INSTALLING THE CHIMNEY SYSTEM

Step 1: Check flue damper for proper operation. When the damper is in a closed position, the damper blade should be UP and the damper control lever pushed all the way to the rear of the firebox. When the damper is open, the damper blade is DOWN and damper control lever is pulled all the way to the front of firebox.

Note: In Manufactured Housing, fireplace MUST BE anchored to the floor. Figures 8 and 9 illustrate the seismic anchor clips and the proper installation technique. Nail to floor as shown.

Step 2: Using standard construction techniques, frame openings for chimney route up through ceiling(s) and roof or through outside chase.

Framing must maintain adequate support at all times.

CAUTION: ALLOW MINIMUM 1" (25 mm) CHIMNEY AIR SPACE TO COMBUSTIBLE FRAMING MEMBERS THROUGHOUT VERTICAL OR OFFSET CHIMNEY INSTALLATION.

Reference Figures 20 and 21 and charts "Framing Dimensions for Ceiling and Roof," which detail minimum ceiling and roof opening dimensions.

In new construction, to determine chimney center line, use plumb from roof or ceiling above fireplace to center of flue collar on fireplace.

For remodeling, plumb to center of flue collar from ceiling above, drive nail through ceiling from below to mark position, then mark and cut passage from above ceiling

(around nail) (Figure 22). Then

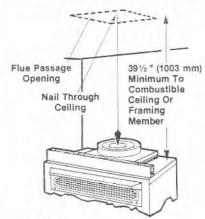


Figure 22

plumb from ceiling or roof level directly above hole which has just been completed.

Step 3 Conventional Housing: Position appropriate firestop spacer at ceiling and nail temporarily with two (2) 8d nails. Use flat Firestop Spacer, Model 8FS for TF8 system and Model 10FS for TF10 system, if chimney penetrates ceiling vertically. If chimney penetrates ceiling at 30° angle (offset chimney), use 30° Firestop Spacer, Model 8FS30 for TF8 system and Model 10FS30 for TF10 system. Use one nail on opposite sides to hold Firestop Spacer in position. Nail permanently, using at least 2 more 8d nails, after chimney sections have been assembled through the Firestop Spacer and after any necessary adjustments have been made. Firestop Spacer must be secured by at least four (4) 8d nails when completely installed.

Note: If there is a room above ceiling level, Firestop Spacer must be installed on bottom side of ceiling. If attic is above ceiling level, Firestop Spacer must be installed on top side of ceiling (Figures 23 and 24).



Figure 23

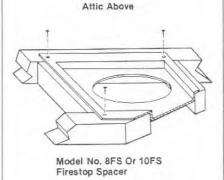
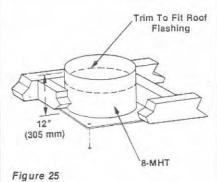
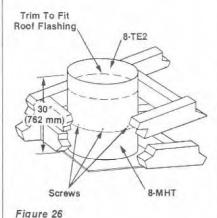


Figure 24

Manufactured Housing: Position firestop thimble, Model 8-MHFT, in ceiling opening. 141/2 " x 141/2 " (368 mm x 368 mm) square or 141/2 " (368 mm) diameter hole, and fasten securely to ceiling. The firestop thimble must extend through the upper part of the roof opening. If higher attic space does not allow firestop thimble to extend through the roof opening, a thimble extension is required. Use Model 8-TE2 thimble extension manufactured by Superior Fireplace Company to extend firestop thimble to proper length. Figure 25 illustrates typical firestop thimble insttallation. Figure 26 shows an installation requiring the 8-TE2 thimble

extension. The thimble extension slides over the firestop thimble for a maximum 30" (762 mm) combined height. After determining properheight, fasten with four sheet metal screws where the two thimbles overlap (Figure 26). Screws are provided with the 8-TE2 thimble extension.





Step 4: Note: Chimney sections are constructed with a unique locking tab design, which ensures an immediate, tight assembly between sections. Plan your chimney requirements carefully before assembly as chimney is difficult to disassemble after installation.

