not be recognized!

9. **Amending Section 401 IFGC:** Black iron must be marked with yellow every 5 feet if there are 2 systems using black iron. All other types of gas plumbing must be identified with yellow markings at least every 5 ft.

10. **Amending Section 404 IFGC:** Anywhere gas plumbing other than steel pipe passes through studs or plates, you must use steel nail guards at least 4 inches long covering the studs or plates, where the plumbing is subject to damage.

11. You must be certified to use CSST (TracPipe, Gastite, etc.). **CSST (no matter how much is used or where) must be bonded to the ground used for the electrical system of the building, unless otherwise stated by the manufacturer**. Bonding is accomplished by connecting a copper wire, (that is the same size as the copper wire tied to the ground rod for the electrical system), to the metal gas plumbing of your system (black-iron pipe, copper pipe, or CSST fitting, (not directly to the CSST itself). The other end of the copper wire is connected to either:
    (1) the ground rod for the electric meter
    (2) the ground wire going to the ground rod for the electric meter
    (3) the ground bar in the breaker panel
    A separate ground rod for the gas meter **does not bond the gas system.

12. CSST cannot tie directly to the meter unless the meter is supported by some other means. CSST cannot support the meter.

13. CSST cannot be buried directly. It must be sleeved air tight. The yellow coating is not a sleeve. No fittings are allowed underground.

14. **Amending Section 404 IFGC:** Any gas piping passing through any block, brick, concrete, etc., must be sleeved or centered and secured in the hole so the pipe will not touch any block, brick, concrete, etc.

15. **Amending Section 404 IFGC:** Only CSST and soft copper tubing may be installed underground beneath buildings but must be sleeved in conduit. The conduit must originate and terminate in the same building and be installed according to 404 of the IFGC. See page 14 of this packet.

16. **Amending Section 404 IFGC:** Plastic pipe is for underground use only and can not be used under any part of a building slab or building. A tracer wire must be run with the plastic pipe. Anyone fusing plastic pipe must show proof of certification.

17. **Amending Section 408 IFGC:** A sediment trap is required after the shutoff valve at each appliance except fireplaces. The trap must be installed where the gas flow changes direction. A sediment trap is not required if it is not required by the manufacturer.

18. **Amending Section 404 IFGC:** Each branch must terminate with a shutoff valve and an appliance connection or a valve and a plug or a valve and a nipple and a cap.

19. **Amending Section 505 IFGC:** Commercial cooking appliances requiring a hood, must be interlocked to the hood so the appliances will not operate if the hood is not on. **EXCEPTION:** If there is a working carbon monoxide detector in the same room/area as the cooking appliance, the above mentioned interlock does not have to be installed.

20. **Amending Section 409 IFGC:**
    A. Shut-off valves for appliances that are accessed from a ladder must be installed within 1 foot of where the gas line enters the appliance or the appliance control valve and the valve must be accessed from the same ladder that the appliance would be serviced from.
    B. Shutoff valves must be within 3 feet of the appliance connection and in the same room on appliances accessed from the ground. Exception: For vented decorative appliances or decorative appliances installed in vented fireplaces see 409 Exception IFGC.
    C. Shutoff valves in fireboxes must be installed to the side or front of the gas logs and near the bottom of the firebox. The valve cannot be behind or beneath the logs.
    D. Fireplaces used for burning wood cannot have a valve in the fireplace. Keys must be left in key valves.

21. Keys must be left in key valves.

22. Fireplaces must be vented separately unless approved in writing by the manufacturer.

23. **Amending Section 303 IFGC:** Only direct vent water heaters or furnaces can be installed in a bedroom or bathroom or in closets with access only from a bedroom or bathroom. Exception: A power vented or natural draft water heater or furnace may be located in a closet off of a bedroom or bathroom if the fresh air is obtained from out side or a ventilated attic and the closet door is sealed with weather stripping and a threshold strip and has a self-closing device.

24. **Amending Section 411 IFGC:** Kitchen appliances that are portable must be secured to the wall or floor with a cable or chain that is shorter than the **listed quick-disconnect hose** that must be used.

