Blast effects of nuclear bomb (this is for an 80 col. printout)
All distances to effect in miles. Note: airburst distances in ( )
Airburst for optimum damage for that effect, since the height of airburst changes these figures represent worst case. See example for fixed height results.

MT	1psi	1.5	3	6	10	30 overpressure
0.2	4(7.5)	3(6)	2(3.4)	1.3(1.8)	1(1.2)	.55(.6)
0.6	6(11)	4.5(9)	2.8(5)	1.8(2.6)	1.4(1.7)	.8(.9)
1.0	7(13)	5.5(10.5)	3.3(6)	2.2(3.2)	1.6(2)	.95(1.05)
5	12(23)	9(18)	5.5(10)	3.7(5.5)	2.7(3.5)	1.6(1.8)
20	19(35)	14(28)	9(16)	6(8.5)	4.3(5.5)	2.5(3.4)

(Update note: the 5 & 20 Megaton bombs only existed in old Soviet Bear and Bison class bombers and have been replaced with more modern 1 Megaton bombs. The old US Titan missiles with their 9 Megaton bombs were scraped during late 1987 and early 1988)

(fixed height of burst at 3,800 ft to maximize 30 PSI effect)

1 MT	9	6.5	4	2.6	1.9	1.05

(fixed height of burst at 8,500 ft to maximize 6 PSI effect)

1 MT	11	9	5	3.2	2	not at ground zero

(fixed height of burst at 15,500 ft to maximize 1 PSI effect)

1 MT	13	10	4.8	1.7	neither obtainable at ground zero

Note 1MT yields a fireball of about 3,600 feet in radius with a maximum height for contaminating burst of 3,000 feet.

British Home Office blast catgories are

Class.	Degree of house damage	PSI range
A	Complete/Debris	11+
B	Heavy/not repairable	6-11
C	Heavy to light	1.5-6
D	Light,glass & tile	0.75-1.5

Examples of damage (from SURVIVING DOOMSDAY -Clayton, from tables in THE EFFECTS OF NUCLEAR WEAPONS 1977 -Gladstone)
0.5 psi Private airplanes damaged but flyable, windows have light damage
1.0 psi Windows heavily damaged, wood frame houses lightly damaged
1.75 psi Some, but not all, glass shards capable of penetrating abdominal wall.
2 psi Human body thrown hard enough to cause incapcitating injuries if standing
3 psi Human body thrown hard enough to cause 1% fatalities if standing up.
4 psi Forest road impassable due to fallen trees.
5 psi Wood frame house collapse, 1% of eardrums rupture (in the elderly)
6 psi Human body thrown hard enough to cause 99% fatalities
7 psi Reinforced concrete houses lightly damaged
15 psi Minor injury to lungs from overpressure (1 ATM)
25 psi Reinforced concrete houses collapse
35 psi Lung injuries cause 1% fatalities
45 psi 99% of eardrums rupture (3 ATM)

65 psi 99% fatalities from lung damage.

Simple expiedent fallout shelters as described in Kearney's NUCLEAR WAR SURVIVAL SKILLS do provide protection from blast effects, even without installing home-made blast doors. These shelters can withstand the following without failure, the door over trench (5 psi) or pole over trench (7 psi). There would be injuries but not likely fatal and being in these shelters would afford a vastly more protection than being inside a typical house. The more complex expedient shelters such as the small pole shelter if installed with home-made blast doors can protect against up to 50 PSI!

Note most domestic in-site blast shelters are typically 1 or 3 ATM designs. 1 ATM (atmosphere) equals 15 psi.

The FIGHTING CHANCE buried steel cylinder design is rated to 200 psi.

Here is a table showing the high pressure ranges. (distances in FEET from ground zero for various Heights Of Burst for a 1KT (.001MT)

HOB	100 PSI	200	500	1,000	2,000	5,000	10,000 peak overpressure
0 FT	340'	265'	190'	155'	120'	90'	70'
100'	345'	270'	205'	160'	120'	80'	50'
150'	350'	270'	185'	115'	100'	not obtainable at even ground zero	
200'	355'	270'	180'	120'	not obtainable, even at ground zero		
250'	355'	270'	140'	not obtainable, even at ground zero			
300'	350'	225'	these pressures not obtainable, even at ground zero				
350'	330'	160'	these pressures not obtainable, even at ground zero				
400'	280'	these pressures not obtainable, even at ground zero					
450'	200'	these pressures not obtainable, even at ground zero					
500'	40'	these pressures not obtainable, even at ground zero					

A standard rule of thumb for recalculating blast effects for various sizes of bombs is to take the megatonage of the new bomb divide by the megatonage of the old bomb, take the cube root of the results and multiply that times the radius of blast effect. Example to compare a 1 KT (0.001 MT) to a 1,000 KT (1MT) 1,000 divided by 1 = 1,000. The cube root of 1,000 is 10 (10x10x10=1,000). Therefore you can take the blast effect at X feet (or miles) for a 1 KT and multiply that distance by 10 to get approx. the same effect for a 1,000 KT bomb. Other common multipliers would be

Mulitplier/divider	cube/cube root	1 KT multiplier	1 MT divider
2	2x2x2=8	8 KT	125 KT (0.125MT)
3	3x3x3=27	27 KT	37 KT
4	4x4x4=64	64 KT	16 KT
5	5x5x5=125	125 KT	8 KT
6	6x6x6=216	216 KT	4 KT
7	7x7x7=343	343 KT	3 KT
8	8x8x8=512	512 KT	2 KT
9	9x9x9=729	729 KT	1 1/3 KT
10	10x10x10=1,000	1,000 KT (1 MT)	1 KT

So this shows that if you want to double the damage distance for a given size

of bomb you need to increase the power by a factor of 8. If you want to double that distance again you need a bomb that is 8x8 or 64 times as powerful. This is why you can get the same amount of damage done with 10-40 KT bombs spread out as you can with a 1,000 KT (1 MT) bomb.