The TF8 and TF10 chimney systems are a two piece chimney, which snaps together from the fireplace up. Start with the inner flue section. With the hemmed end down, snap lock it to the matching locking flue collar on top of fireplace. At all subsequent ioints, the upper flue section fits inside of the lower flue section. Each piece snaps together and locks by means of locking tabs (9 locking tabs per joint). Check each piece to ensure proper engagement, before installing succeding section by pulling slightly from the top. If the chimney section has been installed correctly, it will not separate when you test it. Also, the chimney joint where each section is joined should be tight and flat with no gaps (Figure 27).

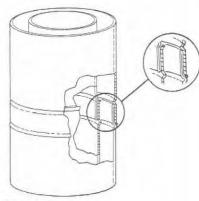


Figure 27

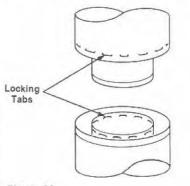


Figure 28

Outer pipe section installs in just the opposite way; the hemmed end goes UP and each new section goes OVER the outside of the previous section installed (Figure 27).

Note: Assemble one complete section of chimney at a time (inner section first, then outer section last) before proceeding with the next complete section. Continue to build flue pipe assembly up through framed ceiling openings and roof frame opening. Assemble just enough to penetrate the roof and flashing openings (Figure 29). Always maintain 1" (25 mm) minimum air space to combustible materials and always check each pipe joint (inner and outer) to ensure proper engagement. Check vertical alignment of flue pipe so that it projects the roof in a true vertical position. Use level if necessary to ensure proper vertical position.

Superior chimney sections need not be screwed together for additional reinforcement.

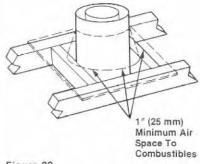


Figure 29

Note For Manufactured Housing: The chimney sections can be installed in any sequence, by length; however, there are two important considerations:

- 1) If two sections of chimney need to be joined together inside the thimble, join the sections first before inserting through the thimble.
- 2) The height of flashing and chimney sections which project above the roofline shall not exceed 13'6" (4.1 m) from the ground level for transportation purposes. In Figure 30, it is assumed the floor level of the Manufactured Home is 30" (762 mm) above the ground.

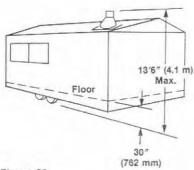


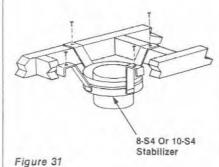
Figure 30

Step 5: The height of vertical flue pipe supported only by the fireplace must not exceed 30' (9.1 m). Flue heights above 30' (9.1 m) must be supported by a Model 8-S4 or Model 10S-4 unitized stabilizer installed at 30' (9.1 m) intervals. Note: The Model 8-S4 and Model 10-S4 unitized stabilizers add 2½" (64 mm) net effective height to the total chimney system.

Install the Model 8-S4 or 10-S4 stabilizer by fitting inner section down into respective section of preceding flue pipe and locking outer stabilizer section into place over the outer flue pipe. Position for proper clearance through framed opening and nail straps securely (under tension, in "shear") into place on framing. Use 8d nails. Attach successive lengths of

flue pipe directly to stabilizer using same techniques as described in Step 4.

Note: Do not apply excessive pressure to any subsequent chimney sections following the stabilizer when installing. Ensure each subsequent chimney section is securely attached, however, by testing as noted in Step 4.



Step 6: Select proper Superior roof flashing, depending on the pitch of roof. Use chart below for selection:

	Mo	odels
Roof Pitch	TF8	TF10
Flat to 6/12	8-F6	10-F6
6/12 to 12/12	8-F12	10-F12
12/12 to 60°	8-F60	10-F60

Next, slide roof flashing over extended chimney section that previously has been installed above the roof opening in Step 4. Slide flashing all the way down until the flashing base rests flat on the roof. Again, check the vertical position of the chimney and the 1" (25 mm) minimum air space to combustibles.

