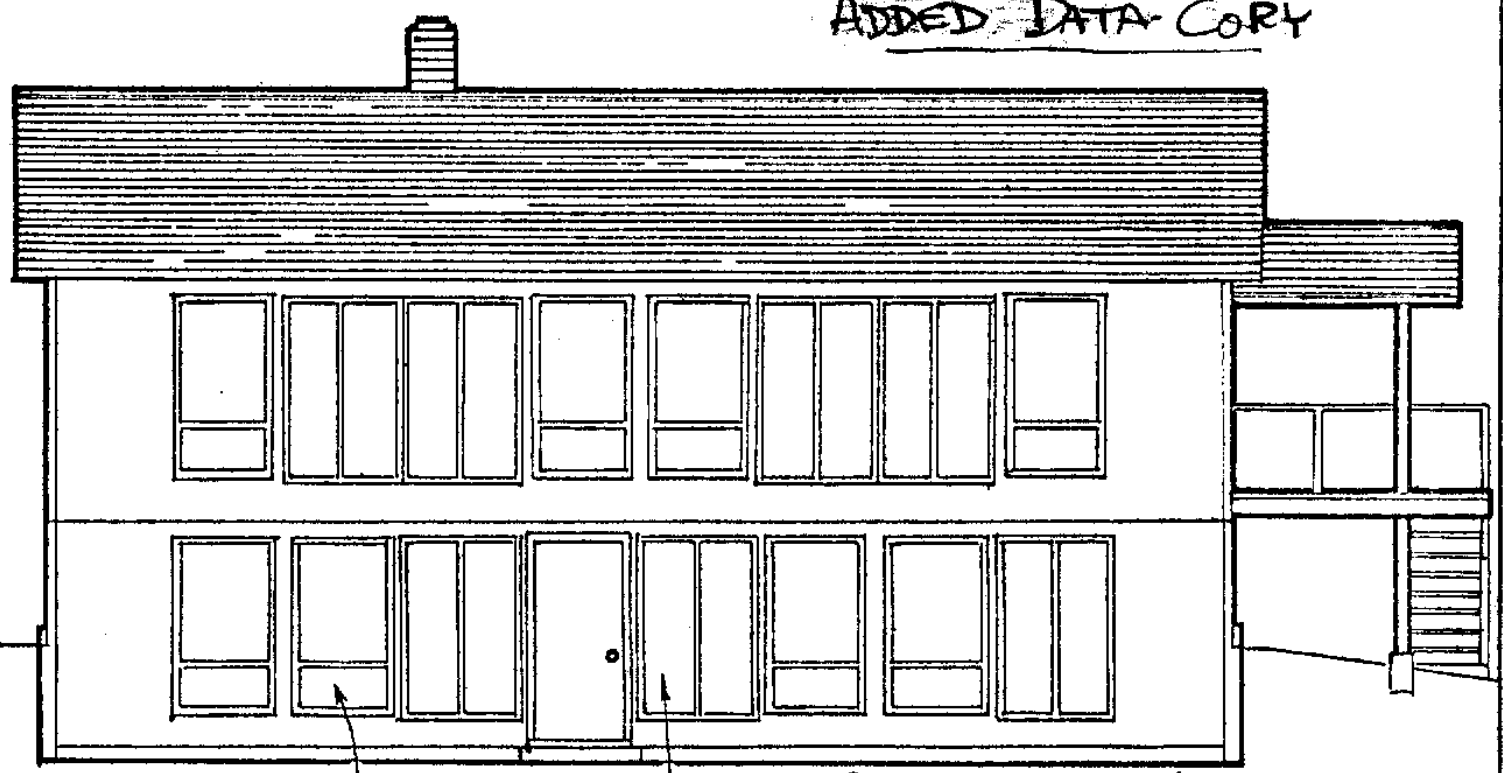


ADDED DATA COPY



SOUTH ELEVATION

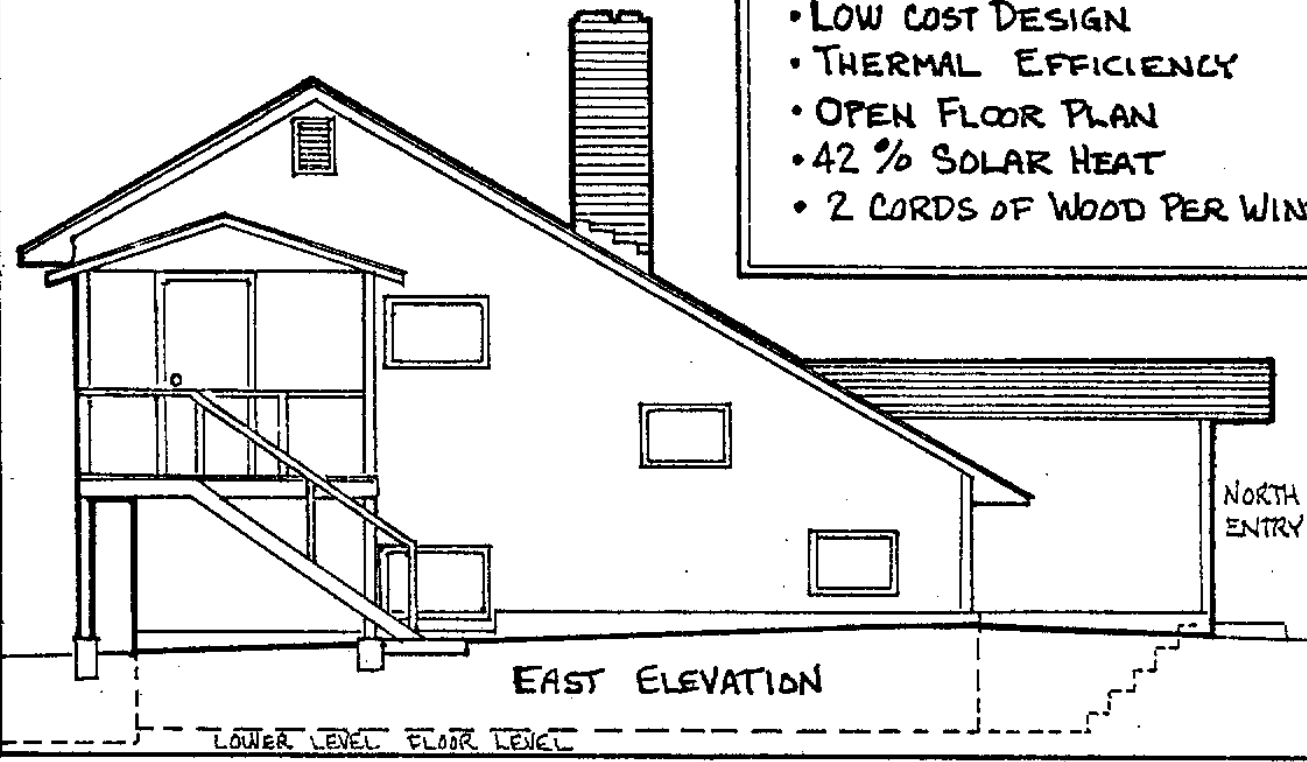
8- DOUBLE PANE GLASS WINDOWS
 (6 HAVE LOWER SECTIONS THAT
 OPEN FOR VENTILATION)
 TOTAL CLEAR COLLECTION AREA 120 FT²

7- FIBREGLAS REINFORCED POLYESTER
 WINDOWS WITH DOUBLE LAYERS.
 TOTAL CLEAR COLLECTION AREA 150 FT²

86% OF WINDOW AREA ON SOUTH SIDE

A PASSIVE SOLAR AND WOOD HEATED HOME
 DESIGN AND BUILT BY LARRY BOGAN
 NEAR CAMBRIDGE, KINGS CO., N.S.