25. **Amending Section 306 IFGC:** Access to appliances, venting, and piping must be provided by the owner, using stairs or a ladder. An opening for attic or crawl space access must be at least 24 by 24 inches. In an attic, a 2ft walkway must be provided from the opening over to and around the equipment.

26. **Amending Section 503 IFGC:** Single wall vent pipe on natural draft appliances must not leave the room of the appliance or be used outside or in an unheated space. It must have a minimum clearance of 6 inches from combustible materials, including sheetrock unless otherwise stated by the appliance manufacturer.

27. B-vent (double wall vent pipe) must have a minimum clearance of 1 inch from combustible material including sheetrock unless otherwise stated by the appliance or sheetrock manufacturer.

28. **Amending Section 503 IFGC:** Direct vent appliances must terminate a minimum of 2 feet above where they exit the roof, chimney or chase and a minimum of 2 feet above finish grade when terminated to the side. See appliance manual for more details.

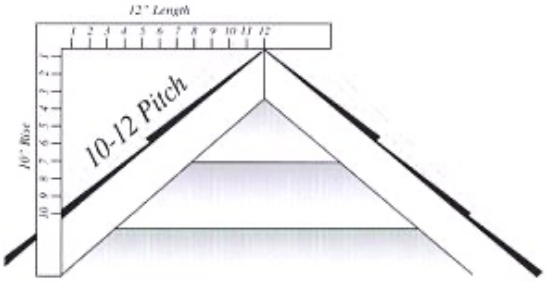
29. Vents terminating under an enclosed room must be terminated at least 3 feet below the bottom of the floor joist. The floor joist must be sealed at the bottom and the vent area must be open on three sides.

30. **Amending Section 503 IFGC:**

A. All natural draft (**category 1**) appliance vents, including fan assisted and fan induced, must terminate at least 2 feet above where they exit the roof, chimney or chase when using an anti-down draft vent cap and must be at least 8 feet from a vertical wall or terminate 2 feet above the wall. Chimney or chase tops may be domed over the vent cap to keep the vent from being 2 feet high.

B. When using type RM or equivalent anti-down draft vent cap, use the chart below. Owner/contractor must provide written proof of anti-down draft vent cap if needed.

Roof Pitch	H (Min.) Ft.
Flat to 9/12	2.0
Over 9/12 to 10/12	2.5
Over 10/12 to 11/12	3.25
Over 11/12 to 12/12	4.0
Over 12/12 to 14/12	5.0
Over 14/12 to 16/12	6.0
Over 16/12 to 18/12	7.0
Over 18/12 to 20/12	7.5
Over 20/12 to 21/12	8.0



**For SI units: 1 foot = 0.305 m

- **Gas vent Termination Locations for Listed Caps 12 Inches or Less in Size at Least 8 Feet from a Vertical Wall.**
- **If a vent cap is used that is not anti-down draft, the vent must terminate 2ft. above anything within 10ft.**

International Fuel Gas Code

Section 402 Pipe Sizing (Longest Length Method)

Use the following method to determine the sizes of consumers' gas piping from the point of delivery. (Sizing Tables for the correct piping material must be used). **The tables used are for Natural Gas pressures less than 2LB, with a pressure drop of 0.5 in. w.c. (water column) and a specific gravity of .60.**

1. Measure the length of piping from the point of delivery to the most remote outlet in the building.
2. In the first column in the table (marked Length), select the horizontal line showing that distance, or next longer distance if the table does not give the exact length.
3. Use this horizontal line to locate all gas demand figures for this particular system of gas piping.
4. Starting at the most remote outlet, find in the horizontal line just selected, the gas demand for that outlet. If the exact figure of demand is not shown, choose the next larger figure to the right on the same line.
5. Above this demand figure in the top horizontal line in the table, (marked PIPE SIZE) will be found the nominal size of pipe required.
6. For each succeeding section of pipe, determine the total gas demand supplied by such section and them proceed in the manner outlined above to determine the size of each section of pipe

The maximum distance from the point of delivery to the most remote outlet, if not shown exactly in the tables, should be rounded up. Only one row should be used to size the system for the entire building, even if the system is using a manifold. Remember, these tables are the "simplified" results of rigorous analysis. As with any "simplification", the exact method of the originator must be followed, without exception, to ensure accuracy.