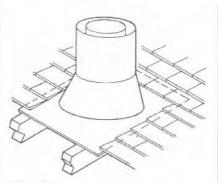


Figure 32

Step 7: Secure flashing by nailing along perimeter into roof using 8d nails. If shingled roof, slide upper end and sides of flashing under shingles (trim if necessary), seal the top and both sides of the flashing to the roof with roof caulking. Cover nail heads with roof caulking (Figure 32).

Step 8: The standard Superior roof flashing assemblies include a storm collar. Slide storm collar over outer flue. align with top surface of flashing, insert storm tab in slot, pull tight and bend tab back over slot. Seal storm collar to outer flue pipe with roof caulking or mastic around entire circumference of pipe. (Also add extra roof caulking where storm collar meets flashing and to the tab/slot area to seal completely against water penetration (Figure 33). Check all joints very carefully to ensure no water intrusion can take place.

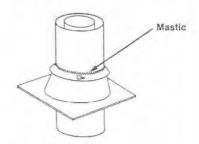


Figure 33

SUPERIOR

The Fireplace Company

Step 9: Superior locking bands (Models 8LB or 10LB) may be required if chimney extends too high above the roof/ flashing. As a general rule, if the chimney extends more than 6' (1.8 m) above the roof/ flashing, the use of locking bands is advisable to strengthen the chimney joints. Align locking band (one per pipe joint) at the pipe joint locking band wraps around pipe joint, equally covering the joint of both pipe sections. Use nut provided and TIGHTEN snugly. Do not over tighten as this may damage flue section (Figure 34).

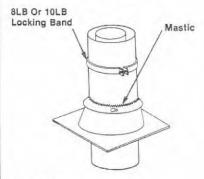


Figure 34

Note: If chimney extends more than 8' (2.4 m) above roof line, guy wires are also recommended. Use three (3) guy wires, attach to locking band assembly, extend and secure to roof in a triangular pattern (Figure 35). Guy wires not supplied by Superior.

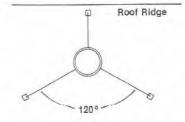


Figure 35

Step 10 Conventional Homes: If using a CTD round contemporary termination:

- 1) Hold CTD over top of last chimney section (Figure 36).
- 2) Center inner slip section into inner flue pipe slip down.
- Center outer locking section over outer flue pipe push down until locking joint snaps into position.
- 4) Pull up slightly on CTD to ensure locking joint has firmly engaged.

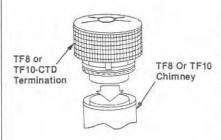


Figure 36

Using a CT1 Chase Termination

Note: Refer to specific installation instructions included with CT1 chase termination for details.

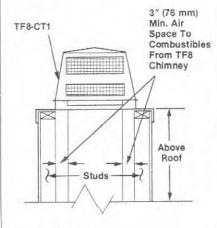


Figure 37

Note: Combustible chase components must maintain a minimum 3" (76 mm) air space to the chimney sections above the roofline when using the TF8-CT1 termination. A minimum 1" (25 mm) air space to combustibles is required below the roofline.

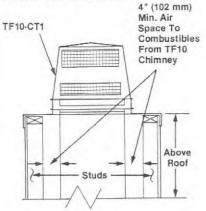


Figure 38

Note: Combustible chase components must maintain a minimum 4" (102 mm) air space to the chimney sections above the roofline when using the TF10-CT1 termination. A minimum 1" (25 mm) air space to combustibles is required below the roofline.

Manufactured Housing

Note: Complete and inspect installation Steps 1 through 9 as required prior to shipment from factory. Step 10, installing the termination, will be completed after the manufactured home has arrived at the installation site.

Always cover exposed chimney sections with waterproof protection for storage and transportation between factory and installation site to prevent rain and other foreign matter from collecting inside the fireplace and chimney. Remove this protective covering immediately prior to

installing the termination. Failure to do so will create a fire hazard should the chimney sections and its cooling system become blocked.

The TF8-MHT mobile home termination adds 173/4" (451 mm) effective height to the installation. Use this dimension to determine if additional chimney sections are required. Provide a safe and legal termination height. Consult the ten foot rule summary section on this page for detailed information.

