

MILWAUKEE CITY CIVIL DEFENSE ADMINISTRATION
ESTIMATE OF GENERAL COST OF MATERIALS FOR THE BASEMENT, CONCRETE BLOCK,
6 PERSON, FAMILY FALLOUT SHELTER

by
Robt. E. Weigend, P.E.

MATERIALS

4" x 8" x 16" Solid Conc. Blk. @ 23¢ each	\$116.15	
8" x 8" x 16" Hollow Core Conc. Blk. @ 23¢ each		\$ 2.99
12" x 8" x 16" Hollow Core Conc. Blk. @ 30¢ each		45.00
Mortar Mix @ \$1.95/bag	15.60	
Cement @ \$1.50/sack		18.00
3/4" Crushed Bank Run Gravel @ \$2.00/cu. yd.		12.00
4" x 4" Posts and Beam @ 24¢/lin. ft.	9.36	
2" x 6" Joists @ 17¢/lin. ft.	13.60	
5/8" Plyscore @ \$7.14/4' x 8' sheet	21.42	
3/4" Plywood @ \$10.35/4' x 8' sheet		31.05
1/2" x 7" Bolts with Expansion Sleeves @ 34¢ each	3.40	
16 penny nails @ 22¢/lb.	.66	
6 penny nails @ 25¢/lb.	.75	
3" x 3" x 1/4" Steel Angle Iron @ 69¢/lin. ft.		44.73
Total General Cost of Materials	\$180.94	\$153.77

CONSTRUCTION INFORMATION

THE MILWAUKEE DELUXE FALLOUT SHELTER is similar to the OCDM model described in Booklet MP-15, but it is easier to build and it offers double the protection at a lower cost than the OCDM standard basement family fallout shelter besides giving an unencumbered wall area.

The shelter is first located and the basement floor and walls must then be scored or chipped to provide a bond for the cement. The bottom course of 12" Hollow Core Concrete Block is then laid in place dry.

"Soil Cement" is then mixed as follows: 1 sack of Portland Cement is torn open at its end and the cement is dumped onto a working space on the basement floor; the empty sack is then filled 6 times with 3/4" Crushed Bank Run Gravel and these 6 sacks of gravel are added to the pile of cement; the dry contents of the pile must be mixed thoroughly with a shovel and shaped into a "doughnut-ring" on the floor; NOT MORE THAN 6 gallons of Water is then poured, a little at a time, into the center of the "doughnut-hole;" the dry mixture of cement and gravel is then pulled, a little at a time, into the water where it is mixed to a working consistency, not so stiff that it will stand by itself, yet not so wet that it will flow like soup. (Not all the 6 gallons of water may be used in one batch of Soil Cement, because the gravel may already contain moisture which might then make the mix too "soupy.")

The Soil Cement is shoveled into the cores of the concrete block where it is tamped and rodded (a steel rod about 3/4" in diameter and 18" long is plunged approximately 20 times into the filled cores of each block to get rid of air spaces or voids formed when the Soil Cement is shoveled into them). The filled blocks should be rocked lightly to make the Soil Cement ooze out of the joints in order to insure a good bond between the blocks. The level of the Soil Cement should be kept an inch or so below the top of the blocks so as to afford a bonding space for the Soil Cement in the next course of blocks.

The walls of the Deluxe Fallout Shelter should be built up level and plumb until 9 courses are in place before starting construction of the Steel Angle Iron frame and roof. The ends of some of the 10th course blocks must be chipped back to fit the curved part of the 3" x 1/4" leg of the angles before the steel is set between the blocks. Holes to receive the angles must also be carefully cut into the existing basement wall so that the angles will be level when cemented into place along with the 10th course of block.

The entire plywood roof should be cut to fit snugly in place with the long dimension of the sheet crossing as many angles as possible before the course of 8" blocks is laid on wall number 1. The plywood and top course of block should be covered with plastic sheets (tablecloths) to form a moisture barrier before 16" of dry 3/4" Crushed Bank Run Gravel is shoveled on top of the shelter and rammed into place. The final blocks can then be laid, draped with plastic sheeting and backfilled to finish off your Milwaukee Deluxe Fallout Shelter.