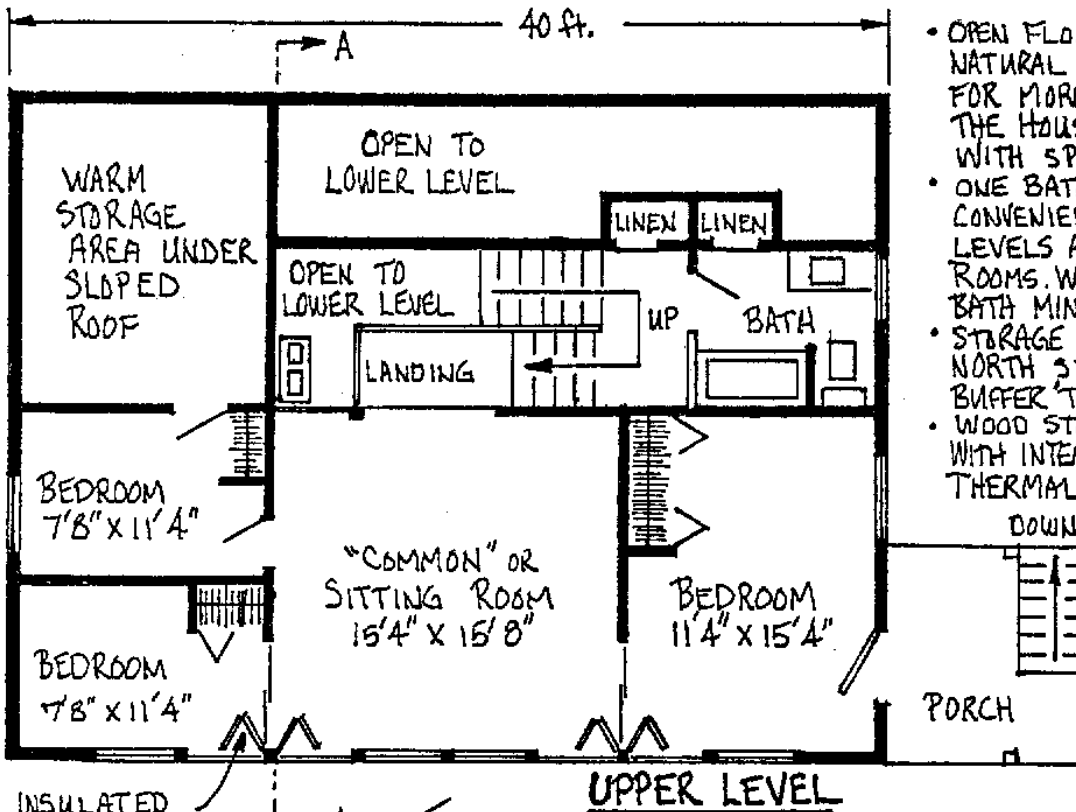
- LOW COST DESIGN
- THERMAL EFFICIENCY
- OPEN FLOOR PLAN
- 42 % SOLAR HEAT
- 2 CORDS OF WOOD PER WINTER