To install the TF8-MHT Manufactured Housing Termination, slip the termination onto the preceding chimney section. Wrap the locking band, Model 8-MHLB, around the joint and fasten securely with the nut and bolt provided (Figure 39).

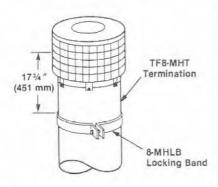


Figure 39

TEN FOOT RULE SUMMARY

The minimum chimney height above the roof is specified by all major U.S. building codes.

If the horizontal distance from the chimney edge to the peak of the roof is less than 10' (3 m), the top of the chimney must be at least 2' (610 mm) above the peak of the roof.

If the horizontal distance from the chimney edge to the peak of the roof is more than 10' (3 m), a chimney height reference point is established on the roof surface 10' (3 m) horizontally from the chimney edge. The top of the chimney must be at least 2' (610 mm) above this reference point. In all cases the chimney cannot be less than 3' (914 mm) above the roof at the edge of the chimney.

The 2' in 10' rule is necessary in the interest of safety and does not ensure smoke-free operation. Trees, buildings, adjoining rooflines, adverse wind conditions, etc., may require a taller chimney should the fireplace not draft properly (see Figure 40).

MULTIPLE TERMINATIONS

If more than one termination is located on the same chase or within the same general proximity, we suggest they should be separated in distance at least 24" (610 mm) horizontally from flue center to flue center and stacked, or soldiered vertically at least 18" (457 mm) apart, from termination smoke exit to termination smoke exit. See Figure 41 for detail.

This suggestion is in the interest of more satisfactory operation and use. If terminations are located too close to each other, smoke may migrate from one flue into the other.

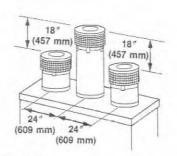


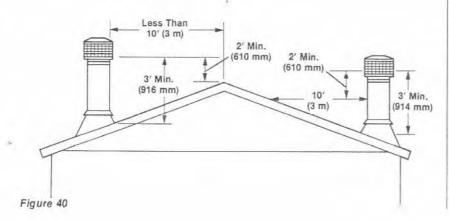
Figure 41

TF8 AND TF10 CHIMNEY COMPONENT CALCULATIONS FOR CONVENTIONAL HOMES

In conventional homes the minimum installed height of the SP series fireplace systems (including fireplace and chimney components) is 12'0" (3.7 m). The maximum system height is 72' (21.9 m).

Conventional Homes

To determine the number of chimney sections and chimney components required, follow these steps:



- 1. Determine total vertical height of the fireplace installation. This dimension is the distance from the FLOOR the fireplace sets on to the point where smoke exits from the termination.
- 2. Determine the number of chimney components required, except chimney sections. This would include firestops, stabilizers, roof flashing, etc.
- 3. The effective heights of the components are:

SP Fireplace = $44^{7/8}$ " (1140 mm)

CTD Termination = 4" (102 mm)

CT1 Termination = 18"

(457 mm)

SS Starter = 19"Section (483 mm)

S4 Stabilizer (required for every 30' (9.1 m) of vertical chimney and 10' (3 m) of offset

chimney = $2\frac{1}{2}$ " (64 mm)

4. Determine amount of chimney height required by subtracting total combined height of all preselected components (fireplace and chimney components from total desired height.

Reference Vertical Elevation Chart and determine number of chimney sections (quantity and length) required.

Manufactured Housing

Use Model TF8-MHCP-1 which contains all chimney components and chimney sections for typical manufactured housing installations. It provides for an installed height of 14'2" (4.3 m). If additional chimney sections or compo-

nents are required, order separately.