See sizing tables on the following pages: **The tables used are for Natural Gas pressures less than 2LB, with a pressure drop of 0.5 in. w.c. (water column) and a specific gravity of .60.**
The piping material will determine the table that is used.
Some tables may be arranged differently. The Length may be shown across the top and the Pipe Size shown down the left side instead of the Length being shown down the left side and the Pipe Size being shown across the top. The sizing process is the same, find the length first and then the pipe size to deliver the demand you have.

2009 IFGC Table 402.4(2) - Pipe Sizing

Natural Gas—Black Iron Pipe

Maximum Capacity of Pipe in Cubic Feet of Gas Per Hour

Based on an Inlet Pressure of **Less Than 2 PSI**,

Pressure Drop of 0.5 Inch Water Column

(0.6 Specific Gravity)

Length In Feet	Nominal Pipe Size/Internal Diameter (IN)									
	½" .622	¾" .824	1" 1.049	1 ¼" 1.380	1 ½" 1.610	2" 2.067	2 ½" 2.469	3" 3.068	4" 4.026	6" 6.065
10'	172	360	678	1390	2090	4020	6400	11300	23100	67800
20'	118	247	466	957	1430	2760	4400	7780	15900	46500
30'	95	199	374	768	1150	2220	3530	6250	12700	37300
40'	81	170	320	657	985	1900	3020	5350	10900	31900
50'	72	151	284	583	873	1680	2680	4740	9660	28300
60'	65	137	257	528	791	1520	2430	4290	8760	25600
70'	60	126	237	486	728	1400	2230	3950	8050	23600
80'	56	117	220	452	677	1300	2080	3670	7490	22000
90'	52	110	207	424	635	1220	1950	3450	7030	20800
100'	50	104	195	400	600	1160	1840	3260	6640	19500
125'	44	92	173	355	532	1020	1630	2890	5890	17200
150'	40	83	157	322	482	928	1480	2610	5330	15600
175'	37	77	144	296	443	854	1360	2410	4910	14400
200'	34	71	134	275	412	794	1270	2240	4560	13400
250'	30	63	119	244	366	704	1120	1980	4050	11900
300'	27	57	108	221	331	638	1020	1800	3670	10700
350'	25	53	99	203	305	587	935	1650	3370	9880
400'	23	49	92	189	283	546	870	1540	3140	9190
450'	22	46	86	177	266	512	816	1440	2940	8620
500'	21	43	82	168	251	484	771	1360	2780	8150
550'	20	41	78	159	239	459	732	1290	2640	7740
600'	19	39	74	152	228	438	699	1240	2520	7380
650'	18	38	71	145	218	420	669	1180	2410	7070
700'	17	36	68	140	209	403	643	1140	2320	6790
750'	17	35	66	135	202	389	619	1090	2230	6540
800'	16	34	63	130	195	375	598	1060	2160	6320
900'	15	32	59	122	183	352	561	992	2020	5930
1000'	14	30	56	115	173	333	530	937	1910	5600

2009 IFGC Table 402.4(7) - Pipe Sizing
Natural Gas—Copper / Semi-Rigid Tubing
Maximum Capacity of Pipe in Cubic Feet of Gas Per Hour
Based on a Gas Pressures of **Less than 2 PSI**
Pressure Drop of 0.5 Inch Water Column
(0.60 Specific Gravity)