The size of the Milwaukee Deluxe Fallout Shelter can easily be increased (with no decrease in strength or protection) by lengthening wall number 1 in the ratio of 3 blocks and 3 angles plus plywood and gravel for every 2 additional persons. This shelter can also be reinforced by inserting rods, pipes, bars, or angles in the cores of the block after the Soil Cement has been tamped and rodded.

YOUR ONE DEFENSE AGAINST FALLOUT IS AN ADEQUATE FALLOUT SHELTER

Milwaukee's Deluxe FALLOUT SHELTER

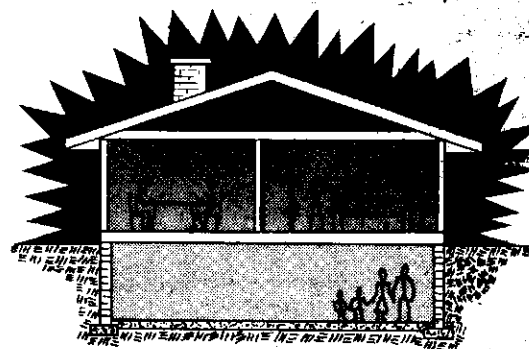
Radiation Decays And Dies -- Don't Die With It

DEADLY RADIOACTIVE FALLOUT IS A THREAT TO SURVIVORS OF A NUCLEAR ATTACK ANYWHERE IN OUR COUNTRY. UNTIL THIS DEADLY RADIATION LEVEL DECAYS, YOUR LIFE AND THE LIVES OF YOUR FAMILY ARE THREATENED. RADIATION INTENSITY IS LOWERED BY MASS--AND THE HEAVIER THE MATERIAL BETWEEN YOU AND THE RADIOACTIVE FALLOUT, THE MORE PROTECTION YOU HAVE.

How Much Radiation Is Fatal?

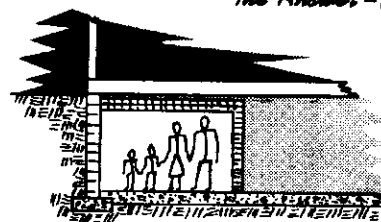
RADIATION IS MEASURED IN ROENTGENS. DURING THE TWO CRITICAL WEEKS FOLLOWING A NUCLEAR ATTACK, A PERSON IN AN AREA COVERED BY RADIOACTIVE FALLOUT COULD HAVE HIS BODY EXPOSED TO A TOTAL OF 10,000 ROENTGENS OF RADIOACTIVITY (AND 700 ROENTGENS IS CONSIDERED A FATAL EXPOSURE!).

Where Will You Find Shelter?