EAST ELEVATION

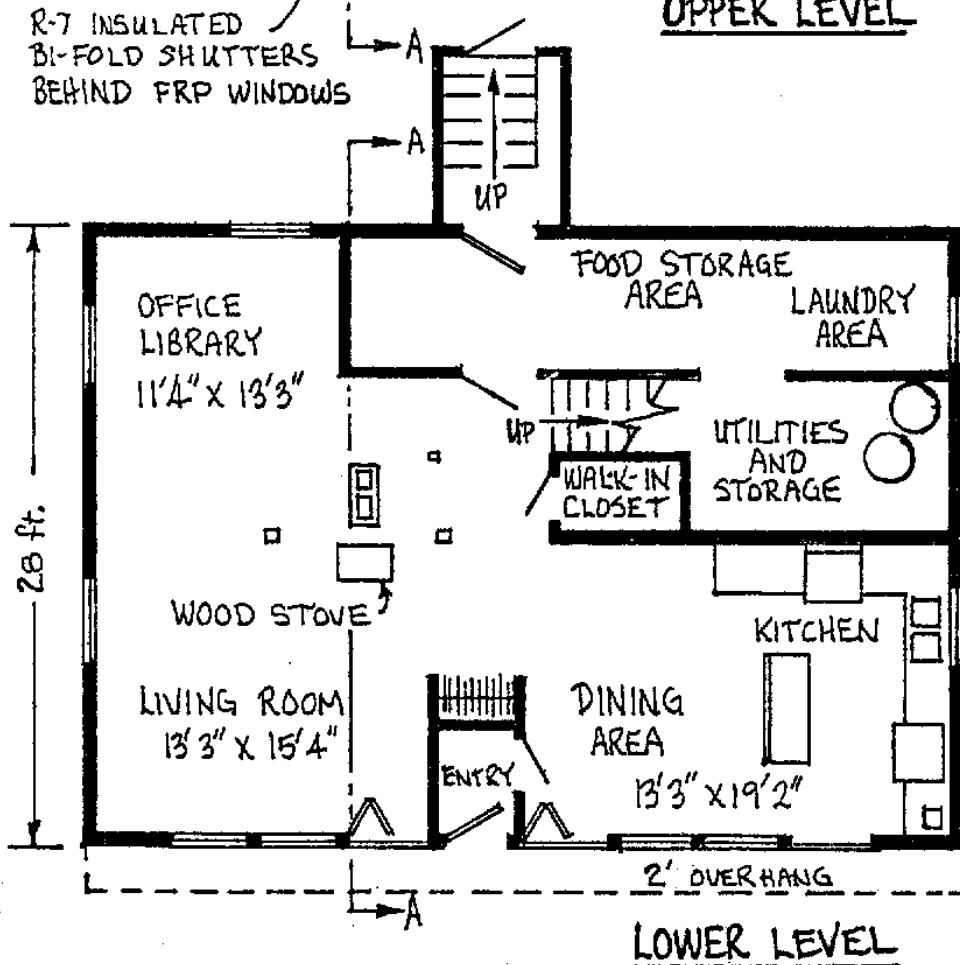
LOWER LEVEL FLOOR LEVEL

FLOOR PLANS AND PLANNING COMMENTS



- OPEN FLOOR PLAN PROVIDES NATURAL CIRCULATION OF AIR FOR MORE UNIFORM HEAT IN THE HOUSE AND IS ECONOMIC WITH SPACE.
- ONE BATHROOM PLACED FOR CONVENIENT ACCESS FROM BOTH LEVELS AND MOST FREQUENTED ROOMS. WATER UTILITIES UNDER BATH MINIMIZE PLUMBING EXPENSES.
- STORAGE AND UTILITY AREA ON NORTH SIDE PROVIDE COOL ZONE BUFFER TO COLD SIDE OF HOUSE.
- WOOD STOVE CENTRALLY LOCATED WITH INTERIOR CHIMNEY FOR THERMAL EFFICIENCY IN HOUSE.