Copper / Semi-rigid Tubing

	TUBE SIZE (Inch) OUTSIDE DIAMETER (OD)								
LENGTH (ft)	3/8"	1/2"	5/8"	3/4"	7/8"	1 1/8"	1 3/8"	1 5/8"	2 1/4"
10'	27	55	111	195	276	590	1060	1680	3490
20'	18	38	77	134	190	406	730	1150	2400
30'	15	30	61	107	152	326	586	925	1930
40'	13	26	53	92	131	279	502	791	1650
50'	11	23	47	82	116	247	445	701	1460
60'	10	21	42	74	105	224	403	635	1320
70'	N/A	19	39	68	96	206	371	585	1220
80'	N/A	18	36	63	90	192	345	544	1130
90'	N/A	17	34	59	84	180	324	510	1060
100'	N/A	16	32	56	79	170	306	482	1000
125'	N/A	14	28	50	70	151	271	427	890
150'	N/A	13	26	45	64	136	245	387	806
175'	N/A	12	24	41	59	125	226	356	742
200'	N/A	11	22	39	55	117	210	331	690
250'	N/A	N/A	20	34	48	103	186	294	612
300'	N/A	N/A	18	31	44	94	169	266	554
350'	N/A	N/A	16	28	40	86	155	245	510
400'	N/A	N/A	15	26	38	80	144	228	474
450'	N/A	N/A	14	25	35	75	135	214	445
500'	N/A	N/A	13	23	33	71	128	202	420
550'	N/A	N/A	13	22	32	68	122	192	399
600'	N/A	N/A	12	21	30	64	116	183	381
650'	N/A	N/A	12	20	29	62	111	175	365
700'	N/A	N/A	11	20	28	59	107	168	350
750'	N/A	N/A	11	19	27	57	103	162	338
800'	N/A	N/A	10	18	26	55	99	156	326
900'	N/A	N/A	N/A	17	24	52	93	147	306
1000'	N/A	N/A	N/A	16	23	49	88	139	289

Natural Gas Table 7-1
Maximum Capacity of Gastite Flexible Gas Piping in Cubic Feet Per Hour of Natural Gas with a Gas Pressure of 0.5 psi or less and a Pressure Drop of 0.5"WC
(based on a 0.60 specific gravity gas)

GasTite

EHD	Tubing Size	Tubing Length (ft)												
		5'	10'	15'	20'	25'	30'	40'	50'	60'	70'	80'	90'	100'
13	3/8"	47	33	27	23	22	20	17	15	14	13	11	11	10
18	1/2"	136	95	78	67	60	54	47	42	38	35	33	31	29
23	3/4"	225	161	132	116	106	96	83	75	68	63	60	57	54
31	1"	601	421	341	296	268	240	206	185	169	155	145	138	136
37	1-1/4"	872	623	511	444	398	365	317	284	260	241	226	213	203
47	1-1/2"	1766	1277	1057	924	844	764	668	602	553	514	483	457	435
60	2	3811	2714	2225	1932	1732	1584	1376	1233	1128	1046	980	925	878

EHD	Tubing Size	Tubing Length (ft) continued											
		125'	150'	200'	250'	300'	400'	500'	600'	700'	800'	900'	1000'
13	3/8"	9	8	7	6	6	5	4	4	3	3	3	3
18	1/2"	26	24	21	18	17	14	13	12	11	10	9	9
23	3/4"	46	42	38	34	32	28	25	23	21	20	19	18
31	1"	118	100	90	81	74	58	52	47	44	41	38	36
37	1-1/4"	182	166	145	130	119	103	92	85	79	74	70	66
47	1-1/2"	392	360	315	284	260	228	205	189	176	165	156	149
60	2"	787	720	625	561	513	445	399	351	325	305	287	273

EHD (Effective Hydraulic Diameter) A relative measure of Flow Capacity: This number is used to compare individual sizes between different manufacturers. The higher the EHD number, the greater the flow capacity.

TracPipe

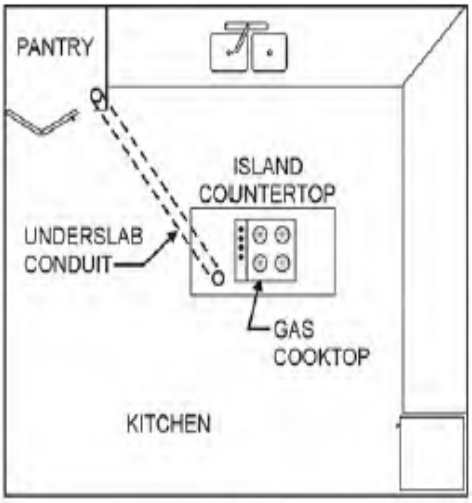
Maximum Capacity of *TracPipe* CSST in Cubic Feet per Hour (CFH) of Natural Gas (1000 BTU per Cubic Foot approx)

Min Gas Pressure: 6 - 7 in w.c. **Pressure Drop 0.5 in w. c.** **Specific Gravity 0.6**