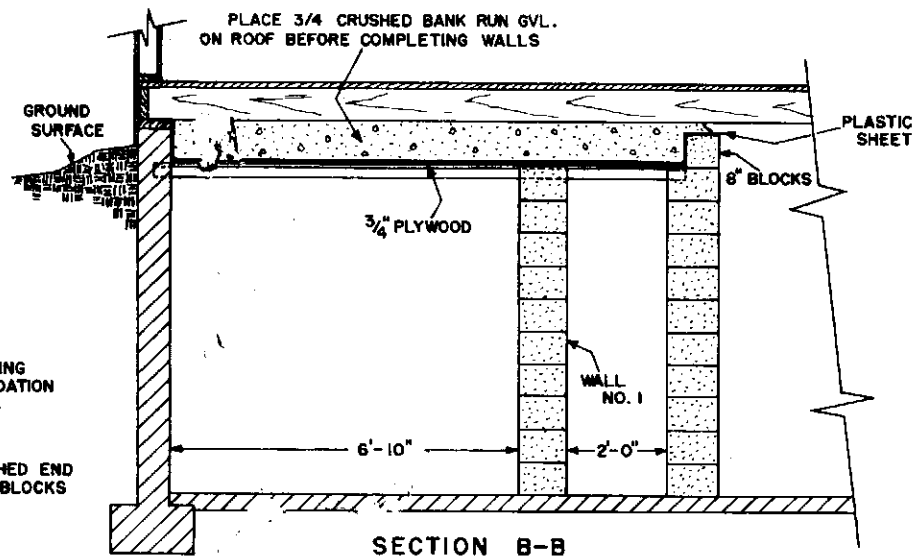
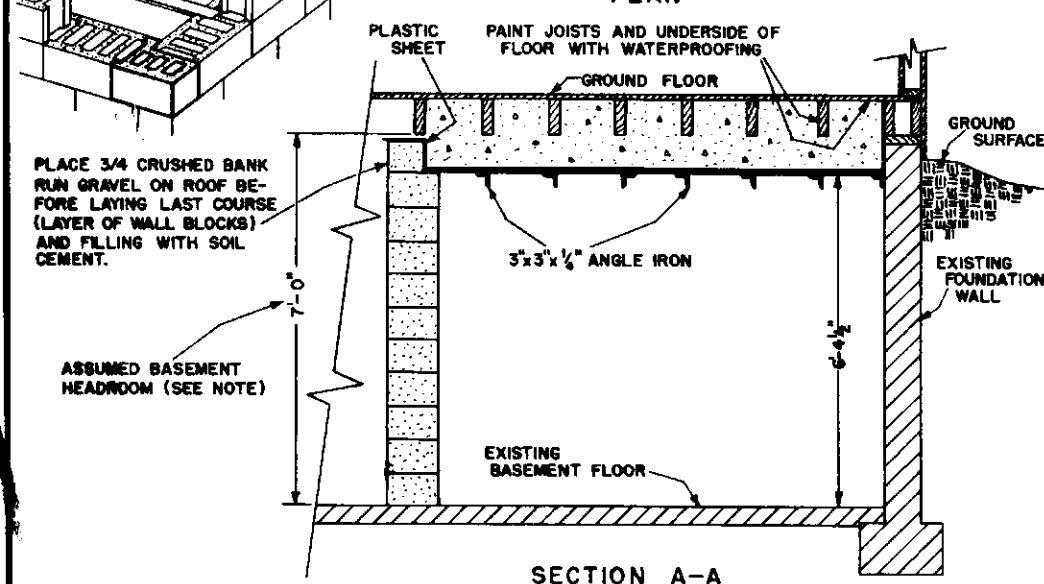
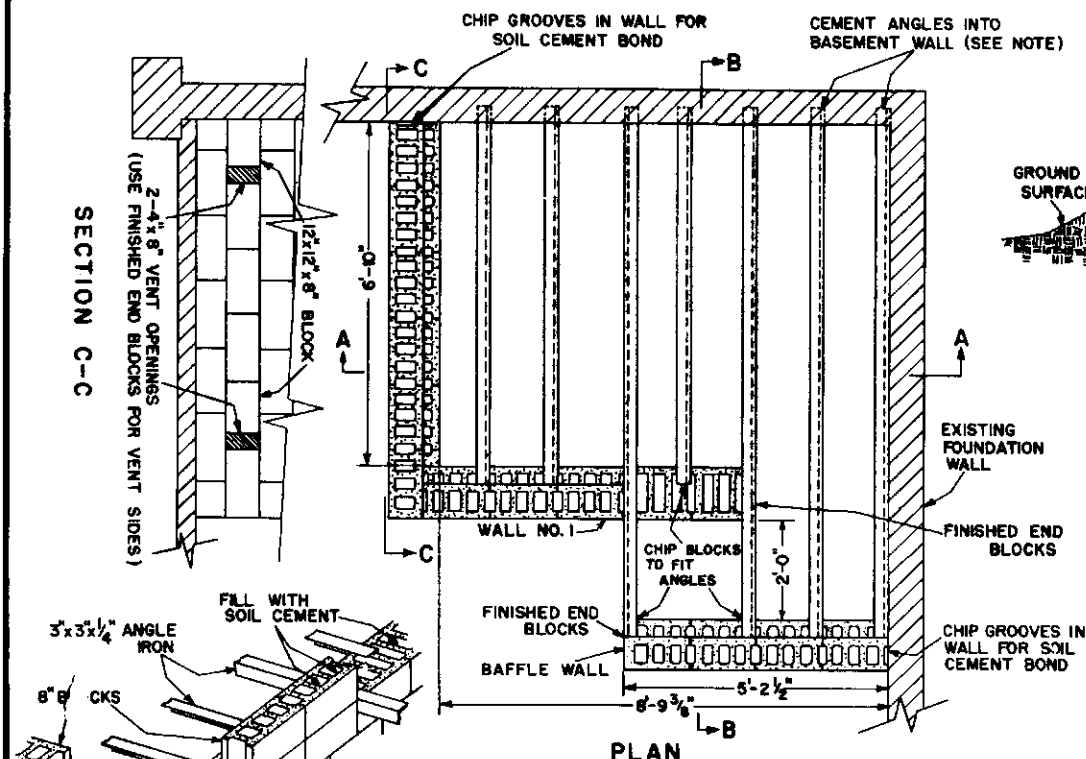
THE FIRST FLOOR OF AN AVERAGE HOME WILL CUT DOWN THE AMOUNT OF RADIATION SOMEWHAT. IN TWO WEEKS TIME, HOWEVER, YOU WOULD STILL BE EXPOSED TO A FATAL DOSE OF THE HARMFUL RAYS. THE BASEMENT OF THE HOME IS BETTER, BUT THE TOTAL EXPOSURE TO THE HARMFUL RAYS IS STILL SUFFICIENT DURING THE TWO WEEKS TO PROVIDE A FATAL DOSE. THE HOME DOES NOT OF ITSELF PROVIDE ENOUGH BARRIER TO THE PENETRATING RAYS.

