Notes for Table 5.

[a] The inside-outside temperature difference is 70 − (−10) or 80 F except where otherwise noted.

[b] Volume of infiltration, cfh = (no. air changes) x (floor or ceiling area) x (ceiling height).

[c] From equation 4a, p. 245.

[d] The ceiling heat losses are calculated by estimating the attic temperature and then calculating the loss through the ceiling using the proper temperature difference. This unheated attic is not ventilated during winter months. The attic temperature is estimated from Equation 1 to be 30.2 F when the outside temperature is −10 F and room temperature is 70 F. The temperature difference is then 70 − 30. 2 or 39.8 deg. For the insulated residence, attic temperature becomes 4.6 F and temperature difference 70 − 4.6 = 65.4 deg.

[e] Temperature in garage assumed to be 35 F.

[f] Coefficient for wall adjoining garage calculated on basis of metal lath and plaster on both sides of studs. (U = 0.39).

[g] One half of value from Table 4, Chapter 8, for storm windows or weatherstripping.

[h] Exposed on two sides, weatherstripped windows offset by fire-place. Use 1½.

[i] Window on one side weatherstripped but double-doors are hard to close tightly. Hence conservative value of 1½.

[j] Assuming kitchen vent, door to vestibule usually open, allow full table value of 1½.

[k] One half value in Table 4, Chapter 8, increased to 1½ by nearby outside door in vestibule.

[l] Full value in Table 4, Chapter 8, to allow for frequent opening of outside door.

[m] Two sides exposed, large doors but large volume. Use value 1½ as given in Table 4, Chapter 8.

[n] Two small unweatherstripped windows in protected location, but fireplace, indicate 1 change.

[o] Since garage is assumed colder than ground, heat gain results should be subtracted from heat losses elsewhere.

[p] Heat losses from these rooms into garage are heat gains for garage.

[q] Neglect heat loss to basement, as losses from boiler, piping, etc. will probably keep basement near, if not above, 70 F.

[r] Upstairs hall ceiling figured with downstairs. Heat should be provided downstairs for both.

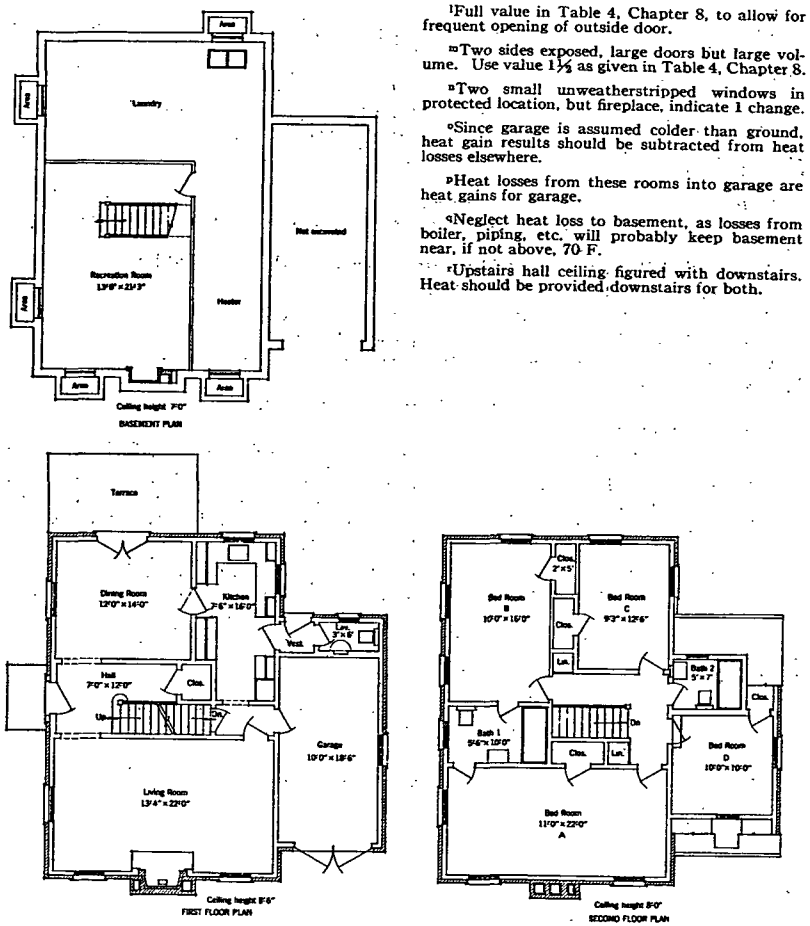

Fig. 2. Floor Plans of Residence

Table 5. Heat Loss Calculation Sheet for Uninsulated Residence (Fig. 2)