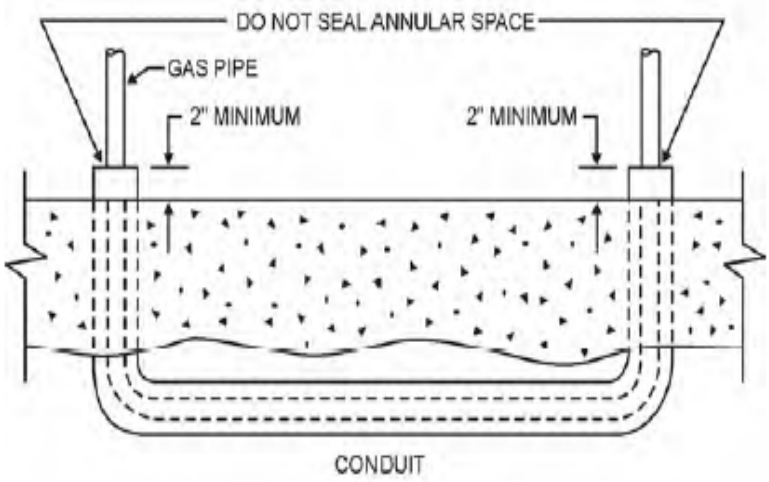
SIZE		Tubing Length in Feet																
EHD	INCH	5’	10’	15’	20’	25’	30’	40’	50’	60’	70’	75’	80’	90’	100’	125’	150’	200’
15	3/8”	63	45	37	33	29	27	23	21	19	18	17	17	16	15	14	12	11
19	1/2”	138	99	81	70	63	58	50	45	41	38	37	36	34	32	29	26	23
25	3/4”	344	245	201	175	157	143	125	112	102	95	92	89	84	80	71	65	57
31	1”	589	419	343	298	267	244	212	190	174	161	156	151	142	135	121	111	96
37	1 1/4”	1109	789	646	561	503	460	399	358	327	303	293	284	268	254	228	208	181
46	1 1/2”	1790	1261	1027	888	793	723	625	559	509	471	455	440	415	393	351	320	277
62	2”	4142	2934	2398	2078	1860	1698	1472	1317	1203	1114	1076	1042	983	933	835	762	661

SIZE		Tubing Length in Feet																
EHD	INCH	250’	300’	400’	500’	600’	700’	800’	900’	1000’	1100’	1200’	1300’	1400’	1500’			
15	3/8”	10	9	8	7	6	6	5	5	5	5	4	4	4	4			
19	1/2”	20	19	16	14	13	12	11	11	10	10	9	9	9	8			
25	3/4”	51	46	40	36	33	31	29	27	26	24	23	22	22	21			
31	1”	86	79	68	6i	56	52	48	46	43	41	40	38	37	35			
37	1 1/4”	162	148	128	115	105	97	91	86	82	78	75	72	69	67			
46	1 1/2”	247	226	195	174	159	147	137	129	123	117	112	107	103	100			
62	2”	591	540	468	419	382	354	331	312	296	283	271	260	251	242			

CODES & AMMENDMENTS



PLAN VIEW



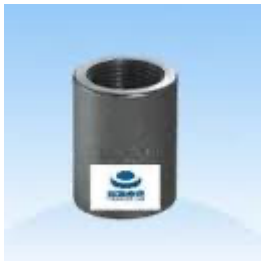
ELEVATION VIEW

S·C·U·D
SEVIERCOUNTYUTILITYDISTRICT

CODES & AMMENDMENTS

September 8, 2011

Effective November 3, 2011, Sevier County Utility District is not allowing thread protectors that come on the end of gas pipe to be used as a coupling. A malleable coupling fitting must be used. See examples below:


NOT ALLOWED



ALLOWED

P.O. Box 4398
Sevierville, TN 37864-4398

865.453.3272
888.811.SCUD (7283)

scudgas.org
questions@scudgas.org

S·C·U·D
SEVIERCOUNTYUTILITYDISTRICT

CODES & AMMENDMENTS

P.O. Box 4398
Sevierville, TN 37864-4398

865.453.3272
888.811.SCUD (7283)

scudgas.org
questions@scudgas.org