R-7 INSULATED BI-FOLD SHUTTERS BEHIND FRP WINDOWS

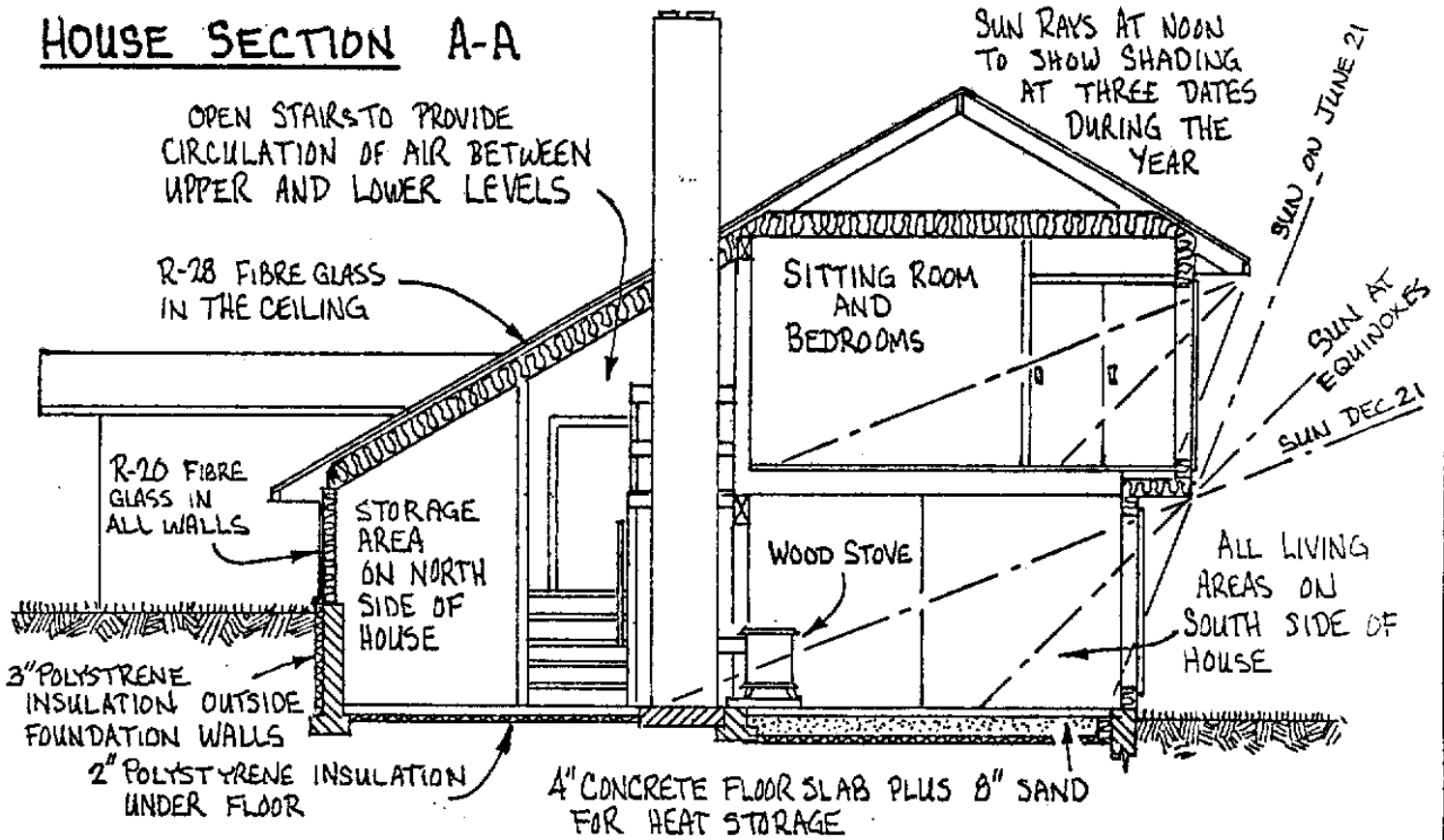


NORTH



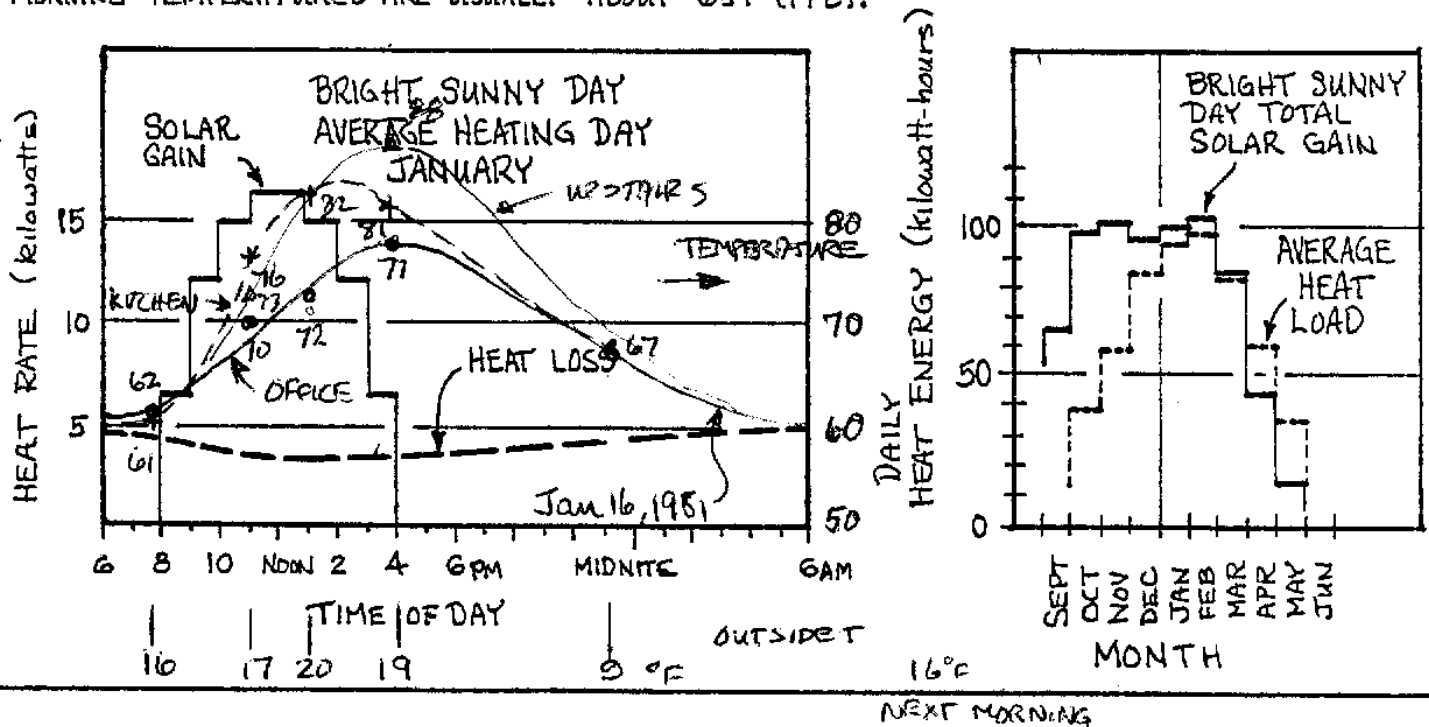
- DOUBLE DOOR ENTRY WITH INSULATED EXTERIOR DOORS.
- AWNING WINDOWS FOR GOOD AIR SEAL AND EFFECTIVE VENTILATION IN SUMMER.
- TWO FEET OF OVERHANG PROVIDES SHADE FOR SOUTH WINDOWS IN SUMMER.
- RECTANGULAR DESIGN FOR LOWER COST AND SIMPLER CONSTRUCTION.
- CONCRETE FLOOR COVERED WITH CERAMIC TILE AND INSULATED UNDERNEATH FOR WARMTH AND BETTER HEAT STORAGE.
- NO COMPLICATED CIRCULATION OR CONTROL SYSTEM ON SOLAR HEATING PROVIDES LOW COST AND TROUBLE FREE OPERATION. (BUT DOES REQUIRE HUMAN ATTENTION FOR PROPER OPERATION)
- 1300 ft² (120 m²) OF LIVING SPACE.
- 270 ft² (25 m²) OF SOUTH FACING WINDOW AREA.
- DIRECT HEAT STORAGE 12 MJ/°C
INDIRECT STORAGE 33 MJ/°C