OFFSET CALCULATIONS

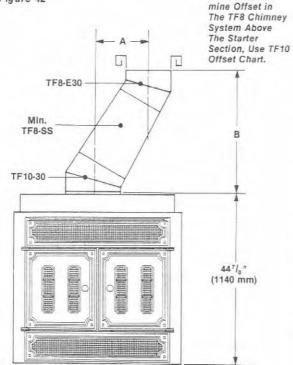
- 1. Use Offset Charts to determine amount of horizontal offset (A) and height (B) for various flue pipe section assemblies.
- 2. Use "Height of Flue Only" column on Vertical Elevation Chart to determine combinations of pipe used above return elbow to achieve desired heights. Reference components effective height chart in vertical elevation chart section.
- 3. Use Elevation Chart as job estimator only; add necessary firestop spacers and stabilizers, as required. Firestop spacers must be used as shown in *Figures 23* and *24* and stabilizers as shown in *Figure 31*.

Installation Instructions

TF10-E30 TF10 Chimney Sections TF10-30 447/8" (1140 mm)

Stoveplace System With 10" (254 mm) Thru-Flow Chimney System

Figure 42



Note: To Deter-

Stoveplace System With 8" (203 mm) Thru-Flow Chimney System

Figure 43

TF10 OFFSET ELEVATION CHART

Inches A	Inches B	mm A	mm B	TF10-30 Offset Elbow	TF10-E30 Return Elbow	TF10- 12" Flue	TF10- 18" Flue	TF10 36" Flue
4	15	102	381	1	1			1.
91/4	24	235	610	1	1	1		
121/4	291/4	318	743	1	1		1	
143/2	331/4	368	845	1	1	2		
171/2	381/2	445	978	1	1	1	1	
201/2	43 Vz	521	1105	t	1		2	
211/4	45	540	1143	1	1			1
2234	47%	578	1207	1	1	2	1	
251/4	5234	654	1340	1	1	1	2	
261/e	54	673	1372	1	1	1		1
28 %	58	730	1473	t	1		.3	
291/2	591/4	749	1511	T.	1		1	- 1
34%	6814	883	1734	1	1	1	1	1
381/2	74%	978	1899	1	1			2
421/4	81%	1073	2064	t	1	1	4	
43 1/4	831/4	1111	2127	1	1	1		2
46	87.34	1168	2229	1	1		3	1
46 1/4	89	1187	2261	1	1		1	2
49	93	1245	2362	1	1	2		2
52	981/4	1321	2496	1	1	- 1	1	2
55	1031/4	1397	2623	1	1		2	2
553/4	104%	1416	2661	1	†			3
571/4	1071/4	1454	2724	1	1	2	1)	2
61	113%	1549	2889	1	1	7		3

TF8 OFFSET ELEVATION CHART

Inches A	Inches B	mm A	mm B	TF10-30 10" Offset Elbow	TF8-E30 8" Return Elbow	TF8-SS Start Section	TF8- 12" Flue	TFB- 18 * Flue	TF8 35 Flue
131/2	311/2	343	800	1	1	1			
19	40 1/2	483	1029	1	1	1	1		
21-%	45%	552	1162	1	1	1		1	
24	49%	610	1264	1	1	1	2		
27	55	686	1397	1	1	13	1	1	
30	60	762	1524	1	1	p	/	2	
30%	51%	781	1562	1	1	1			1
321/4	54	819	1626	t	1	1	2	1	
351/4	6914	895	1759	1	1	1	1	2	
36	701/2	914	1791	1	1	1	1		1
381/4	741/2	972	1892	1	1	1		3	
39	7534	991	1924	1	†	1		1	1
44%	8434	1124	2153	1	1	1	1	. 1	1
48	911/4	1219	2318	1	1	1		2	1
5174	97%	1314	2483	1	1	1	1	4	
531/4	10014	1353	2546	1	1	1	1		2
551/2	10414	1410	2648	1	1	1		3	- 1
5614	1051/2	1429	2680	1	1	1		1	2
581/2	1091/4	1486	2781	- 4	1	1	2		2
61%	11436	1562	2915	4	1	1	1	1	2
64%	11934	1638	3042	1	11	t		2	2
85 1/4	121%	1657	3080	7	t	1			2
8634	123%	1875	3143	1	t	1	2	4	2
701/2	13014	1791	3308	1	1	1	1		3