The Answer -- Prepared Shelter



THE ONE DEFENSE AGAINST RADIOACTIVE FALLOUT IS AN ADEQUATE FALLOUT SHELTER. THE MILWAUKEE DELUXE FALLOUT SHELTER USES A COMBINATION OF CONCRETE AND BANK RUN GRAVEL TO PROVIDE A MASS NECESSARY TO STOP THE HARMFUL RAYS. IT IS EASY TO BUILD AT A REASONABLE COST. A PERSON IN THIS SHELTER WOULD RECEIVE LESS THAN 1% OF THE OUTSIDE DOSE OF RADIATION. THUS, EVEN IF THE OUTSIDE RADIATION AMOUNTED TO AS MUCH AS 10,000 ROENTGENS DURING THE TWO CRITICAL WEEKS FOLLOWING AN ATTACK, THESE HARMFUL RAYS WOULD NOT SERIOUSLY AFFECT PERSONS INSIDE THE PREPARED SHELTER.

Milwaukee City Civil Defense Administration
105 North Water Street Milwaukee 2, Wisconsin



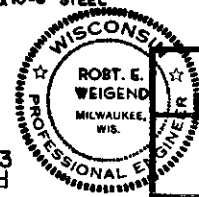
NOTES:

- FOR BASEMENT HEADROOMS, OTHER THAN ASSUMED, ADJUST SHELTER HEIGHT AS NECESSARY.
- SHELTER SIZE CAN BE INCREASED BY LENGTHENING WALL NO. 1 IN THE RATIO OF 3 BLOCKS AND 3 ANGLES FOR EVERY 2 ADDITIONAL PERSONS.
- FILL ALL CORES IN BLOCKS WITH SOIL CEMENT. SOIL CEMENT IS A MIXTURE OF 1 SACK CEMENT, 6 SACKS 3/4" CRUSHED BANK RUN GRAVEL, AND NOT MORE THAN 6 GALLONS OF WATER (DEPENDING ON THE MOISTURE CONTENT OF THE GRAVEL).
- LAY BLOCKS DRY (WITHOUT MORTAR).
- BREAK INTO BASEMENT WALL FOR SUPPORT OF ANGLES.

BILL OF MATERIALS

BLOCKS	117 - 12"x8"x8" HOLLOW CONCRETE	
	23 - 12"x8"x8" FINISHED END	
	10 - 12"x8"x8" CORNER	
	10 - 8"x8"x8" FINISHED END	
	3 - 8"x8"x8" FINISHED END	
GRAVEL	6 - CUBIC YARDS - 3/4" CRUSHED BANK RUN	
CEMENT	12 - SACKS - 1 CUBIC FOOT EACH	
PLYWOOD	3 - SHEETS - 4'x8'x3/4"	
ANGLES	3 - 3"x3"x1/4" 7'-6" STEEL	
	4 - 3"x3"x1/4" 10'-6" STEEL	

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SCALE IN FEET



CITY OF MILWAUKEE
CIVIL DEFENSE ADMINISTRATION
105 N. WATER STREET MILWAUKEE 2, WISCONSIN

DELUXE FALLOUT SHELTER
BASEMENT CONCRETE BLOCK
SIX PERSONS

DESIGNED BY: *Robt. E. Weigend*
DRAWN BY: JOE HEJNAL
DWG. NO. F.S.S.-2 FEBRUARY, 1961 SHEET 1 OF 1