HOUSE SECTION A-A



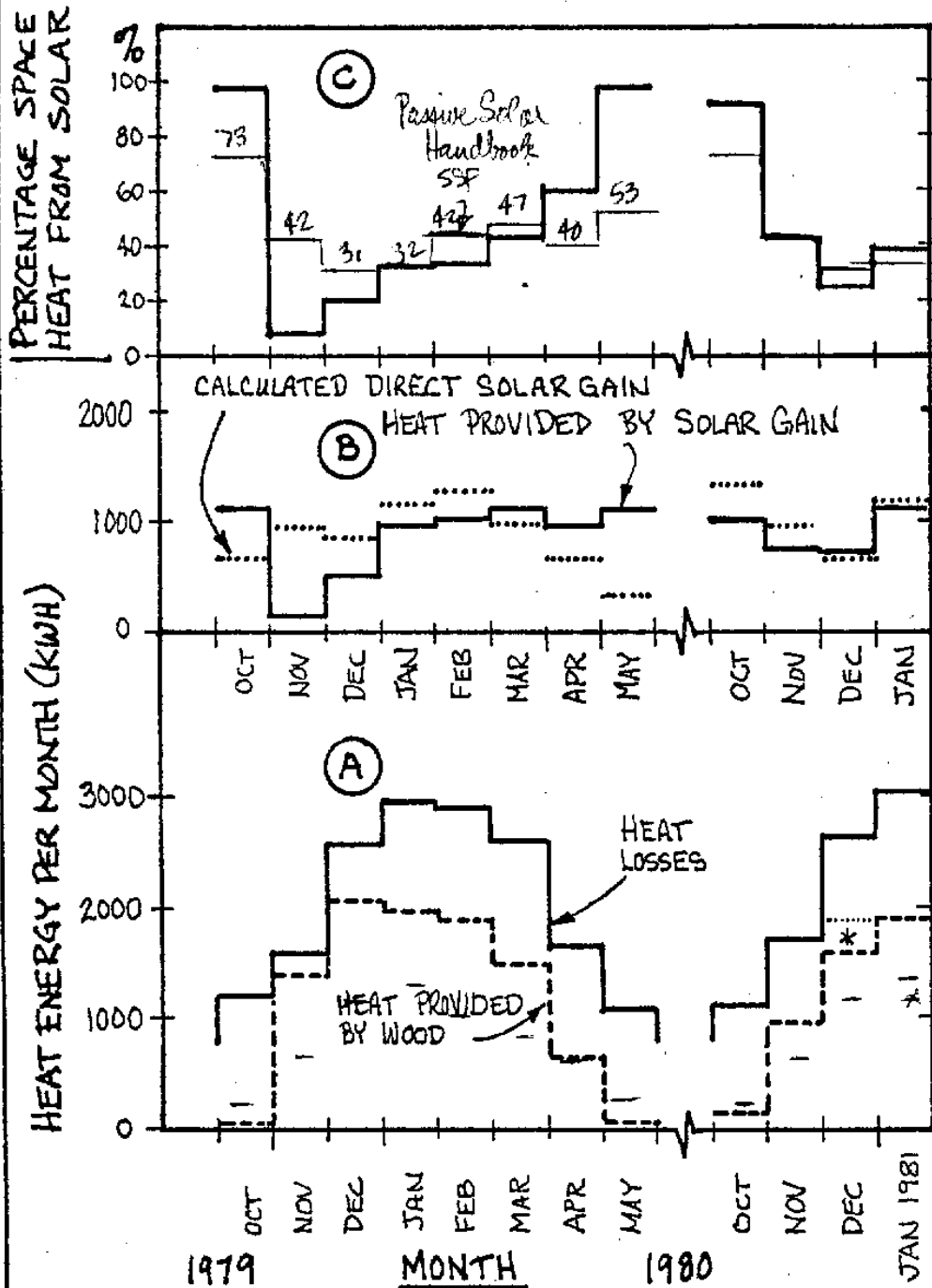
HOUSE PERFORMANCE ON A BRIGHT SUNNY DAY

THE GRAPHS BELOW INDICATE THE PERFORMANCE OF THE HOUSE ON TYPICAL BRIGHT SUNNY DAYS IN MID-WINTER. WHEN THE SUN IS UP THE SUN PROVIDES MORE HEAT THAN IS NEEDED. DURING THIS PERIOD THE CONCRETE FLOOR STORES HEAT AND WARMS UP SEVERAL DEGREES. THE WALLS AND THE AIR OF THE HOUSE ALSO WARM, WITH TYPICAL AFTERNOON TEMPERATURES BETWEEN 75° AND 80°F (24°-27°C). THERE IS ENOUGH HEAT ON A SUNNY DAY IN MOST MONTHS TO KEEP THE HOUSE COMFORTABLE UNTIL THE NEXT DAY. WHEN NO FIRE IS PUT IN THE STOVE MORNING TEMPERATURES ARE USUALLY ABOUT 63°F (17°C).



MEASURED THERMAL PERFORMANCE DETERMINED FROM A COMBINATION OF

PHYSICAL MEASUREMENTS AND CALCULATIONS (1. WOOD USED EACH DAY WAS RECORDED
 2. WOOD STOVE ASSUMED TO BE 60% EFFICIENT 3. HEAT LOSS OF HOUSE CALCULATED AND CHECKED
 AGAINST WOOD USE ON DAYS OF NO SOLAR GAIN (=3.7 kwh /°c DAY) 4. BRIGHT SUNSHINE HOURS
 AND DAILY TEMPERATURES FROM NEARBY (13km) KENTVILLE AGRICULTURAL RESEARCH STATION
 5. SOLAR GAIN CALCULATED FROM BRIGHT SUNSHINE HOURS AND CHECKED AGAINST HEAT LOSS MINUS WOOD
 HEAT SUPPLIED) THE DATA SHOWN IN THE GRAPHS BELOW INCLUDE DATA OF OCT-NOV-DEC