TF8 AND TF10 CHIMNEY SYSTEMS VERTICAL ELEVATION CHART (FEET AND INCHES)

Height Of Flue Only		Number TF Flue Lengths			Height Of Flue Only		Number TF Flue Lengths			Heig Flue	Number TF Flue Lengths			Height Of Flue Only		Number TF Flue Lengths			
Inches	Feet	12"	18"	36"	Inches	Feet	12"	18"	36"	Inches	Feet	12"	18"	36"	Inches	Feet	12"	18"	36"
801/4 "	6' 81/4"	1	-	2	2931/4"	24" 514 "	i i	1	8	504 % "	42' 0%"	2		14	71734."	59' 9%"	1	1	20
86 14	7' 2'4"	8 "	1	2	297 1/4"	24" 9 14 "	2	17 17 17	8	510% "	42' 6%"	1	10	14	7251/4"	801 514 "			21
90 14 "	7' 634"	2	(2)	2	30334"	25' 3%"	1	1	8	5181/4"	43' 21/4"			15	728 1/4 "	60' 81/4"	2	1	20
9614"	8' 014"	1	9	2	3111/4"	25'11'4"			9	5211/4"	43' 51/4"	2	1	14	7353/4"	61' 3%"	1		21
10334 "	8' 7%"			3	3141/4"	26' 21/4"	2	1	8	528 1/4 "	44' 0% "	1		15	741347	51' 9% "		1	21
1071/4"	81114"	2	1	2	321 % "	26' 914"	1		9	534 % "	44' 6% "		1	15	7461/4 *	62' 214"	2		21
114%"	9' 614"	1		3	32734*	27: 31/4"		1	9	53914"	44'11'4"	2		15	7521/4 *	62' 81/4"	1	818	21
1201/4"	10' 014"		1	3	3321/4"	27' 81/4"	2		9	545 1/4 "	45' 514"	1	1	15	759% "	63' 374"			22
12434"	10" 434 "	2		3	3381/4 *	28' 2'4"	1	1	9	552 1/4 "	46' 0%"			16	762 % "	63' 634 "	2	111	21
130%"	10'10%"	1		3	345 44 "	28' 934"		100	10	555 14 "	46' 3%"	2	1	15	770 1/4 "	64' 21/4"	1		22
138 34 "	11' 6%"	[] # I	1 6 8	4	348 % "	29' 0%"	2	1	9	5631/4 "	46"1114"	1		16	77614"	64' 814"		1	22
14134"	11' 914"	2		3	35614"	29' 81/4"	1	1 00	10	5691/4"	47' 514"		15	16	780 14 "	65' 0%'	2	1	22
1491/4"	12' 514"	1		4	3621/4"	30" 214"		1	10	573 1/4 "	47' 9%"	2		16	786 34 "	65' 614"	1	1	22
1551/4"	12'1114"		+	4	366 14 "	30' 61/4"	2	1	10	57934"	48' 324"	1	31	16	79414"	66' 2'4"			23
159 14 "	13' 3%"	2		4	372341	31' 044"	7	*	10	587141	48'11'4"	10 th 11	92	17	797 1/4 "	66' 514"	2	1	22
165 1/4	13' 9%"	1	1	4	380 1/4 "	31' 8'4"			111	5901/4 *	491 21/4 1	2	1 1	16	B0434 "	67' 034"	1		23
173 14	14' 51/4"	1	3.	5	382 14 "	31'1044"	2	1	10	59714 *	49' 9%"	1		17	810-44	67' 6%"		10	23