A	B	C	D	E	F	G
Room or Space	Part of Structure or Infiltration Air Changes	Net Area or Air Volume	Coefficient	Temp. Diff.[a]	Heat Loss (Btu per hour)	Totals (Btu per hour)
Bedroom A and Closet	Walls	238 sq ft	0.28	80	5330	
	Glass	40 sq ft	0.45	80	1440	
	Ceiling	252 sq ft	0.69	39.8[d]	6910	
	Infiltration (¾)[g]	1510 cfh[b]	0.018[c]	80	2180	15,860
Bedroom B and Closet	Walls	156 sq ft	0.28	80	3490	
	Glass	40 sq ft	0.45	80	1440	
	Ceiling	170 sq ft	0.69	39.8[d]	4660	
	Infiltration (¾)[g]	1020 cfh[b]	0.018	80	1470	11,060
Bedroom C and Closet	Walls	114 sq ft	0.28	80	2560	
	Glass	27 sq ft	0.45	80	970	
	Ceiling	129 sq ft	0.69	39.8[d]	3540	
	Infiltration (¾)[g]	874 cfh[b]	0.018[c]	80	1260	8,330
Bedroom D and Closet	Walls	118 sq ft	0.28	80	2650	
	Glass	20 sq ft	0.45	80	720	
	Ceiling	110 sq ft	0.69	39.8[d]	3020	
	Floor over garage	110 sq ft	0.25	35[e]	960[p]	
	Infiltration (¾)[g]	660 cfh[b]	0.018[c]	80	950	8,300
Bathroom 1	Walls	30 sq ft	0.28	80	670	
	Glass	14 sq ft	0.45	80	500	
	Ceiling	55 sq ft	0.69	39.8[d]	1510	
	Infiltration (1)[g]	440 cfh[b]	0.018[c]	80	630	3,310
Bathroom 2	Walls	79 sq ft	0.26	80	1640	
	Glass	9 sq ft	0.45	80	320	
	Ceiling	35 sq ft	0.69	39.8[d]	960	
	Floor over garage	35 sq ft	0.25	35[e]	310[p]	
	Infiltration (1)[g]	280 cfh[b]	0.018[c]	80	400	3,630
Living Room	Walls	267 sq ft	0.28	80	5980	
	Walls (adjoining garage)	94 sq ft	0.39[f]	35[e]	1280[p]	
	Glass	50 sq ft	0.45	80	1800	
	Floor	294 sq ft				
	Infiltration (1½)[h]	3745 cfh[b]	0.018	80	5400	14,460
Dining Room	Walls	166 sq ft	0.28	80	3720	
	Glass (doors)	35 sq ft	1.13	80	3160	
	Glass (windows)	20 sq ft	0.45	80	720	
	Floor	168 sq ft				
	Infiltration (1½)[i]	2140 cfh[b]	0.018[c]	80	3080	10,680
Kitchen and Entrance to Garage	Walls	96 sq ft	0.28	80	2150	
	Walls (adjoining garage)	51 sq ft	0.39[f]	35[e]	700[p]	
	Glass	18 sq ft	0.45	80	650	
	Door	17 sq ft	0.51	35	300	
	Floor	125 sq ft				
	Infiltration (1½)[j]	1595 cfh[b]	0.018[c]	80	2300	6,100
Lavette and Vestibule	Walls	82 sq ft	0.28	80	1840	
	Walls (adjoining garage)	85 sq ft	0.39[f]	35[e]	1160[p]	
	Glass	9 sq ft	0.45	80	320	
	Door	19 sq ft	0.51	80	780	
	Floor	30 sq ft				
	Infiltration (1½)[k]	383 cfh[b]	0.018[c]	80	550	4,650
Entrance Hall	Walls	39 sq ft	0.28	80	870	
	Door	21 sq ft	0.38	80	640	
	Ceiling[r]	87 sq ft	0.69	39.8[d]	2390	
	Infiltration (2)[l]	1110 cfh[b]	0.018[c]	80	1600	5,500
Garage	Walls	167 sq ft	0.28	45[e]	2110	
	Glass	53 sq ft	1.13	45	2700	
	Doors	44 sq ft	0.51	45	1010	
	Infiltration (1½)[m]	2360 cfh[b]	0.018[c]	45	1910	
	Floor (heat gain)	185 sq ft	0.10	−15	−280[o]	
	Gain adjoining rooms				−4410[p]	3,040
Recreation Room[q]	Walls	220 sq ft	0.10	38	840	
	Glass	8 sq ft	1.13	80	720	
	Floor	287 sq ft	0.10	20	570	
	Infiltration (1)[n]	2010 cfh[b]	0.018[c]	80	2890	5,020
					TOTAL	99,940