 OF 1979 WHEN THE HOUSE WAS STILL BEING FINISHED. AT THAT TIME THERE WERE NO SHUTTERS
 ON THE WINDOWS AND NOT ALL THE AIR LEAKS HAD BEEN CAULKED CLOSED. HEAT LOSSES HAVE



BEEN UNDER-ESTIMATED FOR THAT PERIOD. SINCE GRAPH B SHOWS THE DIFFERENCE BETWEEN THE CALCULATED HEAT LOSS AND WOOD HEAT, THE INDICATED SOLAR GAIN FOR NOV. AND DEC. 1979 IS PROBABLY UNDER-ESTIMATED ALSO.

THE CALCULATED SOLAR GAIN AGREES REASONABLY WITH THE ACTUAL SOLAR HEAT IN ALL OTHER MONTHS (GRAPH B) EXCEPT APRIL AND MAY. IN THOSE MONTHS A CONSIDERABLE FRACTION OF SOLAR GAIN IS FROM DIFFUSE SKY RADIATION. THE CALCULATIONS DID NOT INCLUDE DIFFUSE RADIATION.

GRAPH-C SHOWS THE PERCENTAGE OF THE HEATING REQUIREMENTS THAT WERE ACTUALLY PROVIDED BY SOLAR RADIATION. THE WORST MONTH FOR SOLAR HEATING IS DECEMBER BECAUSE OF SHORT DAYS AND CLOUDY WEATHER.

THE OVERALL PERCENTAGE OF HEAT PROVIDED BY THE SUN IS 42%.

GRAPH-A SHOWS THE MONTH BY MONTH HEAT REQUIREMENTS AND THE AMOUNT PROVIDED FROM BURNING WOOD. A 1 KW ELECTRIC HEATER WILL KEEP THE HOUSE AT 50° (10°) WHEN EMPTY.

SUMMARY OF HEATING SEASON PERFORMANCE:

TOTAL HEAT: 16400 KWH
 WOOD HEAT: 9400 KWH
 SOLAR HEAT: 7000 KWH

1.8 CORDS OF DRY RED MAPLE WILL PROVIDE THE WOOD HEAT

* SOME AUXILIARY HEAT USED THIS MONTH