176 14"	14' 814"	2	1	4	390 % *	32' 614"	- 7	0.00	11	60334	50' 3%"	. 8	1	17	8151/4"	67'11'4"	2		23
18334	15' 334"	1		5	396 34 "	33' 034"		1	111	6081/4 *	50' 8'4"	2		17	82114 "	68' 514"	1	1	23
189 3/4	15' 934"	1		5	4011/4"	33' 514"	2		11	61414	511 21/4 "	1	1	17	82834"	69' 034"	10.00	17 55	24
1941/4"	16' 2'/4"	2		5	4071/4	33 11 1/4 "	7	1	11	62134 *	51" 914"		13 1	18	831%	691 334 "	2	1	23
2001/4"	16" 81% "	1		5	41434"	34' 614"		100	12	62434 *	52' 014"	2	1	17	8391/4"	69"11"4"	1		24
20734	17' 324 "	100		6	417341	34' 9%"	2	1	11	6321/4"	52 8 14 "	1		18	8451/4"	70' 51/4"		1	24
210 1/4 "	17' 534"	2		5	4251/4"	35' 514"	1	1 "	12	6381/4 "	53' 2'4"		1	18	849 34 "	70' 9% "	2		24
21814"	18' 21/4"	1		6	4311/4"	35'11'4"	- 25	1	12	64234"	53' 61/4"	2	10 22 1	18	855 14 "	71' 3%"	1	1	24
	18' 814"		1	6	435 3/4	36' 3%"	2		12	64834"	54' 0%"	1 1	1	18	8631/4 "	71'1114"			25
224 1/4 "	19' 0%"	2	0.0	6	44136 *	36' 934"	-	1	12	6561/4"	54' 814 "		D 00	19	866 14 "	72' 21/4"	2	1	24
234 34 "	19' 634"	1	1	6	4491/4"	37' 514"	2.0	1 80	13	6591/41	54'11'4"	2	1	18	87334"	72' 9% "	1		25
2421/4"	20' 214"	1 2	100	7	452 3/4 "	37' 834"	2	1	12	6663/4"	55' 634"	1		19	87934 "	73' 3%"		1	25
		2	4	6	459 %	38' 3%'	1	1 2	13	67214"	56' 074"		1	19	8841/4"	73' 81/4"	2		25
245 1/4 "	20' 514"	1	1	7	465 %	38: 934		1	13	8771/4"	56' 4'4"	2		19	8901/4"	74' 214"	1 1	1	25
252 1/4 "		1.0	1	7	4701/4"	39' 21/4"	2	1	13	68314"	56'10'4"	1		19	897 1/4 "	74' 934"	10 80	100	26
258 1/4 "	21' 6%"		1 8	7	4761/4"	39 214	1	1	13	6901/4"	57' 634"	- 10		20	90034"	75' 034"	2	1	25
2631/4"	21'1114"	2	10 0	7	483 1/4 "	40' 314"	1 1	100	14	69314	57' 9'4"	2	1	19	90814"	75' 8'4"	1	100	26
269 1/4 "	22" 51/4"	1 3	1		486 3/4	40' 634"			13	70114	58' 5'4"	1	1.	20	91414"	76' 214"	1		26
276 3/4 "	23' 01/4"	1 .		8 7			2	1	13	70714	58 1114	1	1	20	9141/4	76 634	2		26
27934"	23' 3% "	2	1.1:	3.50	4941/4"	41' 2'4"	1.0	1 4	1 00000				1		910%	70 0%	- 2		45
2871/4"	23'1114"	1		8	500 1/4 "	41' 81/4."		1	14	71134.1	59" 314"	2		20		1			

TF8 AND TF10 CHIMNEY SYSTEMS VERTICAL ELEVATION CHART (METRIC)

inches x 25.4 = mm

Height Of Flue Only		Number TF Flue Lengths			Height Of Flue Only		Number TF Flue Lengths			Height Of Flue Only		Number TF Flue Lengths			Height Of Flue Only		Number TF Flue Lengths		
mm	m	12	18	36	mm	m	12	18	36	mm	m	12	18	36	mm	m	12	18	36
2038	2.04	1		2	7449	7.45		1	8	12821	12.82	2		14	18231	18.23	1	1	20
2191	2.19		1	2	7563	7.56	2		8	12973	12.97	1	1	14	18421	18.42			21
2305	2.31	2		2	7715	7.72	1	1	8	13164	13.16			15	18498	18.50	2	1	20
2445	2.45	1	1	2	7906	7.91			9	13240	13.24	2		14	18688	18.69	1	1	21
2635	2.64			3	7982	7.98	2	1	8	13430	13.43	1		15	18840	18.84		1	21
2724	2.72	2	1	2	8172	8.17	1		9	13583	18.58		1	15	18955	18.96	2		21
2902	2.90	1		3	8325	8.33		1	9	13697	13.70	2		15	19107	19.11	1	1	21
3054	3.05		1	3	8439	8.44	2		9	13849	13.85		1	15	19298	19.30	3.77		22
3169	3.17	2		3	8592	8.59	1	1	9	14040	14.04			16	19374	19.37	2	1	21
3321	3.32	1	1	3	8782	8.78		1 3	10	14116	14.12	2		15	19564	19.56	1		22
3525	3.53		100	4	8858	8.86	2	1:	9	14307	14.31	1	B 28	16	19717	19.72	500	- 1	22
3600	3.60	2	1	3	9049	9.05	1		10	14459	14.46		1	16	19831	19.83	2		22
3791	3.79	1	1900	4	9201	9.20		1 1	10	14573	14.57	2	8 66	16	19983	19.98	1	1	22
3943	3.94		1	4	9303	9.30	2		10	14726	14.73	1	1	16	20174	20.17			23
4058	4.06	2		4	9468	9.47	1	1	10	14915	14.92			17	20250	20.25	2	1	22
4210	4.21	1	1	4	9658	9.66		90 8	111	14992	14.99	2	- 3	16	20441	20.44	1		23
4401	4.40			5	9722	9.72	2	1	10	15183	15.18	1		17	20593	20.59		1 1	23
4477	4.48	2	1	4	9925	9.93	1	99	11	15335	15.34	100	- 1	17	20707	20.71	2	S 45	23
4667	4.67	7		5	10077	10.08		1	11	15450	15.45	2		17	20860	20.86	1	4	23
4820	4.82		1	5	10192	10.19	2		11	15602	15.60	1	9	17	21050	21.05			24
4934	4.93	2	30 3	5	10344	10.34	1	10	11	15792	15.79	12	100	18	21126	21.13	2	10	23
5086	5.09	1	1	5	10535	10.54			12	15869	15.87	2	4	17	21317	21.32	1		24
5277	5.28		100	6	10611	10.61	2	1	11	16059	16.06	3		18	21469	21.47		4	24
5353	5.35	2	- 7	5	10801	10.80	†		12	16212	16.21	155	1	18	21584	21.58	2		24
5544	5.54	1		6	10954	10.95		1	12	16326	16.33	2		18	21736	21.74	1	1	24
5696	5.70		1	6	11068	11.07	2		12	16478	16.48	1	- 1	18	21927	21.93	78.		25
5810	5.81	2		6	11220	11.22	1	1	12	16669	16.67		1	19	22003	22.00	2	,	24
5950	5.95	1	1	6	11411	11.41	200		13	16745	16.75	2	- 9	18	22193	22.19	1		25
6153	6.15		2 3	7	11500	11.50	2	1	12	16935	16.94	1		19	22346	22.35	200		25
6229	6.13	2	1	6	11678	11.55	1	1.	13	17088	17.09	5.59	4	19	22460	22.46	2		25
	6.42	1		7	11830	11.83		10	13	17202	17.20	2	7.75	19	22612	22.61	1	1	25
3420	6.42	1	1	7	11944	12.94	2	1	13	17355	17.36	1	1	19	22803	22.80	100		25
5572	6.57	2	10 (7	12097	12.10	1		13	17545	17.55	1		20	22879	22.88	2	- 1	25
6839	6.84	1	1	7	12287	12.18			14	17621	17.62	2	4	19	23070	23.07	1		26
7029	7.03			8	12363	12.36	2	1	13	17812	17.81	9 10		20	23222	23.22	- 46		26
7106	7.11	2	1	7	12554	12.55	1	1	14	17964	17.96		4	20	23336	23.34	2		26
7296	7.30	-	-	8	12706	12.71		1	14	18078	18.08	2		20	20000	20.04	5.		20